



# The analysis on the safety operations of LNG transportation

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# CONTENTS



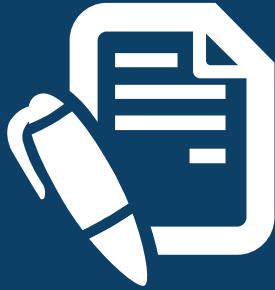
**SELF INTRODUCTION**



**RISK ANALYSIS**



**MINIMIZE THE RISK**



PART  
ONE

# SELF INTRODUCTION

## Resume

- Train crew and students about liquid cargo operation.
- Research in safety of ships and port approaches
  - <The operation and management of GCU on LNGC>
  - <Research on the application of simulator in crew training of liquid cargo ships management>
  - <research on the training standard of crew on board LNG fueled vessel>
  - <A study on the influencing factors of large cruise ships at wusong international cruise terminal>
- sea career
  - LNGC & General Cargo ship experience





PART  
TWO

# RISK ANALYSIS



The safety zone of LNGC



Methods of risk identification and safety analysis of LNG operation

## Part 2 2.1 The safety zone of LNGC

01

Montreal  
France

F&A: 2nm  
P&S: To  
shore

02

St. Peter's bay  
America

F: 0.5nm  
A: 0.25nm  
P&S:  
0.25nm

03

Dampier  
Australia

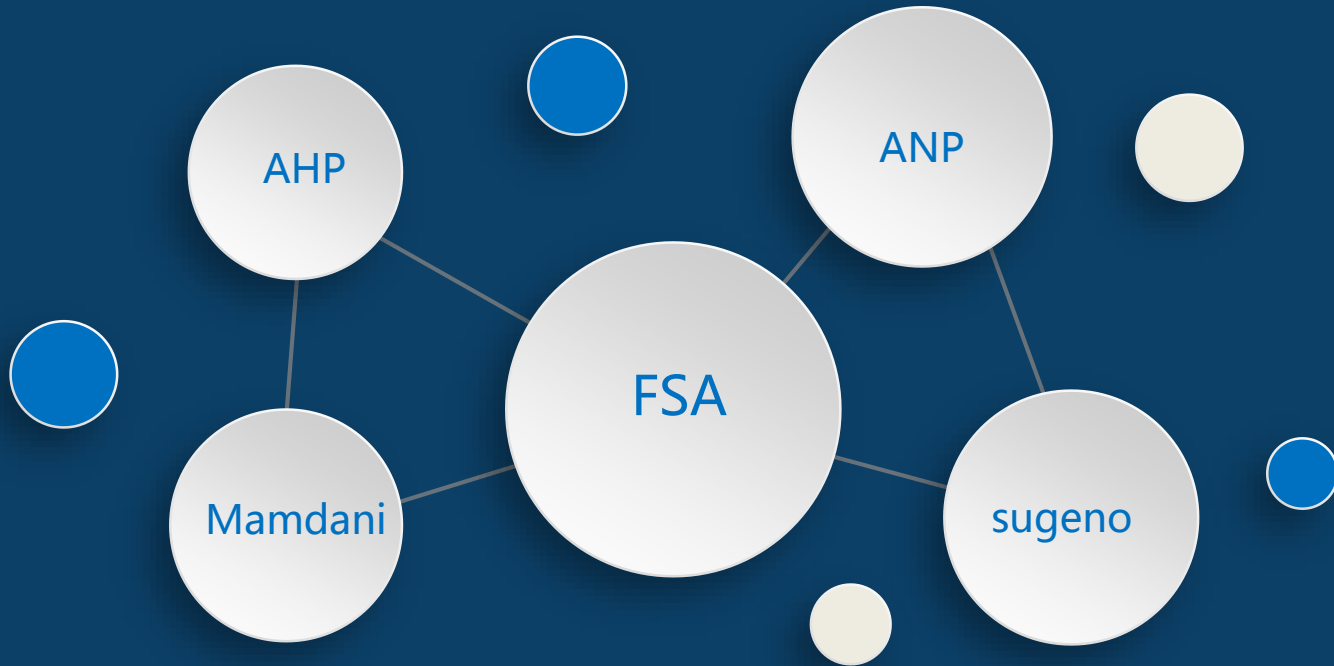
No exact  
rule

04

Shenzhen  
China

2nm around

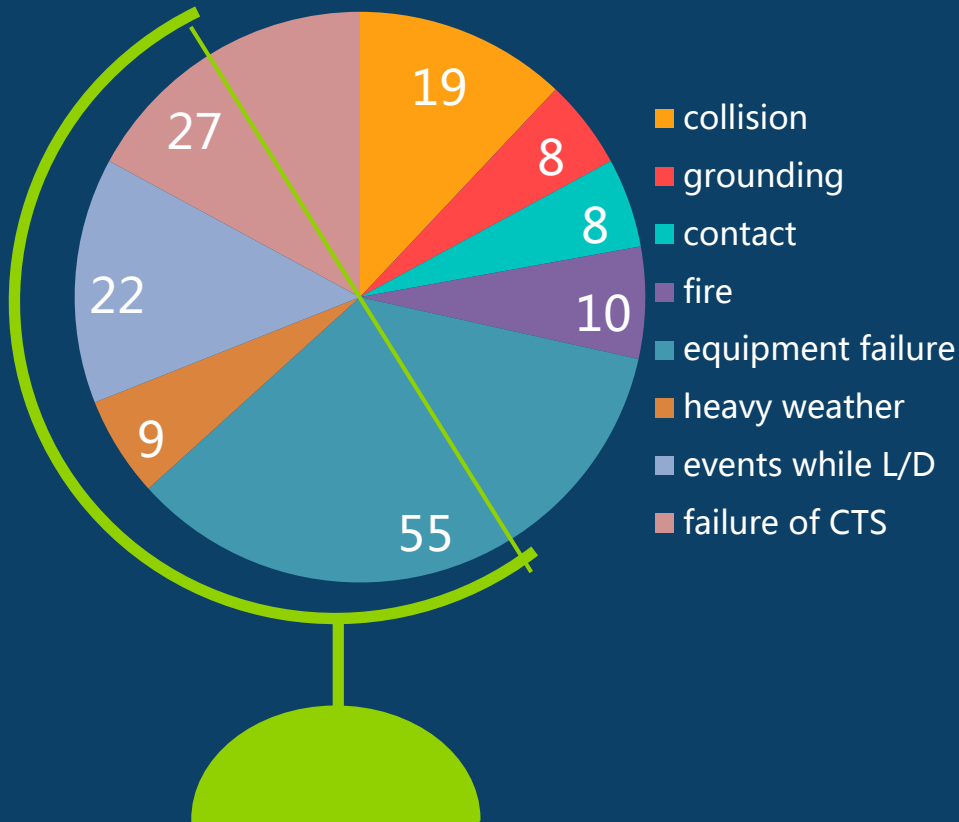
Different places different rules. Ports and authorities can decide their own requirement, lots of experts did research about safety zone, but there is no standard method to make decision.



## Part 2

### 2.2.1 Analysing the risk of LNG carrier operation - Erik Vanem

Accidents of LNGC happened during 1964-2007

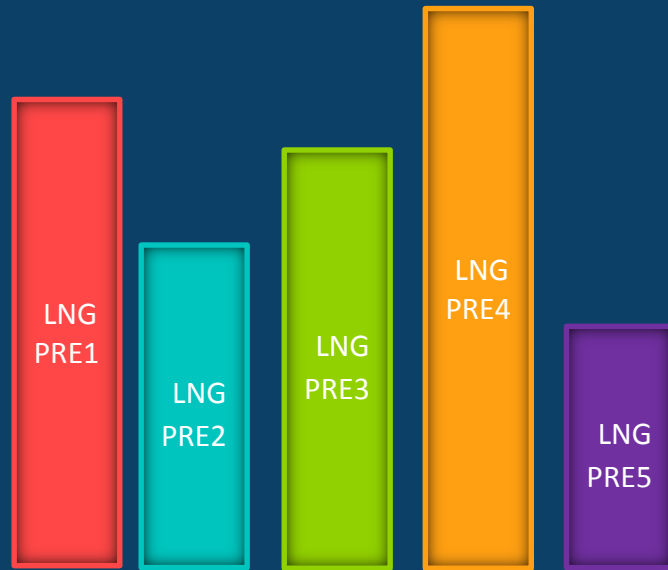


The author uses Formal Safety Assessment (FSA) to analyse the risk. And the result is both the individual and the social risk level lies within the As Low As Reasonable Practicable (ALARP) area, meaning that further risk reduction should be required only if available cost-effective risk control options could be identified.



## Part 2

### 2.2.2 Enabling a viable technique for the optimization of LNG carrier cargo operations – Onakoya Rasheed Alaba



The author uses Analytic hierarchy process(AHP) method to compare the importance of operations below.

Berthing-related precautions, LNG PRE1

Personnel and procedural precautions, LNG PRE2

Cargo equipment precautions, LNG PRE3

Procedural precautions during operation, LNG PRE4

Precautions regarding probable emergency situations, LNG PRE5



PART  
THREE

Methods to reduce risk

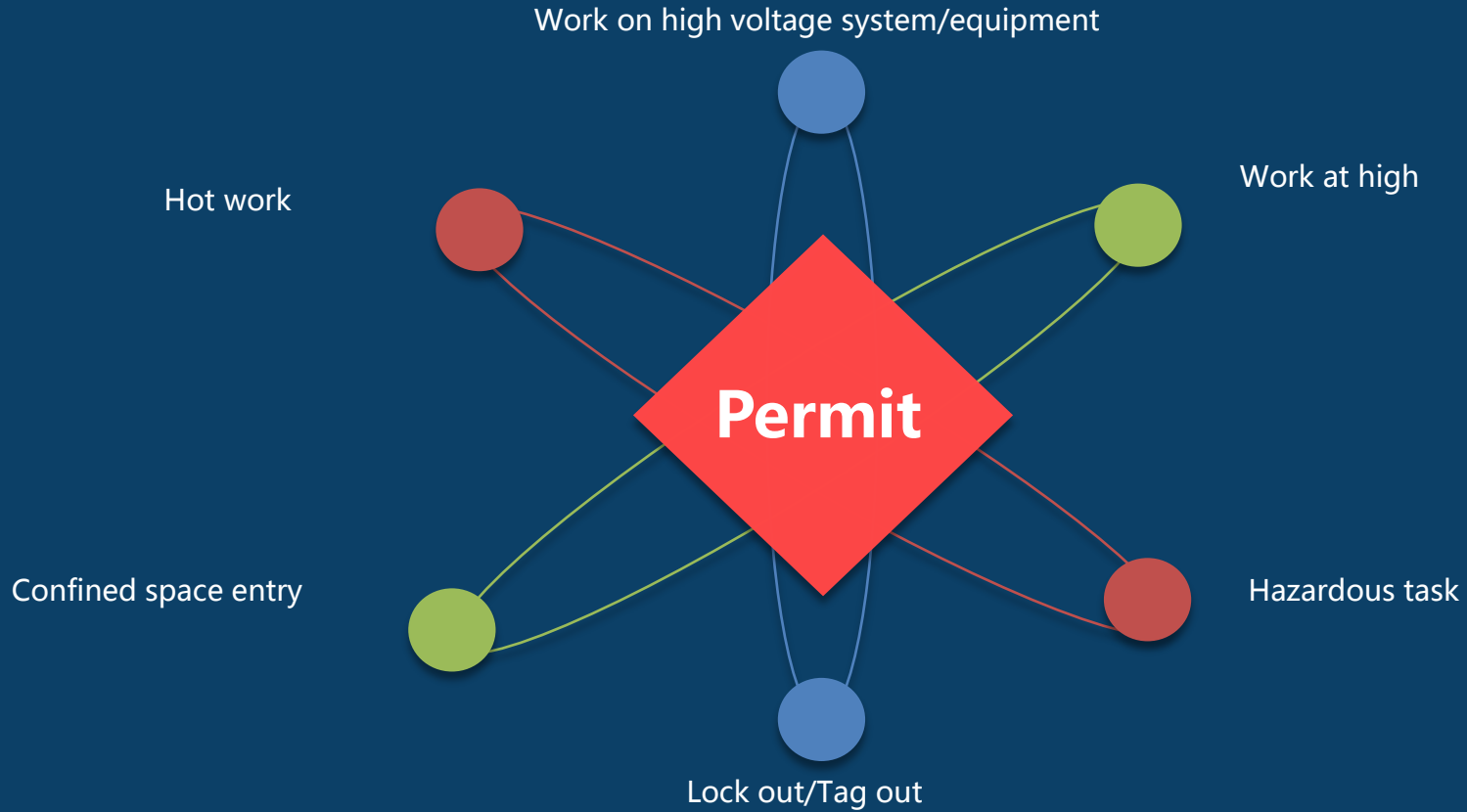
## Part 3 methods to reduce risk

- ✓ Permit & JHA system
- ✓ Guidance procedures for nearly all operation
- ✓ Training both on board and ashore
- ✓ Take full use of every near miss.



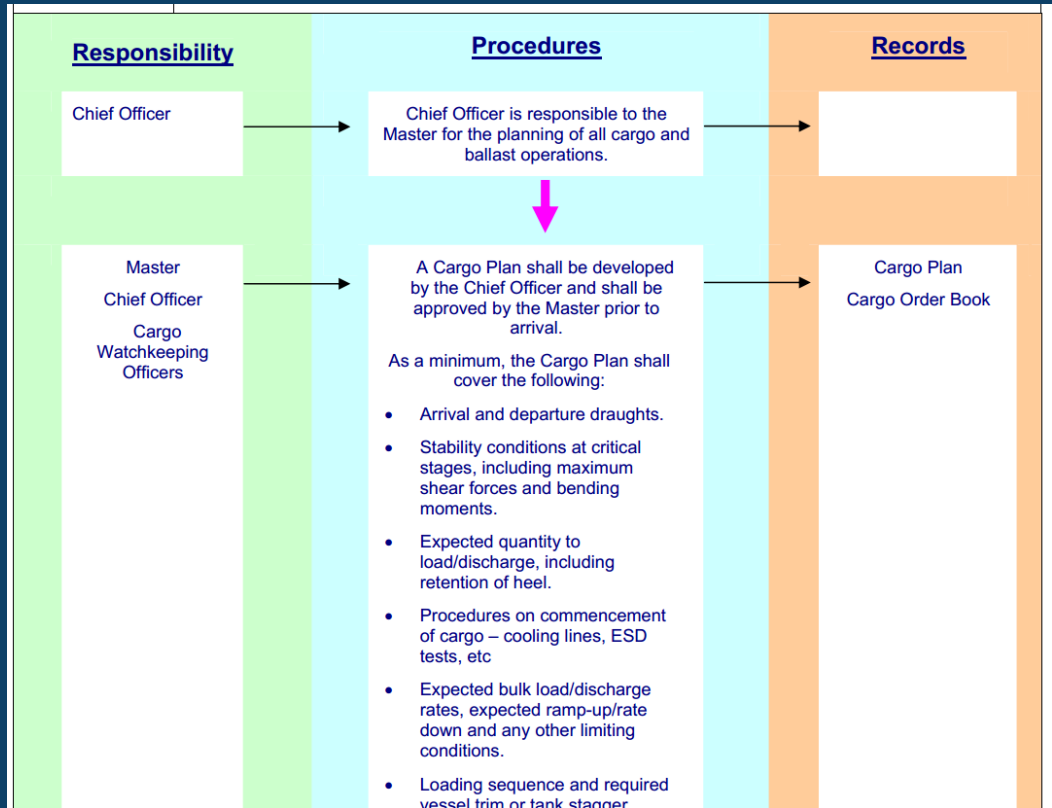
Part 3

# 3.1 Permit & JHA system



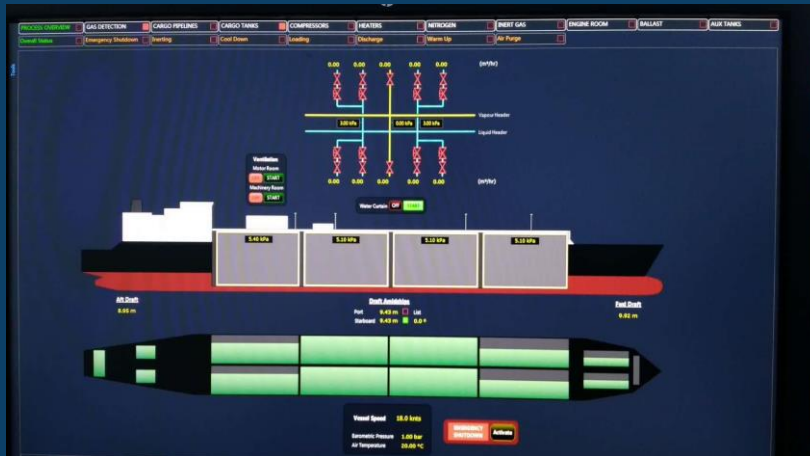
## Part 3

# 3.2 Procedures to be followed



## Part 3 3.3.1 Training simulators

Computer based



Mock-up



## Part 3

### 3.3.2 Resolution MSC.396(95) requirement for training

#### Familiarization

All seafarers serving on board ships subject to the IGF Code

#### Basic

Seafarers responsible for designated safety duties associated with the care, use or in emergency response to the fuel on board ships subject to the IGF Code

#### Advanced

Masters, engineer officers and all personnel with immediate responsibility for the care and use of fuels and fuel systems on ships subject to the IGF Code

Part 3

3.4 Take full use of every near miss

Steering failure

Fleet notice

Safer



Report

Action





**THANK YOU**

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