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RECYCLING OF SHIPS

Report of the intersessional correspondence group on ship recycling guidelines – Guidelines for Safe and Environmentally Sound Ship Recycling and Guidelines for the Development of the Ship Recycling Plan (SRP)

Submitted by Japan

SUMMARY	
Executive summary:	This document reports the consideration of the intersessional correspondence group on ship recycling guidelines established by MEPC 59
Strategic direction:	7.1
High-level action:	7.1.2
Planned output:	7.1.2.1
Action to be taken:	Paragraph 40
Related documents:	MEPC 61/INF.8; MEPC 60/22, MEPC 60/WP.8, MEPC 60/3, MEPC 60/3/4, MEPC 60/3/5; MEPC 59/24 and MEPC 58/23

Introduction

1 The Correspondence Group on Ship Recycling Guidelines was established at the fifty-eighth session of the Marine Environment Protection Committee (MEPC 58) to develop the Guidelines for the Development of the Inventory of Hazardous Materials (hereafter "the Inventory Guidelines") and Guidelines for Safe and Environmentally Sound Ship Recycling (hereafter "the Facility Guidelines") which are essential to implementing "the Hong Kong International Convention for Safe and Environmentally Sound Recycling of Ships, 2009" (hereafter "the Convention") adopted on 15 May 2009.

2 MEPC 59, held in July 2009, had an extensive discussion on the development of the Guidelines and it adopted the Inventory Guidelines.

3 As regards the Facility Guidelines, MEPC 60 had a discussion based on the report of the correspondence group on ship recycling guidelines (MEPC 60/3) and the amendments proposed by Japan (MEPC 60/3/5). Along with the discussion and decision by the working group in MEPC 60, which resulted in substantial progress, the Committee agreed that annex 1 to document MEPC 60/WP.8 should be used as the base document for the further development of the draft text of the Facility Guidelines.

4 As regards the Guidelines for the development of the Ship Recycling Plan (hereafter "the SRP Guidelines"), MEPC 60 commenced its discussion by considering submission MEPC 60/3/4 (Japan). The working group agreed to the need for the SRP to be a stand-alone document which added value to the ship recycling process by implementing the Convention. However, the working group was divided on how this should be achieved. Some delegations supported the view that SRP should focus on the Inventory of Hazardous Materials, Safe-for-entry procedures and Safe-for-hot-work procedures, while other delegations supported the methodology proposed by Japan for SRP to provide information for six chronological steps covering the complete ship recycling process. After some discussion, Japan offered to submit a first draft of the SRP Guidelines to the correspondence group, and the working group agreed to this proposal.

5 As regards to the Guidelines for the authorization of Ship Recycling Facilities (hereafter "the Authorization Guidelines"), Turkey, France and Germany offered to submit a first draft of the Authorization Guidelines.

6 MEPC 60 decided to establish a correspondence group (CG) under the coordination of Japan for the further development of the Facility Guidelines, SRP Guidelines and Authorization Guidelines with the following Terms of Reference:

> "On the basis of the outcome of MEPC 60 and the report of the working group (MEPC 60/WP.8), the Correspondence Group on Ship Recycling Guidelines is instructed to:
>
> .1 further develop the draft text of the "Guidelines for safe and environmentally sound ship recycling" based on the text contained in annex 1 to document MEPC 60/WP.8;
>
> .2 commence the development of draft text for the "Guidelines for the development of the Ship Recycling Plan";
>
> .3 if possible, commence the development of draft text for the "Guidelines for the authorization of Ship Recycling Facilities"; and
>
> .4 report the outcome of its deliberations to MEPC 61."

Process of the correspondence group for the further development of the Facility Guidelines

7 The group agreed to work with a time schedule taking its deliberation from April 2010 to June 2010 (refer to annex 1). Participation in the group was open to all delegations (governments and organizations) that could provide the necessary expertise on a timely basis or which had a particular interest in the issue.

8 The correspondence group had 43 participants consisting of the following Member States:

ARGENTINA
BAHAMAS
BANGLADESH
BELGIUM
BRAZIL
CANADA
CHINA
CYPRUS
DENMARK
FINLAND
FRANCE
GERMANY
INDIA
ITALY

JAPAN
LIBERIA
MALTA
MARSHALL ISLANDS
MEXICO
NETHERLANDS
NORWAY
PANAMA
POLAND
PORTUGAL
REPUBLIC OF KOREA
RUSSIAN FEDERATION
SAUDI ARABIA
SINGAPORE
SPAIN
SWEDEN
TURKEY
UKRAINE
UNITED KINGDOM
UNITED STATES

the following Associate Member of IMO:

HONG KONG, CHINA

the following UN Programmes, UN Specialized Agencies and other UN entities:

UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP) SECRETARIAT OF THE BASEL CONVENTION
INTERNATIONAL LABOUR OFFICE (ILO)

the following intergovernmental organization:

EUROPEAN COMMISSION (EC)

and the following non-governmental organizations:

INTERNATIONAL CHAMBER OF SHIPPING (ICS)
INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)
BIMCO
INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES (IACS)
OIL COMPANIES INTERNATIONAL MARINE FORUM (OCIMF)
FRIENDS OF THE EARTH INTERNATIONAL (FOEI)
COMMUNITY OF EUROPEAN SHIPYARDS' ASSOCIATIONS (CESA)
GREENPEACE INTERNATIONAL

Outcome of the discussion – Facility Guidelines

9 The following discussion relates to item .1 of the Terms of Reference:

"*further develop the draft text of the "Guidelines for safe and environmentally sound ship recycling" based on the text contained in annex 1 to document MEPC 60/WP.8*."

10 The starting point was the Report of Working Group on Guidelines for Ship Recycling, (MEPC 60/WP.8). Correspondence group members were invited to recall the progress at the working group in MEPC 60, in particular, paragraph 7 of document MEPC 60/WP.8, as follows:

.1 the group also agreed to include as base text the amendments proposed by Japan (MEPC 60/3/5), shortening and simplifying the extensive section of the Guidelines on "Hazardous Materials Management" without, however, having the time to discuss the new text, but on the understanding that delegations would be free to submit any proposed amendments or comments to the correspondence group;

.2 the group also did not discuss the sections on "Safe for Entry" and on "Safe for Hot Work", as it was suggested that revised text may be submitted to the correspondence group by a delegation with particular expertise on these subjects;

.3 the group discussed the remainder of the main text of the Guidelines, but not its appendices; and

.4 the delegation of the United States provided the group with many useful proposals for improvements to and simplifications of the text which, along with the discussion and decisions by the group, resulted in substantial progress, as can be seen from the new version of the draft text set out in annex 1 to this report.

11 In view of the above, the correspondence group used, as a base document, annex 1 to document MEPC 60/WP.8 with some modifications offered by Japan, where the initial attempts were made to fill in the blank sections and paragraphs that had been indicated as "to be developed".

12 Taking into account the comments received in the 1st Round, the revised text of the Facility Guidelines was circulated in the 2nd Round. Comments in the 2nd Round were collected; however, there was no time to make the revision, in substance, of the text of the Facility Guidelines, because the group faced severe shortage of time due to the short interval between MEPC 60 and MEPC 61. Therefore, after the 2nd Round, only those improvements that were of editorial nature, and also improvements to rectify any mistakes and omissions, were incorporated in the text of the guidelines based on the comments in the 2nd Round. The resulting text of the guidelines is attached as annex 2 to this document.

13 The remaining comments in the 2nd Round are compiled in document MEPC 61/INF.2. This information document is not intended to provide for an overview or "balance" of the comments made by the group members. The INF document will be utilized when the group members have substantive discussions at the MEPC 61 working group on improving the text of the guidelines, so that the members can more easily explain their proposals by referring to the INF document. Such reference use of the INF document would be helpful, in particular, when explaining complicated addition and deletion of the text over the base document. It should also be noted that the INF document does not reproduce all the comments made during the correspondence group. General discussions whose essence is considered to be captured in the following sections of this document, named "outstanding issues", are not included in the INF document.

14 Among many issues to be discussed, the following sections provide the summary of the status of discussion on the issues that attracted a lot of attention during the group's correspondence and thus necessitate further and thorough discussion at MEPC 61, while not discounting the importance of the other outstanding issues.

Outstanding issues – Facility Guidelines

Simplicity

15 While noting that the Facility Guidelines have been simplified during MEPC 60, there were views that they are still too lengthy and there may be scope for further simplification. Among them, it was pointed out that improving the quality of appendix 4 or turning it into a Technical Manual (as explained below) would achieve a simplification and shortening of the SRFP.

Accommodating the beaching method in the Guidelines

16 This issue is common with the SRP Guidelines, and there was a suggestion to add an illustrative example of a Yard Plan using the beaching method in appendix 2 to the guidelines. Before, there was only an example of a Yard Plan based on the afloat method. Appendix 2 of annex 2 (draft Facility Guidelines) contains such a new example of a Yard Plan, for further consideration.

Areas that need substantial editing

17 There is remaining editorial work so that Sections 3.3.3.11 "Emergency Response Procedure" and 3.3.3.12 "Fire Response Procedure" can be merged into Section 3.3.4 "Emergency Preparedness and Response Plan".

18 Sections 3.4.2 "Hazardous Materials management", 3.3.3.1 "Safe-for-Entry" and 3.3.3.2 "Safe-for-Hot-Work" are important elements in the guidelines and have attracted a lot of attention. There have been text proposals to make substantial editing and improvement on these sections; however, the group did not have the time to discuss them. Such proposals are included in the INF document for discussion at MEPC 61.

Existing appendices

19 It was pointed out in the group that discussion had been limited, so far, on each of the appendices – whether the appendix is needed, and if so, what should the content be. In this phase of the correspondence group's work, there has been substantial discussion on appendix 2 "Example format of facility information under SRFP", and simplifications and improvements have been made. However, additional discussion is needed at MEPC 61 before any agreement can be made.

20 In this context, there have been views that the current appendix 4 should be turned into a separate document as a supplementary Technical Manual, and not as one of the appendices to the Facility Guidelines. MEPC 60 and its Working Group had not discussed how to handle appendix 4, and thus such a discussion still needs to take place at MEPC 61.

Undeveloped appendices

21 The draft Guidelines still contain references to undeveloped appendices, such as appendix B relating to PEL, appendix C relating to Oxygen and appendix D relating to a sample permit for entry. Those symbols "B" "C" and "D" have been kept unchanged from the original text used by the submitters of relevant paragraphs. In the 2nd Round, there have been suggestions to delete the references to some of those undeveloped appendices. At this stage, those suggestions are put in the INF document without deleting the references to those appendices in the draft Guidelines. Group members, especially the original submitters of relevant proposals, are encouraged to provide drafts of such appendices to MEPC 61. If there are no submissions, there will be no option but to delete the relevant paragraphs containing such references to undeveloped appendices.

Outcome of the discussion – SRP Guidelines

22 The following discussion relates to item .2 of the Terms of Reference:

> "*commence the development of draft text for the "Guidelines for the development of the Ship Recycling Plan*."

23 The correspondence group members were invited to recall the discussions and agreements at the working group in MEPC 60. The most relevant part is in paragraphs 14 and 15 of document MEPC 60/WP.8:

.1 the group agreed to the need for the SRP to be a stand-alone document which added value to the ship recycling process by implementing the Convention. However, the group was divided on how this should be achieved. Some delegations supported the view that the SRP should focus on the Inventory of Hazardous Materials, the Safe-for-entry procedures and Safe-for-hot-work procedures, while other delegations supported the methodology proposed by Japan for SRP to provide information for six chronological steps covering the complete ship recycling process, as described in Japan's submission MEPC 60/3/4; and

.2 after some discussion, Japan offered to submit a first draft of the SRP Guidelines to the correspondence group, taking into account the views expressed in the group, who would then have the opportunity to review and to comment on the draft. The working group agreed to this proposal.

24 Following the above course of action, Japan offered the 1st draft of the SRP Guidelines to the correspondence group. Noting that there were differing views on the character of the SRP itself at the time, this first draft was developed based on the understanding of Japan on the SRP, as explained above, and its purpose is to assist in-depth discussion in the correspondence group by providing a clear image on how the SRP would look like, without prejudging the discussion on the character of the SRP in the group.

25 As indicated in document MEPC 60/WP.8, it should be recalled that there are two schools of thought on the concept of SRP: Option 1) SRP should focus on the Inventory of Hazardous Materials, the Safe-for-entry procedures and Safe-for-hot-work procedures; and Option 2) SRP should provide information for six chronological steps covering the complete ship recycling process.

26 Improvements and simplification have been made in the group on the draft SRP Guidelines offered by Japan, which are based on Option 2, and this text is attached as annex 3 to this document. While Japan attempted to "take into account views expressed by the Working Group" (MEPC 60/WP.8) by making efforts to simplify the text, it was still Option 2. While there was some support for using Option 2, there were views that the proposed text did not reflect an alternative methodology (Option 1). Therefore, the text of the SRP Guidelines in annex 3 to this document should not be considered as "default" base text for further discussion. It is necessary for MEPC 61 to have full and open discussion on Option 1 and Option 2, without being prejudiced by the inclusion of annex 3 in this document.

27 While there have been discussions on the draft text based on annex 3, as was the case for the Facility Guidelines, a short interval between MEPC 60 and MEPC 61 prevented the group from digesting the comments collected in the 2nd Round to improve the text. Such outstanding comments are compiled in the INF document (MEPC 61/INF.8). Members may wish to discuss and explain their proposals during MEPC 61 and at its working group by referring to their own comments reproduced in the INF document.

Outstanding issues – SRP Guidelines

Simplicity, writing style of SRP and its relations with SRFP

28 There were views that the proposed text is complicated and has uneven level of detail in different sections of the guidelines. Among them, there was a view that, while generally supporting the step-by-step approach of Option 2, duplication with SRFP should be avoided and the SRP should not be a lengthy and difficult-to-read file; this could be achieved by using reference to SRFP and/or a copy of SRFP could also be provided to the Competent Authority or flag State surveyors.

29 Therefore, in addition to the issue of Option 1 *vis-à-vis* Option 2, there is another dimension of how to write an SRP as follows:

.1 <SRP Writing Style Option A> a SRP would be a stand-alone document, readable without looking into SRFP, which would use SRFP as "standard template" and add ship-specific elements over relevant parts of SRFP; and

.2 <SRP Writing Style Option B> a SRP would utilize the SRFP as a reference, rather than using SRFP as "standard template" inside SRP, and contain ship-specific elements. A copy of the SRFP may be provided.

30 Discussion on such style difference can only be done by looking into SRFP and SRP at the same time. This is why we work concurrently on SRFP and SRP guidelines. The best way might be to compare the real "specimen" of SRFP and SRP, and to try both of the above Options A and B for SRP writing style. Appendix 1 of the text in annex 3 of this document is almost a "real specimen" of SRP under Writing Style Option A. If a real specimen of SRFP is developed, then the group could look into the SRFP and SRP at the same time and compare how SRP would look like in each option, and then relevant discussions such as evaluating the burden to the facilities could occur in a productive way.

31 It should be recalled that the working group at MEPC 60 had agreed on the need for the SRP to be a stand-alone document. SRP Writing Style Option B, which would use the references to the SRFP, would have to be reconciled with this agreement that an SRP should be a stand-alone document.

Other issues

32 There were views that the SRP guidelines should accommodate the beaching as one of recycling methods, thus the text has been modified to that effect.

Authorization Guidelines

33 The following discussion relates to item .3 of the Terms of Reference:

"*if possible, to commence the development of draft text for the "Guidelines for the authorization of Ship Recycling Facility*"."

34 In this regard, it should be recalled that the working group at MEPC 60 noted the availability of the following early documents containing draft text of the Guidelines for the authorization of Ship Recycling Facilities: annex 6 to documents MEPC-ISRWG 2/2 (Norway, report of the correspondence group) and MEPC 56/3/19 (United States); the Group also noted an offer from Turkey, France and Germany to submit a first draft for the Guidelines for the authorization of Ship Recycling Facilities (paragraph 21 of document MEPC 60/WP.8).

35 In view of the above, the coordinator did not propose draft text for the Authorization Guidelines to the correspondence group. It is understood that Turkey, France and Germany would submit a first draft of the Authorization Guidelines directly to MEPC 61.

Interlinkage between the Facility Guidelines, the SRP Guidelines and the Authorization Guidelines

36 There was a view that the Facility Guidelines, the SRP Guidelines and the Authorization Guidelines need to refer to one another and must obviously be synchronized. Specifically, a generic description of the SRP should occur in the Ship Recycling Facility Plan (hereafter "SRFP"), and the SRP should make reference to the framework provided by the Ship Recycling Facility and that the Document of Authorization to conduct Ship Recycling (hereafter "DASR") should make reference to both.

37 As regards the last point that the DASR makes references to both SRFP and SRP, the coordinator clarified that SRP would be developed each time a ship is being recycled, which logically is after the DASR was issued to the SRF; therefore, the DASR cannot refer to each single SRP. This can be seen from Appendix 5 to the Convention where the DASR would include the ID/verification number of SRFP, but not SRP. However, it is correct that there is a linkage between DASR and SRP; when the DASR sets the limitation on the authorization of a facility by indicating "N" (No) to the processing of certain Hazardous Materials, the SRP shall describe where such Hazardous Materials are to be processed/disposed (Note 3 to the Supplement to DASR, Appendix 5 to the Convention).

38 It was also pointed out that the most pressing task is to identify exactly what each of the guidelines describes; a key determination needs to be made as to whether the guidelines should address the process for developing the SRFP and SRP, provide recommendations on their practical implementation, or all of these aspects of the facility's responsibility. It was further argued that, in order to answer these fundamental questions, it seems prudent to regard the guidance documents for ship recycling facilities as a whole and deal with them in a sequential manner in line with the provisions of the Convention, identifying the boundaries of each in the process. Within this process, unnecessary overlap between each of the plans should be avoided.

39 On the understanding that a first draft of the Authorization Guidelines will be available at MEPC 61, the working group would be in a position to solve outstanding issues, paying attention to the above mentioned interlinkage of the three guidelines.

Action requested of the Committee

40 The Committee is invited to consider this report and to take action as appropriate.

***

ANNEX 1

TIME SCHEDULE OF THE CORRESPONDENCE GROUP

Round 1	30th April, 2010	1st Calling for Comments
	18th May, 2010	Deadline for response to 1st Calling
Round 2	28th May, 2010	2nd Calling for Comments
	8th June, 2010	Deadline for response to 2nd Calling
Preparation of the draft CG report for MEPC 60	17th June, 2010	Final Calling for comments on the draft CG report
	22nd June, 2010	Deadline for response to the draft CG report
Submission	25th June, 2010	CG report to be submitted to IMO

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ANNEX 2

DRAFT GUIDELINES FOR SAFE AND ENVIRONMENTALLY SOUND SHIP RECYCLING

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~~WORKER SAFETY AND HEALTH COMPLIANCE~~
~~Key safety and health personnel~~
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- Prevention of adverse effects to human health
  - Safe for Entry
    - Competent Person
    - Inspection, testing and determination
    - Warning signs and labels
    - Operational measures
  - Safe for Hot Work
    - Competent Person
    - Inspection, testing and determination
    - Certificate, warning signs and labels
    - Operational measures
- <NOTE TO CORRESPONDENCE GROUP: DO THE FOLLOWING ENTRIES BELONG TO A NEW SECTION, OR ARE THEY UNDER "PREVENTION OF ADVERSE ..."?>
  - Welding, cutting, grinding and heating
  - Drums, containers, and pressure vessels
  - Prevention of falling from heights
  - Gear and equipment for rigging and material handling
  - Housekeeping and illumination
  - Tool and equipment maintenance and decontamination
  - Health and sanitation
  - Personal Protective Equipment
  - Worker exposure and medical monitoring
- Emergency Preparedness and Response Plan
- Fire prevention and response

ENVIRONMENTAL COMPLIANCE

- Environmental monitoring
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APPENDIX 1 RECOMMENDED FORMAT SHIP RECYCLING FACILITY PLAN
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1 INTRODUCTION

1.1 Objectives of the guidelines

These guidelines provide ~~[relevant]~~ stakeholders, particularly Ship Recycling Facilities, with recommendations on the safe and environmentally sound ship recycling to implement the Hong Kong International Convention for Safe and Environmentally Sound Recycling of Ships, 2009 ("the Convention" hereafter).

It should be noted that ~~[~~Article 6 and~~]~~ regulations ~~[~~9 and~~]~~ 17 to 25 of the Annex to the Convention provide requirements for Ship Recycling Facilities. These regulations require that these guidelines are taken into account in order to achieve the compliance with these regulations.

These guidelines should be used primarily by Ship Recycling Facilities, but other stakeholders such as Competent Authorities may also find merit in these guidelines in the implementation of the Convention.

1.2 Approach of the guidelines

Article 6 of the Convention requires ship recycling facilities that recycle ships to which the Convention applies ~~[and/~~or ships treated similarly pursuant to Article 3.4 of the Convention~~]~~ be authorized by the appropriate Competent Authority. Regulation 18 specifies that such authorized facilities shall develop a comprehensive Ship Recycling Facility Plan (SRFP) that includes, in part: worker safety and training; protection of human health and the environment; roles and responsibilities of personnel; emergency preparedness and response; and monitoring, reporting and record-keeping systems.

These Guidelines describe the recommended content of the SRFP, and where appropriate, information is provided to illustrate the performance standard anticipated by specific regulations of the Convention.

2 DEFINITIONS

The terms used in these Guidelines have the same meaning as those defined in the Convention, with the following additional definitions which apply to these Guidelines only.

2.1 "*Adjacent space*" means those spaces bordering a space in all directions, including all points of contact, corners, diagonals, decks, tank tops, and bulkheads.

2.2 "*Dangerous atmosphere*" means an atmosphere that may expose workers to the risk of death, incapacitation, impairment of ability to self-rescue (i.e. escape unaided from a space), injury, or acute illness.

2.3 "*Enclosed space*" means a space which has any of the following characteristics: 1) limited access [openings for entry or exit], 2) unfavourable natural ventilation, or 3) is not designed for continuous worker occupancy; and, includes but is not limited to cargo spaces, double bottoms, fuel tanks, ballast tanks, pump-rooms, compressor rooms, cofferdams, void spaces, duct keels, inter barrier spaces, engine crankcases and sewage tanks.

2.4 "*Entry*" means the action by which a person passes through an opening into a space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

2.5 "*Hot work*" means any activity requiring the use of electric arc or gas welding equipment, cutting burner equipment, or other forms of flame, as well as heating or spark generating tools, regardless of where it is carried out on board a ship.

2.6 ["*Space*" means an area on a ship such as, but not limited to, cargo tanks or holds; pump or engine-rooms; storage lockers; tanks containing flammable or combustible liquids, gases, or solids; other rooms; crawl spaces; [tunnels] (i.e. shaft alleys); or access ways. The atmosphere within a space is the entire area within its bounds.]

Alternative to the above paragraph:
["*Space*" means a space on a ship, including the accommodation spaces (SOLAS II-2/3.10), public spaces (SOLAS II-2/3.11), service spaces (SOLAS II-2/3.12), cargo spaces (SOLAS II-2/3.13), machinery spaces (SOLAS II-2/3.20), and void spaces (IBC Code, definition 1.3.36). These spaces include, but are not limited to, cargo tanks or holds; pump- or engine-rooms; storage lockers; tanks containing flammable or combustible liquids, gases, or solids; other rooms; crawl spaces; [tunnels] (i.e. shaft alleys); or access ways.]

2.7 "*Permissible Exposure Limit (PEL)*" means the exposure, inhalation, or dermal permissible exposure limit [specified in Appendix B].

For reference: the original proposal was:
["*Threshold Limit Value (TLV)*" means an airborne concentration of chemical substances under which it is believed that nearly all workers may be continually exposed, over a working lifetime and under standard daily working hours, without adverse health effects.]

~~2.8 "*The responsible person*" means the person who directs and supervises human damage prevention with asbestos and securing hygiene of the work.~~

~~The responsible person should need to have knowledge, experience, and training related to the following subjects.~~

- ~~Harmful characteristics of asbestos~~
- ~~Utilization and location of asbestos~~
- ~~Measures to protect to scatter the asbestos in the air~~
- ~~Appropriate use of personal protective equipment specially for asbestos removal~~
- ~~Measure to avoid to expose the asbestos~~
- ~~National requirements related to asbestos~~

3 SHIP RECYCLING FACILITY PLAN

The SRFP shall be adopted by the board or appropriate governing body of the recycling company. The SRFP will be the primary documentation that a Competent Authority will rely on to issue an authorization to the Ship Recycling Facility, coupled with site inspections to verify that the facility operation [complies with][conforms][accurately reflects][accurately represents] the description in the plan. It is therefore critical that the SRFP fully describes the facility's operations and procedures that are in place to ensure compliance with the Convention.

The Ship Recycling Facility Plan (SRFP) should demonstrate knowledge and understanding of all applicable statutory and regulatory requirements and a strong commitment to worker health and safety and protection of the environment. The Plan should also describe the operational processes and procedures involved in ship recycling at the facility, demonstrating how the requirements of the Convention will be met. The recommended format for the SRFP is included in Appendix 1.

3.1 FACILITY MANAGEMENT

The SRFP should provide information regarding the organizational structure and management policies of the company, an overview of the facility, and the recycling methodologies related to ship recycling. The SRFP should provide sufficient detail that demonstrates a thorough understanding of production processes and project management associated with the recycling of a ship, and should demonstrate that the Ship Recycling Facility uses a valid and practical solution to the technical problems inherent in ship recycling.

The SRFP should anticipate variances to recycling operational processes due to the discovery of previously unknown factors or items during ship recycling. There should be standard procedures for identifying the unknown feature and a decision-making process that leads to an approach that will be protective of worker safety and health and the environment.

3.1.1 Company information

The SRFP should provide detailed information on;

.1 the operator of the Ship Recycling Facility, including the organizational structure and a detailed summary of the operator's requisite and relevant experience relating to ship recycling;

.2 the name of the land or facility owner, if different than the operator;

.3 the roles and responsibilities, as well as qualifications, for management personnel;

.4 the roles and responsibilities of the key personnel for the facility (key personnel should have the appropriate level of skill and experience sufficient to accomplish the intended job functions. At a minimum, the facility should have a dedicated environmental, safety, and health manager);

.5 a description of the facility's environmental, safety, and health management programme, including Environmental Management System certifications (e.g., ISO, OHSAS), as applicable;

.6 a policy statement on environmental, safety, and health commitment of the facility; and

.7 the methodologies for ensuring compliance with the applicable statutory and regulatory requirements.; and

[.8 the system by which the objectives and goals set out in the policy of the Recycling Company, and the continuous improvement of the procedures and standards used in the Ship Recycling operations of the facility are to be achieved.]

The facility's environmental, safety, and health management programme should be communicated to and understood by all personnel working at the Ship Recycling Facility.

3.1.2 Training programme

Regulation 22 of the Convention specifies that the Ship Recycling Facility shall establish training programmes. The SRFP shall provide detailed information on the general work force and job functions and the training procedures to be implemented to ensure the appropriate level of worker safety and environmental protection. The training programmes should cover all workers and members of the Ship Recycling Facility and should identify the types and frequency of training.

The training programme should enable workers to safely undertake all operations they are tasked to do and ensure that any worker at the facility has been provided with the appropriate training prior to performing any ship recycling operation.

The programme should include the appropriate training for job tasks and operations performed by the employee including, but not limited to:

.1 [hazardous materials awareness and communication][hazardous materials handling and management];
.2 job hazard awareness;
.3 personal protective equipment;
.4 fire protection and prevention;
.5 emergency response and evacuation; and
.6 safety and health training.

3.1.3 Worker management

The SRFP should include specific information on worker responsibilities including qualifications, training, and monitoring responsibilities.

3.1.4 Records management

The SRFP should outline the policies and procedures for retaining vital records associated with the facility operations and, specifically, the recycling of each ship. The retention of records should include laboratory analytical results, manifests, shipping documents, truck receipts, waste shipment records, worker accidents and injuries, and a description of any national requirements for records management and retention. If national requirements do not specify a time period, it is recommended that records be kept for five years.

3.2 FACILITY OPERATION

~~[~~The SRFP should demonstrate an understanding of regulations, production processes, project management, requirements to perform recycling in accordance with applicable laws and regulations (regulation 17), and demonstrate how the facility plans to prevent adverse effects to human health and the environment (regulation 19).~~]~~

3.2.1 Facility information

~~**OPTION 1**~~

~~The SRFP should provide a clear and concise description of the physical location of the facility, including acreage and facility access routes. The SRFP should also include a description of the recycling area, including all slip, pier, dry dock, or other areas, infrastructure (such as temporary and permanent buildings, roadways or other engineered~~

~~features) and the total estimated ship capacity. A detailed facility drawing or map should be included.~~

~~**END OF OPTION 1**~~

~~**OPTION 2**~~

The SRFP should provide a clear and concise description of the physical location of the facility, including acreage and facility access routes. A detailed facility drawing or map should be included. ~~An example of such facility information is given in Appendix 2.~~

The SRFP should include a clear and concise description of the pertinent details of the facility, such as facility layout, water depth, accessibility, maintenance and dredging. The SRFP should also include a description of the recycling area, including all slip, pier, dry dock, or other areas at the facility where recycling will occur.

The SRFP should include a clear and concise description of the recycling capacity, including number of slips, piers, dry docks, or other, equipment capabilities, and total estimated ship capacity, and the production throughput/capacity of recyclables~~,~~ including steel~~, [hazardous materials~~, and recyclables] and engineering features for material segregation and processing. Temporary and permanent buildings such as office, workers complex, gas storage, ~~and~~ hazardous material storage [and processing facilities], as well as floor construction and other structures [and roadways], should be identified.

An example of facility information is given in Appendix 2, which also covers 3.2.2 Equipment and 3.2.3 Permits, licenses, and certifications.

~~**END OF OPTION 2**~~

~~[**3.2.2 Equipment**~~

The SRFP should include a clear and concise description of the pertinent details of the major operational equipment in use at the facility. It is recommended that this include the quantity and types of large equipment and other pertinent information that could be relevant to worker safety and protection of the environment.~~]~~

3.2.2~~3~~ Permits, licenses, certifications

The SRFP should document those procedures in place to ensure the facility is operated and maintained in a manner that complies with all applicable laws and regulations.

The SRFP should include information on those site specific permits, licenses, and/or certifications that are in effect or obtained prior to the start of ship recycling, including any lease or authorization from a land owner, port, or other entity granting authorization to use the facility for ship recycling purposes.

The SRFP should include the procedures to ensure the appropriate level of certification and/or verification that all subcontractors (including handlers, transporters, treatment, storage, disposal) hold valid permits, registrations, and/or certificates, as applicable.

3.2.34 Acceptability of ships

The Convention contains requirements for the acceptance of ships for recycling. The SRFP should describe the processes and procedures that will be implemented prior to the ship arriving at the facility for recycling.

When preparing to receive a ship for recycling, the first step shall be to notify the Competent Authority of the intent (see regulation 24.2). When the ship destined to be recycled has acquired the International Ready for Recycling Certificate, the Ship Recycling Facility shall report to its Competent Authority the planned start date of the ship recycling using the reporting format in Appendix 6 of the Convention. Those procedures to be followed by stakeholders from the recycling preparation phase to the completion of recycling, as required by the Convention, are illustrated in Appendix 3 of the Guidelines.

[3.2.45 Ship Recycling Plan (SRP) development

< The placement and the wording of this section needs to be reconsidered by the correspondence group taking into account the Guidelines on the Ship Recycling Plan. >

Under Regulation 9 of the Convention, a ship-specific recycling plan shall be developed by the recycling facility before any recycling of a ship can take place. Preparation of the SRP should begin well before the ship arrives at the recycling facility. The operational processes that are indicatedspecified in the SRFP can be used to prepare the Ship Recycling Plan (SRP). The Convention requires that the SRP be approved in accordance with the Reg. 9 of the Convention, prior to the issuance of an International Ready for Recycling Certificate. The SRFP should describe the process to develop a SRP taking into account the IMO Guidelines for Ship Recycling Plans.]

3.2.56 Vessel arrival management

The SRFP should describe those procedures to be implemented to secure vessels upon arrival at the facility. It is recommended that provisions for mooring, heavy and/or severe weather contingencies, afloat monitoring, stability during recycling, and flooding and/or sinking prevention methods are included [as well as keeping winches, wire ropes, etc., in case ships are in ship recycling plots].

3.2.67 Ship recycling methodology

The SRFP should provideinclude a comprehensive description of the facility's ship recycling methodology covering. This should include the entire process of recycling a vessel that includes, the integration of hazardous material and waste managementremediation with the ship recycling, and a description of the methodology and procedures for identifying and segregating material. The SRFP should also include a detailed description of how recycled materials and salvageable items are handled and/ or disposed.

The SRFP should include procedures for conducting assessments of the hazards associated with vessels for safe and environmentally sound recycling and the subsequent process for minimizing and elimination of any hazards identified.

Regulation 25 contains requirements for reporting upon completionnotification. The SRFP should describe the procedures in place for notification, and how it will document and report on incidents and accidents.

<NOTE: The placement of the text on regulation 25 may need rethinking>

3.3 WORKER SAFETY AND HEALTH COMPLIANCE APPROACH

In this section of the SRFP the facility should provide a comprehensive description of the recycling facility's plan and procedures for protecting worker health and safety and should reflect applicable requirements of the Convention (particularly regulations 19, 21, 22 and 23) and national legislation. The SRFP should identify and demonstrate the Ship Recycling Facility's knowledge and understanding of the appropriate and applicable worker safety and occupational health processes, procedures, laws, regulations, and guidance. Further, the SRFP should demonstrate that the safety and health programme supports the types of activities necessary for the environmental compliance and recycling and disposal procedures required at the facility.

<NOTE: THE CORRESPONDENCE GROUP WILL NEED TO CONSIDER THE ISSUE OF OTHER ACCIDENTS, OCCUPATIONAL DISEASES NOT CURRENTLY ADDRESSED IN THE TEXT BELOW>

3.3.1 Key safety and health personnel

The SRFP should identify one or more key personnel who possess the appropriate level of training and experience to effectively ensure that operations at the Ship Recycling Facility maintain safe conditions. This should include the designation of one or more Competent persons for the performance of specific work. Depending upon the size of the Ship Recycling Facility and number of workers, the SRFP could include a hierarchy of safety and health management staff to include an overall manager, supervisory staff, and general workers.

3.3.2 Job Hazard Assessment

The SRFP should include the procedures to be implemented in order to conduct a job hazard assessment to determine the proper approach to maximize worker safety. This job hazard assessment should be a task assigned to a Competent person for those specific hazards, however, it is recommended that the role of completing job hazard assessments could be provided by a team of personnel, to include the Competent person, a representative of management personnel, and workers with the appropriate level of expertise.

3.3.3 Prevention of adverse effects to human health

Regulation 19 of the Convention specifies that the Ship Recycling Facility establish and utilize procedures to prevent explosions by establishing procedures for ensuring safe for hot works and safe for entry conditions throughout the ship recycling process; prevent other accidents causing, or with the potential to cause, damage to human health; and prevent spills of cargo residues and other materials on the ships which may cause harm to human health and/or the environment. Since this is among the more critical aspects for safe operation of a Ship Recycling Facility, it is important that the SRFP clearly demonstrate that it has procedures in place to prevent workplace accidents and injuries. The guidance below outlines the key considerations that should be included in the SRFP.

3.3.3.1 Safe for Entry procedures

The Ship Recycling Facility should ensure that shipboard spaces are not entered until a Safe for Entry Certification has been issued by a competent person. A competent person should visually inspect and test each space on the ship to determine the areas which are safe for entry prior to issuance of a Certificate and commencing recycling activities.

Safe for Entry criteria

Safe for Entry denotes a space that meets all of the following criteria:

.1 The oxygen content of the atmosphere is neither deficient ([below 19.5% oxygen]) nor enriched ([22.0% oxygen or above]);

.2 The concentration of flammable vapours is below [10] per cent of the Lower [Explosive][Flammable] Limit; and

.3 Any toxic materials in the atmosphere are within permissible concentration. Chemicals in the atmosphere, or which may be released in the atmosphere as a result of work in the space, are within Permissible Exposure Limits (PELs). [The PEL table is included in Appendix B].

For "Ceiling Value" PELs [(where the PEL in Appendix B is preceded by a "C")]: an employee's exposure to any Ceiling Value PEL substance shall at no time exceed the exposure limit given for that substance. If instantaneous monitoring is not feasible, then the ceilings be assessed as a 15-minute time weighted average exposure which shall not be exceeded at any time over a working day.

For "8-hour Time Weighted Average" PELs [(where the PEL in Appendix B is NOT preceded by a "C")]: An employee's exposure to any 8-hour Time Weighted Average substance shall not exceed the 8-hour Time Weighted Average given for that substance in any 8-hour work shift of a 40-hour work week.

Competent Person – for Safe for Entry and Safe for Hot Work determinations

Regulation 1 of the Convention defines *Competent Person*. For purposes of making determinations for Safe For Entry and Safe For Hot Work, a high level of knowledge, experience, and specialization is required [; competent person must possess the requisite knowledge and practical experience to make an informed assessment of the likelihood of a dangerous atmosphere being present or subsequently arising in a space or adjacent spaces]. The competent person needs to have [a sufficient knowledge on chemistry, petroleum and its derivatives,] the knowledge of the structure, location, and designation of spaces where work is done; the ability to calibrate, use, and interpret the appropriate testing equipment, such as oxygen indicators and combustible gas indicators, and knowledge of the limitations of such equipment; the ability to perform all required tests and inspections; and the ability to inspect, test, and evaluate spaces to determine the need for further testing. The competent person should possess the knowledge, training and experience to properly attest to all conditions noted on the appropriate permit/checklist [and accurately record his or her findings].

The competent person should be licensed or certified in accordance with the laws of the recycling state. The Competent Authority should define appropriate criteria for the designations of such persons and the duties assigned to them; in developing criteria or in the absence of developed criteria, competent authorities should ensure the competent person's knowledge, experience, and training related to the following subjects:

enclosed space entry and testing; control of ignition sources; the construction of all common types of vessels; fire and explosion theory (including concepts of flashpoint, explosive range, the role of oxygen, classification of fuels, and solvent

vapour pressure); fire prevention and emergency rescue; industrial hygiene and industrial hygiene sampling and analysis; marine and shipyard safety; organic and inorganic chemistry; skills and knowledge to perform atmospheric testing in a shipyard environment; properties of flammable, combustible, and hazardous materials; properties of toxic gases, vapours, and fumes; petroleum chemistry and testing; tank cleaning; and ventilation theory and application.

Safe for Entry inspection and testing procedures

Throughout the entire recycling process, the Ship Recycling Facility should ensure that prior to entry and during work, enclosed spaces and other dangerous atmospheres are Safe for Entry. Designation as "Safe for Entry" is not sufficient for Hot Work, as additional criteria should be met to address safety issues related to hot work. Testing should be carried out by a competent person using the appropriate, properly calibrated equipment, including, but not limited to, an oxygen content meter, combustible gas indicator, and gas or vapour detection equipment.
[Parties should set up domestic guidance for the above aspects.]

Atmospheric testing

The Ship Recycling Facility should ensure that atmospheric testing is performed to ensure that the oxygen content, flammability, toxicity of an atmosphere is safe for worker entry.

Oxygen

The Ship Recycling Facility should ensure that spaces are tested by a competent person to determine the atmosphere's oxygen content prior to initial entry into the space by workers. [Spaces that warrant particular consideration are listed in Appendix C.]

A worker should not enter a space where the oxygen content, by volume, is outside of the range noted in 3.3.3.1.1~~3.4.2.1.1~~, the space should be labelled "Not Safe for Entry". If an oxygen-deficient or oxygen-enriched atmosphere is found, ventilation should be provided at volumes and flow rates sufficient to ensure that the oxygen content is maintained within the range noted in 3.3.3.1.1~~3.4.2.1.1~~. The warning label may be removed when the oxygen content returns to the values within the range noted in 3.3.3.1.1~~3.4.2.1.1~~, and it has been tested and inspected by the competent person.

Flammable atmospheres

The Ship Recycling Facility should ensure that spaces and adjacent spaces that contain or have contained combustible or flammable liquids or gases are visually inspected and tested by the competent person prior to entry by workers.

If the concentration of flammable vapours or gases in the space to be entered is equal to or greater than [10] per cent of the lower explosive limit, then workers may not enter the space and it should be labelled "Not Safe for Entry". Ventilation should be provided at volumes and flow rates sufficient to ensure that the concentration of flammable vapours is maintained below [10] per cent of the lower explosive limit. The warning label may be removed when the concentration of flammable vapours is below [10] per cent of the lower explosive limit and it has been tested and inspected by the competent person.

Toxic, corrosive, irritant or fumigated atmospheres and residues

The Ship Recycling Facility should ensure that spaces or adjacent spaces that contain or have contained liquids, gases, or solids that are toxic, corrosive or irritant are visually inspected and tested by a competent person prior to initial entry by workers.

If a space contains an air concentration of a material which exceeds the PEL [noted in Appendix B], then workers may not enter the space and it should be labelled "Not Safe for Entry". Ventilation should be provided at volumes and flow rates which will ensure that air concentrations are maintained within the PEL. The warning label may be removed when the concentration of contaminants is maintained within the PEL and it has been tested and inspected by the competent person.

Safe for Entry determination by a Competent Person

A competent person should visually inspect and test each space certified as "Safe for Entry" as often as necessary to ensure that atmospheric conditions within that space are maintained within the conditions established by the certificate. However, at a minimum, the space should be inspected and tested at least once in a 24-hour period.

When a change that could alter conditions within a tested enclosed space or other dangerous atmosphere occurs, work in the affected space or area should be stopped. Work may not be resumed until the affected space or area is visually inspected and retested by the competent person and found to comply with the certification. It is recommended that a minimum of 24 hours of ventilation be performed after a space has been found to exceed limits.

After the competent person has determined initially that a space is safe for an employee to enter and he or she finds subsequently that the conditions within the tested space fail to meet the requirements, work should be stopped until the conditions in the tested space are corrected to comply with the certification. If it is safe to do so, the competent person may be recommended to investigate the reason for the space's non-compliance.

[Safe for Entry certificate][~~Atmospheric safety designations~~], Warning signs and labels

Safe for Entry [~~and Safe for Hot Work~~] determinations should be accompanied by a certificate which, at a minimum, should clearly indicate the following information:

- name and title of the competent person performing the test(s) and inspection(s);
- [~~location of the vessel~~][name of vessel and location] ~~(*e.g.*, berth/pier number)~~;
- the areas of the ship that are ~~Safe for Hot Work and~~ Safe for Entry;
- date and time of the inspection;
- location of inspected spaces;
- tests performed;
- type of equipment used in testing;
- test results;
- conditions when the competent person should be recalled or conditions that void the certificate;
- safety designation(s) (Safe for Entry, ~~Safe for Hot Work,~~ Not Safe for Entry~~, Not Safe for Hot Work~~);
- validity period and expiration date for Certificate; and
- any additional relevant information or instructions.

Safe for Entry ~~(and Safe-For-Hot-Work)~~ Certificates should be posted at every ship access point. The Certificate should be appended by a record of inspection for recording atmospheric tests.

If information is available, it is recommended that the products loaded in the subject space(s) are documented on the certificate.

The Certificate and/or the areas themselves should be clearly marked and presented in a manner that can be perceived and understood by all workers in the working language of the yard, and if possible, by pictorial representation.

If an entire work area has been tested and labelled with the proper signage (e.g., Safe for Entry~~ or Not Safe for Hot Work~~) at all means of access to the work area, then an individual tank or other space located within the work area need not be labelled separately.

The Certificate, updates, and any other records should be kept on file for a period of at least three months from the completion date of the specific job for which they were generated.

If a space, at any time, ceases to meet the criteria of Safe for Entry, it should be labelled "Not Safe for Entry"~~, or "Not Safe for Hot Work", respectively~~.

Safe for Entry operational measures

In addition to ensuring certification as Safe for Entry, the following operational measures should also be observed:

- No person should open or enter an enclosed space unless authorized by the competent person of the Ship Recycling Facility and unless the appropriate safety procedures have been followed.

- A permit for entry has been issued by the same individual(s) who is/are responsible for maintaining the certificate, on behalf of the Ship Recycling Facility for those intended to enter the space. [A sample permit is enclosed in Appendix D]; the permit will verify that all certifications and operational measures for safe entry have been completed and are in effect.

- The space is properly illuminated.

- A suitable system of communication between all parties for use during entry is agreed upon, tested and is used.

- A fully-trained supervisory person, who may be in charge of one or more work teams, has oversight of the area and frequently monitors the conditions that the workers are exposed to.

- In the event of ventilation system failure, any persons in the space should leave immediately.

- Appropriate rescue and fire control plans are in place.

- Appropriate protective clothing and safety equipment (including harnesses and lifelines) should be provided to the workers; the clothing should be used during entry.

- Adequate, functioning rescue and resuscitation equipment has been provided and is positioned ready for use at the entrance of the space.

3.3.3.2 Safe For Hot Work procedures

The Ship Recycling Facility should ensure that no hot work commences on a ship until Safe for Hot Work Certification has been issued by a competent person. A competent person should visually inspect and test each space on the ship to determine the areas which are safe for hot work prior to issuance of a Certificate and commencing recycling activities.

Safe For Hot Work criteria

Safe for Hot Work denotes a space that meets all of the following criteria:

- The oxygen content of the atmosphere is neither deficient (~~[~~below 19.5% oxygen~~]~~) nor enriched (~~[~~22.0% oxygen or above~~]~~);

- The concentration of flammable vapours is below ~~[~~10~~]~~ per cent of the Lower Explosive Limit;

- Any residues or materials in the space are not capable of producing an oxygen enriched or deficient environment, and are not capable of generating flammable or explosive vapours;

- All adjacent spaces have been cleaned, inerted, or sufficiently treated to prevent the spread of fire.

Competent Person

A "competent person" for matters related to Safe for Hot Work should meet the criteria identified in 3.3.3.1~~3.4.2.1.2~~ above.

Safe For Hot Work inspection, testing and determination

Each space on the ship should be certified by a competent person as "Safe for Hot Work" as often as necessary to ensure that conditions within that space are maintained as established by the Certificate after the Certificate has been issued. The frequency with which a space is monitored to determine if conditions are being maintained is a function of the following:

- Temperature – any changes to temperature in the spaces could result in a change in atmospheric conditions. Hotter days can cause residues to produce more vapours resulting in a greater risk of flammable or explosive conditions.

- Work in the space – activity in the space could change the atmospheric conditions in that space. Gas leaks from a hose or torch or manual tank cleaning with high pressure spray devices can stir up residues, which can result in a greater risk of flammable or explosive conditions.

- Period of elapsed time – if a sufficient period of time [(not to exceed 24 hours)] has elapsed since Safe-For-Hot-Work Certification has been issued, the condition of the space should be retested prior to entry and starting work.

- Unattended tanks or spaces – a tank or space that has been certified as "Safe for Hot Work" then subsequently left unattended for a sufficient period of time should be retested prior to entry and starting work.

- Work break – tanks or spaces should be checked for equipment left behind when workers take a break or leave at the end of the shift. The condition of the tank or space should be retested prior to entry and resuming work.

- Ballasting or trimming – changing the position of the ballast, or moving or trimming the ship in any way can produce a change in the atmosphere of the spaces. The condition of the spaces should be retested prior to entry and resuming work.

Safe For Hot Work certificate, warning signs and labels

Safe For Hot Work determinations should be accompanied by a Certificate which, at a minimum, includes the information identified in 3.3.3.1 (Safe for Entry certificate, Warning signs and labels) ~~3.4.2.1.5~~. Warning signs and labels should be posted in the same manner as described in 3.3.3.1~~3.4.2.1.5~~ for Safe for Entry, clearly indicating that the space is Safe for Hot Work.

Safe for Hot Work operational measures

In addition to ensuring certification as Safe for Hot Work, the following operational measures should also be observed:

- Each area where hot work is to be performed should be carefully prepared and isolated before hot work commences. A sample checklist is provided in Appendix x [*to be provided*].

- All trash, debris, oil residues, or other materials that could generate flammable or explosive vapours, should be removed from the space prior to commencing hot work. The space and adjacent spaces should be kept free of any trash, debris, oil residues, or other materials which could result in a risk of flammable or explosive conditions.

- Drums and similar small containers which have contained flammable substances should, before cutting is undertaken on them, either be filled with water or thoroughly cleaned of such substances.

- Tanks – [*to be provided*].

- Cargo Holds – [*to be provided*].

- Ventilation should be provided at volumes and flow rates sufficient to ensure that the concentration of flammable vapours is maintained below the lower explosive limit.

- General mechanical ventilation should be of sufficient capacity and so arranged as to produce the number of air changes necessary to maintain welding fumes and smoke within safe limits.

- The Ship Recycling Facility's fire safety procedure should be followed.

3.3.3.3 Welding, cutting, grinding and heating

The SRFP should include procedures for ventilation, personnel monitoring for heavy metals exposure, protection of personnel, training, respiratory protection, torch cutting, permits and inspections (including hot work certification). The SRFP should include procedures for transporting, moving, securing, and storing, and the use of hoses and torches.

3.3.3.4 Drums, containers, and pressure vessels

The SRFP should include procedures for handling, transporting and storing of pressure vessels containing inflammable gases, e.g., Acetylene (C_2H_2), Propane gas (C_3H_8) and O_2 for welding, heating and cutting works, in order to avoid any human injuries by causing external forces, shock, and heat to those vessels.
Removal procedures for the pressure vessels containing CO_2, N_2, and other Ozone Depleting Substances for fire system and ref-systems should also be included.

Procedures for transporting and storing of drums and containers containing hazardous liquid with appropriate PPEs should also be described in the SRFP.

[it may be necessary to address non-flammable but oxygen displacing gases ?]
~~[to be developed]~~

3.3.3.5 Prevention of falling from heights

The SRFP should include procedures for use of personnel flotation devices, guarding of deck openings and deck edges, platforms, personal fall arrest systems, guard rails, and access to ships to prevent slip and fall accidents and against dropping and scattering of objects.

<NOTE: THE CORRESPONDENCE GROUP SHOULD CONSIDER THE ISSUE OF MAINTENANCE (AS PER THE FOLLOWING THREE SECTIONS) AND WHETHER THIS NEEDS TO BE ADDRESSED SEPARATELY IN THE SECTION "FACILITY OPERATION">

3.3.3.6 Gear and equipment for rigging and material handling

The SRFP should include procedures for testing and inspections of ropes, chains, slings, and hooks, chain-falls, and hoisting and hauling equipment; and a description of crane, machine, mobile equipment, aerial- and man-lift operations and qualifications required of operators.

3.3.3.7 Housekeeping and illumination

The SRFP should include procedures for work areas, such as aisles, passageways, and temporary flooring openings.

3.3.3.8 Tool and equipment maintenance and decontamination

The SRFP should include procedures for equipment inspection and maintenance, regulatory requirements for third-party inspections, and decontamination procedures and activities.

3.3.3.9 Health and sanitation

The SRFP should include a description of washing facilities, showers, eating and recreation areas to be used, toilet facilities, and change rooms. It is recommended that appropriate sanitary, changing room, and washing facilities be provided by the Ship Recycling Facility to control exposure and avoid the spread of hazardous materials. Sanitary and washing

facilities should be conveniently accessible and situated so that they are not exposed to contamination from the workplace. Additionally, separate and appropriate sanitary, changing room, and washing facilities exclusively used for the workers who handle asbestos should be provided. It is also recommended that the Ship Recycling Facility designate separate and uncontaminated areas for workers to use for eating, drinking, and other breaks.

3.3.3.10 Personal Protective Equipment

The SRFP should include information on procedures and equipment used for the protection of employees from various risks associated with ship recycling (to include a job hazard analysis to determine the required personal protective equipment; respiratory protective equipment; personal protective clothing; and a hearing conservation programme).

Respiratory protection and hearing conservation programmes should be developed for all employees who could be exposed to excessive levels. The SRFP should describe a programme that is in compliance with national regulations. In the absence of domestic law, the Ship Recycling Facility should utilize best industry practices for the administration of effective respiratory protection and hearing conservation programmes.

[
<NOTE FOR CORRESPONDENCE GROUP: THE FOLLOWING FOUR SECTIONS IN SQUARE BRACKETS WERE PROPOSED FOR DELETION. THE TEXT HAS BEEN MAINTAINED TO BE CONSIDERED IN RELATION TO THE SECTION BELOW ON "Emergency Preparedness and Response Plan" AND ALSO TO SECTION "Spill Prevention, Control, and Countermeasures" TAKING INTO ACCOUNT THE NEED TO HAVE TWO SEPARATE PLANS, ONE FOR HEALTH AND SAFETY AND ONE FOR ENVIRONMENT>

3.3.3.11 Emergency procedures

The SRFP should include information on emergency escape routes, procedures to account for employees during evacuations, alarm systems, weather plans, rescue and medical duties, first aid and treatment of injured personnel, and training procedures.

3.3.3.11.1 Response to human injuries

The SRFP should ensure that appropriate responses are available for human injuries. Based on the assessment of injuries, a procedure for response to injuries should be established including the following:

.1 first aid, such as eye flushing, cleansing of wounds and skin, and bandaging;
.2 reporting to the person in charge of the recycling operations~~a responsible person~~;
.3 transport of injured person for additional medical care;
.4 recording of incident (including identification of possible hazards); and
.5 investigation, determination and implementation of remedial action.

Arrangements should be available for ensuring the safe transport of persons for medical attention.

First-aid training should be repeated at regular intervals to keep the knowledge and skills. Where the work involves risk of drowning, asphyxiation or electric shock, first-aid personnel should be proficient in the use of resuscitation and other life-saving techniques and in rescue procedures.

3.3.3.11.2 Response to environmental accidents

In case of spills of hazardous materials, the SRFP should describe how the cleanup of the contaminated area will be accomplished. For certain materials, the spill may require immediate evacuation of the area. A spill-cleaning procedure which includes safe handling of spilled materials should be established. The provision of relevant information and training to all personnel of the facility, at all levels, including regular exercises in emergency prevention, preparedness and response procedures should be described in the SRFP.

3.3.3.12 Fire response procedures

The SRFP should include procedures for fire watch, raising alarm, fire hazards, fire extinguishers, hose lines, water supply, fire-fighting equipment, training, proper handling and storage procedures, and identification of potential ignition sources.]

3.3.3.13 Worker exposure and medical monitoring

The SRFP should include procedures to be used for exposure monitoring and medical surveillance.

3.3.4 Emergency Preparedness and Response Plan

Regulation 21 of the Convention specifies that ship recycling facilities shall establish and maintain an Emergency Preparedness and Response Plan (EPRP). While the EPRP could be incorporated as part of the SRFP, it is highly recommended that the EPRP be a stand alone, self-contained document. By having this as a standalone document, the information contained within is more readily available and easily accessed, and the facility may want to distribute copies to several locations at the site. It is also helpful to have a summary page in the front of the document for quick access that contains the contact information (telephone numbers) of the appropriate contact personnel (such as a 24-hour contact number for management personnel and 24-hour emergency response personnel).

The SRFP should identify the locations where the EPRP will be readily available, and should contain a narrative reference and a brief summary of the EPRP, so that the appropriate entities (such as those authorizing facilities) or other relevant stakeholders can easily confirm the existence of the EPRP. The EPRP should take into consideration a wide variety of potential scenarios, including, but not limited to, human injuries, environmental accidents, extreme acts of nature, and the activities of the surrounding community (such as an emergency at a nearby chemical processing plant).

The location, physical and environmental characteristics of the Ship Recycling Facility, and the size and nature of activities associated with each ship recycling operation should be taken into consideration during preparation of the EPRP. The plan should ensure that the necessary equipment and procedures to be followed in the case of an emergency are in place, and that drills are being held on a regular basis. The plan should ensure that the necessary information, internal communication and coordination are provided to protect all people in the event of an emergency at the facility. The plan should provide information to, and communication with, the relevant Competent Authority(ies), the surrounding community, and emergency response services. The plan should provide for first-aid and medical

assistance, fire-fighting, evacuation of all people at the facility, and pollution prevention measures (including the response to spills of hazardous materials). The plan should provide for relevant information and training to all workers of the Ship Recycling Facility, at all levels and according to their competence, including regular exercises in emergency prevention, preparedness, and response procedures. The plan should include procedures for recording of an emergency incident and investigation and corrective actions following an emergency incident.

3.3.5 Fire prevention and response

The Ship Recycling Facility should have a system for fire prevention and fire fighting to avoid the risk of fire, control any outbreak of fire quickly and efficiently, and to bring about a quick and safe evacuation of all personnel at the facility. The SRFP should include procedures for the sufficient and secure storage areas for flammable liquids, solids, and gases; the procedures for the prohibition of smoking through "no smoking" notices; the precautions to be implemented in spaces and other places which flammable gases, vapours, or dusts can cause danger (no naked light or flame or hot work should be permitted unless it has been made completely free of the flammable atmosphere, tested and found safe by a competent person); and the procedures for the proper storage of combustible materials, greasy or oily waste, and scrap wood or plastics.

The SRFP should also include procedures for regular inspections of places where there are fire risks. This includes the vicinity of heating appliances, electrical installations conductors, stores of flammable and combustible materials, and hot welding and cutting operations. The appropriate precautions to reduce the risk of fire and explosions from welding, flame cutting, and other hot work should be identified.

The SRFP should include procedures for the provision and selection of fire-extinguishing equipment according to the provisions of international and national laws and regulations and the results of the initial hazard identification, risk, and assessment of the Ship Recycling Facility operations. Equipment deployed should be suitable for and consistent with the following demands and applications: the restricted access, egress, spaces inside the ship; the quantity and characteristics of hazardous, flammable, and explosive substances handled in ship recycling operations; site transport and storage facilities; and first-stage fire-fighting purposes (such as hand-held or trolley-mounted portable fire-fighting extinguishers).

The SRFP should identify the locations for the fire-extinguishing equipment, ensuring that they are readily available, easily visible, and in accessible areas. Adequate water supply should be provided in places where the danger of fire exists (in accordance with national laws and regulations).

The SRFP should include procedures for the provision for the proper operation, maintenance, and regular inspection of all fire-extinguishing equipment by a competent person. Access to fire-extinguishing equipment, such as hydrants, portable extinguishers, and connections for hoses should be kept clear at all times.

The SRFP should include procedures for suitable training, instruction, and information for all supervisors and workers about the hazards of fires, the appropriate precautions to be taken and the use of fire-extinguishing equipment, so that adequate trained personnel are readily available during all working periods.

The SRFP should include procedures for the installation of sufficient, suitable, and effective warning signals (such as sight and sound signals) in the case of fire. There should be an effective evacuation plan so that all personnel are evacuated speedily without panic. The

SRFP should include procedures for the posting of notices in conspicuous places indicating, if applicable, the nearest fire alarm, the telephone number and address of the nearest emergency services, and the nearest first aid station.

3.4 ENVIRONMENTAL COMPLIANCE APPROACH

The SRFP should provide a description of the recycling facility's plan and procedures for protection of the environment. The SRFP should demonstrate that the Ship Recycling Facility understands the environmental risks associated with ship recycling, understands and implements the environmental requirements imposed by national and international laws and regulations, can manage and dispose of all the materials in the ship in an environmentally sound manner, and implements controls to protect the environment, which include handling and disposing of the hazardous materials. It should reflect applicable requirements of the Convention (particularly regulations 20 to 22).
[The SRFP should describe dedicated infrastructure for treatment and disposal of hazardous materials generated from ship recycling operation pursuant to national laws and regulations.]
Technical guidance in Appendix 4 should be taken into account, as necessary.

3.4.1~~.1~~ Environmental monitoring

[The SRFP should describe the environmental monitoring programme against possible negative impact to the environment while the ship recycling works.
Possible negative impacts throughout the ship recycling may be divided into four main categories:

- Releases of Hazardous Materials to ground and sediments
- Releases of Hazardous Materials to water
- Emissions of Hazardous Materials to air
- Noise/vibrations

The monitoring programme must be facility specific, taking into account the facility characters such as the use of dry dock, jetty/piers and recycling plots on land-sea interface and should identify chemical, biological and physical changes in the environment surrounding the Ship Recycling Facility.
The monitoring programme should utilize well-established standards for the sampling and analysis of relevant environmental parameters.]
[Environmental Monitoring Plan covers area of sampling and analysis of the marine and sediments around the ship recycling facility within 10 km radius which would include following attributes:

a) Physico Chemical Analysis of Marine Water,
b) PHC, Al, Cr, Hg, Mn, Fe, Sn, Cu and other trace metals, BOD, COD
c) Primary productivity, i.e cell counts, Chlorophyll, Zoo Plankton and Phytoplankton and Fisheries]
~~[To be developed.]~~

~~**3.4.1.2 Incident and spills reporting procedures**~~

~~[To be developed.]~~

3.4.2 Hazardous Materials management

The ship's hazardous materials that should be addressed in the SRFP, among others, are the following hazardous materials that are prohibited and/or restricted to be used as listed in Appendix I of the Convention.

- Asbestos
- Ozone-Depleting Substances
- Polychlorinated biphenyls (PCB)~~s~~
- Anti-fouling compounds and systems.

The other~~potentially~~ hazardous materials, which should also be addressed in the SRFP, are as follows.

- Fuels and oils
- Bilge/Ballast Water
- Heavy Metals (Appendix II list of the Convention)
- Paints and Coatings
- Waste Water/Sludge
- [Radioactive Substances]
- Other Materials, including Appendix II materials other than heavy metals.

The facility's approach of marking/labelling, removal, storage, etc., for each of these Hazardous Materials on board should be described in its SRFP. The Inventory of Hazardous Materials should be utilized for the identification of all locations of all Hazardous Materials, followed by the process such as marking/labelling on board that should be done by the Ship Recycling Facility after the acceptance of the ship.

The SRFP should describe the facility's process, control procedures and abatement methodologies used for the removal, labelling, storage, segregation, transport, treatment, and disposal of all such Hazardous Materials, which should take into account the Technical Guidance, Appendix 4 of these guidelines.

It is important to describe the sequence and the interface of hazardous materials removal as part of the ship recycling activities.

[Sub-section on management of non-hazardous wastes?]

It is recommended that the following aspects of hazardous materials management be clearly addressed for each of the potentially hazardous materials identified above:

- Identification/Marking/Labelling and potential on-board locations
- Recycling approach
- Removal, handling, remediation
- Storage and labelling
- Treatment, transportation, disposal.

3.4.2.1 Identification/marking/labelling and potential onboard locations

The Ship Recycling Facility should utilize the information contained in the Inventory of Hazardous Materials for the identification, its kind, place, quantity, marking and/or labelling of the Hazardous Materials. Asbestos, PCBs, other Hazardous Materials and ship tanks such as Crude Oil Tank (COT), Fuel Oil Tank (FOT), Lubricating Oil Tank (LOT), Fresh Water

Tank (FWT), Water Ballast Tank (WBT) should be clearly marked in a manner that is easily identifiable. If the Ship Recycling Facility finds that some parts of the Inventory of Hazardous Materials do not provide sufficient information, after a visual check of the ship, the Ship Recycling Facility may decide to carry out sampling tests.

After the sampling and analysis results are known, the facility should then manage the materials appropriately, depending on whether they are hazardous or not. Alternatively, the Ship Recycling Facility may choose to regard unknown materials or PCHM (Potentially Containing Hazardous Materials) in the Inventory as Hazardous Materials and remove, store and manage them in accordance with the requirements of the Convention. It is recommended that, in conducting additional sampling, the Ship Recycling Facility follows the relevant part of sampling and analysis of the Guideline for the Development of the Inventory of Hazardous Materials.

It is recommended that the Ship Recycling Facility becomes fully aware of all the potential locations for Hazardous Materials on board ships. Examples of typical locations for many of the Hazardous Materials are provided in Appendix 4 of these guidelines, and more detailed information can be found in the Indicative List, Appendix 5 Typical Example for the Development Process of Part I of the Inventory for Existing Ships, of the Guidelines for the Development of the Inventory of Hazardous Materials (hereafter "the Inventory Guidelines").

3.4.2.2 Additional sampling and analysis

If the Ship Recycling Facilities find it necessary to conduct sampling and analysis on certain materials on board, for example when the Inventory of Hazardous Materials is in question and/or when the Inventory does not clearly identify the location and volume of Hazardous Materials, sampling analysis and/or visual inspection should be carried out, possibly with the cooperation of shipowner to enable the identification of the Hazardous Materials. A sampling plan should be developed describing the sampling locations, number of samples to be taken, the name of the sampler (including subcontractors) and the type of analysis to be performed.

The Ship Recycling Facility should choose whether they would regard PCHM (Potentially Containing Hazardous Materials) in the Inventory as Hazardous Materials and remove, store and treat them in accordance with the requirements of the Convention, or conduct sampling and analysis by itself and treat them accordingly, based on the findings of sampling and analysis.

When conducting the sampling of any possible Hazardous Materials, the samplers should be protected from exposure by the required worker safety measures for the Hazardous Materials in question. Analysis of the samples should be performed by an accredited laboratory.

~~**Recycling approach**~~

~~The SRFP should contain a narrative detailing the production methods for integrating removal and remediation activities of Hazardous Materials while recycling the ship, taking into account worker safety and environmental protection.~~

3.4.2.3 Removal, handling and remediation

The SRFP should describe how to safely remove, handle and/or clean the identified Hazardous Materials from the ship with scrupulous care to the characteristics of the Hazardous Materials that may have adverse effects on human health and/or the environment.

The workers who engage in the removal of the Hazardous Materials which are highly toxic and/or harmful to the human health and to the environment should be trained personnel and be protected appropriately.

[Pursuant to Section 2.2 of Supplement to the DASR (Appendix 5 to the Convention), the SRFP should indicate the responsible personnel authorized to carry out removal, with the certificate number or other relevant information for each of identified Hazardous Materials.]

<Where to put this guidance should be further considered.>

Whenever required, the space where the removal work is occurring should be isolated from other work spaces and it should be notified clearly to the workers working in those other work areas that the removal work is occurring.

If the Ship Recycling Facility should remove highly toxic, explosive or reactive Hazardous Materials, decontamination or remediation of the space should be done by the trained personnel.

These methods and procedures to remove, handle and remediate the Hazardous Materials should be well established in safe and environmentally sound manner in accordance with the applicable national requirements.

3.4.2.4 Storage and labelling after removal

The SRFP should describe how all wastes generated from the recycling activity will be kept separate from recyclable materials and equipment, labelled for clear identification, and stored in appropriate conditions either temporarily or for a longer term. The facility should describe how it will avoid waste being mixed or contaminated in a way that interferes with subsequent handling, storage, treatment, recycling, or disposal.

3.4.2.5 Treatment, transportation, disposal

The SRFP should demonstrate how the facility will ensure environmentally sound management of all Hazardous Materials and wastes removed from a ship recycled at the facility. If treatment or disposal is occurring at the Ship Recycling Facility, the SRFP should describe how the materials will be managed in an environmentally sound manner and in compliance with applicable international, national and local environmental requirements.

In situations where the Hazardous Materials and wastes are sent off site, the SRFP should describe its procedures that ensure that the materials and wastes are only transferred to a waste management facility authorized to deal with their proper treatment and disposal.

The SRFP should identify all waste management and disposal sites, describe how the materials will be managed at those facilities, and identify all authorizations, permits, certificates, approvals, and licences required by international, national and local environmental agencies authorizing the facilities to manage the wastes. The SRFP should include the procedures for the tracking Hazardous Materials and wastes as they are transported from the Ship Recycling Facility to their ultimate destination, and for the management and the retention of the documentation.

3.4.3 Environmental Sound Management of Hazardous Materials

3.4.3.1 Asbestos and materials containing asbestos

The Ship Recycling Facility should identify the location and volume of the Asbestos and materials containing asbestos by actively utilizing the Inventory. Identification, marking and labelling should be done by the Ship Recycling Facility prior to the removal of Asbestos and materials containing asbestos.

Indicative lists of shipboard locations for asbestos are provided in Appendix 4 of these guidelines and in the Inventory Guidelines, and can be the supporting material to implement an additional assessment and sampling if required.

In order to safely remove asbestos and materials containing asbestos, the following procedures should be taken. The SRFP should describe how the facility implements these protective measures:

.1 there should be workers who are trained and authorized for the removal of asbestos and materials containing asbestos in accordance with applicable international and national requirements;

.2 the removal work of the asbestos and materials containing asbestos should be conducted under the monitoring and management of the competent~~responsible~~ person[1] ~~to handle~~for the asbestos and materials containing asbestos;

.3 the number of workers, exposed to asbestos has to be limited to the necessary minimum

.4~~3~~ the area and/or place for removal of asbestos and materials containing asbestos should be isolated from the other work areas, and entry should be allowed only to appropriately trained personal. The area and/or place should be clearly posted with the caution that asbestos removal work is occurring;

.5~~4~~ if the removal work includes cutting, boring or grinding of friable asbestos and materials containing asbestos which may scatter to the environment, appropriate protections such as follows should be provided so as not to release the asbestos in the air by creating an applicable isolated area in the room or space where the removal occurs:

- A common approach is to seal the work place with plastic sheets;
- The plastic sheet should be of sufficient strength;
- Whenever possible, the isolated area should be kept under negative pressure; and

[1] The competent person in this context should have knowledge, experience, and training relating to the following subjects:
- Harmful characteristics of asbestos
- Utilization and location of asbestos
- Measures to prevent scattering of the asbestos in the air
- Appropriate use of personal protective equipment specially for asbestos removal
- Measure to avoid being exposed to the asbestos
- National requirements related to asbestos

- Where the machines, equipment, pipes, or spaces which cannot be isolated or sealed (i.e. complex and narrow area under floor plate, etc., in engine-room), partial protection with plastic sheets may be applied;

.65 walls and ceilings containing sprayed asbestos should be carefully torn off with spraying water or appropriate wetting agent to restrain the scattering of asbestos in the atmosphere;

.76 personal protection equipment (PPE) for workers, including aspiratory protection and special protective clothing for asbestos, should be provided;

[The practice for dealing with materials containing asbestos under partial pressure chamber system and wet methods should be encouraged as far as possible.]

.87 after removal of asbestos, the area and/or place should be cleaned up in the following manner:

- Equipment and tools utilized should be washed/cleaned and then removed from the area and/or space.
- Removed asbestos and materials containing asbestos should be packed and sealed into the plastic containers and removed from the area and/or space. Containers used for the packing of the removed asbestos materials should be of the appropriate strength and resiliency so as to minimize the possibility of accidental damage or breaking during transport that could result in an uncontained release of asbestos fibres into the atmosphere.
- Plastic sheet used for the isolation should be wetted and restrict the asbestos from scattering.
- Use vacuum cleaner equipped with HEPA filter for cleaning the area and/or space.
- Check the airborne contents of the asbestos in the air and/or space before removing the isolation plastic sheets and allowing other work to continue in the area;

.98 workers removing asbestos should be decontaminated before going out from the contaminated area:

- Workers should not be allowed to wear street clothes in the removal enclosure or under their PPE;
- After completing work in the isolation area, workers should shower to remove asbestos, and then enter a separate "clean area" to put on their clothes; and
- Work clothes should not be laundered at home; they should be bagged, labelled and laundered at an appropriate location at the facility or off-site;

.109 removed asbestos and materials containing asbestos should be stored in properly labelled leak-proof containers made for transport; and

.1110 asbestos should not be re-used or recycled; management and final disposal should be in accordance with national requirements.

3.4.3.2 PCB and materials containing PCBs

The Ship Recycling Facility should identify the location and volume of the Hazardous Material and wastes contained PCBs by actively utilizing the Inventory. Identification, marking and labelling should be done by the Ship Recycling Facility prior to the removal of Hazardous Material and wastes contained PCBs.

Indicative lists of shipboard locations for PCBs are provided in Appendix 4 of these guidelines and in the Inventory Guidelines for PCBs, and can be the supporting material to implement an additional assessment and sampling if required. PCBs may be contained in the equipment and materials in both solid and liquid forms as shown on the Inventory of Hazardous Materials. PCB sampling and analytical procedures can be expensive and time consuming, therefore it may be more economical to assume possible materials containing PCBs to be PCBs wastes and simply remove and dispose of them as accordingly.

In order to safely remove PCB and materials containing PCBs, the following procedures should be followed. The SRFP should describe how the facility implements these protective measures:

.1 workers should be specifically trained and authorized for the removal of PCBs;

.2 personal protection equipment (PPE) for workers, including respiratory protection and dermal protection, should be provided;

.3 Removal of Hazardous Materials and wastes containing PCBs should be carefully performed to avoid spills, volatilization or scattering;

- Spill prevention measures should be put in place when draining or removing liquid-filled equipment. These measures could include booms, drip pans, liners, and/or absorbent materials placed around the system or piece of equipment;
- Most of the solid materials containing PCBs can be removed by using manual, chemical or mechanical means such as blasting, scraping, cutting, stripping or gouging;

.4 equipment used to remove PCB-containing materials should be decontaminated appropriately after use (A common decontamination process for equipment would be an organic solvent rinse followed by washing with soap and water and a clean water rinse.);

.5 thermal or "hot" methods of removal or recycling should not be used if the presence of PCB is known or suspected (e.g., electric cable insulation containing PCBs should not be burned);

.6 removed PCB and materials containing PCBs should be appropriately stored in properly labelled, leak-proof containers exclusively made for transport that are sealed (liquids) or covered (solid);

.7 a separate storage area should be set up for PCBs wastes:

- Hazardous Materials and wasted containing PCBs should not be stored and kept with other Hazardous Materials and wastes.

- The storage area should be clearly marked on the exterior with warnings of the PCBs storage.
- The storage area should provide protection from rain.
- Containers should be regularly inspected for leaks and damage.

Caution: Hazardous Materials and wastes containing PCBs may corrode, be transformed or broken due to the long-time use of it. Therefore, special attention should be given to the leak of PCBs during the removal, storage and transport.

3.4.3.3 Hazardous liquids, residues and sediments (oils, bilge, ballast water)

The Ship Recycling Facility should identify the location and volume of the Hazardous liquids remaining on board by actively utilizing the Inventory. Identification, marking and labelling on the tanks and the places should be done by the Ship Recycling Facility prior to the removal of those liquids.

The residual oil storage tank should be protected against leaking, overflow, fire and other potential accidents.

Oils and chemicals kept on board should be removed from ship and stored properly.

Ballast water should be handled in accordance with relevant national requirements.

3.4.3.4 Heavy metals (lead, mercury, cadmium, hexavalent chromium)

As indicated in the Inventory Guidelines, heavy metals are found in batteries, galvanized materials, level switches, gyro compasses, thermometer, etc. Radioactive substances are found in level indicators, and smoke detectors.

The equipment and other instruments containing those heavy metals should be removed carefully so as not to be broken and so as to avoid heavy metals to contaminate the environment. Reusable equipment and instruments should be stored properly. Broken equipment and instruments should be delivered to the appropriate repair/recycling/disposal companies in accordance with national requirements.

Anodes fitted to the ships' hull as sacrificed metal should be removed in the course of block cutting and managed properly.

3.4.3.5 Paints and coatings

The Ship Recycling Facility should be informed of the paints and coatings that are highly flammable or that may release toxins during cutting, through the Inventory of Hazardous Materials provided by the shipowner.

The Ship Recycling Facility should confirm whether the ship applied anti-fouling paints on its hull and other toxic paints elsewhere on the ship.

3.4.3.5.1 Anti-Fouling compounds and systems (Organotin compounds including Tributyl tins (TBT))

The Convention applies to all anti-fouling compounds and systems regulated under Annex I to the International Convention on the Control of Harmful Anti-fouling Systems. Currently, the only systems regulated by that convention are organotin compounds, so these guidelines

address the proper management of Organotins. However, similar considerations should be applied to future anti-fouling compounds that become subject to this Convention.

Organotin compounds include Tributyl tins (TBT), Triphenyl tins (TPT) and Tributyl tin oxide (TBTO). Organotin compounds have been commonly used as anti-fouling paint on ships' bottoms. There may be the ships that applied the organotin compounds with a coating forming a barrier to stop such compounds from leaching to sea. Therefore, the Ship Recycling Facility should check the Inventory carefully, and inspection of the hull paint may be carried out.

~~Organotin paint should not be released to the sea or soil during the ship recycling process. If removal of the organotin paint is required for large hull areas such as bottom and other underwater surface, these work should only be done in the dry dock (including floating dock) with best care of such protection so the removed organotin paints will not be released to the sea water while docking/undocking process.~~
Organotin paint should not be released to the sea or soil during the ship recycling process. If there is the potential for organotin paint removal as a result of work (whether it is intentionally removed or a collateral effect of some other effort, such as dragging), this work should be done in environmentally sound manner so the removed organotin paints will not be released to the sea water.

Removal of the organotin paint may be carried out by using techniques such as blasting, chemical stripping, or mechanical removal. However, special attention should be given to the protection from scattering the paint chips in the air or adjacent areas.

Blasted paints should be collected and stored in an environmentally sound manner in accordance with national requirements.

3.4.3.5.2 Toxic and highly flammable paints

The removal of paints prior to cutting during ship recycling may not be necessary unless the process leads to the release of toxic compounds or if the paint is not highly flammable. Prior to cutting painted surfaces, the Ship Recycling Facility should check the flammability and toxicity of the paint or coating. If it is toxic or flammable, it is suggested that the paint is mechanically or chemically removed (e.g., blasting, scraping, stripping, etc.) along the cut line with enough width prior to hot cutting.

If removal is not possible or feasible, cutting can proceed in a controlled manner provided that the workers are well protected with the PPEs exclusively for inhalation and eye protection.

3.4.3.6 Ozone-Depleting Substances (ODS)

The Ship Recycling Facility should identify the location and volume of the Ozone Depleting Substances (ODS) by actively utilizing the Inventory. Identification, marking and labelling should be done by the Ship Recycling Facility prior to the removal of ODS.

Indicative lists in the Inventory Guidelines for ODS can be the supporting material to implement an additional survey and sampling if required.

In order to safely remove ODS, the following procedures should be taken.

The SRFP should describe how the facility implements these protective measures:

.1 extraction of ODS from the system should be done by subcontractors who are trained and authorized for handling these materials;

.2 ODS on board in containers, equipment, and piping system should not be released to the atmosphere; and

.3 management or destruction of ODS should be done in accordance with national requirements.

3.4.3.7 Other Hazardous Materials

Other Hazardous Materials not listed above and which are not part of the ship's structure~~,~~ should be removed under safe conditions. To ~~to~~ the maximum extent possible, these materials should be removed prior to cutting [according to the provisions of [international and] national laws and regulations.] *(Comments by the coordinator: the original addition by India included the term "international". However, there is no such international law or regulation at present.)*

3.4.4 Prevention of adverse effects to the environment

3.4.4.1 Spill prevention, control, and countermeasures

<NOTE THE CORRESPONDENCE GROUP NEEDS TO REDRAFT THE FOLLOWING TWO SECTIONS, TAKING INTO ACCOUNT *INTER ALIA* REGULATIONS 19 AND 21, AND THE NEED FOR EMERGENCY PREPAREDNESS AND RESPONSE PLANS>

The purpose of developing and implementing a spill prevention, control, and countermeasures programme is to minimize the risk of spills and leaks that could adversely impact the environment. The SRFP should include a programme that defines the facility's spill prevention, response, and countermeasures procedures. The programme should define the proactive approaches to spill prevention and the procedures to be implemented in the event of spill.

At a minimum, the programme should demonstrate that the facility has adequate containment and spill cleanup equipment and procedures. This includes the identification of containment and diversionary structures in place to prevent discharged hazardous materials [from reaching any surface water and ground water][from contaminating soil and water], the identification of the facility drainage areas, the location of spill response equipment, the environmental protection measures to be implemented during transfer and off-loading of fuels, other oils and bilges, the identification of fuel storage locations, the inspection and record-keeping procedures, security measures, personnel training, spill prevention and reporting procedures, and the history of incidents at the facility.

As part of the spill prevention, response, and countermeasures procedures, the SRFP should identify the designated in-house and contractor personnel who will be responsible for managing the programme and responding to spills or similar emergencies, as well as the local authorities (such as the fire department) who may have jurisdiction at the facility. This SRFP should include 24-hour contact information. The SRFP should include both a narrative and graphic description of the facility layout, including location of any water bodies or other routes of migration, identification of the storage location of oil or other hazardous materials, procedures for fuel transfer from ship to shore, the procedures to be implemented

in the event of a spill, the types and locations of emergency response equipment (such as absorbent materials, personal protective equipment, first aid equipment).

By identifying the potential sources of spills or leaks, the Ship Recycling Facility can then identify the proactive measures to be implemented in order to minimize the risk associated with the facility activities. It is helpful to the facility to review the potential sources for spills and leaks and determine the applicable types of failures associated with them in order to determine the most appropriate and effective prevention measures. For example, drums should not be left open unless being filled, drums should be within a secondary containment or bermed structure, drums should not be exposed to rainfall that over time could corrode the drums.

The spill prevention, control, and countermeasures programme can be used as a tool by the facility to communicate practices on preventing and responding to spills and leaks, as a resource during emergency response and as a repository for storage, inspection, and testing information. It is important to maintain records on maintenance and inspections and employee training. Periodic review of the spill prevention, control, and countermeasures programme is also an effective tool in determining those procedures that are fulfilling their intended function and to identify weaknesses in the programme.

3.4.4.2 Storm water pollution prevention

Storm water runoff from industrial facilities has the potential to adversely affect the environment. Improper storage and handling of hazardous materials and wastes could increase the risk of environmental degradation through contact with water. The SRFP should include a programme that defines those measures to be implemented and maintained to minimize the potential for storm water contamination at the facility.

A storm water pollution prevention programme should include the identification of all potential pollutant sources at the facility that could come into contact with storm water, the nearby receiving waters, and storm water conveyance systems. A site map should be developed that depicts this information.

From the compilation of the relevant site information, an assessment should be conducted in order to determine the appropriate control measures. Control measures should be implemented to reduce the threat of storm water pollution, for erosion and sediment control, and for the protection of nearby natural resources. Control measures can include best management practices, maintenance and inspection programmes, employee training, and reporting.

As an example, a potential pollutant source at a Ship Recycling Facility can include the storage of drums, tanks, or other containers for the off-loading of fuel from a ship. The activity of the transfer and storage of the fuel includes multiple potential pollutant sources, such as spills and leaks during the transfer to the water or the ground, leaking drums or containers, or runoff from the drum storage area. Control measures to minimize the risk to the environment from storm water contamination could include housing drums and other containers under semi-permanent or permanent coverings, controlling spills or runoff from drum storage areas with appropriately sized secondary containment, conducting routine inspections of drum storage areas, and establishing appropriate cleanup procedures in the event of spills or leaks.

The development of preventative measures is the most effective way to minimize the discharge of pollutants via storm water. It is important to maintain records on maintenance and inspections and employee training. Periodic review of the storm water management

programme is also an effective tool in determining those best management practices that are fulfilling their intended function and to identify weaknesses in the programme.

3.4.4.3 Debris Prevention and Control

The introduction of debris into the marine environment by ship recycling activities has the potential to create negative environmental effects. The SRFP should include a programme that defines those measures to be implemented and maintained to minimize the potential for debris deposition into the water, including the maintenance of areas whence debris might be transported by wind, storm drains, tides, or run-off into the marine environment. Control measures should be implemented to reduce the likelihood of debris deposition.

3.4.4.4 Incident and spills reporting procedures

The SRFP should describe the incidents and spills reporting procedures. The procedures should at least provide the following information:

- assignment of the duties and responsibilities among the Ship Recycling Facility, the responsible team/department or persons and their responsibilities of reporting in the occurrence of the incident;
- relationship with the Emergency Preparedness and Response Plan;
- communication link to the local community for assistance, if necessary; and
- procedures for providing information to the public, and for carrying out post incident surveys and releasing post incident reports.

* * *

APPENDIX 1

RECOMMENDED FORMAT
SHIP RECYCLING FACILITY PLAN

Comments: *The contents below are not in line with the headings and sub-headings of the main text. Necessary adjustment will be done later.*

The contents of Appendix 1 is the same as that of document MEPC 60/WP.8

* * *

APPENDIX 2

EXAMPLE FORMAT OF THE ~~COMPANY/~~FACILITY INFORMATION UNDER SRFP
(Relating to Sections 3.2.1 (facility information) and 3.2.3 (Permits, licences and certifcation)

Name and contact information of the Facility			
Name of the Facility	*** Co., Ltd.		
Registered Address	xxx *** *** Japan		
Address of the Facility	xxx *** *** Tokyo		
Representative and communication address	President Mr. Yxxxx ******		
Number of Employees	20		
Telephone	+81-xxx-xxxx	Fax	+81-xxx-xxxx
E-mail address	xxxx@xxx.xxxx.ne.jp	URL	http://www.xxxxxxx.ne.jp/xxxx/e-home.html
Working language			

~~**Authorization on Industrial Wastes Handling**~~	
~~Document of Authorization to conduct Ship Recycling (DASR)~~	
~~Date of issue (dd/mm/yyyy)~~	~~Validity up to : (dd/mm/yyyy)~~
~~Identify No.~~	
~~Issued by (Name and place of the RO)~~	
~~Industrial Wastes Treatment~~	~~n.a~~
~~Intermediate Industrial Wastes treatment~~	~~n.a~~
~~Industrial Wastes Transportation~~	~~n.a.~~
~~ISO9001~~	~~n.a.~~
~~ISO14000~~	~~n.a.~~
~~ISO30000~~	
~~OHSAS~~	

Capacity of the Facility	
Maximum Capacity of the ship to be recycled	DWT GT Length Breadth Width Depth
Type of ship to be acceptable	
Waste Management Capacity	
Asbestos	removal storage
PCBs	removal storage
Ozone-depleting substances~~CFCs~~	removal storage
Anti-fouling compounds and system/paints	removal storage
Heavy Metals	removal storage
Radioactive substances	removal storage
Fuel oil	removal storage
Oily water/Slop/Bilge	removal storage treatment
Other oils	removal storage treatment
Other hazardous materials	removal storage treatment
	removal storage treatment

Equipment and Facility			
Area of the Facility (m^2)*	13,200	Area of pavement (m^2)	
Length of Quay (m)*	180	Draft (m)	4 m
Construction of the Quay*	stone masonry(partly concrete structure)		
Dock or Slipway*	3,000 tons		
Heavy Lifting Machines*	Jib Crane: 60 tons		
	Mobile crane: 35 tons×1, 27 tons×1		
	Hydraulic backhoe: SH400, ZX330, SK220, ZX200 with Shear, Magnet		
	Hydraulic shear: 600 tons×1		
	Weight bridge: 50 tons		
Boat	Gross Tonnage: 5 tons, Power: 240 PS		
Shear	Capacity: 600 tons		
O_2 supply	Liquid O_2 supply system: 10 m^3		
Gas supply	LPG Bottles		
Compressed air			
Fire extinguisher	Portable fire extinguisher		
Waste oil treatment	Oil Water Separate Tank Tank capacity: abt. 20 tons		
Wastes Storage	Container for Asbestos: 2		
Incinerator	None		
Electric power supply	Substation		

* In case of using recycling plots, provide relevant information on such plots and equipment as appropriate. The areas of recycling plots may be included in the "Area of the Facility".

Location	
Division, Classification of the location	Urbanization control area
~~Exclusive use of sea area~~	~~no~~
~~Fishing rights~~	
Peripheral environment	Factories: ex-quarry, two marinas in the vicinity
	Housing: Private houses at the entrance, 200 m from entrance

~~**Licence, Notes required for Ship Recycling**~~	
~~Works required prior notice~~	~~Gas-free conditions on cargo tanks~~
	~~Removal of asbestos~~
	~~HM contains PCB~~
	~~CFCs~~
	~~Anti-fouling system, i.e. TBT paint~~
	~~High pressure gas handling~~
	~~Waste oil treatment~~
~~Works regulated~~	~~Gas free for entry~~
	~~Removal of asbestos~~
	~~HM contains PCB~~
	~~CFCs~~
	~~Anti-fouling system, i.e. TBT paint~~
	~~High pressure gas handling~~
	~~Waste oil treatment~~

Certificate and Licence for the Facility	
Wastes Treatment	
Wastes Transportation	n.a.
ISO9001	n.a.
ISO14000	n.a.
ISO30000	
OHSAS	

[

Certificate, Licence of Workers	
Certificate/Licence	Name
1) Manager of Asbestos handling	Mr. Yxxxx ****** 1 person
2) Designated chemicals handling	None
3) Asbestos handling class	Mr. ***** *****
	Mr. ***** *****
	Mr. ***** ***** 3 persons
4) Gas cutting	Mr. ***** *****
	Mr. ***** *****
	Mr. ***** ***** 3 persons
5) Welding	Mr. ***** ***** 1 person
6) Zinc handling	Mr. ***** ***** 1 person
7) Lifting	Mr. ***** *****
	Mr. ***** *****
	Mr. ***** ***** 3 persons
8) Heavy lift machines	Mr. ***** *****
	Mr. ***** ***** 2 persons
9) Seafarer	Mr. ***** ***** 1 person
10) Diver	None
11) Removal of Hazardous Materials (Material A) ~~Others~~	Mr. ***** ***** 2 persons~~None~~
(Material B)	Mr. ***** ***** 2 persons

]

* Last lines were added in line with the guidance in 3.4.2.3, where SRFP should indicate the responsible personnel authorized to carry out the removal with the certificate number or other relevant information, pursuant to Section 2.2 of Supplement to DASR (Appendix 5 to the Convention).

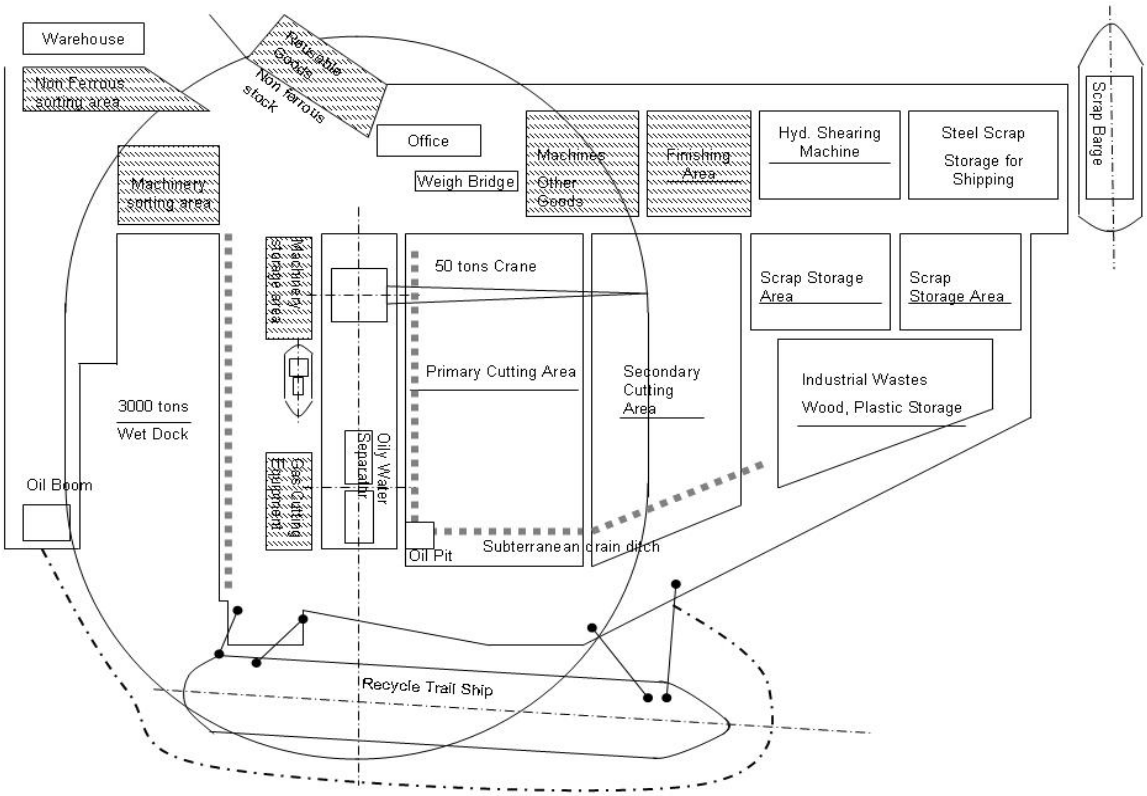
** This section on the certificates and licence of workers can be removed from an example format of facility information.

Information on Sub-contractor			
Name of the sub-contractor		*** Co., Ltd.	
Registered Address		xxx *** *** Japan	
Representative and communication address		President Mr. Yxxxx ******	
Field of Services			
Licence on the Services			
Number of Employees			
Telephone	+81-xxx-xxxx	Fax	+81-xxx-xxxx
E-mail address	xxxx@xxx.xxxx.ne.jp	URL	http://www.xxxxxxx.ne.jp/xxxx/e-home.html

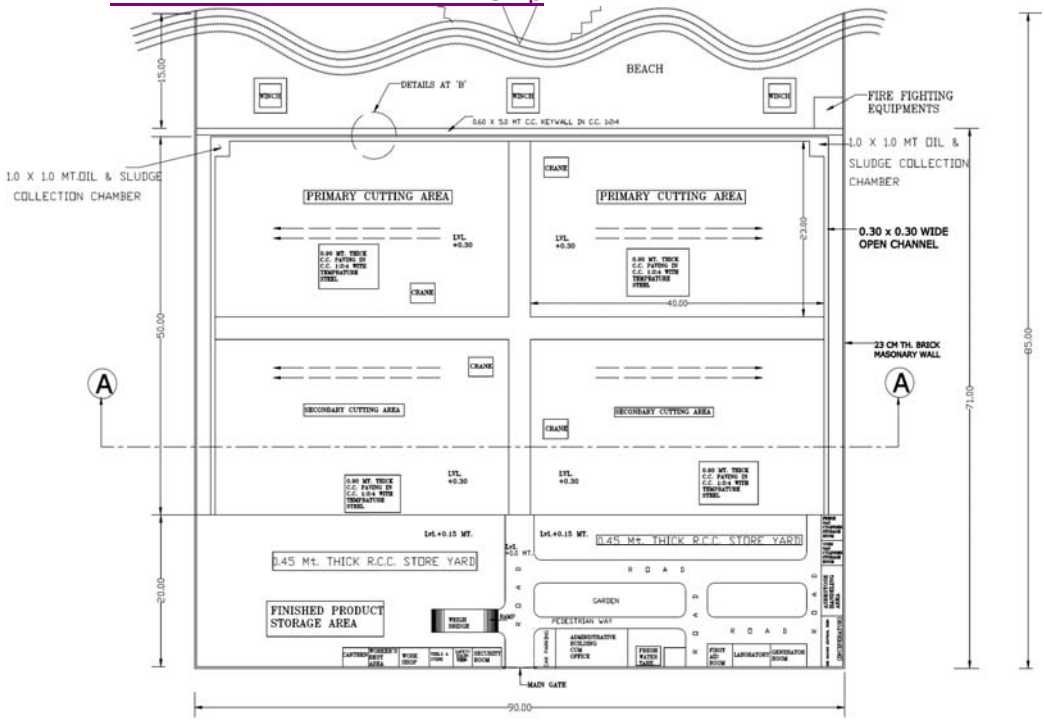
Location Map

Yard Plan (an example)

[* Yard Plan should be attached as an independent appendix of SRFP.]



* *OR following Plan Ship



* * *

APPENDIX 3

ILLUSTRATIVE PROCESS OF RECYCLING PREPARATION

The contents of Appendix 3 is the same as that of document MEPC 60/WP.8

* * *

Possible Elements for Technical Manual or APPENDIX 4

The contents is the same as that of document MEPC 60/WP.8

* * *

[APPENDIX 5

REFERENCE TO THE RELEVANT ILO INSTRUMENTS]

~~**(To be developed)**~~

Relevant ILO Conventions, Codes of practice and Guidelines

Fundamental ILO Conventions

Worst Forms of Child Labour, 1999 (No.182)
Minimum Age Convention, 1973 (No.138)
Discrimination (Employment and Occupation) Convention, 1958 (No.111)
Abolition of Forced Labour Convention, 1957 (No.105)
Equal Remuneration Convention, 1951 (No.100)
Right to Organise and Collective Bargaining Convention, 1949 (No.98)
Freedom of Association and Protection of the Right to Organise Convention, 1948 (No.87)
Forced Labour Convention, 1930 (No.29)

Conventions on occupational safety and health and working conditions

Promotional Framework for Occupational Safety and Health Convention, 2006 (No.187)
Prevention of Major Industrial Accidents Convention, 1993 (No.174)
Night work Convention, 1990 (No.171)
Chemicals Convention, 1986 (No.170)
Asbestos Convention, 1986 (No.162)
Occupational Health Services Convention, 1985 (No.161)
Protocol of 2002 to Occupational Safety and Health Convention, 1981 (No.155)
Collective Bargaining Convention, 1981 (No.154)
Occupational Safety and Health Convention, 1981 (No.155)
Occupational Safety and Health (Dock Work) Convention, 1979 (No.152)
Working Environment (Air pollution, Noise and Vibration) Convention, 1977 (No.148)
Occupational Cancer Convention, 1974 (No.139)
Benzene Convention, 1971 (No.136)
Workers' Representative Convention, 1971 (No.135)
Maximum Weight Convention, 1967 (No.127)
Employment Injury Benefit Convention, 1964 (No.121)
Guarding of Machinery Convention, 1963 (No.119)
Radiation Protection Convention, 1960 (No.115)

ILO Codes of practice

Safety and health in ports, 2005. ISBN 92-2-115287-1.
Contents overview: Management of safety and health; Safe systems of work; Port infrastructure, plant and equipment; Lifting appliances and loose gear; Safe use of lifting appliances and loose gear; Operations afloat; Health; Personal welfare facilities; Emergency arrangements; Testing of lifting appliances and loose gear.

Safety and health in shipbreaking, Guidelines for Asian countries and Turkey, 2004. ISBN 92-2-115289-8.
Contents overview: General responsibilities, duties and rights, and framework; Occupational safety and health management; Occupational health services; Operational planning; Preventive and protective measures; management of hazardous substances; Measures against physical, biological, ergonomic and psychosocial hazards; Safety requirements for tools, machines and equipment; Competence and training; Personal protective equipment and protective clothing; Contingency and emergency preparedness; Special protection; Welfare.

Safety and health in the non-ferrous metal industries, 2003. ISBN 92-2-111640-9.
Contents overview: General provisions of prevention and protection; Prevention and protection specific to non-ferrous metals production processes; Recycling non-ferrous metals; Occupational exposure limits for hazardous substances, electric and magnetic fields, optical radiation, heat noise, and vibration.

Ambient factors in the workplace, 2001. ISBN 92-2-111628-X
Contents overview: General obligations, responsibilities, duties and rights; General principles of prevention and control, hazardous substances, Ionising radiation, electric and magnetic fields, optical radiation, heat and cold, noise, vibration. Occupational exposure limits.

Management of alcohol and drug-related issues in the workplace, 1999. ISBN 92-2-109455-5.
Contents overview: Development of an alcohol and drug policy for the work place; Measures to reduce alcohol- and drug-related problems through good employment practices; Restrictions on alcohol, legal and illegal drugs in the workplace; Prevention through information, education and training programmes.

Accident prevention on board ship at sea and in port, 1997. ISBN 92-2-109450-2
Contents overview: Shipboard emergencies and emergency equipment; Safe access to ship; safe movement about the ship; entering and working in enclosed or confined spaces; manual lifting and carrying; tools and materials; welding, flame-cutting and other hot work; working aloft and over side; working with dangerous and irritating substances and radiations; upkeep of wire and fibre ropes; working in machinery spaces.

Recording and notification of occupational accidents and diseases, 1996. ISBN 92-2-109451-0.
Contents overview: Recording, notification and investigation of occupational accidents, occupational diseases and dangerous occurrences, and related statistics.

Safety in the use of chemicals at work, 1993. ISBN 92-2108006-4.
Contents overview: Classification systems; labelling and marking; Chemical safety data sheets; Operational control measures; Work systems and practices; Personal protection; Monitoring in the workplace; Medical and health surveillance; Investigation and reporting of accidents, occupational diseases and other incidents.

Safety, Health and working conditions in the transfer of technology to developing countries, 1988. ISBN 92-2-106122-1
Contents overview: Appendix A, Occupational safety and health check-list for hazard control in the design and operation of a plant or process.

Safety in the use of asbestos, 1984. ISBN 92-2-103872-6.
Contents overview: Exposure limits; Monitoring in the workplace; general preventive methods; Personal protection; cleaning of premises and plant; packaging, transport and storage; Disposal of asbestos waste; supervision of the health of workers; Handling of asbestos fibre in ports and container terminals; Construction, demolition and alteration work; exposure limits in various countries.

Occupational safety and health in the iron and steel industry, 1983. ISBN 92-2-103471-2
Contents overview: Basic requirements for work stations, workplaces, traffic lanes and installations; maintenance, repair and demolition; electricity, tools, machine guarding and gas systems; transport and handling; substances and agents harmful to health; working clothes and personal protective clothing; and medical services and supervision, safety and health organisation, hygiene and welfare.

Safety and health in shipbuilding and ship repair, 1974. ISBN 92-2-101199-2.
Contents overview: Workplaces, their approaches and equipment; Scaffolding and staging; ladders, stairs, gangways and ramps; Lifting appliances; Ropes chains and accessories; hand tools, portable power-driven tools; Work with dangerous and irritating substances and radiations; Welding, flame cutting and other hot work; Work in confine spaces and dangerous atmospheres; Transport of workers by water; Working clothes and personal protective equipment; Medical services and supervision, safety and health organisation, hygiene and welfare.

Other Guidelines

Guidelines on occupational safety and health management systems, ILO-OSH 2001. ISBN 92-2-111634-4
Contents overview: Occupational safety and health management system in the organisation; Policy; Organising; Planning and implementation; Evaluation; Action for improvement.

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ANNEX 3

**DRAFT GUIDELINES
FOR THE DEVELOPMENT OF THE SHIP RECYCLING PLAN (SRP)**

TABLE OF CONTENTS

1. INTRODUCTION

These Guidelines provide technical information and guidance for the preparation of a Ship Recycling Plan (SRP), as required in Regulation 9 (Ship Recycling Plan) of the Hong Kong International Convention for Safe and Environmentally Sound Recycling of Ships, 2009 (hereinafter referred to as "the Convention").

The SRP is a ship-specific document, which a Ship Recycling Facility(ies) develops each time any ship recycling work. The SRP should contain an appropriate chronological process of recycling for that particular ship with full attention to the safety and environment protection duly taking into account the ship-specific information provided by the shipowner, and then to document the procedure for its own internal management purpose.

These Guidelines should be used primarily by Ship Recycling Facility(ies) and Shipowner in order to develop the SRP, and Competent Authority(ies) or its recognized organization for the purpose of checking and approving the SRP submitted by the Ship Recycling Facility(ies).

2. DEFINITIONS

The terms used in these guidelines have the same meaning as those defined in the Convention, with the following additional definitions which apply to these guidelines only.

2.1 "*Adjacent space*" means those spaces bordering a space in all directions, including all points of contact, corners, diagonals, decks, tank tops, and bulkheads.

2.2 "*Dangerous atmosphere*" means an atmosphere that may expose workers to the risk of death, incapacitation, impairment of ability to self-rescue (i.e. escape unaided from a space), injury, or acute illness.

2.3 "*Enclosed space*" means a space which has any of the following characteristics: 1) limited access [openings for entry or exit], 2) unfavourable natural ventilation, or 3) is not designed for continuous worker occupancy; and, includes but is not limited to cargo spaces, double bottoms, fuel tanks, ballast tanks, pump-rooms, compressor rooms, cofferdams, void spaces, duct keels, inter barrier spaces, engine crankcases and sewage tanks.

2.4 "*Entry*" means the action by which a person passes through an opening into a space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

2.5 "*Hot work*" means any activity requiring the use of electric arc or gas welding equipment, cutting burner equipment, or other forms of flame, as well as heating or spark generating tools, regardless of where it is carried out on board a ship.

2.6 "*Space*" means an area on a ship such as, but not limited to, cargo tanks or holds; pump or engine-rooms; storage lockers; tanks containing flammable or combustible liquids, gases, or solids; other rooms; crawl spaces; tunnels (i.e. shaft alleys); or access ways. The atmosphere within a space is the entire area within its bounds.

2.7 "*Permissible Exposure Limit (PEL)*" means the exposure, inhalation, or dermal permissible exposure limit specified in Appendix B.

2.8 "*The ship*" means the particular ship which Ship Recycling Facility(ies) is going to recycle and develops the SRP for it.

3. GENERAL

3.1 The SRP should include information concerning, inter alia, the establishment, maintenance, and monitoring of Safe-for-entry and Safe-for-hot-work conditions and how the type and amount of materials including those identified in the Inventory of Hazardous Materials will be managed, as stipulated in the Regulation 9 of the Convention, but not be limited to, a description of the:

.1 methods and procedures to be implemented to protect worker safety and health at the recycling facility;

.2 methods and procedures for managing, (including identification, labelling, removal, treatment, storage, transportation, and disposal) hazardous materials on the ship;

.3 methods and procedures to be implemented to protect the environment; and

.4 methods, procedures, and sequencing of the ship recycling, including work that will be accomplished prior to, at and after the ship arrives at the recycling facility as well as techniques and methods used.

3.2 The SRP should be developed by the Ship recycling facility(ies) taking into account information provided by the shipowner. The shipowner should provide all available information relating to the ship for the development of the SRP and complete Inventory of Hazardous Materials.

3.3 Preparation of the SRP should begin well before the ship arrives at the recycling facility. The Convention requires that the SRP shall be in place prior to the issuance of an International Ready for Recycling Certificate.

3.4 The SRP should include an assessment of potential hazards to worker health and safety and the environment that may arise during the recycling activity of the particular ship, which may be affected by the type of ship and hazardous materials onboard. The SRP should make clear whether and to what extent preparatory work, such as pre-treatment, identification of potential hazards, removal of stores, etc., will take place at a location other than at the ultimate recycling facility. The extent to which such preparatory work will be incorporated into the SRP will depend upon the capability of the authorized Ship Recycling Facility, and the scope of the agreement with the shipowner.

4. FRAMEWORK AND STRUCTURE OF THE SHIP RECYCLING PLAN

SRP should be developed on the basis of the Ship Recycling Facility Plan (SRFP), taking into account ship specific information. SRP should be described following procedural sequence in time-series, and include a detailed recycling method, which could vary much depending on ships, and be a self-contained, self-explanatory document.

SRP should start with the general information of the Ship Recycling Facility and the ship to be recycled, and then describe the recycling process that may consist, but not limited to, of the following six (6) steps of the ship recycling work:

<Structure of the SRP>

GENERAL INFORMATION OF THE SHIP RECYCLING FACILITY
INFORMATION ON THE SHIP TO BE RECYCLED
SHIP RECYCLING PROCESS

STEP-1
- Pre-arrival Management of the Ship
- Pre-cleaning of hazardous materials and cargo or oil residues

STEP-2
- Check on arrival/acceptance of the ship
- Berthing/Mooring/Grounding of the ship

STEP-3
- Necessary Precautions in the planning of recycling work
- Specific Safety Trainings

STEP-4
- Preparatory works before cutting
- Final cleaning of tanks and spaces
- Hazardous materials removal

STEP-5
- Work plan (Cutting plan)
- Cutting work
- Workforce and equipment plan

STEP-6
- Hazardous Materials Storage and Finishing Works

The SRP should be developed taking into account the sample format set out in **Appendix-1 of these guidelines "(DRAFT) SHIP RECYCLING PLAN"**. Examples of how to complete the SRP are provided for guidance purposes only.

5. PROCESS AND INFORMATION TO BE EXPRESSED IN THE SRP BY EACH STEP

5.1 GENERAL INFORMATION ON THE SHIP RECYCLING FACILITY

[SRP should provide general information of the Ship Recycling Facility.]

NOTE: SRP may include a reference to the SRFP or a hard copy of/the short summary of / content table of /relevant part of, SRFP.

5.1.1 BASIC INFORMATION OF THE FACILITY

SRP should provide general information of the Ship Recycling Facility concisely, including, name of the management person, competent person in charge of the recycling works and relevant information on the Document of Authorization to undertake Ship Recycling (DASR) such as the issuer, date of issuance and date of expiry.

5.1.2 WORKING ORGANIZATION

[In order to define the tasks and their responsibility of the person in charge of the recycling work, the SRP should provide the organizational structure, which indicates the management person and competent persons of the specific works and other key persons with their job assignment including those sub-contractors who would be assigned in the course of the entire recycling work.

The working organization may flexibly be built in accordance with what is required for the safe and environmentally sound ship recycling, taking into account the specific features of the recycling work of a particular ship.]

5.1.3 SHIP RECYCLING FACILITY ARRANGEMENT

SRP should provide the facility arrangement with clear indication of the dock/slip/berth or other appropriate place where the particular ship is to be moored or fixed for recycling.

5.2 INFORMATION ON THE SHIP TO BE RECYCLED

SRP should provide ship's name, type of ship, ship owner, principal particulars of the ship, the IMO number, flag, port of registry, and shipyard at which the ship was built.

5.3 SHIP RECYCLING PROCESS

5.3.1 STEP-1

.1 Pre-arrival Management of the Ship

Prior to the arrival of the ship at the Ship Recycling Facility, or the anchoring point nearby, Ship Recycling Facility should confirm the following points and provide those information precisely on the SRP.

(1) Based on the terms and condition of the ship recycling agreement, the following delivery conditions of the ship should be confirmed. Such information should include but not limited to, date and place of delivery, arrangement of pilot and tug boat if required, and demarcation of the task and responsibility of the shipowner and the Ship Recycling Facility on the work.

When the Ship Recycling Facility needs that some of ship's crew remain onboard for the purpose of utilising particular information on the ship or expertise of the crew in machinery operation and/or piping system, valve handling, the scope of such work that is necessary to be conducted by the ship's crew should be clearly indicated in the SRP with the consent of shipowner.

(2) Confirmation of Plans and Documents

In order to develop the SRP, the following plans and documents should be received from ship owner in advance of preparation of the ship for recycling, to a maximum extent.

- Finished Drawings

Final Specifications, General Arrangement, Midship Section, Construction Profile and Deck Plan, Shell Expansion Plan, Longitudinal and Transverse bulkhead, Fore and Aft Construction, Superstructures, Accommodation Plan, Capacity Plan, Hydrostatic Curve or Table, Trim and Stability Calculation, Light Weight Calculation Table, Deck Piping System, Fire Control Plan, Painting Scheme, Joiner Works, Engine-Room Arrangement, Pump-Room Arrangement, Engine-Room Piping Diagram, Manufacturers finished drawings of major equipment

These documents and drawings can be utilized for:

- Preparation of the acceptance of the ship,
- Planning of the ship recycling/dismantling sequence,
- Planning of the working schedule with provision of appropriate equipment for heavy lifting, hazardous material management, etc.,
- Calculating draft and trim to be adjusted and for weight and strength of the hull, and
- Utilization of the second-hand equipment.

- Finalized "Inventory of Hazardous Materials" including Part II and III.

  The Inventory of Hazardous Materials is the vital document for Ship Recycling Facility to develop an SRP in order to plan and carry out safety removal of the hazardous materials.

(3) Preparation for receiving the ship

For receiving the ship, the Ship Recycling Facility should designate the place for docking/berthing/mooring/grounding where the ship is to be anchored for the recycling works.

SRP should also prove that such the anchoring place will be ready to accept the ship in terms of its capacity for mooring and availability of utilities such as electricity, water, gas supply.

.2 Pre-cleaning of hazardous materials and cargo or oil residues

(1) Pre-cleaning of oils, dirty water, bilge, etc.

The Ship Recycling Facility should check the relevant information on the residual volume of oils, dirty water and bilge in tank, cargo space, engine-room, etc., contained in the Inventory of Hazardous Materials and judge, based on such information and on its authorization, whether the Ship Recycling Facility will be able to manage those materials safely.

If the Ship Recycling Facility makes a judgement that it will not be able to manage those materials such as oil at the facility, method for pre-cleaning of those materials should be established including clear indication on which tank and/or space will be cleaned.

Places where specific, pre-cleaning work should be carried out and the name of sub-contractors for the pre-cleaning work, if delegated by the Ship Recycling Facility, should be described in the SRP.

In the case of tanker with cargo tanks and pump room(s), it should be confirmed that the ship is ready for certification as Safe-for-entry, or Safe-for-hot-work, or both according to national laws, regulations and policies of the Party by the competent person after the pre-cleaning is finished.

(2) Pre-cleaning of hazardous materials

In the case that the Ship Recycling Facility will not be able to remove some of the hazardous materials listed in the Inventory of Hazardous Materials, the other Ship Recycling Facility(ies) duly authorized with the issuance of DASR may be used for

the purpose of pre-cleaning of hazardous materials before the arrival of the ship at the Ship Recycling Facility.

The SRP should describe the name and address of the other authorized Ship Recycling Facility(ies) and which and how many hazardous materials of the Inventory of Hazardous Materials will be removed there.

5.3.2 STEP-2

.1 Berthing/Mooring/Grounding of the ship

(1) Berthing

If pilot is needed for the safe berthing or grounding to the Ship Recycling Facility, pilot should be appropriately delegated with the responsibility and authority from the shipowner or the Ship Recycling Facility.

Final draft and trim (air draft as necessary) of the ship should be confirmed just before the berthing and make sure that safe berthing/grounding could be kept.

If the ship passes through a narrow channel for berthing, berthing/grounding scenario, including the assessment of any obstacles for passage such as existence of other ships should be checked with tug operators.

Entry permit for the port or berth or beaching area should be obtained as necessary from the responsible/ administrative agency prior to the arrival of the ship.

(2) Mooring Arrangement

- Force calculation for mooring

SRP should provide for mooring arrangement or method for safely snubbing the ship under severe weather conditions as expected at the location of the Ship Recycling Facility.

Safety mooring arrangement to be described in the SRP should be proved by the past experience of the same type of the ship or by the calculation of the mooring force in case of a large-sized ship of which position may be affected by windy or stormy condition while it is afloat.

For the safe mooring calculation, it should be noted that the Oil Companies International Marine Forum (OCIMF) published the Mooring Equipment Guidelines. These guidelines provide an overview of the recommended methods for safe mooring from both a ship and terminal perspective including the standard mooring calculation method which is widely practiced.

If the ship is larger than 200 m in length and/or deck height is more than 20 m, the Ship Recycling Facility is recommended to consider utilization of the OCIMF's guidelines to calculate the mooring force and then secure the safe mooring of ship.

Conditions for the calculation should be determined taking into account geographical characteristics of the Ship Recycling Facility.

- Mooring arrangement plan

Detailed mooring arrangement plan to secure the ship should be provided including the information on the mooring ropes and bits to be utilized.

Standard mooring practice which is based from the past experience of the same type of the ship would be acceptable, however, safe mooring arrangement based on the calculation of mooring and wind forces is recommended all the time.

In case the result of the calculation comes out that mooring force is not enough with the existing equipment and procedures, reinforcement for both ship and shore equipment should be considered.

The SRP should clearly indicate the mooring arrangement which is adopted as the outcome of the above analysis and consideration, with the result of the mooring calculation as necessary.

Attachment 1 of Appendix 1 of these guidelines shows an example of the calculation result and mooring plan.

.2 Check on arrival/acceptance of the ship

(1) Check of the hull and machineries conditions

The SRP should describe the check points of the hull and machinery conditions after the arrival and the mooring of the ship.

The Ship Recycling Facility should check the ships condition from the view point that, no oil, bilge or other contaminants leakage are observed, hull keeps structural integrity and the onboard machinery and equipment that are necessary to be used for the time being are operational.

(2) Check of the Hazardous Materials

Upon arrival or acceptance of the ship, the Ship Recycling Facility should confirm the location and type of hazardous materials by utilizing the Inventory of Hazardous Materials.

In order to safely remove these identified hazardous materials on board at the successive stages of recycling, this process is vital to make work plan for removal of hazardous materials with due consideration on possible removal method, necessity for specialists and expertise, and necessity for machine and equipment, etc., according to the hazardous materials on board the ship.

SRP should describe ship specific procedures for the identification of hazardous materials including additional sampling if some items/locations in the Inventory of Hazardous Materials are in question or unclear.

Visual check should be carried out first, and if the questions and unclearness on the Inventory of Hazardous Materials still remain after the visual check, sampling check should be carried out.

Reference should be made to the "Guidelines for Safe and Environmentally Sound Ship Recycling" for the additional sampling method.

5.3.3 STEP-3

.1 Necessary Precautions in the planning of recycling work

(1) Safe for Entry and Safe for Hot Work

Regulation 9 of the Convention regulates that the SRP shall include information concerning, *inter alia*, the establishment, maintenance, and monitoring of Safe-for-entry and Safe-for-hot-work conditions.

The SRP should identify the spaces inside the ship where the risk of suffocation, toxic and explosive gases exists, taking into account the information contained in the Inventory of Hazardous Materials and in the relevant documents and plans obtained prior to arrival of the ship, such as general arrangement and capacity plan.

O_2 Concentration

- The SRP should indicate the spaces where the O_2 concentration should be checked.
- It should be ensured that O_2 concentration in such spaces is not less than 19.5%.
- In the case that the ventilation measure is needed to ensure that the O_2 concentration is not less than 19.5%, appropriate ventilation measure to be taken should be described in the SRP.

Toxic and Explosive Gases

- The SRP should indicate the spaces where the gas concentration should be checked.
- The SRP should describe the name ,organization and contact information of the competent person who the Ship Recycling Facility designates for the assessment of the spaces for entry.
- Oil residues shall be checked taking into account the information contained in the Inventory of Hazardous Materials and recorded in the Tank Condition Note of which sample format is attached in these guidelines.
- Explosive gas level and toxic gas level should be kept in the range as provided in the "Guidelines for Safe and Environmentally Sound Ship Recycling".
- In the case that the ventilation measure is needed to ensure that the gas level is beyond the safe for entry criteria, appropriate ventilation measure to be taken should be described in the SRP.

[NOTE: the alignment with the Facility Guidelines is necessary.]

(2) Other Precautions

The SRP should describe other ship specific safety precautions such as:

- Discharge method of CO_2 from CO_2 fire extinguishing system;
- Pumping of Heavy Fuel Oil under low temperature atmosphere;
- Removal of Emergency Position-Indicating Radio Beacon(EPIRB) from ship; and
- Others, if any.

.2 Specific Safety Trainings

Safety Training should be exercised in accordance with the requirements of the Convention and taking into account the "Guidelines for Safe and Environmentally Sound Ship Recycling".

However, the SRP should describe the special training programme which the Ship Recycling Facility considers necessary from the safety point of view for the recycling of the ship.

Special training programme, which may include individual training, would be necessary in the cases that:

- volume of work for removing Asbestos or other hazardous materials will be extensive;
- chemical residues, which have not been handled before, have to be handled during the recycling work of the ship;
- tools and equipment, which have not been handled before, are introduced for the recycling work of the ship;
- recycling method, which has not been handled before, is introduced from the recycling work of the ship; and
- the Ship Recycling Facility has never experienced the recycling before.

5.3.4 STEP-4

.1 Preparatory works before cutting

(1) Preparation for oil spill incident

The SRP should describe protective measures from oil spills to soil/ground and to the sea.

Temporary oil spill protective measures that are exclusively provided for the ship should also be described in the SRP with their purpose, specifications and place to be located.

These protective measures include, but not limited to, temporary impermeable floor by laying steel plates, oil collecting equipment, and solvent.

(2) Preparation of Utilities

The SRP should provide information of the available utilities such as compressed air, gas, oxygen, fresh water, electricity, lighting, etc., with their location at the facility and the ship.

Gas cylinders containing inflammable gases such as Acetylene (C_2H_2), Propane gas (C_3H_8) and O_2 for welding, heating and cutting works should be provided in a safe manner in accordance with the national regulations as applicable.

The SRP should describe how these gas cylinders both on shore and onboard are safely installed, including protective measures from external force, heat or other risks.

(3) Preparation for Prevention of Fire and Explosion

Fire extinguisher, water bucket and/or fire-pump system should be provided appropriately nearby the place where the hot work is to be done and the workplace where the gases or oils are to be handled. The SRP should describe the arrangement of the fire extinguishers and fire hydrant available for the ship to be recycled.

The SRP should identify the spaces where close attention is necessary to prevent possible fire and describe protective measures as necessary.

(4) Preparation of Personal Protective Equipment

The Ship Recycling Facility should provide enough number of appropriate Personal Protective Equipment (PPE) in accordance with the "Guidelines for the safe and environmentally sound ship recycling".

(5) Preparation of Safety Access and Egress and Fall Protection

- Safe Passage

  The SRP should describe arrangement of the safe passageway for the worker in order to access to and egress from the ship. This information should also include emergency escape route from the ship.

- Work at elevated places

  In order to protect workers falling from elevated positions, the SRP should describe the precautionary measures including, but not limited to, scaffolds, hand rails, protection net, platforms, safety harnesses or lanyard as necessary.

  The SRP should also describe how to manage the work at elevated places including the use of the clear signage and notice indicating manholes, holes for works and ventilation holes on the decks or horizontal girders.

- Prevention against dropping and scattering of objects

  The SRP should describe the safety use of the lifting tools, wire ropes, hooks, etc., with clear indication of load limit for heavy equipment and the identification of the licensed operator of the heavy equipment.

.2 Final cleaning of tanks and spaces

The SRP should describe the method of removing the residual hazardous liquid to the appropriate oil reception facility or oil barges and cleaning of tanks.

.3 Hazardous materials removal

Prior to the commencement of the cutting works at the Ship Recycling Facility, Hazardous Materials should be removed to the maximum extent possible.

After confirmation of Step-2, Hazardous Materials should be properly removed in an environmentally sound and safe manner taking into account "the Guidelines for Safe and Environmentally Sound Ship Recycling".

However, the Ship Recycling Facility should provide ship specific plan for the removal of hazardous materials in detail, taking into account ship-specific conditions such as the spaces and location of the materials and removal capability (equipment).

The SRP should be developed with reference to the Inventory of Hazardous Materials. Therefore its number and name of equipment or location used in the removal plan should be the same as the Inventory of Hazardous Materials.

An example of the removal plan of hazardous materials is shown in Attachment-4 of Appendix-1 of these guidelines.

5.3.5 STEP-5

.1 Work plan (Cutting plan)

The SRP should include the hull cutting plan, taking into account the capability of the Ship Recycling Facility, its workforce and equipment deployment. The cutting plan should be utilized in monitoring and managing the progress of cutting work.

An example of the Hull Cutting Plan is shown in Attachment-5 of the Appendix-1 of these guidelines.

.2 Cutting work

(1) Primary Cutting Work

Primary cutting works should be done with special consideration taking into account the worker safety and health.

The SRP should describe the primary cutting process which puts emphasis on the points of concern throughout the process of primary cutting which include but not limited to:

- removal of Hazardous Materials (Step-4);
- removal of goods such as furniture, electrics, stationery and inflammables (wooden made);
- arrangement of heavy equipment;
- countermeasures taken against possible oil pollution;
- countermeasures taken against vibration and noise; and
- management of bilge, drain and sludge during the recycling work.

(2) Secondary Cutting Works and Finishing Works

"Secondary Cutting Works" is the process in which large size steel blocks and/or machinery from the ship are cut into medium sized blocks and "Finishing Works" is the process by which the medium sized blocks are cut into the smaller pieces as a final products or wastes, or to be stored at the facility.

The SRP should emphasize the point of concern throughout the secondary cutting and finishing work which include but not limited to:

- avoidance of the duplication in the work process;
- treatment of waste generated during cutting works;
- countermeasures taken against possible oil pollution;

- countermeasures taken against vibration and noise;
- treatment of wasted plastics; and
- management of bilge, drain and sludge during the recycling work.

.3 Workforce and equipment plan

(1) Workforce deployment plan

The SRP should provide the workforce deployment plan including arrangement of workers, subcontractors, and other specific contracted workers such as experts for asbestos removal. The Ship Recycling Facility should check the workforce deployment plan and revise as necessary.

The workers deployment plan should clearly indicate with work place, number of workers and their leaders, etc. Such information would be helpful to identify the workers who may have been involved when an accident happens during the recycling work.

(2) Equipment plan

The Ship Recycling Facility should develop operational guidance/manuals, periodical check programme and maintenance programme taking into account the manufacturers' manuals and relevant national and regional regulations. Routine check will be done in accordance with the programmes, and result of check will be recorded.

The SRP should describe the arrangement of equipment and their place to be deployed, as a equipment plan.

5.3.6 STEP-6

Hazardous Materials Storage and Finishing Works

[

(1) Finishing Work

[to be developed]

(2) In case the management of Hazardous Materials is carried out outside an SRF, waste management and disposal sites for this particular ship should be indicated.

NOTE: Section 2.2. of Supplements to DASR (Appendix 5 to the Convention) stipulates that "if No (N) for processing of particular Hazardous Materials (this means those HMs would be processed outside the SRF), SRP shall describe where the HMs are to be processed/disposed.".

APPENDIX 1

AN EXAMPLE FORMAT FOR SHIP RECYCLING PLAN

This format is provided to give a general idea on what an SRP would be. It is not the intention to use it as a "standard" format.

(DRAFT) SHIP RECYCLING PLAN FOR	
NAME OF THE VESSEL	**M/V xxxxx**
THE PLANNED COMMENCEMENT DATE OF THE WORK	
THE PLANNED END DATE OF THE WORK	

1. GENERAL INFORMATION OF THE SHIP RECYCLING FACILITY

1.1 BASIC INFORMATION OF THE FACILITY

Name and contact information of the Facility			
Name of the Facility		*** Co., Ltd.	
Registered Address		xxxx *** ***	
Address of the Facility		xxxx *** ***	
Representative and communication address		President Mr. Yxxxx ******	
Telephone	+xxx-xxxx	Fax	+xxx-xxxx
E-mail address	xxxx@xxx.xxxx.ne.xx	URL	http://www.xxxxxx.co.xx
Manager in charge of Recycling Work			
Competent person of the work		Asbestos Removal	
		Gas Free	
		CFCs	
		PCBs	
		Others	

Document of Authorization to conduct Ship Recycling (DASR)	
Date of issue	
Identify No.	
Issued by (Name of the RO)	
Other Licences/Authorization related to the Ship Recycling	
Industrial Wastes Treatment	
Intermediate Industrial Wastes treatment	
Industrial Wastes Transportation	
ISO9001	
ISO14000	
ISO18000	
ISO30000	

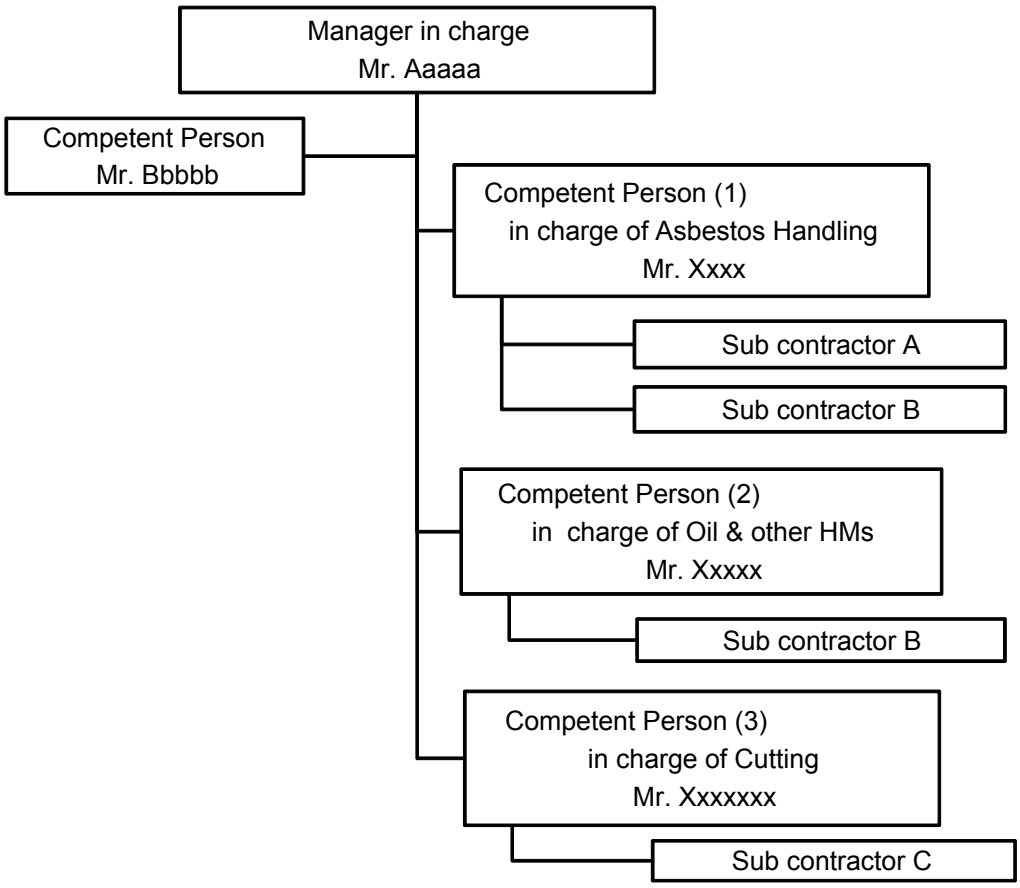
1.2 SUB-CONTRACTORS' INFORMATION

The Ship Recycling Facility will sub-contract the following works to the sub-contractors as listed below.

Works	Sub-contractor
Docking/Berthing	
Asbestos Removal	
PCBs Removal	
CFCs Removal	
AFS (toxic paints) Removal	
Oil/Bilge Stripping and Cleaning	
Sewage Removal	
Heavy Equipment Operation	
Final Disposal of H.Ms.	
Others	

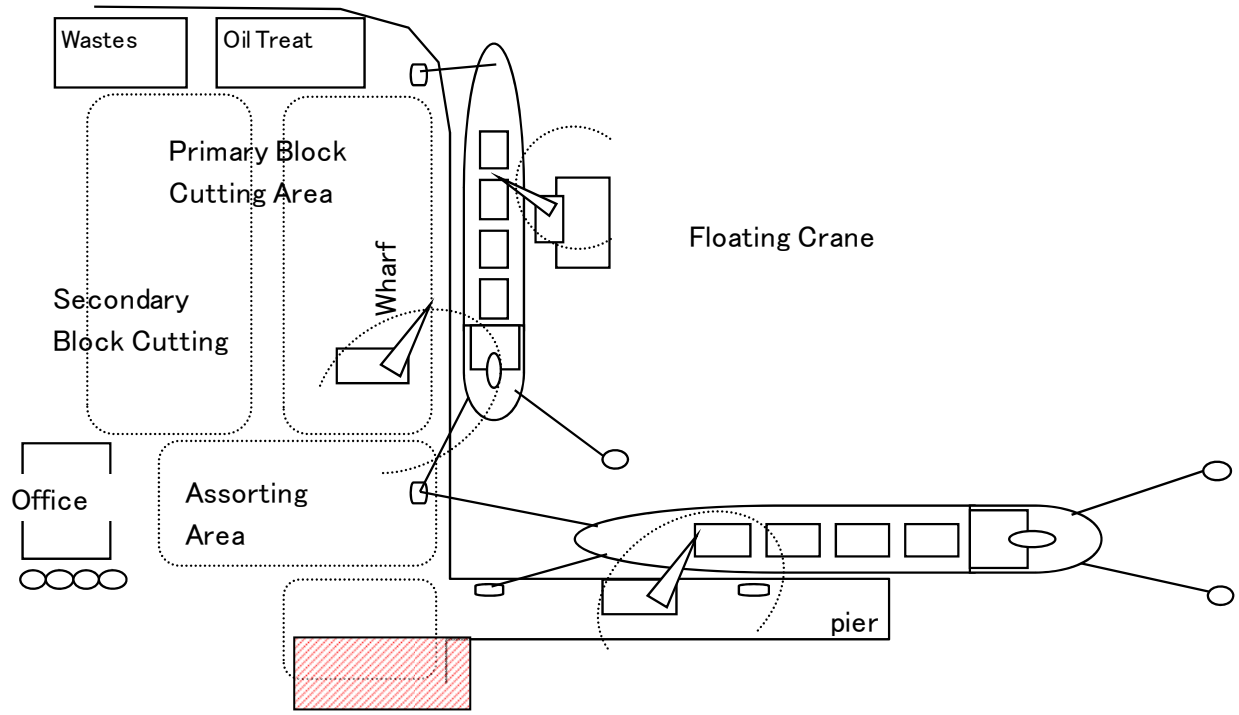
1.3 WORKING ORGANIZATION (an example)

Organizational structure of the ship recycling work for the M/V XXXX



1.4 SHIP RECYCLING FACILITY ARRANGEMENT (an example)

M/V xxx will be berthed along the pier No.xx
The area marked in red shaded is the prohibited area for entering without permission because of the temporary storage of hazardous material.



2. INFORMATION ON THE SHIP TO BE RECYCLED

Particulars of the Ship	
Ship's Name	M/V
Type of Ship	
Rules (Classification)	
Principal Particulars	Loa m × B mould m × Depth mould m × draft Displacement GT Main Engine, Generator, other auxiliary machines M/E Diesel driven HP x sets. propulsion shaft
IMO No.	
Signal Letters	
Ship Owner	
Flag State	
Port of Registry	
Shipyard/Built	XXX Shipyard, Co., Ltd.

STEP-1
PRE-ARRIVAL MANAGEMENT OF THE SHIP

SHIP RECYCLING PLAN (SRP)	NOTE
(1) Preliminary confirmation before arriving the ship • Date and place of the delivery of the ship Date: Place: • Arrangement of pilot, tug boat and berthing • Availability of crew of the ship after the delivery of the ship	• Ship Recycling Agreement should be checked.
(2) Preparation for receiving the ship For receiving the ship, the following preparatory work at the Ship Recycling Facility will be confirmed .1 Dock/Berth/Quay/Slip/ No. ____ will be clear for acceptance of the ship on _th day of __, 20XX. .2 Mooring Arrangement is available .3 Electricity/Water/Gas/Air supply is available	• Final Specifications, General Arrangement, Hydrostatic Curve, and Trim and Stability Calculation are useful for the preparation of the acceptance of the ship.

Pilot	Capt.
Tug Boat	Name & No.

Crew	Service period
1st Officer	
3rd Officer	
C/E	
2nd Engr.	

Berthing capacity up to ____ GT

Length	Draft	Height
m	m	m

Bollard	30 t 50 t 70 t 100 t
Winch	150 t

STEP-1
PRE-CLEANING OF HMs/Cargo or Oil Residues

SHIP RECYCLING PLAN (SRP)	NOTE
(1) Pre-cleaning of oils, dirty water, bilge, etc. The residual oils and dirty water/bilge will be discharged at the port of _____ under the responsibility of the shipowner. The following residual oils and dirty water/bilge other than the above will be discharged before the arrival. The name of sub-contractors for the pre-cleaning work is	• Inventory of Hazardous Materials (IHM) should be confirmed that not only Part I but also Part II & III is finalized. • Part.III of the IHM indicates residual volume of oils. • Hazardous Material should be utilized for the planning of pre-cleaning of hazardous materials.

Name of Tank/Space	Vol. Confirmed by IHM (m^3)	Vol. to be discharged (m^3)
No.1 FO TK (P)	145	143.5

Gas Free Certificate

After the removal of oils, dirty water/bilges, gas free condition will be checked by the competent person or other recognized organization.

STEP-1
PRE-CLEANING OF HMs/Cargo or Oil Residues

SHIP RECYCLING PLAN (SRP)	NOTE
(2) Pre-cleaning of Hazardous Materials The following hazardous materials will be removed at the other Ship Recycling Facility(ies) prior to the arrival. The name and address of the other authorized Ship Recycling Facility and which and how many hazardous materials of Inventory of Hazardous Materials will be removed there are listed below.	• Inventory of Hazardous Materials (IHM) should be confirmed that not only Part I but also Part II & III is finalized. • Part.III of the IHM indicates residual volume of oils. • Hazardous material should be utilized for the planning of pre-cleaning of hazardous materials.

Name of the Other Authorized SRF			
Address of the Other Authorized SRF			
Hazardous Materials			
IHM No.	Name of Equipment/ Structure	Material	Quantity (kg)

STEP-2
BERTHING/MOORING/GROUNDING OF THE SHIP

SHIP RECYCLING PLAN (SRP)	NOTE

(1) Berthing

The ship will be berthed or grounded by the pilotage of Capt.____ and manoeuvred by Capt.

ETA: o'clock, day , 20XX
At : place of berthing/grounding

Expected Condition of the Ship at the time of arrival		
Draft		trim
Aft	Fore	

Entry permit is given by: *
Mr.
Agency: (name of port authority)

- Pay attention to the grounding of bottoms, collision to the quay/wharf.
- Make sure of safely piloting by qualified pilot.
- Protect workers from falling into sea during mooring works.
- Lifejacket should be worn appropriately.

NOTE * not applicable when the permit can only be obtained just before the arrival of the ship

(2) Mooring Arrangement
Forth calculation for mooring

For the safety mooring of the ship, following mooring rope is provided.

Loa m x B m x D m (above waterline)												
Max. Wind Speed = m/sec (degree wind)												
Mooring Rope			φ mm fibre line Max Bearing Load tf									
Line No.	1	2	3	4	5	6	7	8	9	10	11	12
Max tensile strength												

Mooring arrangement plan

Safety mooring arrangement of the ship is shown on the **Attchment-1**.

Mooring calculation under severe weather conditions as expected at the location of the SRF taking into account the size of the ship is also shown on the **Attachment-1**.

Protection of the berthing facility

Air/rubber fenders will be provided for the protection of the quay, berth or other mooring infrastructures.

Fender to be provided

Type & Size	No.	Location

STEP-2
CHECK ON ARRIVAL/ACCEPTANCE OF THE SHIP

SHIP RECYCLING PLAN (SRP)	NOTE
(1) Check of the hull and machineries conditions The ship's condition will be checked in order to secure the safety of the work. The following points will be checked upon arrival. Hull part	

Check Point	Condition
Oil/Bilge	No leakage
Other contaminants	No leakage
Hull	No damage/crack
Deck	No damage/crack
Engine-room	No flooding

Generator will be used for winch operation and ballasting. Boiler will be used for the heating for the removal of fuel. Therefore, the following machineries will be checked their operational conditions.

Machinery Part

Check Point	condition
Mooring winch	Operable
Generator	Operable
Lighting	Usable
Boiler	Operable

Cargo tanks, fuel oil tanks and other spaces where might have toxic, explosive gases or a possibility of suffocation should be checked.

- Calibrated gas detector should be used

The list of the tank and space to be checked on arrival is shown on the **Attachemnt-2 Tank Condition Note.**

STEP-2
CHECK ON ARRIVAL/ACCEPTANCE CHECK OF THE SHIP

SHIP RECYCLING PLAN (SRP)	NOTE

(2) Check of the Hazardous Materials

The location and type of hazardous materials listed in the Inventory of Hazardous Materials will be confirmed after the ship arrival.

.1 Oils and residues

The quantity of the oils and cargo residues onboard will be checked with the reference to the Inventory of Hazardous Material.

Attachment-2, Tank Condition Note indicates which tanks or spaces should be checked to confirm the quantity of the oils and cargo residues.

.2 Hazardous Materials

The following items/locations in the Inventory of Hazardous Materials are in question or unclear. Therefore, identification of hazardous materials is needed after the arrival of the ship.

Visual check should be carried out first, and if the questions and unclearness on the Inventory of Hazardous Materials still remain after the visual check, sampling check should be carried out.

The additional sampling method will be followed the "Guidelines for Safe and Environmentally Sound Ship Recycling".

ASBESTOS/Materials Containing Asbestos

No	Part I Table A & B	
7	G/E Exhaust Gas pipe	PCHM*
10	Wall Non-B class	PCHM
11	Lining	PCHM
12	Deck Covering	PCHM

* Potentially containing Hazardous Materials

Visual check of the hazardous materials shall be carried out by Mr. xxxx on th day bbbb.

Sampling of Asbestos will be carried out in accordance with the Section xxx of SRFP.

Sampling will be done by labo. Co.

- For the asbestos sampling,

PCBs

No	Part I Table A & B	
16	Transformer	PCHM

STEP-3
NECESSARY PRECAUTIONS IN THE PLANNING OF RECYCLING WORK

SHIP RECYCLING PLAN (SRP)	NOTE
(1) Safe for Entry and Safe for Hot Work Safe for Entry Work .1 O_2 Concentration The following spaces are necessary to be checked the O_2 concentration upon arrival.	- While the inspection work is under way, any hot work is strictly prohibited. - Ventilation should be secured at work area while the manhole of the tank which possibly contains gases is opened.

Name of Space/Tank	Location
No.1 Prov. Ref chamber	Up Dk P Fr. 44 -56
No. 1~6 Cargo Hold	Fr.58 - 180
No. 1 P FO Tank	Fr. 110 -140

The spaces above mentioned will be maintained the O_2 concentration not less than 19.5%.

In the case that the ventilation measure is needed to ensure that the O_2 concentration is not less than 19.5%, the following ventilation measure will be applied

Name of Space/Tank	Ventilation
No.1 Prov. Ref chamber	Mech. Ventilation 2.7 kw Fan
No. 1~6 Cargo Hold	Open Hatch Cover & Man holes for 6 hrs at least
No. 1 P FO Tank	Open Man holes with Mech. Ventilation (Expl. Proof type) 7kw x 2 sets

STEP-3
NECESSARY PRECAUTIONS IN THE PLANNING OF RECYCLING WORK

SHIP RECYCLING PLAN (SRP)	NOTE

.2 Toxic and Explosive Gases

The following spaces are necessary to be checked the gas concentration upon arrival.

Name of Space/Tank	Location
No. 1~6 Cargo Hold	Fr.58 - 180
Slop Tank P&S	Fr.48 -58
No. 1 P FO Tank	Fr. 110 -140
HFO Service Tank	Eng. Room Mid Deck Fr. 44 - 48

In order to secure the safety of workers, competent person Mr. xxx will make a preliminary assessment.

Oil residues will be checked taking into account the information contained in the Inventory of Hazardous Materials and recorded in the **Attachment-2** Tank Condition Note.

After the preliminary assessment of these spaces, check of the gas concentration will be carried out.

In the case of these gases concentration are beyond the level set forth in the table below, following ventilation measure will be applied:

Name of Space/Tank	Lower Expl. Limit (Vol %)	Ventilation
No. 1~6 Cargo Hold	0.08	Mechanical Ventilation (expl. Proof type)
Slop Tank P&S	0.08	
No. 1 P FO Tank	0.08	
HFO Service Tank	0.08	

STEP-3
NECESSARY PRECAUTIONS IN THE PLANNING OF RECYCLING WORK

SHIP RECYCLING PLAN (SRP)	NOTE
Safe for Hot Work The following spaces will be checked the O_2 concentration and the gas volume before the Hot Work are commenced. (table below) The spaces above mentioned will be maintained: • O_2 concentration is not less than 19.5% and not beyond 22.0% • Flammable vapours are below 10% of the Lower Explosive Limit. (2) Other Precautions [to be developed] - Discharge method of CO_2 from CO_2 fire-extinguishing system - Pumping of Heavy Fuel Oil under low temperature atmosphere - Removal of EPIRB from ship.	- While the inspection work is under way, any hot work is strictly prohibited. - Ventilation should be secured at work area while the manhole of the tank which possibly contains gases is opened.

Name of Space/Tank	Location
No. 1~6 Cargo Hold	Fr.58 - 180
Slop Tank P&S	Fr.48 -58
No. 1 P FO Tank	Fr. 110 -140
HFO Service Tank	Eng. Room Mid Deck Fr. 44 - 48

STEP-3
SPECIFIC SAFETY TRAININGS

SHIP RECYCLING PLAN (SRP)	NOTE
(1) Special Training for Asbestos Removal The ship has a large amount of Asbestos in the accommodation. Therefore, special training programme for workers will be carried out before the work is commenced.	

Training Programme	Duration
Hazards of Asbestos	0.5 hr
Application of Asbestos	1.0 hr
Suppressant measure from scattering Asbestos	1.0 hr
Use of PPEs	1.0 hr
Other protective measure from exposure of Asbestos	1.0 hr

STEP-4
PREPARATORY WORKS BEFORE CUTTING

SHIP RECYCLING PLAN (SRP)	NOTE
(1) Preparation for oil spill incident In order to protect the environment from pollution by the spilled oil or other liquid to the soil or sea, impermeable steel plate are provided at the primary and secondary cutting area. For the removed machines, temporary oil coaming is provided at the assorting areas.	
Equipment | Qty. & Spec Oil Collecting pump | 0.5 t/h with float x 1 set Solvents | 200 sets	• Confirm that the pump is always operable.
In order to cope with the spilled oil to soil/ground and to the sea, oil collecting pump and solvents are provided at the end of the quay. These protective measures from oil spills to soil/ground and to the sea are shown on the **Attachment-3**. (2) Preparation of Utilities O_2 and LPG storage tank are provided inside the facility. Fire hydrants are also provided in the facility. These arrangement are shown on the **Attachment-3** Temporary O_2 bottles and LPG bottles will be provided on board. O_2 and LPG bottles will be stored in vertical position with the protective guages. Chains for the fall protection of the bottles are provided.	• Hose connection should be checked tight with no leakage.
(3) Preparation for Prevention of Fire and Explosion .1 Fire Extinguisher and Hydrant Fire extinguisher, water bucket and/or fire pump system will be provided appropriately nearby the place where the hot work is to be done and the workplace where the gases or oils are to be handled. The arrangement of the fire extinguishers and fire hydrant on board will be provided with the General Arrangement of the Ship. Fire hydrant arrangement of facility is shown on the **Attachment-3**. .2 Spaces of awareness for fire on the ship Special attention will be given to the tanks and spaces listed in the **Attachment-1 Tank Condition Note** following spaces for possible fire or explosion.	

STEP-4
PREPARATORY WORKS BEFORE CUTTING

SHIP RECYCLING PLAN (SRP)	NOTE
The gas contents will be confirmed with the qualified person. After the confirmation, the following notice will be placed at the entrance of the compartment/tanks.	

HOT WORK PERMIT		
Name of Compartment/Tank		
Gas Contents		
Date/Time of Inspection		
Permitted by		

- Manholes, ventilations, doors and hatches will be opened as necessary for ventilation as soon as the ship arrival.
- Removal and cleaning of hazardous materials of the Engine-room and Cargo pump-room will be carried out.
- During the cleaning or ventilation of the cargo oil tanks for gas-free, explosion-proof lighting and ventilating apparatus will be used.

Prior to the hot work, goods and inflammables will be removed as much as possible. Cleaning or Sheet (or mat) covering will be done for following goods;

- Insulation, inner wall of the living compartment
- Tanks with residual oil, sludge and gas
- Insulation of the provisional ref. or cold store
- Hazardous Materials such as PCB, TBT or other inflammables
- Bilges in the engine-room
- Pipes contains oil and gas.

- Powders in the Rocket signals will be removed and stored carefully so as not to catch fire.

- Leakage of gases and O_2 from piping, hoses, valves and gas cutting apparatus will be checked.
- When conducting hot work or works possibly be the igniter (i.e. grinding/chipping work), O_2 will not be used for ventilation at confined and enclosed spaces.

(4) Preparation of Personal Protective Equipment

The Facility will provide enough number of appropriate Personal Protective Equipment (PPE) in accordance with the "Guidelines for the safe and environmentally sound ship recycling" and make use them for workers.

Air line mask will be ..... for specific work.

[to be developed]

STEP-4
PREPARATORY WORKS BEFORE CUTTING

SHIP RECYCLING PLAN (SRP)	NOTE
(5) Preparation of Safety Access and Egress and Fall Protection – Safe passageway will be marked on the deck. In order to access to and egress from the ship, horizontal steel ladder will be provided with handrail on Dk. Fr. from No. quay. Maximum load of the bridge is kg (persons) – While cutting the funnel, bridge, and other works in the elevated places more than 1.5 m height, platform or scaffold with handrail will be appropriately provided. – Signage and notice of manholes, holes for works and hatch coaming will be provided. – Prevention against dropping and scattering of objects [to be developed].	• Lighting equipment should be provided.

STEP-4
FINAL CLEANING OF TANKS AND SPACES

SHIP RECYCLING PLAN (SRP)	NOTE

Tank cleaning and Gas Free will be carried out in accordance with the following procedures.

Procedures of Tank cleaning and Gas Free

- Preparation of systems for ventilation, lighting and oil cleaning
- Provision of the Reminder for all workers for the prohibition of any use of fire during tank cleaning
- Arrangement of extinguishers
- Confirmation of the amount of oil in each tank
- Confirmation of the gas concentration levels in tanks and its adjacent compartment
- Ventilation of the tanks and its adjacent compartment, as necessary
- Removal of oil or chemical substances in tanks and its adjacent compartment
- Transportation of oil or chemical substances in tank and piping to disposing facilities or contractors
- Transportation of bilge oil and water to disposing facilities
- Check of the gas content level in tanks and enclosed spaces
- Cleaning residual oil and sludge by workers or contractors

The residual heavy fuel oils in the following bottom tank will be removed in a manner described below.

Tank	Oil	Volume (m^3)
No.1 FO Tank (P,S)	HFO	80.0
No.2 FO Tank (P.S)	HFO	40.0
No.3 FO Tank (Center)	HFO	35.0
No.4 FO Tank (P.S)	HFO	40.0
LO Tank	LO	20.0

Method for stripping residual HFOs

- Open the manholes on the bottom with explosion-proof ventilation fan and check the gas volume
- Keep the HFO temperature up to 50deg.C or more
- Strip the HFO by transfer pump and store the tanker (Tanker Capacity 50kl/day)
- Clean up inside the tank with neutralizing agent
  Name of Agent :
- High pressure washer will be utilized for final cleaning
- Stripping the residual water/oil mixture to the tanker

NOTE

- Keep fire away during the tank cleaning work.
- Prepare oil solvents to protect accidental spillage.
- Protective sheet should be provided around the pumping/suction areas.

STEP-4

HAZARDOUS MATERIALS REMOVAL

SHIP RECYCLING PLAN (SRP)	NOTE
Prior to the commencement of the recycling works at the Ship Recycling Facility, Hazardous Materials will be removed with the following methods; (1) Removal of Hazardous Materials After confirmation of Step-2, Hazardous Materials will be properly removed in an environmentally sound and safe manner taking into account "the Guidelines for Safe and Environmentally Sound Ship Recycling". .1 Asbestos and materials containing asbestos Following procedure will be taken in order to remove asbestos and materials containing asbestos safely: Mr. xxxx, of *** Co., who has completed the relative course of handling asbestos will be appointed as a competent person in order to remove asbestos and materials containing asbestos. Names and positions of machines and/or constructions contained asbestos and materials containing asbestos will be referred to the Inventory of Hazardous Materials. The necessary level of the removing works, proper arrangement of qualified workers and required equipment for the removal of asbestos will be decided. − Level -1 and -2 works will be done by the licensed sub-contractor for handling asbestos with appropriate equipment. − Level -3 works will be done by the worker of Ship Recycling Facility. In accordance with the level of removal, enclosure of compartment or proper protection, i.e. vacuumed fan, air cleaner or water spray will be adopted to avoid scattering asbestos and materials containing asbestos in the air. Workers who are engaged in the demolition work at compartment which contains asbestos will be trained prior to the work in accordance with the Training programme set forth in the previous section. The Facility will develop the removal plan of asbestos, manage workers and provide exclusive clothing, PPEs and respiration apparatus so the workers not to respire the asbestos. .2 Polychlorinated Biphenyl (PCBs) No need for this ship, because materials containing PCBs are not onboard according to the Inventory.	

STEP-4
HAZARDOUS MATERIALS REMOVAL

SHIP RECYCLING PLAN (SRP)	NOTE
.3 Chlorofluorocarbons (CFCs) In case of handling of bottles/containers containing CO_2, CFCs or ammonia gas, it will be done without any release of them. Removed bottles/containers will be stored without a shock or a fire and then delivered to the licensed industrial wastes dealer. CFCs in piping lines and a compressor equipped with a refrigerator will be removed and collected by the experts. R22 is used for the Ship. Name of the collector CFCs will be monitored in accordance with the manifesto made by the collector mentioned above.	• CFCs should not be released in the air.
.4 Wasted Plastics Wasted plastics (polyurethane, polystyrene), Bakelite (Printed Circuit Board), synthetic resin, film, synthetic skin, construction materials (tiles, heat insulation, synthetic wood, acoustic insulator), synthetic fibber nylon, polyester, acrylic resin), polyvinyl chloride container, tire, polyvinyl lining, polymer, paint and glue will be treated as follows: Sorting for reuse and delivering to a dealer for recycling will be done. Wasted plastics mixed with others except plastic will be delivered to the final processor as an industrial waste of controlled type and controlled by the manifesto.	• Removal work of plastic from ship will not be done under windy condition to prevent scattering.
(2) Removal Plan of Hazardous Materials The removal plan of hazardous materials as shown on the **Attachment-4** is ship specific and made with reference to the Inventory of Hazardous Materials. Therefore its number and name of equipment or location used in the removal plan should be the same as the Inventory of Hazardous Materials.	

STEP-5
WORK PLAN (CUTTING PLAN)

SHIP RECYCLING PLAN (SRP)	NOTE
The hull cutting plan, taking into account the capability of the Ship Recycling Facility, its workforce and equipment deployment is illustrated in the **Attachment-5**. The cutting plan should be utilized in monitoring and managing the progress of cutting work. The process of hull cutting work is as follows [to be developed] .1 Upper part Mast, Funnel, Nav. Deck, Accommodation Engine casing .2 Upper Deck .3 Middle Deck .4 Engine-room .5 Stern Construction .6 Fore Construction .7 Mid-section	

STEP-5
CUTTING WORK

SHIP RECYCLING PLAN (SRP)	NOTE
[to be adjusted] (1) Primary Cutting Work Primary cutting works should be done with special consideration taking into account the worker safety and health. The major points of concern throughout the process of primary cutting are as below: • Removal of Hazardous Materials (Step-4); • removal of goods such as furniture, electrics, stationery and inflammables (wooden made); • arrangement of heavy equipment; • countermeasures taken against possible oil pollution; • countermeasure taken against vibration and noise; and • management of bilge, drain and sludge during the recycling work. (2) Secondary Cutting Works and Finishing Works "Secondary Cutting Works" is the process in which the large size steel blocks and/or machinery from the ship are cut into medium sized blocks and "Finishing Works" is the process by which the medium sized blocks are cut into the smaller pieces as a final products or wastes, or to be stored at the facility. The major points of concern throughout the secondary cutting and finishing work are as below: • avoidance of the duplication in the work process; • treatment of waste generated during cutting works; • countermeasure taken against possible oil pollution; • countermeasures taken against vibration and noise; • treatment of wasted plastics; and • management of bilge, drain and sludge during the recycling work.	

STEP-5
WORKFORCE AND EQUIPMENT PLAN

SHIP RECYCLING PLAN (SRP)	NOTE
(1) Workforce deployment plan Workforce deployment plan including arrangement of workers, subcontractors, and other specific contracted workers such as experts for asbestos removal will be made. The facility will check the workforce deployment plan and revise as necessary. The workers deployment plan should clearly indicate with work place, number of workers and their leader, etc. [work and schedule control sheet will be developed] (2) Equipment plan .1 Equipment of the Facility and Handling of Operation and Maintenance • Machines and equipment will be handled by the qualified operators who have a licence and trained appropriately. • Heavy lifting equipment will be periodically checked in accordance with the instructions of their manufacturer and be recorded in a maintenance book. .2 Arrangement of Heavy lifting equipment and Block handling equipment Capacity of the heavy lifting equipment and their arrangement/ place to be deployed will be in accordance with the table below.	• Heavy lifting equipment should be checked daily prior to work by competent person. • The maximum load of the heavy lifting equipment will be clearly marked in a conspicuous place.

	Name of the Equipment	Capacity	Arrangement/ Place to be deployed	Works
1	High Pedestal Jib Crane	60t	At sea Side of the ship	Lifting blocks and equipment
2	High Pedestal Jib Crane	35t	Primary Cutting Area	Lifting blocks and equipment
3	Backhoe	SH400, MSD70		Secondary Cutting Works
4	Lifting magnet with backhoe	ZX330, 1500φ	Shipment and Primary Cutting Area	Handling and shipment of scraps
5	Large hydraulic shearing machine	600 tons	Primary Cutting Area	Cutting block and steel pieces
6	Folk Lift	ZX200		Transfer of scrap
7	Trucks	10 tons		Shipment of scrap
8	Trailer	1.5 tons		Shipment of scrap
9	Truck Scales	50 tons		

STEP-5
WORKFORCE AND EQUIPMENT PLAN

SHIP RECYCLING PLAN (SRP)	NOTE
Arrangement of Ships/Boats	• The maximum load will be in accordance with national regulations. In case of having variable working load (e.g., mobile crane with variable reach), an indicator which shows the maximum load and outreach will be equipped. • Precautionary measures will be taken to prevent from falling or collapse by natural disasters (i.e. typhoon, cyclone and earthquake). • Other lifting gears such as chain blocks, ropes, wire ropes, etc., will be provided and maintained properly.

	Name and Type of the Ship	Particulars	Place deployed	Works
1	Mooring boat	G T: 5tons Powers: 240PS	Quay	Mooring
2	Barge	42 m x 15 m 1000m^3 32 m x 8 m 600 m^3	Quay	Transfer of Scrap
3	Tugboat	cCarter as needed		Berthing, towing ship

STEP-6
HAZARDOUS MATERIAL STORAGE and FINISHING WORKS

SHIP RECYCLING PLAN (SRP)	NOTE
(1) Hazardous Materials Storage The major points of concern for the hazardous materials storage in an environmentally sound manner are as below: • All materials and waste should be sorted and stored separately in the storage zone. • Special attention should be given to the storage of asbestos and materials containing asbestos. • Workers engaged in asbestos storage should be equipped with proper PPE, according to national regulations or the "Guidelines for the safe and environmentally sound ship recycling". • Hazardous Materials, and especially asbestos in containers, should be stored in exclusive indoor storage. • The storage of liquid waste should be stored under the roof and on the impermeable floor. (2) Finishing Work [to be developed] (3) Waste Management and disposal sites List of the sites which are to be used, in case such sites are different from those identified in SRFP. *Refer to Note 3 of Section 2.2. of Supplements to DASR (Appendix 5 to the Convention).	

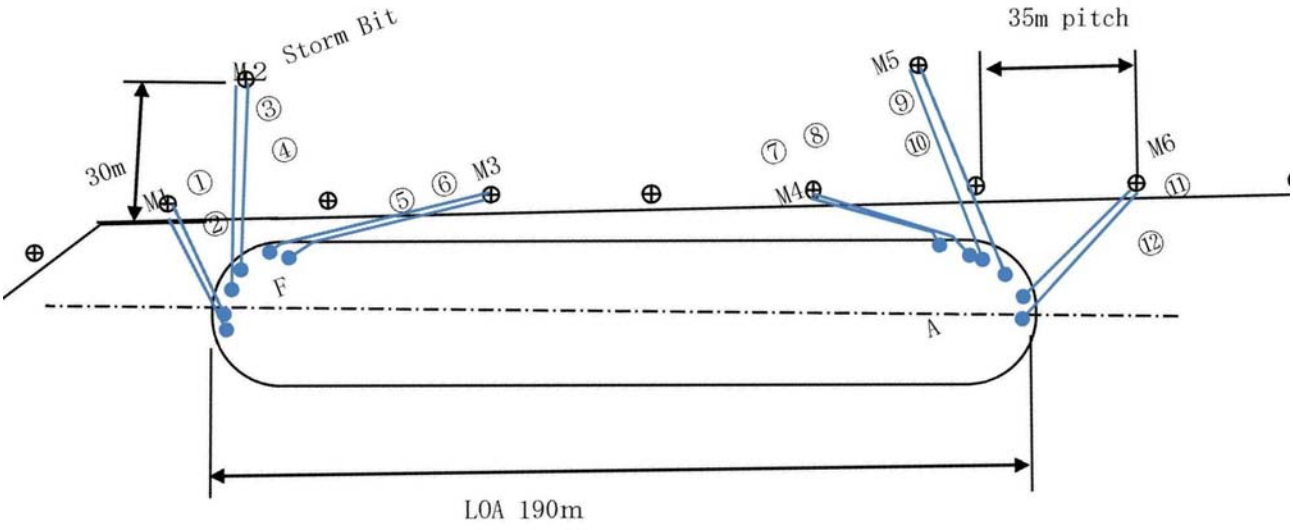
Attachment-1

MOORING ARRANGEMENT

Dock in/Alongside the Quay date: Tide: m

Ship Name	M/V xxxxx	
Type of Ship		
Class(Applied reg.)		
Particulars	Loa m × B (mld) m × D (mld) m ×d m Gross Tonnage: GT Main Engine	
Quay	Length: m Draft: m Capacity up to GT	
Mooring apparatus	sinker: 20 tons, 30 t bit, 100 t storm bit	Rubber fender V type 40 t

Mooring Calculation												
Mooring Rope	65 mm dia						Max Tensile Strength 78 tf					
Wind kt degree												
	Fore Side						Aft Side					
Line No.	1	2	3	4	5	6	7	8	9	10	11	12
Tension (tf)												
Bit No.	M1	M1	M2	M2	M3	M3	M4	M4	M5	M5	M6	M6
Bit Capacity	30t	30t	100t	100t	30t	30t	30t	30t	100t	100t	30t	30t



Result of OCIMF calculation

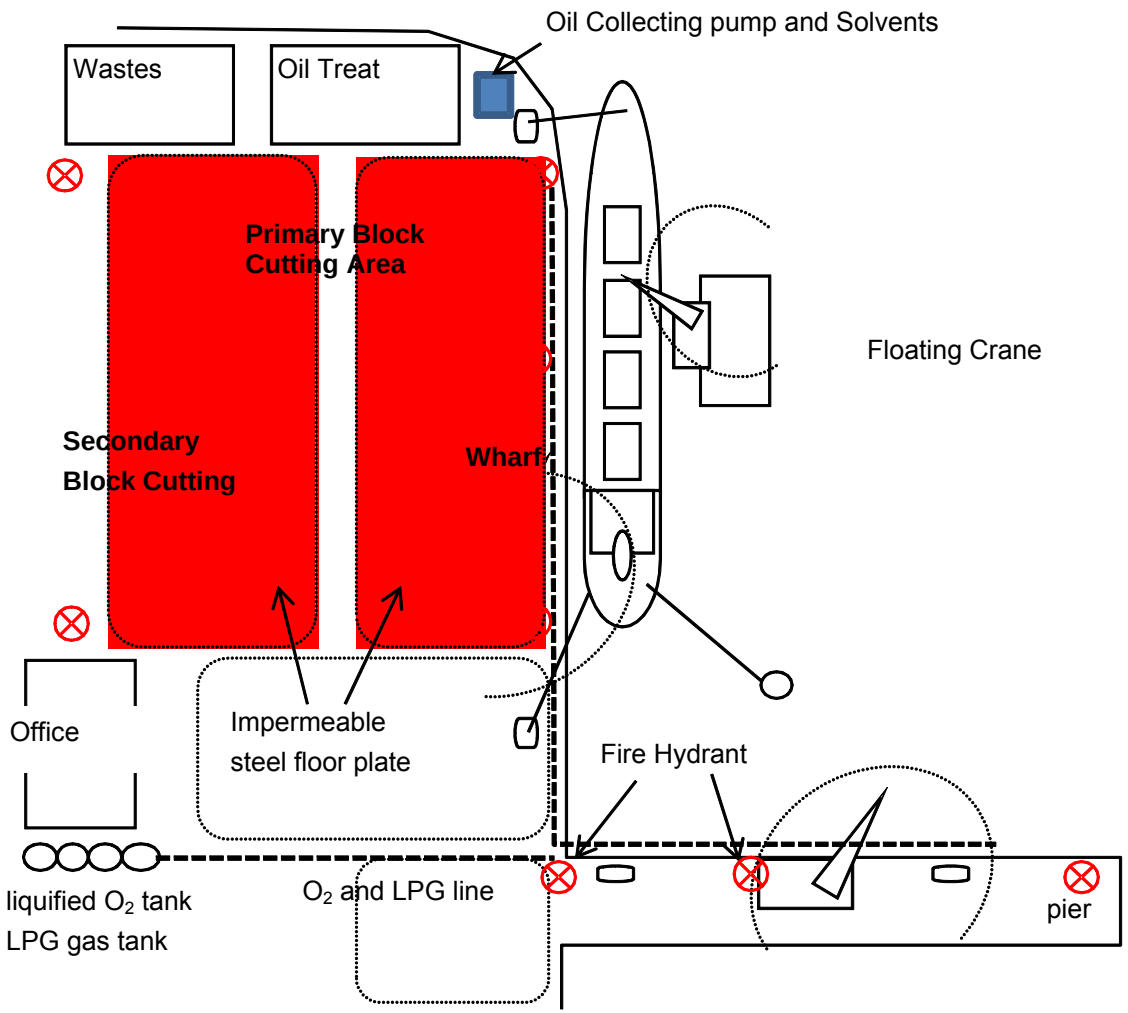
Attachment-2

TANK CONDITION NOTE

TANK CONDITION NOTE									
Name of Ship	xxxxx								
Date of Survey	Day , 20xx								
Name of Compartment	Loaded or treated materials	Oxygen level (Vol%)		Gas concentration (Vol%)		Residual oil (% of area)	Sludge (% of area)	Bilge (% of area)	Remarks
No.1 COT (P)	Crude Oil	19.5		0.08					Gas freed
No.1 COT (S)	Crude Oil	19.5		0.08					Gas freed
No.1 FO Tank	FO	19.5		0.08		0.2 m^3			Gas freed
No.2 FO Tank	FO	19.5		0.08		0.2 m^3			Gas freed
No.3 FO Tank	FO	19.5		0.2		0.8 m^3			
No.4 FO Tank	FO	19.5		0.2		0.8 m^3			
FO Gravity Tank	FO	19.5		0.2		2.5 m^3			Gas freed
Cargo pump-room	Crude oil	19.5							
Emerg. Fire Pump FO Tk	FO	19.5		0.2		0.1 m^3			
Engine-Room	FO	19.5		0					Ventilated
Provisional Ref. room		19.5							
Shipowner person Sign									

Attachment-3

PROTECTIVE MEASURES FROM OIL SPILL



Attachment-4

REMOVAL PLAN OF HAZARDOUS MATERIALS

<table>
<tr><td rowspan="2">Inventory List</td><td colspan="5">Table A</td><td colspan="2">Table B</td></tr>
<tr><td colspan="5">Asbestos、Ozone Depleting Substances, Polychlorinated biphenyls (PCBs),
Anti-fouling compounds and systems</td><td colspan="2">Cadmium, Hexavalent Chromium, Lead, PBBs, PBDEs,Radioactive substances, etc.</td></tr>
<tr><td rowspan="12">Part I
MATERIALS CONTAINED IN THE SHIP'S STRUCTURE OR EQUIPMENT</td><td colspan="4">CFC (TBT)</td><td>Method of Removal</td><td></td><td></td></tr>
<tr><td>No.</td><td>Location</td><td>Mat</td><td>Qty.</td><td></td><td></td><td></td></tr>
<tr><td>1</td><td>Boot top</td><td>TBT</td><td>1.8</td><td rowspan="3">No removal is applied
Protective sheet under the bottom will be provided while cutting the bottom to protect release to the soil and sea.
Paint chip will be controlled.</td><td rowspan="3"></td><td rowspan="3"></td></tr>
<tr><td>2</td><td>Vertical part of bottom</td><td>TBT</td><td>2.18</td></tr>
<tr><td>3</td><td>Bottom surface</td><td>TBT</td><td>3.64</td></tr>
<tr><td colspan="4">Asbestos</td><td>Method of Removal</td><td>No.</td><td>Method of Removal</td></tr>
<tr><td>No.</td><td>Name of Equipment</td><td>Mat.</td><td>Qty.</td><td></td><td></td><td></td></tr>
<tr><td>1</td><td>Aux. FO Cooling Pump/TLG-2</td><td>P</td><td>0.09</td><td rowspan="13">P: Packing
G: Gaskets
S: Shoe
I: Insulation

P,G,Is will not scatter. Treat as Level 3. Gaskets attached to the equipment will not be removed. Gaskets in the piping will be removed as necessary and controlled with the plastic bag exclusive use for Asbestos.

Insulation will be removed in accordance with the SRP and the Guidelines for safe and environmentally sound ship recycling.

Insulation on piping will not be removed in the ship.</td><td rowspan="13"></td><td rowspan="13"></td></tr>
<tr><td>2</td><td>Aux. LO Pump/LNG-20</td><td>"</td><td>0.09</td></tr>
<tr><td>3</td><td>Cooling Oil Pump for F.O. Valve Packing</td><td>"</td><td>0.09</td></tr>
<tr><td>4</td><td>Auxiliary Tergiversate Oil Pump Packing</td><td>"</td><td>0.05</td></tr>
<tr><td>5</td><td>FO Purifier/SJ-700S</td><td>S</td><td>0.03</td></tr>
<tr><td>6</td><td>FW Cooler</td><td>G</td><td>0.03</td></tr>
<tr><td>7</td><td>G/E Exhaust Gas Pipe</td><td>I</td><td>4.0</td></tr>
<tr><td>8</td><td>Generator Diesel Engine/6KF(A)L</td><td>P/G</td><td>0.04</td></tr>
<tr><td>9</td><td>LO Cooler</td><td>P</td><td>0.03</td></tr>
<tr><td>10</td><td>LO Purifier/SJ-700S</td><td>S</td><td>0.03</td></tr>
<tr><td>11</td><td>M/E Exhaust Gas Pipe</td><td>I</td><td>23.0</td></tr>
<tr><td>12</td><td>M/E Sea Water Cooling Pump/MPH-100W</td><td>P/G</td><td>1.12</td></tr>
</table>

	13	M/E Fresh Water Cooling Pump/ MPH-80W	"	1.12			
	14	M/E L.O. Pump	"	0.09			
	15	Main Diesel Engine/6LUNA28	"	2.4			
	16 17	MPH-Sow Motor Centrifugal Pump	"	1.4			
	18 ~25	Mycom Reciprocating Compressor type C	"	0.9			
	26	Sea Water Service Pump/MOH-32	G	1.12			
	27	Pipe Flange	G	5			
	Ozone Depleting Substances				Method of Removal		
	No.	Name of Equipment	Mat.	Qty.			
	28	Mycon Reciprocationg Compressor Type C (Engine-room)	R22	5.9	Removal method of R22 will be carried out in accordance with SRP and the Guidelines for safe and environmentally sound ship recycling.		
	29	Ref. comp (2nd deck)	R22	0.08			
	30	Ref. Comp (2nd deck)	R22	0.08			
	31	Air Cond. (2nd deck)	R22	0.4			
	32	Air Cond. (2nd deck)	R22	0.4			
Part II OPERATIONALLY GENERATED WASTE							
Part III STORES							

<table>
<tr><td rowspan="2">Inventory List</td><td colspan="5">Table C</td><td>Table D</td></tr>
<tr><td colspan="5">Potentially hazardous items
Oil, Gas, Solid</td><td>Regular Consumable Goods potentially containing Hazardous Materials
Computer, Refrigerator, printer, television, radio, video recorder, telephone, consumer batteries, lamps, etc.</td></tr>
<tr><td>Part I
MATERIALS CONTAINED IN THE SHIP'S STRUCTURE OR EQUIPMENT</td><td colspan="5"></td><td></td></tr>
<tr><td rowspan="3">Part II
OPERATIONALLY GENERATED WASTE</td><td colspan="4"></td><td>Method of Removal</td><td></td></tr>
<tr><td>No.</td><td></td><td></td><td></td><td></td><td rowspan="2"></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Part III STORES					Method of Removal		Method of Removal
	No.	Location	item	Kl		No.	
	1	No.1 F.O.T. (P & S)	FO	0.15			
	2	No.2 F.O.T. (P & S)	FO	0.09			
	3	No.3 F.O.T. (P)	FO	0.04			
	4	No.3 F.O.T. (S)	FO	0.04			
	5	No.4 F.O.T. (P & S)	FO	0.17			
	6	No.4 F.O.T. (C)	FO	0.09			
	7	L.O.T (S)	DO	0.02			
	8	Hyd. O.T(P)	Hyd. Oil	0.02			
	9	F.O. Settling Tank	DO	0			
	10	F.O. Service Tank	DO	0			
	11	L.O.T	LO	0			
	12	Kerosene O.T	Kero	0			

Attachment-5

CUTTING PLAN

SRP Hull Cutting Plan 961.24GT LDT.

SCHEDULE		1W	2W	3W	4W	5W	6W	7W	8W	9W	10W	TOTAL
Weight / Vol. from Ship			60	90	140	130	150	150	130	130	50	1,030
Cutting Part / Vol. from Yard			60	70	140	130	140	140	120	120	40	960
Preparatory Works		←	→									
	Residual Oil, Cleaning, Gas Free	←	→									
	Remove Hazardous Materials	←	→									
	Remove Asbesots, ACMs		←	→								
Deck Machineries			30 →									
Super Structure, Accomodation			30 →									
Above Water line	Focsl Deck, FP Tank			20 →								
	Stern Const. Engine Const(Funnel)				20 →	40 →	40 →	50 →	30 →			
	Engine Room Machieries					30 →	30 →	20 →				
	Accomodationm Tanks			(DECK) (SHELL & BHD.) ←	60 →	60 (No.2) →	40 →	80 (No.3) →	100 (No.4) →	30 →		
Bottom Construction				50 ← (F.P.T. & NO.1)	60 →		30 (F'WD PART OF NO.2)			30 60 CUT BELOW WATER L. (MACH, SPACE)	50 GROUNDING ON SHORE (REMAINED HOLD PARTS)	
Products	Re-rollable scrap											0
	Steel scrap											0
	Cast Iron											0
	Non Metal scrap											0
	Forged Steel											0
	Re-usables											0