



Exploration & Production

GENERAL SPECIFICATION

Logistics and Operational Support

GS EP LSO 209

Life Jackets & Immersion Suits Specifications

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1. Scope

The purpose of this document is to define the rules to be applied for the selection of immersion suits, anti-exposure suits, life-jackets and work vests for offshore installation's evacuation, transfer of personnel by watercraft between watercrafts and/or fixed offshore structures and works overboard.

The provisions of this document apply in all Operated Exploration-Production subsidiaries, whenever national rules and regulations either fail to cover the subject or are less stringent.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Standards

Reference	Title
EN 396	European Norms life jackets 150 N
ISO 12402-2	Personal flotation devices. Part 2: Lifejackets, performance level 275 -- Safety requirements. (Amendment 1 included)

Professional Documents

Reference	Title
Not applicable	

Regulations

Reference	Title
IMO - SOLAS	International Convention for the Safety of Life at Sea (SOLAS)

Codes

Reference	Title
LSA code	International Life Saving Appliance Code
IMO- MODU code	The Code for the Construction and Equipment of Mobile Offshore Drilling Units



Other documents

Reference	Title
Not applicable	

Total General Specifications

Reference	Title
GS EP SAF 351	Escape, evacuation and rescue from fixed installations
GS EP LSO 202	Personnel transfer between watercrafts and between watercrafts and offshore structures

3. Rules

As a supplement to rules mentioned in document **GS EP SAF 351**, and **GS EP LSO 202**, following rules shall be applied for the selection of immersion suits, life jackets, anti-exposure suits and work vests:

1. All Floating Units, Mobile Offshore Units (MOUs), Mobile Offshore Drilling Units (**IMO-MODU code**) and watercraft working for Total or any affiliate shall comply with **IMO-SOLAS** regulation and **LSA Code** concerning escape and evacuation means during sea passage, transit or towing operations. Immersion suits as described in chapter 4.1 shall be available when passing in a cold zone as define in appendix 2.
2. All fixed installations shall have life-jackets as described in chapter 4.2 for escape and evacuation, in addition if the installation is located in a cold zone as described in chapter 2, immersion suits as described in chapter 4.1 shall be available.
3. Escape and evacuation equipments mentioned in points 1 & 2 shall not be used for personnel transfer and work overboard.
4. For personnel transfer between watercrafts and between watercrafts and offshore structures, a work-vest complying with characteristics described in chapter 5.1 shall be worn by all personnel. When personnel transfer is made in a cold zone as described in appendix 2, an anti-exposure suit as described in chapter 5.2 shall be used in addition of the work-vest.
5. For personnel working overboard, an inflatable work vest complying with characteristics described in chapter 6 shall be used. If the overboard work is performed in a cold zone, an anti-exposure suit as described in chapter 5.2 shall be used.

4. Escape and evacuation from offshore installations

4.1 Immersion Suits

Immersion suits used for escape and evacuation shall be **SOLAS certified** and comply with **LSA code** chapter 2.3. To reach this, the immersion suit shall be constructed with waterproof materials such that:



- it can be unpacked and donned without assistance within 2 min, taking into account any associated clothing*, and a lifejacket
- if the immersion suit is to be worn in conjunction with a lifejacket;
- it will not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 seconds;
- it will cover the whole body with the exception of the face. Hands shall also be covered unless permanently attached gloves
- are provided;
- it is provided with arrangements to minimize or reduce free air in the legs of the suit;
- An immersion suit which also complies with the requirements of life-jackets may be classified as a life-jacket.
- An immersion suit which has buoyancy and is designed to be worn without a lifejacket shall be
- fitted with a light and the whistle complying with the requirements for life-jackets.
- If the immersion suit is to be worn in conjunction with a lifejacket, the lifejacket shall be worn over
- the immersion suit. A person wearing such an immersion suit shall be able to don a lifejacket
- without assistance.
- In that case immersion suit shall permit the person wearing it:
- to climb up and down a vertical ladder at least 5 m in length;
- to perform normal duties associated with abandonment;
- the immersion suit, or being injured;
- to swim a short distance through the water and board a survival craft.

The immersion suit shall be made of material with inherent insulation, when worn either on its own or with a lifejacket, if the immersion suit is to be worn in conjunction with a lifejacket, shall provide the wearer with sufficient thermal insulation, **to ensure that the wearer's body core temperature does not fall more than 2°C after a period of 6h immersion in calm circulating water at a temperature of between 0°C and 2°C.**

A person in fresh water wearing either an immersion suit or an immersion suit with a lifejacket, shall be able to turn from a face-down to a face-up position in not more than 5 seconds.

An immersion suit which has buoyancy and is designed to be worn without a lifejacket shall be fitted with a light and the whistle complying with the requirements for life-jackets.

4.2 Life jackets

The lifejackets used for escape and evacuation shall be a **foam type, SOLAS certified**, with a **minimum buoyancy of 150 N**.

To reach this, lifejackets shall be so constructed that:



- Shall not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 seconds.
- At least 75% of persons, who are completely unfamiliar with the lifejacket, can correctly don it within a period of one minute without assistance, guidance or prior demonstration,
- After demonstration, all persons can correctly don it within a period of one minute without assistance;
- It is clearly capable of being worn in only one way or, as far as is practicable, cannot be done incorrectly,
- It is comfortable to wear
- Have buoyancy which is not reduced by more than 5% after 24h submersion in fresh water.
- Be fitted with a whistle firmly secured by a cord.

Have sufficient buoyancy and stability in calm fresh water to

- Lift the mouth of an exhausted or unconscious person not less than 120 mm clear of the water with the body inclined backwards at an angle of not less than 20° from the vertical position.
- Turn the body of an unconscious person in the water from any position to one where the mouth is clear of the water in not more than 5s.
- Allow the person wearing it to swim a short distance and to board a survival craft.

If an adult lifejacket is not designed to fit persons weighing up to 140 kg and with a chest girth of up to 1,750 mm, suitable accessories shall be available to allow it to be secured to such persons. (LSA Code Chapt 2).

5. Personnel Transfer by watercraft to and from installations/watercrafts

5.1 Work vest

Work vests used for personnel transfers by watercraft to and from installations/watercrafts shall



- Be **foam type**,
- have a minimum buoyancy of **150 Newton**
- Be **EN 396** or **SOLAS certified**
- Be fitted with a **pealess whistle** able to create a sound of **100 db**

For night transfer, the work vest shall be fitted with a SOLAS certified flashing light with characteristics as per **LSA code** chapter 2.2.3.

5.2 Anti-exposure suits

The anti-exposure suit shall be **SOLAS certified** and constructed with waterproof materials such that it:



- provides inherent buoyancy of at least 70 N;
- is made of material which reduces the risk of heat stress during rescue and evacuation operations;
- covers the whole body with the exception of the head and hands and, where the Administration so permits, feet; gloves and a hood shall be provided in such a manner as to remain available for use with the anti-exposure suits;
- can be unpacked and donned without assistance within 2 min;
- does not sustain burning or continue melting after being totally enveloped in a fire for a period of 2 seconds;
- is equipped with a pocket for a portable VHF telephone;
- has a lateral field of vision of at least 120°.
- An anti-exposure suit shall permit the person wearing it:
 - to climb up and down a vertical ladder of at least 5 m in length;
 - to swim through the water at least 25 m and board a survival craft;
 - to don a lifejacket without assistance; and
 - to perform all duties associated with abandonment, assist others and operate a rescue boat.
- An anti-exposure suit shall be fitted with a light complying with the requirements for life jackets.

The anti-exposure suit shall be so constructed, that when worn, the suit continues to provide sufficient thermal protection following one jump into the water which totally submerges the wearer and shall ensure that when it is worn in calm circulating water at a temperature of 5°C, **the wearer's body core temperature does not fall at a rate of more than 1.5°C per hour, after the first 0.5 hours.**

6. Work overboard

A work vest complying with following characteristics shall be used by all personnel for any overboard work (as mentioned in a work permit), Terminal pilots, offshore mooring gangs and all personnel using a pilot ladder to join a vessel.



- Inflatable type.
- 275 Newton, asymmetrical (twin chambers).
- [ISO 12402-2](#) or SOLAS certified.
- Be fitted with a pealess whistle able to create a sound of 100 db.
- Be fitted with a SOLAS approved flashing light.
- Have visual indicators to check availability of release system.

Inflatable work-vest shall be checked before each use as per manufacturer recommendations by a designated person, in charge of maintenance plan and maintenance records.

Spare parts stock shall be available with sufficient items to allow a full reconditioning of the work vest after been used.

7. Summary table

	chapter 4: EVACUATION		chapter 5: Personnel Transfert		chapter 6: Work overboard	
	Sea Passage, transit, towing	Fixed Installation	Sea Passage, transit, towing	Fixed Installation	Sea Passage, transit, towing	Fixed Installation
Immersion Suits SOLAS (described in chapt 4.1)	COMPULSORY in COLD ZONE	COMPULSORY in COLD ZONE	PROHIBITED TO USE	PROHIBITED TO USE	PROHIBITED TO USE	PROHIBITED TO USE
Life Jackets SOLAS 150 N foam type (described in chapt 4.2)	COMPULSORY	COMPULSORY	PROHIBITED TO USE	PROHIBITED TO USE	PROHIBITED TO USE	PROHIBITED TO USE
Work vest EN 396 150 N foam type (described in chapt 5.1)	PROHIBITED TO USE	PROHIBITED TO USE	COMPULSORY	COMPULSORY	PROHIBITED TO USE	PROHIBITED TO USE
Anti exposure Suits SOLAS (described in chapt 5.2)	PROHIBITED TO USE	PROHIBITED TO USE	COMPULSORY in COLD ZONE	COMPULSORY in COLD ZONE	COMPULSORY in COLD ZONE	COMPULSORY in COLD ZONE
Work Vest inflatable EN 399 275N (described in chapt 6)	Not necessary	Not necessary	Not necessary	Not necessary	COMPULSORY	COMPULSORY
Additional SOLAS certified flashing light	Not necessary	Not necessary	COMPULSORY for Night Transfers	COMPULSORY for Night Transfers	COMPULSORY	COMPULSORY

8. Glossary, terminology and definition

Anti-exposure Suit	An anti-exposure suit is disclosed that protects a wearer against environments characterized by extremely cold temperatures
Db	Decibel
EN EN 396	European Norms European norms for work-vests which have buoyancy of no less than 150 Newton for the average adult and are intended for use offshore, or when foul weather clothing is used.
Immersion Suit	Protective suit made of waterproof materials which reduces the body heatloss of a person wearing it in cold water (ISO).
Life jacket	Device worn by personnel which has sufficient buoyancy and stability to turn the body of an unconscious person and keep the person's mouth clear of the water (ISO).
MOU	Mobile Offshore Unit.
MODU	Mobile Offshore Drilling Unit.
N	Newton.
Terminal Pilot	The competent person, who uses specialized local knowledge, employed by the Company (and approved by the National competent Authority as required) responsible for the berthing and un-berthing of tankers (oil and/or LNG) at the loading/ off-loading facilities.
Work vest	Heavy duty flotation vest.



Appendix 1 Example of equipment

List proposed in relation with “French Sauveteurs en Mer” within the framework of the partnership SNSM / Total

1/ Immersion Suits for escape and evacuation

- Viking Type PS 5002
- Viking Type PS 5006
- Ursuit 5020II
- Helly Hansen HHE307

2/ Life Jackets for escape and evacuation

No specific products tested- all manufacturers have SOLAS approved models

3/ Work vest for transfer by watercraft to and from installations / watercrafts.

- Stearns I222
- Mustang Type 3/5
- RDA 098 SOLAS

4/ Anti-exposure suits for transfer by watercraft to and from installations / watercrafts.

- Viking PS4170
- Mustang Model MS2175
- Ursuit.

Viking and Ursuit models are particularly recommended by SNSM for their quality.



Appendix 2 Cold zones

“Cold Zones” refer to all Winter Areas from the “International Load Line Zones and Areas Map” issued from the International Convention on Load Lines 1966 (LL66) whatever the seasonal period.

Northern Winter Seasonal Zones and Area

(1) North Atlantic Winter Seasonal Zones I and II

(a) The North Atlantic Winter Seasonal Zone I lies within the meridian of longitude 50W from the coast of Greenland to latitude 45N, thence the parallel of latitude 45N, thence the parallel of latitude 45N to longitude 15W, thence the meridian of longitude 15W to latitude 60N, thence the parallel of latitude 60N to the Greenwich Meridian, thence this meridian northwards.

(b) The North Atlantic Winter Seasonal Zone II lies within the meridian of longitude 6830'W from the coast of the United States to latitude 40N, thence the rhumb line to the point latitude 36N, longitude 73W, thence the parallel of latitude 36N to longitude 25W and thence the rhumb line to Cape Toriñana.

Excluded from this zone are the North Atlantic Winter Seasonal Zone I and the Baltic Sea bounded by the parallel of the latitude of The Skaw in the Skagerrak.

(2) North Atlantic Winter Seasonal Area

The boundary of the North Atlantic Winter Seasonal Area is-

the meridian of longitude 6830'W from the coast of the United States to latitude 40N, thence the rhumb line to the southernmost intersection of the meridian of longitude 61W with the coast of Canada and thence the east coasts of Canada and the United States.

(3) North Pacific Winter Seasonal Zone

The southern boundary of the North Pacific Winter Seasonal Zone is the parallel of latitude 50N from the east coast of the USSR to the west coast of Sakhalin, thence the west coast of Sakhalin to the southern extremity of Kril'on, thence the rhumb line to Wakkanai, Hokkaido, Japan, thence the east and south coasts of Hokkaido to longitude 145E, thence the meridian of longitude 145E to latitude 35N, thence the parallel of latitude 35N to longitude 150W and thence the rhumb line to the southern extremity of Dall Island, Alaska.

Appendix 2

Southern Winter Seasonal Zone

The northern boundary of the Southern Winter Seasonal Zone is the rhumb line from the east coast of the American continent at Cape Tres Puntas to the point latitude 34S, longitude 50W, thence the parallel of latitude 34S to longitude 17E, thence the rhumb line to the point latitude 3510'S, longitude 20E, thence the rhumb line to the point latitude 34S, longitude 28E, thence along the rhumb line to the point latitude 3530'S, longitude 118E, and thence the rhumb line to Cape Grim on the northwest coast of Tasmania; thence along the north and east coasts of Tasmania to the southernmost point of Bruny Island, thence the rhumb line to Black Rock Point on Stewart Island, thence the rhumb line to the point latitude 47S, longitude 170E, thence along the rhumb line to the point latitude 33S, longitude 170W, and thence the parallel of latitude 33S to the west coast of the American continent.

