



Upgrading Indian Ship Recycling Facilities

**“It’s only a matter of time
when it becomes waste”**



**PLANNING
IS NOT
OPTIONAL**

HKC & EU



IMO: “Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships”

EU: “Regulation of the European Parliament and of the Council on ship recycling ...”

Applicable to:

- Merchant ships* > 500GT
 - EU: EU-flagged and non EU-flagged ships* calling at a EU port
- Ship Recycling Facilities



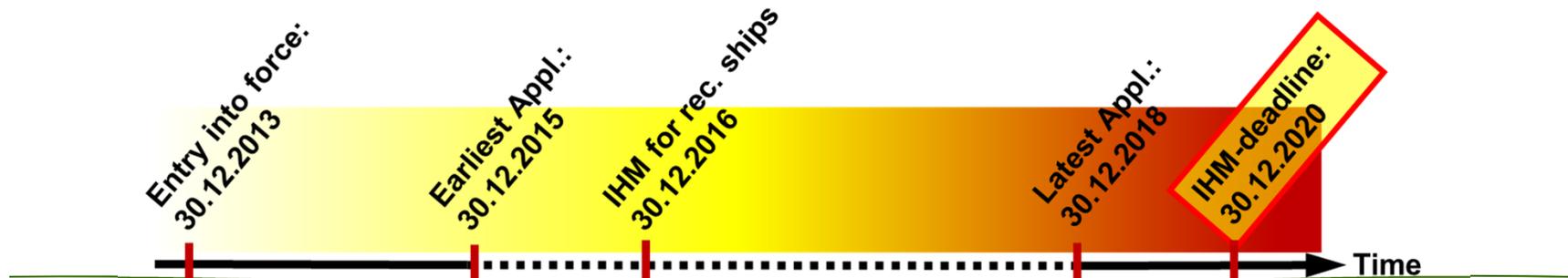
"ship" means a vessel of any type whatsoever operating or having operated in the marine environment, and includes submersibles, floating craft, floating platforms, self-elevating platforms, Floating Storage Units (FSUs), and Floating Production Storage and Offloading Units (FPSOs), as well as a vessel stripped of equipment or being towed

HKC & EU

Handling of ships by authorized SRFs



- HKC-ships / EU-ship only to be recycled in authorized SRFs
 - Shipowner
 - IHM Part 1 during operational phase
 - For delivery to SRF
 - Final survey / (I)RRC
 - Safe-for-hot work conditions
 - Ship Recycling Facility (authorized)
 - Ship specific recycling planning (SRP)



HKC & EU



- Key Guidelines

- 2011 Guidelines for Development of Ship Recycling Plan
(Res. MEPC.196(62))
- 2011 Guidelines for the Development of IHM
(Res. MEPC.197(62))
- 2012 Guidelines for Safe and environmentally Sound Ship Recycling
(Res. MEPC.210(63))

- EU references IMO Guidelines,
own Guidelines may be developed

SRFP

2012 Guidelines for Safe and environmentally Sound Ship Recycling ((Res. MEPC.210(63))



- Facility management

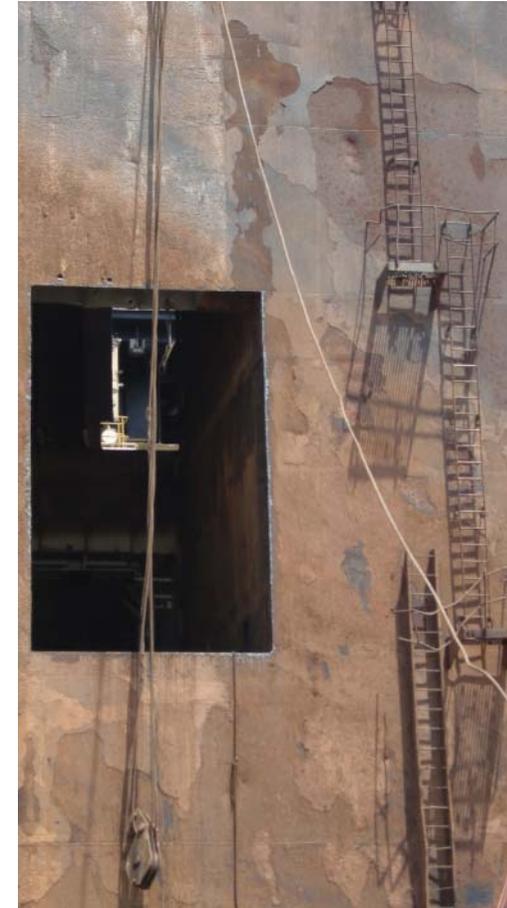
- Company information
- Training programme, Worker management
- Records management

- Facility operation

- Facility information
- Permits, licences and certification
- Acceptability of ships
- Ship Recycling Plan (SRP) development
- Vessel arrival management
- Ship recycling method
- Reporting upon completion

- Worker safety and health compliance

- Worker health and safety
- Key safety and health personnel
- Job hazard assessment
- Prevention of adverse effects to human health
 - Safe-for-entry procedures & criteria
 - Welding, cutting, grinding and heating
 - Drums, containers and pressure vessels
 - Prevention of falling from heights
- Gear and equipment for rigging and materials handling
- Housekeeping and illumination
- Maintenance and decontamination of tools and equipment
- Health and sanitation
- Personal protective equipment
- Worker exposure and medical monitoring



SRFP



- Emergency preparedness and response plan (EPRP)
- Fire and explosion prevention, detection and response
- Environmental compliance approach
 - Monitoring
 - Management of Hazardous Materials, PCHM
 - Additional sampling and analysis
 - Identification, marking and labelling and potential on-board locations
 - Removal, handling and remediation
 - Storage and labelling after removal
 - Treatment, transportation, and disposal



SRFP

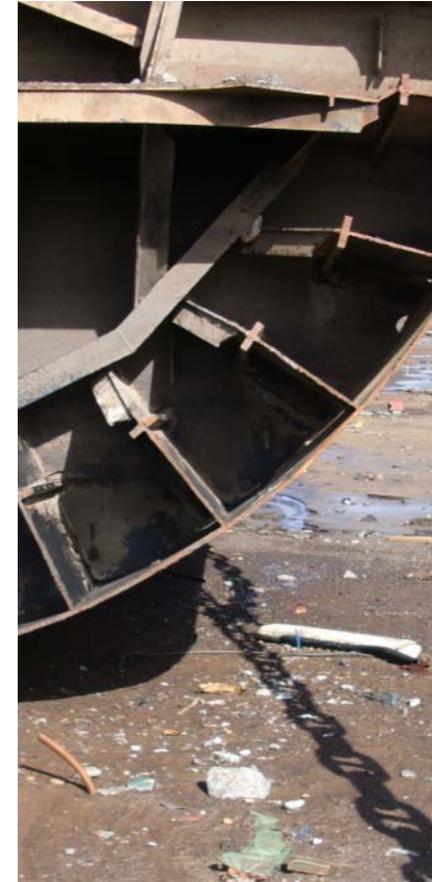


- Environmentally sound management of Hazardous Materials

- Asbestos and materials containing asbestos
- PCBs and materials containing PCBs
- Paints and coatings
 - Anti-fouling compounds and systems (TBT)
 - Toxic and highly flammable paints
- Ozone-depleting substances (ODSs)
- Hazardous liquids, residues and sediments
- Heavy metals (lead, mercury, cadmium and hexavalent chromium)
- Other Hazardous Materials

- Prevention of adverse effects to the environment

- Spill prevention
- Control and countermeasures
- Storm-water pollution prevention
- Debris prevention and control
- Incident and spills reporting procedures





What has been done ...

ClassNK Project



ClassNK
Consulting Service

Green Ship Recycling Services

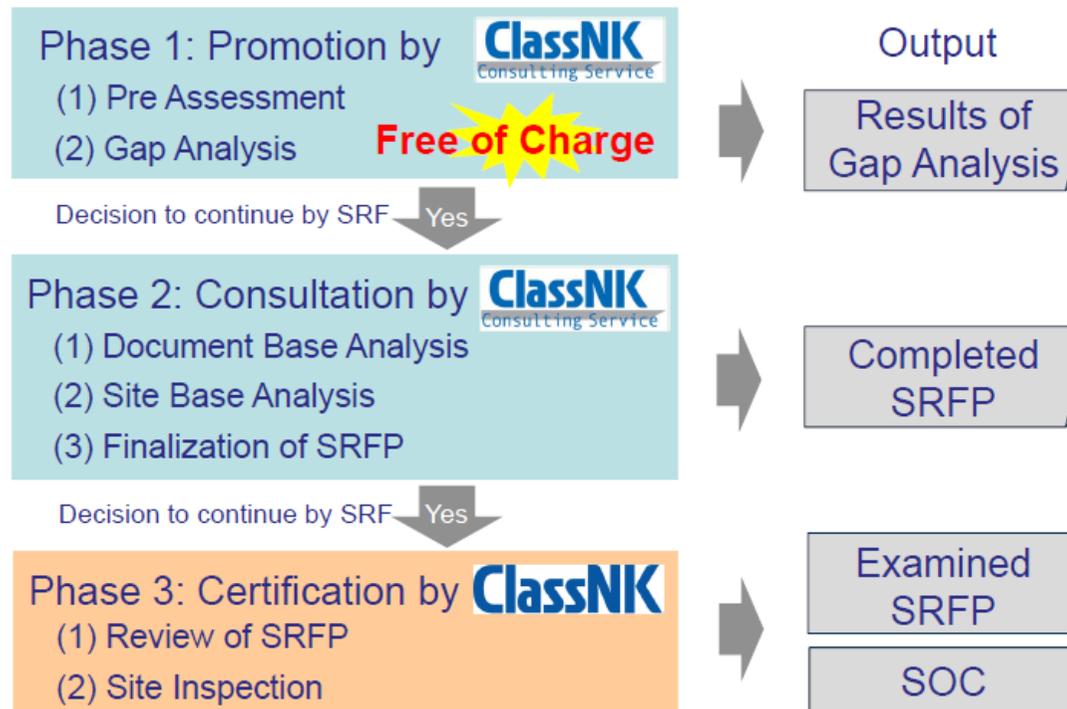
*to support implementation of the Hong
Kong Convention*

Current activities in India

Gap Analysis



- Partners have conducted Gap analyses for 4 ship recycling facilities in Alang



Finished activities in India

Interim results



1. Pre Assessment

ClassNK
Consulting Service

- (1) Explanation of consulting process
- (2) Site Observation to check minimum required facilities
- (3) Checking presence of documents (e.g., procedure manuals)
- (4) Request to submit necessary documents for Gap Analysis



2. Gap Analysis

- (1) Acquisition of necessary documents
- (2) Comparison between the current practice of the facility and requirements of the HKC based on “NKCS questionnaire” and classification of the answer into the following three categories
 - a) Procedure comply with requirements of HKC
 - b) Procedure don't comply with requirements of HKC
 - c) No procedure
- (3) Report the results of the comparison to the SRF

Finished activities in India

Interim results



- Phase 1: document analyses (~ 440 aspects)
 - Some documents missing (probably existent)
 - Gaps to be handled internally or externally (e.g. authorities)
 - Number of identified gaps do not indicate severeness of gap

Name of SRF	1. existent & compliant	2. existent, not compliant	3. not existent / gap (+ missing documents*)
Identical results for all SRFs	37	-	5
SRF 1	157	144	89 (50)
SRF 2	250	131	9 (50)
SRF 3	158	128	43 (111)
SRF 4	171	191	9 (69)



What is going on ...

Current status



1. Document Base Analysis

ClassNK
Consulting Service

Development of draft SRFP based on the results of Gap Analysis

- a) Procedure comply with requirements → insert to SRFP as it is
- b) Procedure don't comply with requirements → Propose amendment
- c) No procedure → Propose appropriate procedure and/or facility



2. Site Base Analysis

After completion of Document Base Analysis, Site Base Analysis is carried out to check that the procedures written in draft SRFP are actually taken place in the facility by site inspection and interview.



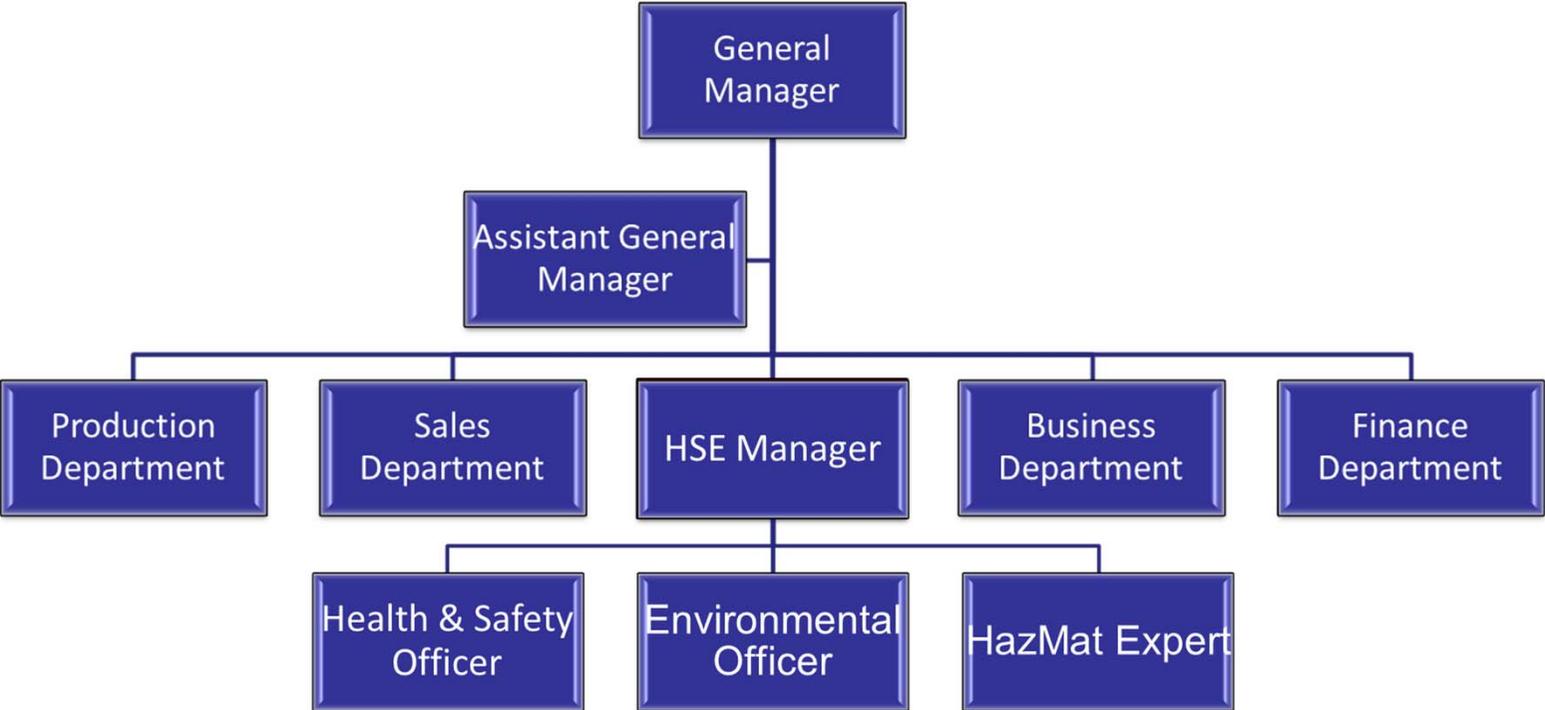
3. Finalization of SRFP

After completion of Site Base Analysis, SRFP is finalized.

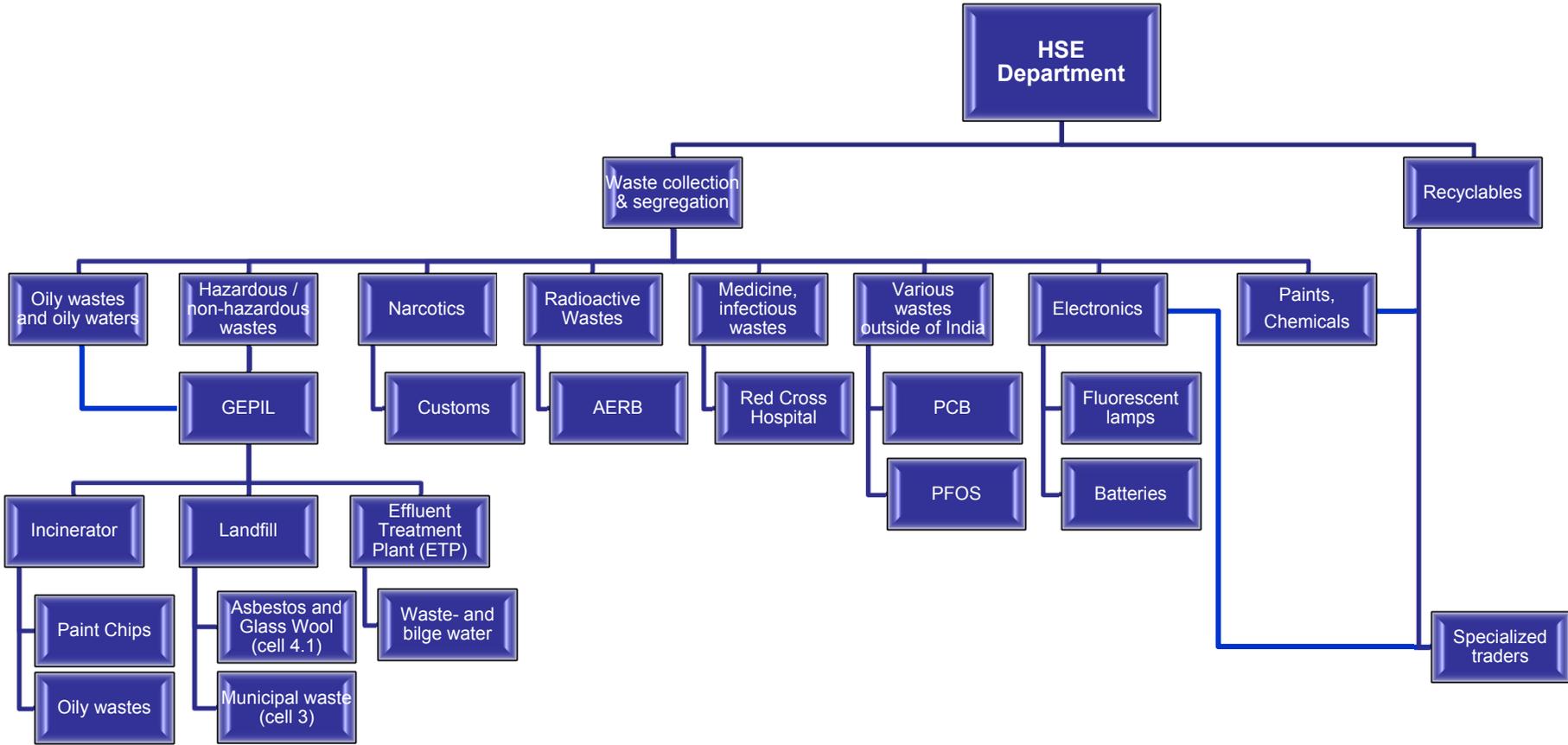


Organization ...

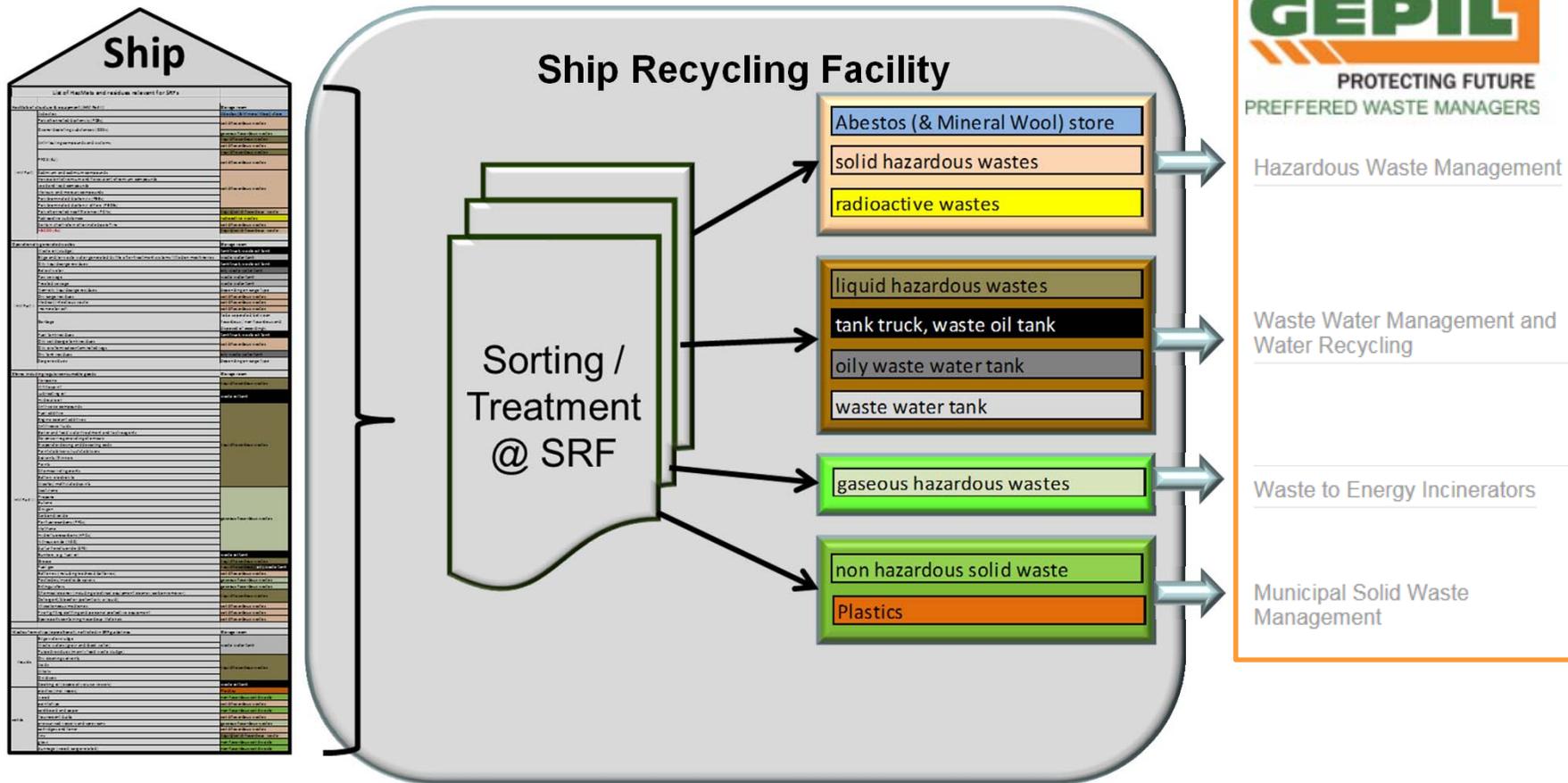
SRF-management



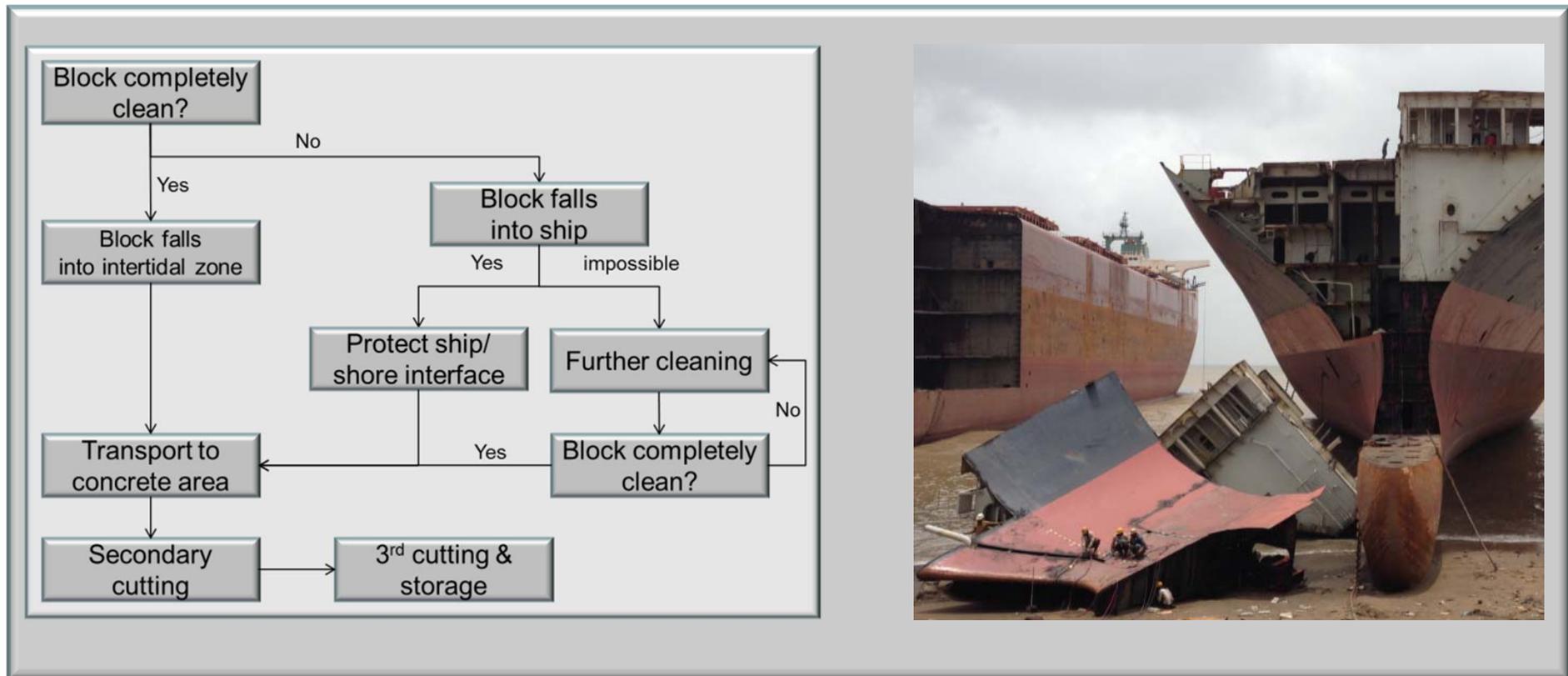
Sub contractor management Recyclables & Waste management



Environmental Protection Waste Management



Environmental Protection Procedures for block cutting



Health & Safety

Emergency preparedness, worker ID



EMERGENCY RESCUE TEAM FOR PLOT

A

TEAM LEADER: SK.NAZRUL

ID CARD NO.	NAME	RANK	
1	DIWAKAR TIWARI	JODI	

EMERGENCY RESCUE TEAM FOR SHIP

C

TEAM LEADER: CHOTTU PAL

ID CARD NO.	NAME	RANK	
1	DURGA CHOUHAN	SHIP GAS CUTTER	

EMERGENCY RESCUE TEAM FOR SHIP

B

TEAM LEADER: PANDURANG GAWDE

ID CARD NO.	NAME	RANK	
1	LALMANI SINGH	ENGINE GALA	

EMERGENCY RESCUE TEAM FOR FIELD

D

TEAM LEADER: VIJAY YADAV

ID CARD NO.	NAME	RANK	
1	MANOJ SUKLA	FIELD GAS CUTTER	

Health & Safety

Emergency preparedness, worker ID



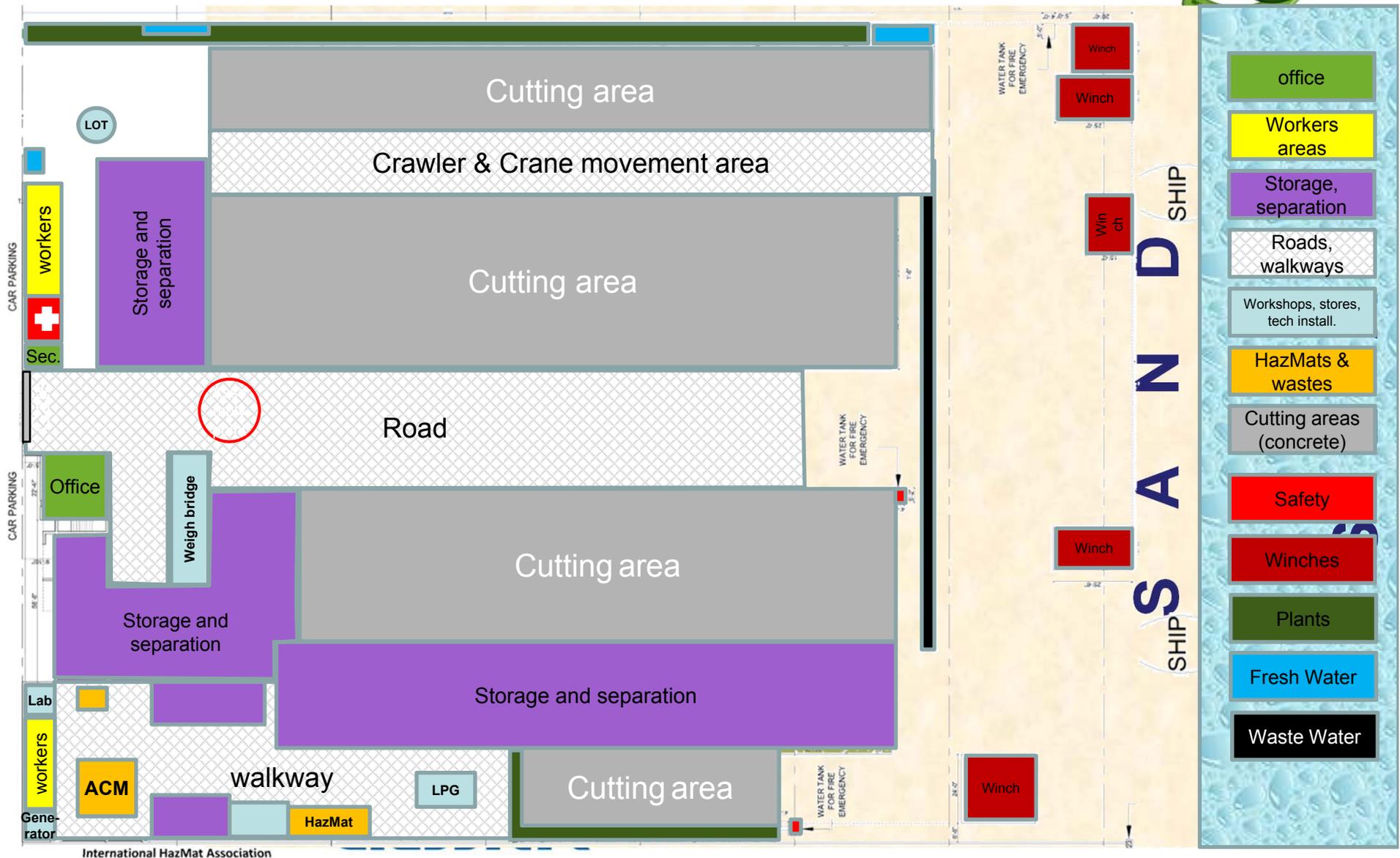
- Job descriptions
- Trainings & drills



Re-design of SRFs ...

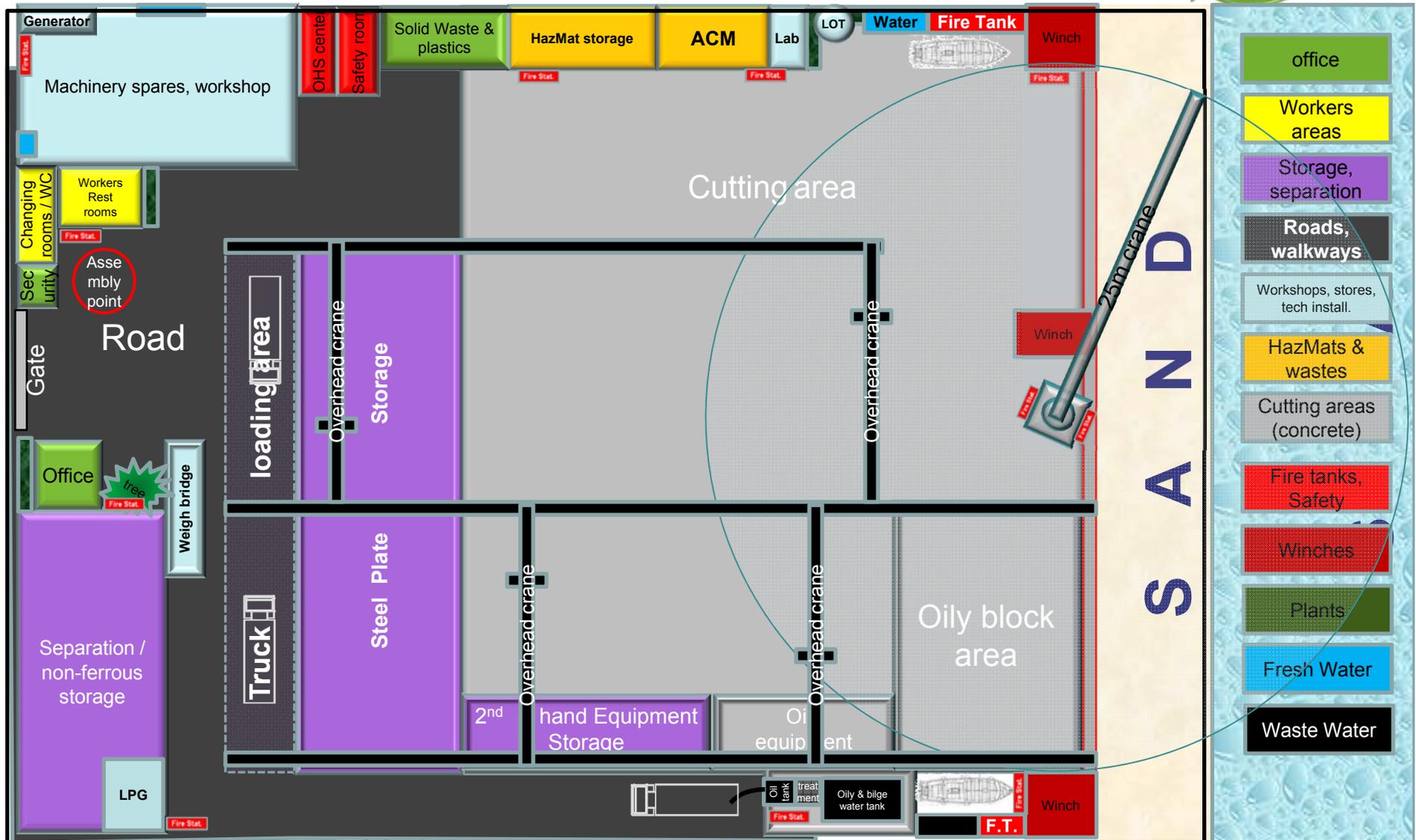
SRF lay-out revision

Current lay-out



SRF lay-out revision

Proposed new lay-out



Before & today



Before & today



Before & today



Before & today



Before & today



Before & today



Before & today



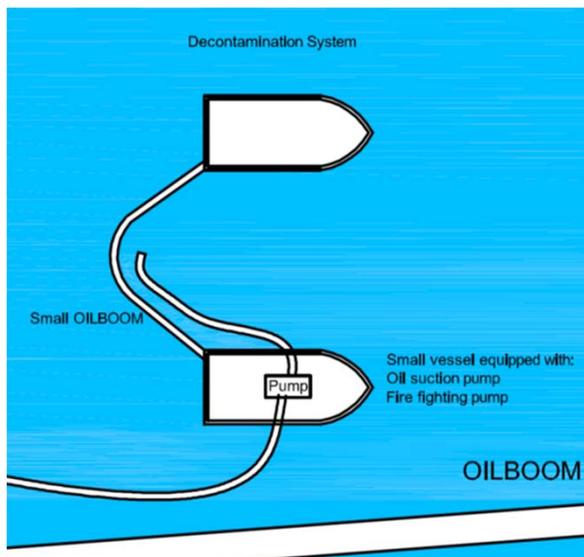


Some more details ...

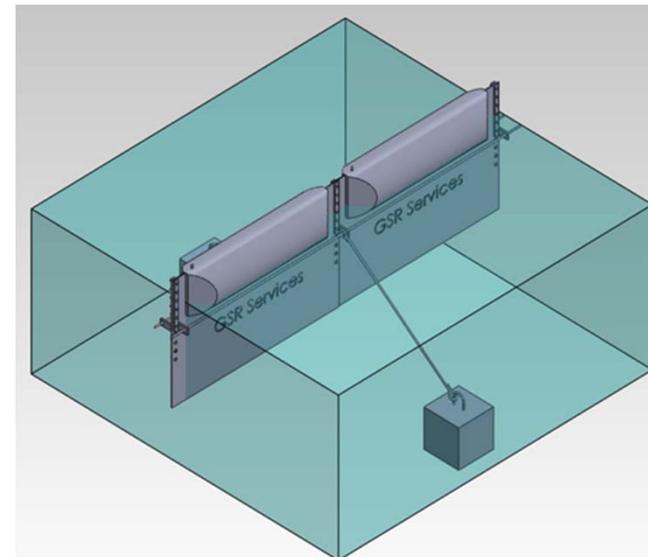
Health, Safety & Environment



- Life boats for:
 - Spill clean-up
 - Rescue of workers
 - Fire fighting



- Oil booms:
 - Control of intertidal zone



Environmental Protection

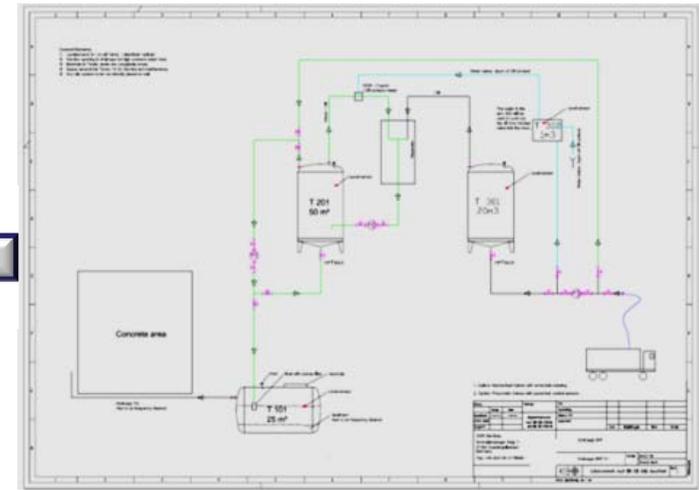
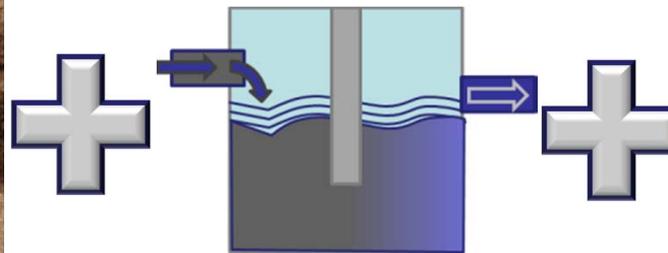
SRF lay-out / equipment



- Calculation of waste water drainage capacity

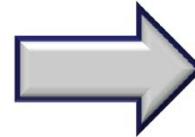
Size of cutting zone		Rain Fall [mm/m ² /d]	Duration [days]	req. Tank volume [m ³]
width [m]	length [m]			
90	50	55	1,5	37,125

- Waste water and oil handling



Environmental Protection

SRF lay-out / equipment

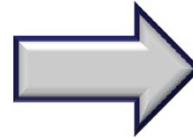


Environmental Protection

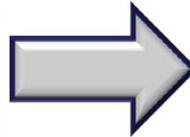
SRF lay-out / equipment



Health & Safety Equipment



Health & Safety Equipment



Health & Safety

Gas detectors and labelling of rooms





The goal ...

The goal





Thank you for your attention!

GSR Services GmbH

Schnellenberger Weg 11

21394 Suedergellersen

Germany

Henning.gramann@gsr-services.com

www.gsr-services.com

Tel: +49 4135 31789 -50

Fax: +49 4135 31789 -62

Presenter



Henning Gramann

Environmental Engineer, University of Applied Sciences Bremen

Current positions

- CEO GSR Services GmbH / Managing Owner Green Ship Recycling Services e.K.
- Chairman & Treasurer of IHMA
- Guest Professor at WMU, Sweden
- ClassNK Consultant (Ship Recycling Expert)
- Advisor of German Ministry for Transportation
- Project Leader for ISO 30003 & 30005



Experience

Germanischer Lloyd - Global Head of Practice Ship Recycling (2005-2010)

Development of all ship recycling related services, products, and trainings of Germanischer Lloyd

AIDA Cruises - Environmental Officer (Senior Officer) aboard "AIDAblu" (ex. ArosaBlu), (2003 – 2004)

Full implementation of Carnival Corporations' comprehensive „Environmental Compliance Plan“

GAUSS gem.mbH - Project-Manager (2000 – 2003)

Specialist in maritime environmental protection / waste management, legislation & technology