

Notice of Change to Controlled Documents #258-261 / 13 July 2015

Summary of Changes

Revisions managed by: Shannon Smith

Purpose: [258] Ch 7- Redundant information removed and replaced with references to SOPs. Ship Stability section 11 updated to state Senior Mgmt is responsible for ensuring proposed changes that may affect vessel stability are evaluated and stability calculated and found acceptable BEFORE adding/removing of equipment to vessels to avoid expensive and time consuming delays resulting from hasty decisions. Reference to HazCom removed [259] Removed unnecessary and duplicate information, added references [260] This SOP deleted as we were never required to have a HazMat plan based on the types of vessels we use. [261] Survival at Sea requirement for all personnel who sail on the vessel (client reps, MMOs) removed. This was in conflict with what Ch 6 sec 5 has said for some time. 5 year validity of SAS courses removed – depends on the school and clients may require shorter validation.

NOC#	Ch., Sec., SOP	Summary	Revision#
258	Ch 7 Secs 9-10	Redundant information removed, refers to SOPs for details	#19
259	SOP-GEN-2013B	Removed redundant material, added references	#4
260	SOP-GEN-007K	HazMat SOP deleted	---
261	SOP-GEN-008D Sec 1	Survival at Sea requirement for all who sail on the vessel removed, reference to 5 year validity of SAS courses removed <i>not to exceed 5yrs</i>	#7

<u>Date Completed</u>	<u>Date Completed</u>
<u>7-16-15 SS</u> SMM TOC page updated	_____ NOC pdf posted on CM
<u>7-16-15 SS</u> NOC web page updated	_____ Vessel acks recorded
<u>7-16-15-SS</u> SMM- each section updated	_____ Office controlled SMM updated
_____ NOC sent to fleet	

Approvals	Approvals
<div style="border: 1px solid green; padding: 5px; margin: 10px auto; width: 80%;"> <p style="text-align: center; color: green; margin: 0;"><u>Approved for Distribution</u></p> <p>Date <u>7/08/15</u> Initials <u>[Signature]</u></p> <p>Print Name <u>[Signature]</u></p> </div>	<div style="border: 1px solid green; padding: 5px; margin: 10px auto; width: 80%;"> <p style="text-align: center; color: green; margin: 0;"><u>Approved for Distribution</u></p> <p>Date <u>7/15/2015</u> Initials <u>[Signature]</u></p> <p>Print Name <u>Deto Tatro</u></p> </div>

Approved for Distribution

Date 7/16/15 Initials [Signature]

Print Name J. Brooks

NOC # 258
Chapter 7 Shipboard Operations - ALL

Topic: Redundant information removed and referred to SOPs.

Revision #	Section(s)
Revision #19	See attached complete Ch 7

NOC # 259
SOP-GEN-2013B
Hazard Communication Program - ALL

Topic: Removed redundant material, added references.

Revision #	Section(s)
Revision #4	See attached complete SOP

NOC # 260
SOP-GEN-007K Hazardous Materials Operations

Topic: SOP deleted.

Revision #	Section(s)
Revision #--	SOP Deleted

NOC # 261
SOP-GEN-008D
Abandon Ship- ALL

Topic: Survival at Sea requirement for all who sail on the vessel removed, reference to 5 year validity of SAS courses removed.

Revision #	Section(s)
Revision #7	See attached complete SOP

SAFETY MANAGEMENT MANUAL**Chapter 7
Shipboard Operations**

Rev # 19

Revision date: 07 Jul 2015

Page 1 of 5

Chapter 7 Shipboard Operations

- 1.0 [Introduction](#)
- 2.0 [Bridge Procedures](#)
- 3.0 [Navigation](#)
- 4.0 [Master's Standing Orders](#)
- 5.0 [Deck Operations](#)
- 6.0 [STCW Work Hours](#)
- 7.0 [Science Operations](#)
- 8.0 [Chief Engineer's Standing Orders](#)
- 9.0 [Basic Hygiene and Food Service](#)
- 10.0 [Communications](#)
- 11.0 [Ship Stability Policy](#)
- 12.0 [Permit to Work Procedures](#)
- 13.0 [Personal Protective Equipment](#)
- 14.0 [Hazard Communications Program](#)
- 15.0 [Incident Reporting and Investigation](#)

Revision/ Review Log

Revision Date	Approved by	Reviewed by	Revision Details/ Proposal Notes
11 January 2010 Revision #5	Dr. Jim Brooks	HSE Manager: Sue McDonald	
15 Oct 2010 Revision #6	Dr. Jim Brooks Dr. Bernie Bernard	HSE Manager Designee: Dr. Jim Brooks Port Captain: Capt. Pat Fallwell	Changed to electronic format
02 May 2011 Revision #7	Dr. Jim Brooks Dr. Bernie Bernard	Dr. Jim Brooks Dr. Bernie Bernard Dr. Roger Fay Capt. Pat Fallwell Dr. James Howell	Multiple changes based on Masters Reviews
09 May 2011 Revision #8	Dr. Jim Brooks Dr. Bernie Bernard	Dr. Jim Brooks Dr. Bernie Bernard	Reference to OSHA regulation for PPE added
30 September 2011 Revision #9	Dr. Jim Brooks Dr. Bernie Bernard	Dr. Jim Brooks Dr. Bernie Bernard Dr. Roger Fay Capt. Pat Fallwell	Locks Tags-plus Coordinator designated
15 October 2011	Dr. Jim Brooks	Dr. Jim Brooks Dr. Roger Fay	MSDS to be kept in a central location

SAFETY MANAGEMENT MANUAL




**Chapter 7
Shipboard Operations**

Rev # 19

Revision date: 16 Jun 2015

Page 2 of 5

Revision #10		Capt. Pat Fallwell	
03 May 2012 Revision #11	Dr. Jim Brooks	Dr. Jim Brooks Dr. Roger Fay Capt. Pat Fallwell	Ship stability test to be contracted to third party as required. Compliance Mgr responsible for keeping data current
13 August 2012 Revision #12	Dr. Jim Brooks	Dr. Jim Brooks Dr. Roger Fay Capt. Pat Fallwell	Required use of pre-departure stamp including stability check
13 March 2013 Revision #13	Dr. Jim Brooks Dr. Bernie Bernard	Dr. Jim Brooks Dr. Roger Fay Capt. Pat Fallwell Dr. Roger Fay	STCW rest hours amended to meet current requirements
26 July 2013 Revision #14	Dr. Jim Brooks Dr. Bernie Bernard	Dr. Jim Brooks Dr. Bernie Bernard	PPE required training, PPE matrix and CFR references corrected
11 December 2013 Revision #15	Dr. Jim Brooks Mr. Pete Tatro	Dr. Jim Brooks Mr. Pete Tatro Dr. James Howell	Reference to confined space modified
01 May 2014 Revision #16	Dr. Jim Brooks Mr. Pete Tatro	Dr. Jim Brooks Mr. Pete Tatro	Reference to confined space modified again
19 January 2015 Revision #17	Dr. Jim Brooks Mr. Pete Tatro	Dr. Jim Brooks Mr. Pete Tatro	Daily log of freezer and fridge temperature logs to be kept
30 January 2015 Revision #18	Dr. Jim Brooks Mr. Pete Tatro	Dr. Jim Brooks Mr. Pete Tatro	Reference to new SOP added.
16 June 2015 07 July Revision #19	Dr. Jim Brooks Mr. Pete Tatro	Dr. Jim Brooks Mr. Pete Tatro	Redundant information removed and referred to SOPs

SAFETY MANAGEMENT MANUAL		
	Chapter 7 Shipboard Operations	Rev # 19
		Revision date: 16 Jun 2015
		Page 3 of 5

1.0 Introduction

TDI-Brooks International's procedures for shipboard operations include safe navigation, Master's standing orders, Chief Engineer's standing orders, shipboard safety protocols, science operations, communications, winch/crane operations, and hygiene.

2.0 Bridge Procedures

Bridge procedures describe the duties of the bridge crew, Master's Standing Orders, navigation and voyage planning, and operation and maintenance of the bridge equipment. Details for bridge procedures may be found in **SOP GEN-007A**.

3.0 Navigation

Safe navigation is largely managed through voyage plans. Information and instructions for submitting voyage plans are described in **SOP GEN-007A**.

4.0 Master's Standing Orders

Each vessel operated by TDI-Brooks has a set of Master's standing orders. All deck officers must acknowledge that they have read and understand the Master's standing orders prior to standing their first watch by signature in the ship's log. The basic components of the Master's standing orders are in **SOP GEN-007A**.

5.0 Deck Operations


Deck operations involve both scientific/technical and vessel operations. Consequently, the Master may expect to interact with the Party Chief in scientific/technical matters. The immediate responsibility for deck operations lies with the officer of the watch who, in turn, reports to the Master and keeps the Master informed. The winch operator is the deck supervisor during scientific/technical operations.

6.0 STCW Work Hours

STCW hours tracking and record keeping details are in **SOP-GEN-2015A**.

7.0 Science Operations

The primary operation of TDI-Brooks vessels is scientific or technical. General guidelines for scientific operations and technical services are detailed in **SOP-GEN-007B**.

SAFETY MANAGEMENT MANUAL		
	Chapter 7	Rev # 19
	Shipboard Operations	Revision date: 16 Jun 2015
		Page 4 of 5

8.0 Chief Engineer's Standing Orders

Procedures for Chief Engineer's standing orders may be found in **SOP GEN-007D** and Chief Engineer's duties are detailed in **SOP GEN-007E**.

9.0 Basic Vessel Hygiene and Food Service

The Chief Mate is responsible for basic hygiene on the vessel and overseeing Galley Health and Safety, which is detailed in **SOP-GEN-2014D**.

10.0 Communications

Details of communication procedures are described in **SOP GEN-007F**.

11.0 Ship Stability Policy

Every vessel carries a ship stability letter and booklet. The additions of temporary equipment, deck gear, and samples acquired in operations could potentially exceed the safe stability envelope.

While the stability letter and draft marks are the ultimate criteria of vessel loading, the stability calculators provide an empirical tool for determining if changes in deck gear or configuration would result in reduced operating range or stability.

Senior Management is responsible for ensuring the vessel stability is calculated and found acceptable before proposed changes such as adding/ removing power packs, winches or containers or additional structures are made.


The Master is responsible for calculating vessel's stability and recording stability calculations and draft (fore, aft and mid ships) in the ship's log as part of the pre-departure checklist.

Changes in permanently mounted equipment (included in the light ship calculation) are not permitted for the stability analysis. Calculations must include weights and calculations in the "worst case" condition (highest point and heaviest load - as in loads extracted from the seabed on an A-frame). Calculations must also take into account the samples (weight and height above baseline) acquired throughout the project and their storage locations aboard the vessel.

Any structural vessel alterations or changes in the lightship must be approved through Class and Flag Administration and a new stability letter generated.

12.0 Permit to Work Procedures

Permit to Work procedures may be found in **SOP-GEN-012B** and with more detail in:

SAFETY MANAGEMENT MANUAL		
	Chapter 7	Rev # 19
	Shipboard Operations	Revision date: 16 Jun 2015
		Page 5 of 5

Confined Space – **SOP-GEN-007G**
Hot Work – **SOP-GEN-007J**

Energy Isolation – **SOP-GEN-007I**
Working at Heights – **SOP-GEN-007U**

13.0 Personal Protective Equipment

TDI-Brooks International has developed PPE Matrices that clearly indicate what type of PPE is required to mitigate the hazards of common tasks. Employees are instructed not to do a task without the required PPE, to inspect their PPE before each use and to immediately remove from service PPE that is damaged or defective in any way.

Tasks that are not covered by the PPE matrix will require JSA or Job Safety Analysis by the supervisor of the employees conducting the work. The results of the JSA will determine what PPE is required for the task.

The primary responsibility for enforcing the PPE requirements rests with the HSE Officer and Party Chief. Individuals not following the PPE policy will be asked to leave the work area until they have all the required PPE.

PPE is provided at no cost to the employee. However, each individual must provide steel-toed footwear. If employees provide their own PPE, such as prescription safety eyewear, it must meet the minimum requirements of the appropriate standard and be maintained per manufacturer recommendations.

14.0 Hazard Communications Program

TDI-Brooks maintains a Hazard Communication Program in accordance with OSHA's Hazard Communication Standard 29 CFR 1910.1200. The HazCom Program is described in **SOP-GEN-13B**.

15.0 Incident Reporting and Investigation

TDI-Brooks maintains a system of incident/accident reporting and investigation procedures. Details of incident/accident reporting and investigation may be found in **SOP-GEN-007L** for US flagged vessels and **SOP-GEN-2014A** for Vanuatu flagged vessels.

SAFETY MANAGEMENT MANUAL



SOP-GEN-2013B Hazard Communication Program

Rev # 4

Revision date: 07 Jul 2015

Page 1 of 11

SOP-GEN-013B Hazard Communication Program

- 1.0 [Policy](#)
- 2.0 [Purpose](#)
- 3.0 [Responsibility](#)
- 4.0 [References](#)
- 5.0 [Components of Hazard Communication Program](#)
 - 5.1 [Chemicals List](#)
 - 5.2 [Safety Data Sheets \(SDS\)](#)
 - 5.3 [Labels and Labeling](#)
 - 5.4 [Unidentified Chemical Procedure](#)
 - 5.5 [Information and Employee Training](#)
 - 5.6 [Non-Routine Work or Tasks](#)
 - 5.7 [Informing Contractors](#)
 - 5.8 [Program Maintenance](#)
- 6.0 [Accidental Exposure Procedures](#)

[Appendix A](#)- NFPA Hazard Identification System

[Appendix B](#)- Definitions

[Appendix C](#)- New Global Pictograms

[Appendix D](#)- New SDS Format

Revision/ Review Log

Revision Date	Approved by	Reviewed by	Revision Details/ Proposal Notes
15 May 2007 Revision #1	Dr. Jim Brooks	HSE Manager: Sue McDonald	
02 December 2010 Revision #2	Dr. Jim Brooks Dr. Bernie Bernard	Dr. Jim Brooks Dr. Bernie Bernard	No changes made
25 April 2013 Revision #3	Dr. Jim Brooks Dr. Bernie Bernard	Dr. Jim Brooks Dr. Bernie Bernard Dr. James Howell	Complete program review and revision. New GHS requirements added.
07 July 2015 Revision #4	Dr. Jim Brooks Mr. Pete Tatro	Dr. Jim Brooks Mr. Pete Tatro Dr. James Howell	Deleted duplicate and unnecessary material, added references.

SAFETY MANAGEMENT MANUAL		
	SOP-GEN-2013B Hazard Communication Program	Rev # 4
		Revision date: 07 Jul 2015
		Page 2 of 11

1.0 Policy

TDI-Brooks International maintains this written Hazard Communication Program in accordance with OSHA's Hazard Communication Standard 29 CFR 1910.1200.

Under the TDI-Brooks HazCom program, employees will be informed of the contents of the OSHA Hazard Communications standard, the hazardous properties of chemicals with which they work and mitigations to protect themselves from these chemicals.

All shore based facilities and vessels of this company will participate in the Hazard Communication Program. Copies of the Hazard Communication Program are available on the SDS page of the ship web pages and in the front of all SDS binders.

2.0 Purpose

OSHA created the Hazard Communication Standard to ensure that workers in all industries and workplaces understand the chemical hazards to which they are exposed and how to protect themselves from those hazards.

In March 2012 the regulation was revised to align with the new Globally Harmonized System of Classification and Labeling of Chemicals (GHS). This revision emphasizes an employee's "Right to Understand."

It requires employers to provide information to their employees about the hazardous chemicals to which they are exposed by means of a hazard communication program, labels and other forms of warning, safety data sheets and information and training.


3.0 Responsibility

The President of TDI-Brooks International is responsible for encouraging all employees to participate in this program and following its guidelines.

The HSE Manager is responsible for administering this program, providing training for all employees of TDI-Brooks and updating this plan as necessary.

The First Mate is responsible for ensuring that all hazardous materials are handled and stored safely aboard the vessels in accordance to relevant regulations.

Facility Managers will ensure the facilities follow appropriate local and government regulations at TDI facilities.

SAFETY MANAGEMENT MANUAL		
	SOP-GEN-2013B Hazard Communication Program	Rev # 4
		Revision date: 07 Jul 2015
		Page 3 of 11

Supervisors shall ensure that employees under their supervision comply with this program. Employees are responsible for fully participating in this program as it applies to their work areas and work responsibilities.

4.0 References

29 CFR 1910.1200 – OSHA's Hazard Communication Standard
 46 CFR 194.15 – Laboratory chemicals on research vessels
 46 CFR 147 – Hazardous ship stores used to maintain and operate vessel

5.0 Components of Hazard Communication Program

- A list of the hazardous chemicals known to be present in the workplace
- Labels and Labeling of Hazardous Chemicals and Materials Containers
- Safety Data Sheets or SDS's - formerly Material Safety Data Sheets or MSDS
- Personnel Training and Information
- A written "Hazardous Communication Program"

5.1 Chemicals List

An initial list of all chemicals and materials shall be made for each vessel or facility. The chemical list will be updated as new chemicals are brought into the workplace. A copy of the chemical list will be kept with the SDS's in a public area accessible to all employees.

It will be the responsibility of the persons ordering or purchasing any new chemicals or products to ensure that the chemical list is updated and that the SDS is added to the SDS book.

*** There is no requirement for audits or inventories- just a list of chemicals present.*

5.2 Safety Data Sheets (SDS)

An SDS will be provided for all chemicals requiring one. The SDSs are available at each facility and on each vessel for all employees to view. The SDS binder is in an easily accessible location and on the ship web pages on the Safety Data Sheets page.

5.3 Labels and Labeling

The chemical manufacturer is required to provide the following information on all containers:

- Product identifier
- Signal word
- Hazard statement(s)

SAFETY MANAGEMENT MANUAL		
	SOP-GEN-2013B Hazard Communication Program	Rev # 4
		Revision date: 07 Jul 2015
		Page 4 of 11

- Pictogram(s)
- Precautionary statement(s)
- Name, address and telephone number of the chemical manufacturer or importer.

The existing labels on incoming containers shall not be removed or defaced. Should it be necessary to replace a label, the new label will contain, at a minimum, the information above.

Any hazardous chemicals and materials that are put into secondary containers (smaller container, spray or squirt bottles) must be labeled with at least:

- **NAME**- The chemical name/ product identifier
- **GENERAL HAZARDS**- Words, pictures, symbols or combinations thereof which provide at least general information regarding the physical and health hazards of the chemical.

5.4 Unidentified Chemical Procedure

If a container label has fallen off or can no longer be read and the substance cannot be identified, the First Mate will isolate the item and arrange for proper disposal.

In US based facilities, contact the HSE Manager to arrange for hazardous waste disposal services.

5.5 Information and Employee Training

All personnel shall be informed of and trained on the "Hazardous Communication Program"/"Right to Understand" at the time of assignment and when a new chemical hazard is introduced to their workplace.

The training program will include the following topics:

1. Location of written HAZCOM program, SDS, and chemical list
2. Where the chemicals are used and stored
3. How to detect the presence or release of a hazardous chemical in the work areas (fire, smell, fumes, haze, color, irritation)
4. Physical and other hazards associated with the chemicals in the work area
5. Information regarding labels and labeling
6. Description of SDS and how to read the sections
7. The new GHS pictograms and what hazards they represent
8. How to prevent or reduce exposure to hazardous chemicals or materials (proper storage, labels, Personal Protective Equipment (PPE), warnings, training etc.)
9. Accidental Exposure procedures

SAFETY MANAGEMENT MANUAL		
	SOP-GEN-2013B Hazard Communication Program	Rev # 4
		Revision date: 07 Jul 2015
		Page 5 of 11

5.6 Non-Routine Work or Tasks

Periodically, employees may be required to perform non-routine work or tasks requiring the use of hazardous chemicals **The supervisor of the workers who will perform the work is responsible for conducting a Job Safety Analysis (JSA)** of the task and ensuring that each employee is provided information concerning the chemicals, materials, or exposure potential of the activity.

The JSA will examine risks and hazards of the task and provide information concerning:

- Specific hazards that may be associated with the chemical or material
- Protective measures to be taken
- Measures to minimize or prevent hazard exposure including ventilation, respirators, storage, postings, and Personal Protective Equipment (PPE)
- Review of the chemical SDS or other applicable technical information
- Review any emergency procedures to be taken

***If the addition of the new chemical is a result of a change in procedures, a Management of Change may be required first.*

5.7 Informing Contractors

Contractors working on TDI vessels or facilities must participate in a **Contractor Safety Meeting** before starting work. Aboard vessels, it is the Master's responsibility to conduct the Contractor Safety Meeting. At the offices and on shore facilities, it is the responsibility of the Facility Manager to conduct the meeting. The meeting is a review of TDI-Brooks safety policies and includes:

- Any hazardous chemicals to which contractors may be exposed on site
- The location of the safety data sheets
- Location and use of the PPE Matrix, which describes appropriate PPE for routine tasks.

5.8 SDS Binder Maintenance

The person ordering or purchasing new chemicals is responsible for adding the new SDS to the binder. Most can be found easily with an Internet search. If not, inform the HSE Manager so that one may be obtained.

SAFETY MANAGEMENT MANUAL		
	SOP-GEN-2013B Hazard Communication Program	Rev # 4
		Revision date: 07 Jul 2015
		Page 6 of 11

6.0 Accidental Exposure Procedures

TDI-Brooks will follow Accidental Exposure Procedures when a worker has been accidentally exposed to a chemical through skin contact, inhalation or ingestion. The primary focus is to provide first aid to the worker.

If Accidental Exposure occurs, follow these steps:

- **Stop or minimize exposure.** Remove contaminated clothing. If inhalation exposure, move the person to a well ventilated area
- **Provide first aid** if appropriate. (Section 4 on SDS)
- **Notify the supervisor** as soon as possible
- **Complete the Employee Incident Report Form.** Even if there seems to be no harm done, some reactions are delayed and may not show up for hours.

SAFETY MANAGEMENT MANUAL



SOP-GEN-2013B Hazard Communication Program

Rev # 4

Revision date: 07 Jul 2015

Page 7 of 11

Appendix A

The National Fire Protection Association (NFPA) Hazard Identification System

Common NFPA labeled materials on a vessel would be fuel oil, lube oil, diesel fuel, and compressed gasses such as nitrogen, oxygen and acetylene.

A number 0-4 or an abbreviation is added to each square to indicate the hazard severity.

**The higher number
indicates the greater
hazard.**



Rating Summary Health-Blue

Number	Hazard Code	Description of Hazards
4	Danger	Can be lethal- even with short exposure
3	Warning	Can cause serious or permanent injury
2	Warning	Can cause temporary incapacitation or residual injury
1	Caution	Can be irritating
0		No unusual hazard

Flammability- Red

Number	Hazard Code	Description of Hazards
4	Danger	Highly flammable under normal temperatures
3	Warning	Flammable under most temperatures
2	Caution	Flammable at high temperatures
1	Caution	Must be preheated to burn
0		Will not burn

Reactivity-Yellow

Number	Hazard Code	Description of Hazards
4	Danger	Explosive material at room temperature
3	Danger	May explode if shocked or exposed to high temperature
2	Warning	Violent chemical change at high temperatures or pressures
1	Caution	Normally stable, less stable under higher temperatures
0	Stable	Stable- not reactive

Special-White

Number	Hazard Code	Description of Hazards
W	Danger	Reacts violently if exposed to water
OXY	Danger	Reacts violently if exposed to oxygen

SAFETY MANAGEMENT MANUAL		
	SOP-GEN-2013B	Rev # 4
	Hazard Communication	Revision date: 07 Jul 2015
	Program	Page 8 of 11

Appendix B- OSHA HazCom Definitions

Definitions [From 29 CFR 1900.1200(c)]

Chemical means any substance, or mixture of substances.

Chemical name means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name that will clearly identify the chemical for the purpose of conducting a hazard classification.

Common name means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

Container means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

Employee means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.

Employer means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

Exposure or exposed means that an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. "Subjected" in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

Hazard category means the division of criteria within each hazard class, e.g., oral acute toxicity and flammable liquids include four hazard categories. These categories compare hazard severity within a hazard class and should not be taken as a comparison of hazard categories more generally.

Hazard class means the nature of the physical or health hazards, e.g., flammable solid, carcinogen, oral acute toxicity.

Hazard statement means a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

Hazardous chemical means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.

Health hazard means a chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard.

SAFETY MANAGEMENT MANUAL		
	SOP-GEN-2013B Hazard Communication Program	Rev # 4
		Revision date: 07 Jul 2015
		Page 9 of 11

Immediate use means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Label elements means the specified pictogram, hazard statement, signal word and precautionary statement for each hazard class and category.

Mixture means a combination or a solution composed of two or more substances in which they do not react.

Physical hazard means a chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas. See Appendix B to § 1910.1200—Physical Hazard Criteria.

Pictogram means a composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category.

Precautionary statement means a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling.

Product identifier means the name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical. The product identifier used shall permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

Pyrophoric gas means a chemical in a gaseous state that will ignite spontaneously in air at a temperature of 130 degrees F (54.4 degrees C) or below.

Safety data sheet (SDS) means written or printed material concerning a hazardous chemical that is prepared in accordance with paragraph (g) of this section.

Signal word means a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are “danger” and “warning.” “Danger” is used for the more severe hazards, while “warning” is used for the less severe.

Substance means chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.










Work area means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.


Workplace means an establishment, job site, or project, at one geographical location containing one or more work areas.

SAFETY MANAGEMENT MANUAL		
	SOP-GEN-2013B	Rev # 4
	Hazard Communication Program	Revision date: 07 Jul 2015
		Page 10 of 11

Appendix C- HCS Pictograms and Hazards

As of June 1, 2015, the Hazard Communication Standard (HCS) will require pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

Health Hazard  <ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	Flame  <ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	Exclamation Mark  <ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  <ul style="list-style-type: none"> • Gases Under Pressure 	Corrosion  <ul style="list-style-type: none"> • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals 	Exploding Bomb  <ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle  <ul style="list-style-type: none"> • Oxidizers 	Environment (Non-Mandatory)  <ul style="list-style-type: none"> • Aquatic Toxicity 	Skull and Crossbones  <ul style="list-style-type: none"> • Acute Toxicity (fatal or toxic)

SAFETY MANAGEMENT MANUAL		
	SOP-GEN-2013B Hazard Communication Program	Rev # 4
		Revision date: 07 Jul 2015
		Page 11 of 11

Appendix D- New Mandatory Safety Data Sheet Format

The GHS regulation requires that all Safety Data Sheets have a standardized format by December 2015. Until then, manufacturers may use their own format or the new format, so you will see both. The new format has 16 sections and is described below.

As of June 1, 2015, the HCS will require the new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below:

Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.

Section 3, Composition/ information on ingredients includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures includes important symptoms/ effects, acute, delayed; required treatment

Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire

Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.

Section 8, Exposure controls/ personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9, Physical and chemical properties lists the chemical's characteristics.

Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information*

Section 13, Disposal considerations*

Section 14, Transport information*

Section 15, Regulatory information*

Section 16, Other information includes the date of preparation or the last revision.

Employers must ensure that SDSs are readily accessible to employees. See Appendix D of 29 CFR 1910.1200 for a detailed description of SDS contents.

SAFETY MANAGEMENT MANUAL**SOP-GEN-008D
Abandon Ship**

Rev # 7

Revision date: 07 Jul 2015


Page 1 of 4

**SOP GEN-008D
Abandon Ship**

- 1.0 [Introduction](#)
- 2.0 [Station Bills](#)
- 3.0 [Muster Area](#)
- 4.0 [Drills](#)
- 5.0 [Responsibility](#)
- 6.0 [Procedures for Abandon Ship](#)
- 7.0 [Typical Station Bill](#)

Revision/ Review Log

Revision Date	Approved by	Reviewed by	Revision Details/ Proposal Notes
11 January 2010 Revision #5	Dr. Jim Brooks	HSE Manager: Sue McDonald	
15 October 2010 Revision #6	Dr. Jim Brooks Dr. Bernie Bernard	HSE Manager: Russell Putt Port Captain: Capt. Pat Fallwell	Changed to electronic format
07 July 2015 Revision #7	Dr. Jim Brooks Pete Tatro	Dr. Jim Brooks Pete Tatro	Survival at Sea training recommended but not required for all persons who sail

SAFETY MANAGEMENT MANUAL		
	SOP-GEN-008D	Rev # 7
	Abandon Ship	Revision date: 07 Jul 2015
		Page 2 of 4

1.0 Introduction

An abandon ship order is only given by the Master if the vessel is in imminent danger of sinking. Consequently, **all personnel on the vessel must participate in the drills** so they may understand the procedures. The Master is the only person who may give the order to abandon ship.

2.0 Station Bills

Station bills are located in or near all personnel rooms and in the galley or passageways throughout the vessel. All personnel are required to know their duties and lifeboat assignments as described on the station bill.

The vessel orientation will discuss each individual's duties as listed on the station bill and the various signals used for emergencies. The Master may establish additional emergency signals that will be described and posted on the vessel.

All personnel should be familiar with two routes for getting out of their living and working spaces in the event of an emergency.

3.0 Muster Area

At the sound of the general alarm, all personnel should move to the muster area with their life jacket and survival suit as quickly as possible. If the abandon ship drill is sounded personnel should don as much clothing as quickly as possible.


4.0 Drills

Abandon ship drills are held per SOLAS requirements to ensure that all personnel are familiar with procedures and enhance the ability to respond in an efficient and timely manner.

The signal for abandon ship is more than six short rapid blasts followed by one long blast of the ship's whistle and sounding of the general alarm bell. The designated Mate will record drill information including participants and evaluations.

5.0 Responsibility

The Master has overall responsibility and coordinates all activities in an abandon ship event. The Master will issue emergency messages and notifications to be dispatched. The Mates are responsible for launching life rafts. The Chief Engineer is responsible for securing the engine room.

SAFETY MANAGEMENT MANUAL		
	SOP-GEN-008D	Rev # 7
	Abandon Ship	Revision date: 07 Jul 2015
		Page 3 of 4


6.0 Procedures for Abandon Ship

The signal for Abandon Ship is seven or more rapid blasts followed by one prolonged blast of the ship's whistle and general alarm bell. Dismissal from the drill is indicated by three short blasts of the ship's whistle and general alarm bell.

- Muster at your assigned station. Bring any emergency equipment and supplies that you have been assigned by the station bill.
- Do not return to your room for a lifejacket. Sufficient lifejackets are provided at the muster station.
- Don your survival suit first (if available). The suit provides flotation and protection from the elements, keep the life jacket handy.
- Stand by calmly at your station and await further orders.
- Put on as much clothing, including gloves and head gear as you can.
- The Master will send out a MAYDAY message.
- The assigned crewmember will bring the EPIRB, emergency radios, and SARTS.
- The crew will swing out lifeboats or prepare life rafts according to procedures. Do not launch any equipment until instructed to do so by the Master.
- When the Master orders "Abandon Ship", launch all survival crafts. Enter rafts using ladders rather than jumping over the side if possible.
- Get a safe distance away from the sinking vessel.
- Stream a sea anchor and keep all crafts together in the vicinity of the ship's last position.
- Maintain continuous visual and radio communication while waiting for rescue.
- Keep warm by huddling together and try to keep dry.
- Arrange to collect rainwater for drinking.
- Do not drink seawater or urine.

7.0 Typical Station Bill

Below is a sample vessel station bill. It is the responsibility of all persons sailing to understand the information on the station bill.

SAFETY MANAGEMENT MANUAL		
	SOP-GEN-008D	Rev # 7
	Abandon Ship	Revision date: 07 Jul 2015
		Page 4 of 4

STATION BILL	
FIRE AND EMERGENCY	CONTINUOUS RINGING OF GENERAL ALARM & SOUNDING OF THE SHIP'S WHISTLE FOR MORE 10 SECONDS
ABANDON SHIP	MORE THEN 6 SHORT RINGS FOLLOWED BY 1 PROLONG RING ON GENERAL ALARM & THE SHIP WHISTLE.
MAN OVERBOARD	HAIL AND PASS THE WORD (MAN OVERBOARD) TO THE BRIDGE SOUND THE LETTER O (---) AT LEST 3 TIMES ON THE WHISTLE AND GENERAL ALARM
DISMISSAL DRILLS	3 SHORT BLASTS ON THE WHISTLE AND 3 SHORT RING ON THE GENERAL ALARM

MUSTER STATION: BEHIND WHEELHOUSE

NO.	RATING	FIRE AND EMERGENCY	LIFE RAFT	ABANDON SHIP
1.	CAPTAIN SSO	ON BRIDGE IN COMMAND	1	ON BRIDGE IN COMMAND
2.	CHIEF MATE	AT SCENE IN COMMAND	2	IN CHARGE LAUNCHING
3.	2 ND MATE	ASSIST CHIEF MATE ON SCENE	1	IN CHARGE LAUNCHING EMERGENCY VHF RADIO AND PORTSIDE SART
4.	A/B # 1	#3 FIRE HOSE NOZZLE- ASSIST CHIEF MATE ON SCENE	2.	STSRBOARD SIDE SART AND VHF, ASSIST LAUNCHING RAFT
5.	A/B # 2	#1 FIRE HOSE BACK UP- ASSIST CHIEF MATE ON SCENE	1	ASSIST LAUNCHING RAFT, BRING MEDICAL KET FROM BRIDGR
6.	O/S	#3 FIRE HOSE BACK UP- ASSIST CHIEF MATE ON SCENE	2	BRING EPIRB, ASSIST LAUNCHING RAFT
7.	CHIEF ENGINEER	INENGINE ROOM ST/BY PUMP	1	ASSIST LAUNCHING RAFT
8	ASST/ENG	CLOSE ALL VENTS, ASSIST CHIEF MATE	2	ASSIST LAUNCHING RAFT
9.	OILER	CLOSE WTD'S IN ENGINE ROOM; SECURE BLOWER'S AND VENTS ENGINE ROOM	1	ASSIST LAUNCHING RAFT
10.	COOK	SECURE RANGE & FRYER; SHUT OFF GALLEY VENTILATION	2	PROVIDE BLANKETS
11.	STEWARD	#1 FIRE HOSE BACK UP	1	PROVIDE BLANKETS
12.	PARTY CHIEF	MUSTER PERSON OTHER THEN SHIPS CREW	2	ASSIST CHIEF MATE ON HEAD COUNT
PERSON OTHER THAN SHIPS CREW		MUSTER BEHIND BRIDGE	PER. BUNK CARD	MUSTER AT RAFT WITH LIFE JACKET ON

MASTER: _____