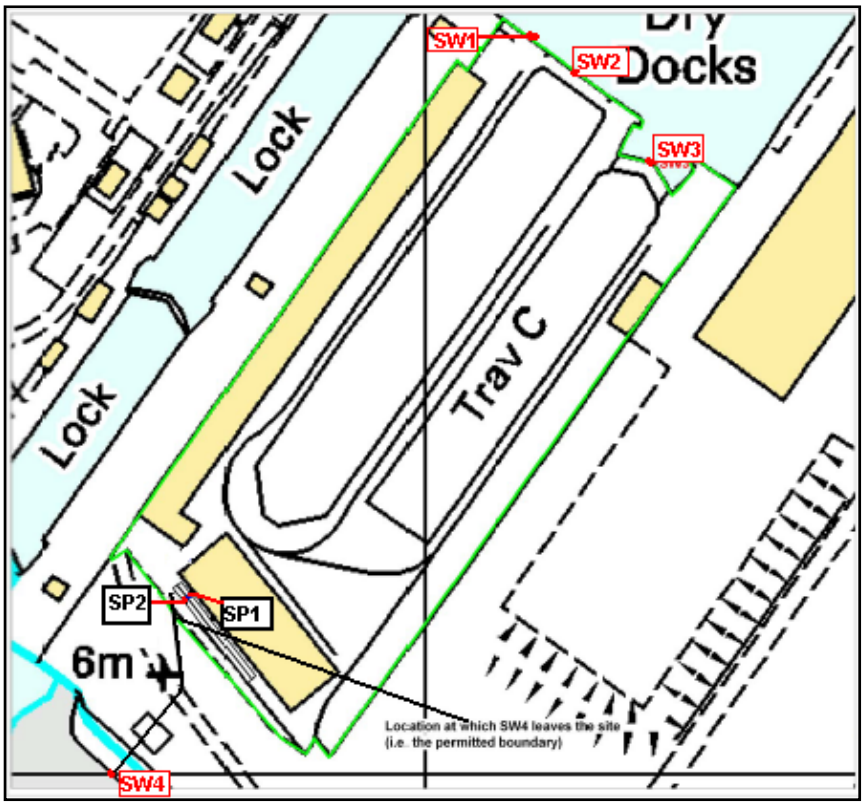
SDL SHIP RECYCLING

TITLE	**BALLAST WATER MANAGEMENT PLAN**
DOCUMENT NO	**SDL-DOC-006**



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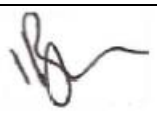
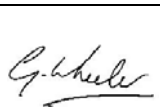
BASIS AND REVISIONS

Swansea Drydocks Limited
Ballast Water Management Plan

Project:	SDL Ship Recycling
Site:	Swansea Dry Docks, Swansea, SA1 1LY
For:	SWANSEA DRYDOCKS LIMITED
Status:	FINAL
Date:	November 2011
Reviewed:	Glyn Wheeler, Director Ship Recycling

Status Revision	Date	H&S Engineer	Marine Transport and Liquid Waste Manager	TCM Manager	Director Ship Recycling
FINAL	17-11-2011				
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1. INTRODUCTION

SDL is in the business of ship recycling in the best environmental conditions, i.e. a dry dock facility at its site in Swansea.

The Health & Safety Management Plan (SDL-DOC-001) defines the processes and requirements to protect the workforce. The Environmental Compliance Plan (SDL-DOC002) is established to ensure compliance of the ship recycling activities. The Waste Management Control Plan (SDL-DOC-003) defines the waste control measures and establishes how wastes are tracked.

This Ballast Water Management Plan defines the performance and control measures to assure safe discharge of ballast waters from ships received for recycling and will be issued to the Environment Agency with the notification of ship arrival.

This plan sets out:-

- Details of the roles and responsibilities of persons to ensure this ballast water management plan is fully implemented an reporting procedures;
- Safety procedures associated with ballast water management;
- A description of the actions to be taken to evaluate, remove, sample, test, discharge/dispose and manage any ballast water and ballast sediments contained within the ship.
- Details of how stability of the ship will be maintained.

2. ROLES AND RESPONSIBILITIES

2.1. ROLES AND RESPONSIBILITIES

The roles and responsibilities for implementing and executing this Ballast Water Management Plan (SDL-DOC-006) are as follows:

ROLE/POSITION	NAME	RESPONSIBILITY
SDL Managing Director	Karl Dunn	Overall responsibility for Health, Safety, Environment and Quality.
SDL Director Ship Recycling	Glyn Wheeler	Responsible for establishing this Ballast Water Management Plan, interfacing with Environment Agency and reviewing analytical results to authorise discharge via SW4 or other disposal route.
SDL Director Operations/Operations Manager	David Dunn	Responsible for all site activities including planning and integrating these defined activities with other operations. Specific tasks within this plan.
SDL H&S & Security Manager	Robert Bradshaw	Health, Safety and Security monitoring and control tasks as identified in this plan. Specific tasks within this plan.
SDL TCM Manager	Stacey Norman	Monitoring and control of water samples, analytical testing and records as identified in this plan. Specific tasks within this plan.
SDL Marine Transport and Liquid Waste Manager	Huw Jones	Responsible for berthing and docking the ship, validating ballast water quantities received, their safe removal and discharge if authorised. Specific tasks within this plan.

2.2. SPECIFIC SHIP BALLAST QUANTITIES

2.2.1. The ship tank quantities will be recorded in the waste inventory from the client. These quantities will be checked and corroborated by the Marine and Liquid Waste Manager.

2.2.2. The specific ships' ballast water quantity will be included in the waste inventory which will be issued with the Notification to the EA.

2.2.3. The amount of ballast water will vary according to the size and type of ship but is likely in the range 100 tonnes to 1,000 tonnes.

2.3. REPORTING PROCEDURES

2.3.1. The tracking of the ballast water waste will be in accordance with the Waste Management Control Plan (SDL-DOC-003).

2.3.2. Ballast water quantities will be tracked into the tanks for sampling to demonstrate (or otherwise) within consent for discharge via SW4. Each discharge per ship will be recorded by a Controlled Waste Transfer Note (CWTN) which will log parameters and quantities and cross reference the laboratory analytical results report enabling discharge. The reporting and processing of the CWTNs will be in accordance with the Waste Management Control Plan (SDL-DOC-003).

2.3.3. Ballast water which is not suitable for discharge via SW4 will be transported off site to a suitably licensed treatment and disposal facility. The quantity will be tracked either by a CWTN (if non-hazardous) or a Hazardous Waste Consignment Note (HWCN) if hazardous.

2.3.4. Ballast sediments will be consigned off site to a suitable hazardous waste disposal facility and tracked and recorded/reported by a HWCN.

2.3.5. The EA will receive quarterly returns in line with the Environmental Permit EPR/UP3298VL requirements which will list the total ballast water discharges in the period and the ballast sediments disposed to hazardous waste cell landfill and the client will receive a report of the ballast water quantities, ballast sediments together with discharge/disposal route by way of the Completion Statement at the end of the specific project/contract.

3. SAFETY PROCEDURES FOR BALLAST WATER MANAGEMENT

3.1. The general safe working method will be NOT to access ballast tanks unless absolutely necessary. If access is required prior to dismantling then the method will be fully risk assessed by the H&S Engineer, Marine Transport and Liquid Waste Manager and the Operations Manager prior to access being gained by any person. Confined space entry is the last resort, where no remaining practical alternatives are available

3.2. If access is required to remove sediments etc, then this will be achieved during ship dismantling by accessing the area from the side once parts of the ship hull etc is removed followed by cutting the tank sides to ensure open and safe access and the materials will then be safely removed by manual access.

3.3. Prior to any man entry into the tanks a calibrated gas monitor will be utilised to ascertain the atmospheric condition in those tanks. Man entry will be carried out only if the atmospheric condition is deemed suitable, i.e. an LEL level of no greater than 0%, oxygen level circa 21%.

3.4. In order to simply visually validate the tank contents, the ballast tank covers will be removed and records and location taken by the TCM Manager.

3.5. Should the ballast tank contents seem obviously contaminated then that tank will be identified and its contents separately sampled, removed, stored and controlled (or directly tankered off site to a suitably licensed treatment/disposal site) in order to avoid spread of pollution and to comply with the waste hierarchy to minimise the amount of hazardous waste disposal.

3.6. PPE for the general operations will include hard hat, safety glasses, hi-visibility vest, overalls, suitable gloves and safety footwear.

3.7. For those personnel working in close proximity to the liquid waste materials, the PPE will be as a minimum coverall suits, latex or rubber gloves, safety boots and suitable eye and face protection.

3.8. Personnel must be familiar with availability of first aider, emergency showers, eye wash facility, alarms, muster points, spill kits and emergency numbers.

3.9. The working areas will be taped off to prevent access of any unauthorised personnel.

3.10. Equipment/plant involved in for the normal operations consists of:-

- Calibrated gas monitors
- Forced air ventilation units.
- ISO road tanks for transport of liquid waste materials.
- Air driven and hydraulically driven pump units.
- Intrinsically safe radio communication devices.

4. DESCRIPTION OF OPERATIONS TO MANAGE BALLAST WATER AND BALLAST TANK SEDIMENTS

4.1. SDL are committed to ensuring that all liquid waste removal operatives are adequately trained and competent to undertake the task which is required.

4.2. The biological testing of ballast waters is set out in the Environmental Permit EPR/UP3298VL and the 4 (four) tests per sample is included below for convenient reference:

TEST	Organism size class	Regulation limit
1 TVC	Greater than 50 micron	<10 per m3
1 TVC	10-50 micron	<10 per ml
	Indicator microbes less than 10 micron:	
2	Escherichia coli (E-coli)	<250 cfu/100ml
3	Enterococci	<100 cfu/100ml
4	Vibrio cholerae	<1 cfu/100ml

4.3. Once the ballast tanks covers have been opened and contents visually validated, the following elements will be undertaken:

4.4. TANK CONTENTS OBVIOUSLY CONTAMINATED

4.4.1. The contents will not be removed to the storage tanks SP1/SP2 and mixed with all other ballast water but will be sampled by the TCM Manager and analysed by an approved laboratory who are MCERTS and/or UKAS approved. The suites of analyses, as per Environmental Permit EPR/UP3298VL, comprise:

- Heavy metals;
- Biological;
- Hydrocarbons.

4.4.2. Once the analytical results are available the disposal route for contaminated ballast water will be defined by the TCM manager and Director Ship Recycling.

4.4.3. The contaminated ballast waters will then be carefully removed once the ship is in dry dock status (to avoid contamination of dock water during de-watering of the dry dock) and piped to a road tanker or suitably sized and adequate sealed container.

4.5. NORMAL BALLAST TANK WATERS

4.5.1. Once the tanks contents and quantities have been validate and confirmed to be “normal” ballast water, a precautionary dosing of the liquid contents with PERACLEAN/PEROSAN, in accordance with the manufacturer’s instructions, may be undertaken by the Marine Transport and Liquid Waste Manager’s team working under a safe working method for this operation.

4.5.2. PERACLEAN/PEROSAN is a proprietary chemical dosing method to prevent the transfer of viable organisms and non-native species in accordance with IMO regulations. PERACLEAN/PEROSAN is a chlorine-free disinfectant based on peroxygen chemistry. It is an environmentally sound material and fully bio-degradable.

4.5.3. The tanks with the dosed contents are then agitated and stirred by mechanical means to maximise the effect of the PERACLEAN/PEROSAN and the tanks are then stood undisturbed for around 1 week to effect the precautionary treatment.

4.5.4. After the ship is in dry dock conditions and the dosed tanks have stood for around 1 week, their contents are pumped to the holding tanks, having first confirmed that the valve between the holding tanks and SW4 discharge is closed secure to prevent accidental discharge to the environment..

4.5.5. If practicable, during the pumping out of the ballast tanks to the holding tanks, an in-line fine filter will be deployed to reduce the solids components and size of potential organisms entering the storage tanks. The filter material and contents will be recovered and added to the ballast sediments and disposed with them as described below.

4.5.6. After fine filtering the ballast water liquid will also be routed through the full retention interceptor so the liquid can be further relieved of solids and hydrocarbons to avoid contaminating the storage tanks, therefore minimising impact on the environment.

4.5.7. Once all the ballast water is in the holding tanks, or when the holding tanks are full, they are sampled by the TCM Manager at SP1/SP2 and the samples sent to the accredited laboratory for metals and biological analyses in line with Environmental Permit EPR/UP3298VL.

4.5.8. If the results received to the Director Ship Recycling are within consent levels then the TCM Manager will be instructed to oversee the opening of the valve and discharge via SW4 by the Marine Transport and Liquids Waste Manager during an ebb tide. The process is repeated until all ballast water has been safely discharged/disposed.

4.5.9. If the results are outside the consent levels then the ballast water is tankered off site to a suitable licensed treatment/disposal facility.

4.6. BALLAST TANK SEDIMENTS AND PIPES

4.6.1. Once all the liquids have been removed from the ballast tanks, the tank tops will remain open to allow any sediment to dry/settle to the bottom of the tanks.

4.6.2. Once safe access can be gained to the bottom of the ballast tanks (most probably during ship dismantling when the sides of the tanks can be opened up by mechanical/machine means), the sediments are manually scraped up and collected into a sealable container. The container will be stored on an impermeable pavement with sealed drainage within the waste storage building pending disposal.

4.6.3. Once all the ballast sediments have been collected they will be consigned off site as hazardous waste using a HWCN to record, quantify and track the material which is then transported to a suitable licensed hazardous waste cell landfill site for disposal.

4.6.4. The final removal of contents within pipework will be by a variety of methods including draining into a suitable container or blowing through with air or flushing with uncontaminated water. The biodegradable PERACLEAN/PEROSAN may be

mixed with the flushing solution to ensure pipes are suitably clear of the potential for viable organisms. Care will be taken to ensure that any flushing liquids do not re-enter “clean” tanks.

4.6.5. Biodegradable PERACLEAN/PEROSAN may also be used during the final clearing process and within the tanks, should it be deemed prudent and precautionary to do so by the Director Ship Recycling.

4.6.6. The sediments gathered from the pipes will be added to the ballast sediments for appropriate disposal off site to a suitably licensed facility as hazardous waste.

5. STABILITY OF VESSEL DURING BERTHING AND DRY DOCKING

5.1. Prior to any ship arriving at SDL for recycling, a specific berthing plan will be set out which will include the number and size of mooring ropes to be attached between the vessel and land dock bollards to ensure the vessel is securely fastened alongside the dock to cater for local wind factors with a safe contingency. The berthing plan will specify the number of head lines, breast lines and spring lines to be connected. The berthing plan is briefed to all involved and given as a specific toolbox talk to the operatives by the Marine Transport and Liquid Wastes Manager immediately prior to the vessel arrival at SDL.

5.2. Prior to the ship being dry docked at SDL; a docking plan will be detailed based on ship drawings from the client, any previous docking undertaken for that vessel during its life and the profile of the hull. The ship will be released from its alongside berthing arrangement and carefully positioned on the centre line of the dry dock and re-secured with mooring lines to hold the vessel stable in that position. During de-watering of the dry dock, the mooring lines will be manned and gradually released to allow the vessel to move safely into dry docked conditions. The docking plan is briefed to all involved and given as a specific toolbox talk to the operatives by the Operations Manager before dry docking operations commence.

5.3. If the hull is “flat bottomed” the vessel may simply rest flat on the dry dock floor with pre-positioned flat blocks underneath, whereas if the vessel hull is contoured, docking blocks will be pre-positioned on the dry dock floor with reference points marked out on land and on the vessel when it arrives and prior to the docking operations so that the vessel docks into the provided block cradle to ensure it is stable for next stages of liquid and waste removal and dismantling.

5.4. During dry docking, the dry dock gates will be securely closed and the water level gradually pumped out of the dry dock. During which time the vessel and moorings will be continually checked and if unexpected instability of the vessel is observed, the operation is halted and the situation investigated to modify parameters to ensure stable dry docking. This may include reversing the dry dock pump out to add water back to the dry dock to ensure the vessel regains stability until the method is revised and re-planned.