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Agenda item 10

RESOLUTION A.830(19)
adopted on 23 November 1995

CODE ON ALARMS AND INDICATORS, 1995

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

RECALLING ALSO that it adopted resolution A.686(17) on the Code on Alarms and Indicators, incorporating therein provisions on alarms and indicators contained in the 1974 SOLAS Convention, as amended, and the IBC, BCH, IGC and Gas Carrier Codes, as amended,

RECALLING FURTHER that the Maritime Safety Committee, at its sixty-third session, adopted resolution MSC.39(63) on adoption of the amendments to the Code on Alarms and Indicators, in order to extend resolution A.686(17) to cover the 1989 MODU Code and the Code of Safety for Diving Systems,

NOTING that the Maritime Safety Committee, at its sixty-fifth session, approved amendments to resolution A.686(17) to extend it to cover the 1993 Torremolinos Protocol, Code of Safety for Nuclear Merchant Ships, IMDG Code, Guidelines for Inert Gas Systems, Standards for Vapour Emission Control Systems, MARPOL 73/78, HSC Code and amendments to the 1974 SOLAS Convention concerning radiocommunications for the GMDSS, with a view to ensuring uniformity in the application of these IMO instruments,

RECOGNIZING the need for a revised text of the Code on Alarms and Indicators which incorporates all the amendments approved since its original adoption, for ease of implementing its provisions,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its sixty-fifth session,

1. ADOPTS the Code on Alarms and Indicators, 1995 set out in the Annex to the present resolution;

2. RECOMMENDS Governments to:

(a) take appropriate steps to apply the Code;

(b) use the Code as an international safety standard for designing alarms and indicators for ships, ships' equipment and machinery; and

(c) inform the Organization of measures taken for the application of the Code;

3. URGES the Maritime Safety Committee and the Marine Environment Protection Committee to take account of the provisions of the Code when developing new standards on alarms and indicators;

4. AUTHORIZES the Maritime Safety Committee and the Marine Environment Protection Committee to amend or extend the Code as may be necessary;

5. REVOKES resolutions A.686(17) and MSC.39(63).

ANNEX

CODE ON ALARMS AND INDICATORS, 1995*

The text of the original Code on Alarms and Indicators adopted by A.686(17) subject to the following amendments.

PREAMBLE

In the original Code, replace the two first sentences of paragraph 1 by the following:

"1 The Code is a recommendatory document primarily directed to ships covered by the International Convention for the Safety of Life at Sea, 1974 (1974 SOLAS Convention), as amended, the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78), as amended, and associated codes (IBC, BCH, IGC, Gas Carrier, HSC, 1989 MODU, Nuclear Merchant Ships, Diving and IMDG Codes), 1993 Torremolinos Protocol and Guidelines for Inert Gas Systems (IGS) and Standards for Vapour Emission Control Systems (VEC). Although alarms and indicators required by the dynamically supported craft and similar specialized ships are not specifically included, the Code can be used for guidance where appropriate, and in the future it could be extended to include these instruments."

1 PURPOSE AND APPLICATION

In the original Code, replace paragraph 1.1 by the following:

"1.1 This Code is a recommendatory document for alarms and indicators. It is intended to provide general design guidance and to promote uniformity of type, location and priority for those alarms and indicators which are required by the 1974 SOLAS Convention, as amended, MARPOL 73/78 as amended, and associated instruments (IBC, BCH, IGC, Gas Carrier, HSC, 1989 MODU, Nuclear Merchant Ships, Diving and IMDG Codes, 1993 Torremolinos Protocol and Guidelines for IGC and standards for VEC)."

In paragraph 1.3, replace the date "1992" by "1996".

2 DEFINITIONS

In the original Code, add the following new subparagraphs:

"2.2.4 For special ships (e.g. high-speed craft), additional alarms may be classified as emergency alarms in addition to the ones defined above.

2.3.12 For special ships (e.g. high-speed craft), additional alarms may be classified as primary

*A consolidated text of this Code incorporating all the amendments will be published as an IMO publication.

alarms in addition to the ones defined above."

In the original Code, add the following new paragraphs:

"2.15 *1993 Torremolinos Protocol.* The Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977.

2.16 *IGS.* The Guidelines for Inert Gas Systems (MSC/Circ.282, as amended by MSC/Circ.353 and MSC/Circ.387).

2.17 *HSC Code.* The International Code of Safety for High-Speed Craft (resolution MSC.36(63)).

2.18 *VEC.* The Standards for Vapour Emission Control Systems (MSC/Circ.585).

2.19 *IMDG Code.* The International Maritime Dangerous Goods Code.

2.20 *1995 Diving Code.* The Code of Safety for Diving Systems, 1995 (resolution A.831(19)).

2.21 *1989 MODU Code.* The Code for the Construction and Equipment of Mobile Offshore Drilling Units (resolution A.649(16)).

2.22 *Nuclear Merchant Ship Code* of Safety for Nuclear Merchant Ships (resolution A.491(XII))."

3 GENERAL

In the original Code, replace the second sentence of paragraph 3.13 by:

"Equipment and cables for emergency alarms and indicators (e.g. watertight doors' position indicators) should be arranged to minimize risk of total loss of service due to localized fire, collision, flooding or similar damage."

4 AUDIBLE ALARMS AND CALLS

Text of the original Code.

5 VISUAL ALARMS, CALLS AND INDICATORS

In the original Code, add a new paragraph 5.6 as follows:

"5.6 On MODUs, where supplemental visual alarms are installed for general emergency alarms, the colour of these supplemental alarms may be amber, provided they flash with a pulse frequency of at least 4 Hz."

6 CHARACTERISTICS

In table 6.1.1 - Emergency alarms:

In line "Fire alarm: In machinery space", replace audible Code "2" in column "Code" by "2, 3.c,

3.d".

7 REQUIREMENTS FOR PARTICULAR ALARMS

Text of the original Code.

8 GROUPING OF ALARMS AND INDICATORS

Text of the original Code.

9 ALARM AND INDICATOR LOCATIONS (Page 21 of the AI Code)

Amend the original Code as follows:

- in paragraph 9.1, replace "9.1.8" by "9.1.9";

- in the box containing notes below paragraph 9.2, replace "9.1.8" by "9.1.9";

- table 9.1.1 - Location; navigating bridge (page 22); replace regulation "51" (7th line from the top) by regulation "30.3" and accordingly, change the function to "steering gear overload/no volts";

- in table 9.1.1 (continued) (page 24), delete the entry "SOLAS IV" and all entries in the two lines below it;

- in table 9.1.4 (continued) (page 30), delete the entry "SOLAS IV" and all entries in the line below it;

- in table 9.1.6 - Location: miscellaneous (page 32), delete the entry "SOLAS IV" and all entries in the four lines below it; and

- add to location tables 9.1.1 to 9.1.8 of the original Code the amendments as given in the attached tables.

AMENDMENTS TO TABLES 9.1.1 TO 9.1.9

Table 9.1.1 - Location: Navigating bridge

Priority	IMO Instrument **SFV Protocol 1993** **Chapter IV**	Function	Type	Notes
P	4(5) 8(1)(e)(iii)	Machinery failure advance alarm	A,V	Column 1, table 8.3 Column 2, table 8.2
P	6(2)	Oil-fired steam boiler low water level, air supply failure or flame failure	A,V	! Column 2, table 8.3 II-1/32.2 (table 9.1.2)*
P	8(1)(d)	Propulsion control station in control	I	Column 1, table 8.2 II-1/31.2.5* II-1/49.3*
P	8(1)(e)(i) 8(1)(e)(ii)	Propeller speed/ direction/ pitch	MI	Column 1, table 8.2 II-1/31.2.8*
P	8(1)(g)	Propulsion machinery remote control failure	A,V	Column 1, table 8.2 II-1/31.2.7*
P	8(1)(h)	Low propulsion starting air pressure	A,V	! Column 1, table 8.2 II-1/31.2.9*
P	13(3)	Rudder angle indicator	A,V	Column 1, table 8.1 II-1/29.11*
P	13(4)	Steering gear power unit power failure	A,V	Column 1, table 8.1 II-1/29.5.2*
P	13(5)	Steering gear running	I	Column 1, table 8.1 II-1/30.1*
P	13(5)	Steering gear overload/no volts	A,V	Column 1, table 8.1 II-1/30.3*
P	15(5)	Refrigerating machinery spaces alarm	A,V	Column 2, table 8.1
P	19(1)	HP fuel oil pipe leakage	A,V	! Column 2, table 8.3
P	19(3)	Fuel heating high temperature alarm	A,V	! Column 2, table 8.3
P	19(5)	Fire detection alarm	A,V	Column 2, table 8.3
P	20(1)	Bilge high water level alarm	A,V	Column 2, table 8.3 II-1/21.1.6.2*

* Cross reference to SOLAS regulation

Table 9.1.1 (continued) - Location: Navigating bridge

Priority	IMO Instrument	Function	Type	Notes
	Chapter IV (cont.)			
P	22(2)(a)	Essential and important machinery parameters	A,V	Column 2, table 8.3 II-1/51.1.1 (table 9.1.2)*
P	22(2)(d)	Fault requiring action by or attention of the officer on watch	A,V	Column 1, table 8.3 (machinery alarm inc. 22(2)(c), 23(2), 23(3)(c) & 23(3)(d)) II-1/51.1.3*
P	22(3)(b)	Alarm system normal power supply failure	A,V	Column 2, table 8.3 II-1/51.2.2*
P	24	Automatic propulsion shutdown override	I	Column 1, table 8.3 II-1/52*
P	24	Automatic shutdown of propulsion machinery	A,V	Column 1, table 8.3 II-1/52*
	Chapter V			
P	14(2)(b)	Fire detection or automatic sprinkler operation	A,V	Column 2, table 8.1 II-2/12.1.2.2*
P	15(2)(b)	Fire detection alarm	A,V	Column 2, table 8.1 II-2/40.3* II-2/13.1.6*
	IGS			
S	3.14.11	Low water level alarm	A,V	
	HSC Code			
P	7.7.1	Automatic smoke detection system in areas of major and moderate fire hazard and other enclosed spaces in accommodation not regularly occupied	I	! Column 2, table 8.2
P	7.7.1	Automatic smoke detection and fire detection (with detectors sensing other than smoke) in main propulsion machinery room(s) additionally supervised by TV cameras monitored from the operating compartment	I	Column 2, table 8.2

* Cross reference to SOLAS regulation

Table 9.1.1 (continued) - Location: Navigating bridge

Priority	IMO Instrument	Function	Type	Notes
	HSC Code (cont.)			
P	+7.7.2.1.2	Fixed fire detection and fire alarms systems' power loss or fault condition.	A,V	Column 2, table 8.2 II-2/13-1.1.3*
P	+7.7.2.1.4	Fire detection signal	A	Column 2, table 8.2
P	7.7.2.1.6	Fire detection manually operated call point section unit indicator	A,V	Column 2, table 8.3 II-2/13.1.6* II-2/13-1.1.6*
P	7.7.3.1	Fire detection for periodically unattended machinery spaces	A,V	Column 2, table 8.3 II-2/14.2*
S	7.8.1.2	Fire door position	I	Column 2, table 8.2 II-2.37.1.2.2*
S	7.8.5.3	Loss or reduction of required ventilation	I	Column 2, table 8.2 II-1.37.1.6.3*
S	7.9.3.3.3	Fire door closing	I	! Column 2, table 8.2 II-2/37.1.2.2*
P	7.12	Zone ventilation fans control	I	! manned control station
P	7.13.1	Manually operated sprinkler system alarms	M,I	! Column 2, table 8.2
P	7.15	Smoke detection system for cargo spaces	I	! Column 2, table 8.2
P	9.1.14	Liquid cooling system failure	A,V	!
P	9.2.1	Auto fire detection system	A,V	Column 2, table 8.3 II-2/11.8*; 14.2*
P	9.2.1	Bilge alarm	A,V	Column 2, table 8.3 II-2/48.1*; 48.2*
P	9.2.1	Remote machinery alarm system	A,V	Column 2, table 8.3
P	9.4.2	Fuel line failure	A,V	Column 2, table 8.2
P	9.4.5	Lubricating oil pressure or level falling below a safe level	A,V	Column 2, table 8.2

* Cross reference to SOLAS regulation

+ These alarms may be omitted if they are provided at the central fire control station

Table 9.1.1 (continued) - Location: Navigating bridge

Priority	IMO Instrument	Function	Type	Notes
	HSC Code (cont.)			
P	9.5.6	Lubricating fluid supply failure or lubricating fluid pressure loss	A,V	Column 2, table 8.2
S	10.3.12	Unattended space bilge alarm	V	! Column 2, table 8.2 II-1/48.1*
P	11.2.1	Failure of any remote or automatic control system	A,V	Column 2, table 8.3
P	11.4.1	Malfunction or unsafe condition	A,V	! Column 2, table 8.2
EM	11.4.1.1	Indication of conditions requiring immediate action	A,V	Column 2, table 8.2; distinctive alarms in full view of crew members
P	11.4.1.2	Indication of conditions requiring action to prevent degradation to an unsafe condition	V	Column 2, table 8.2; visual display to be distinct from that of alarms referred in 11.4.1.1
S	12.3.9	Emergency battery discharge	I	Column 2, table 8.2 II-1/42.5.3*;43.5.3*
P	12.5.1	Steering system electric overload	A,V	! Column 2, table 8.2 II-1/30.3*
P	12.5.2	Steering system electric phase failure	A,V	Column 2, table 8.2 II-1/30.3*
S	12.6.3	Electrical distribution system low insulation level	A or I	! Column 2, table 8.2 II-1/45.4.2*
P	13.7	Rudder angle indicator and rate-of-turn indicator	I	Column 2, table 8.2 5.4.3 II-1/29.11* V/12(n)*
P	13.11.2	Propulsion indicator	I	Column 2, table 8.2
S	13.11.3	Emergency steering position compass reading indicator	I	Column 2, table 8.2

* Cross reference to SOLAS regulation

Table 9.1.1 (continued) - Location: Navigating bridge

Priority	IMO Instrument	Function	Type	Notes
	1989 MODU Code			
S	7.4.1	Propeller pitch indicator	I	Column 2, table 8.1
S	7.4.2.5 8.5.5	Propulsion station in control indication	I	Columns 1&3, table 8.2 II-1/31.2.5* II-1/49.3*
P	7.4.2.7 8.5.7	Propulsion machinery remote control failure	A,V	Column 1, table 8.2 II-1/31.2.7; II-1/49.5*
P	7.4.2.8	Propeller speed/ direction/pitch	MI	Column 1, table 8.2 II-1/31.2.8*
P	7.4.2.9 8.5.9	Low starting air pressure	A,V	Columns 1&3, table 8.2 II-1/31.2.9; II-1/49.7*
P	7.5.17	Rudder angle indicator	MI	Column 1, table 8.1 II-1/29.11*
P	7.6.1	Steering gear running	I	Columns 1&13 table 8.1 II-1/30.1*
P	7.6.3	Steering gear phase failure/overload alarm	A,V	Column 1, table 8.3 II-1/30.3*
P	8.5.8	Propeller speed/direction/pitch	MI	Column 1, table 8.3 II-1/49.6*
P	8.7.1	Fault requiring attention	A,V	Column 1, table 8.3, including 8.3.5.1, 8.4.1, 8.8.6 and 8.9 II-1/51.1.3*
P	8.7.3	Alarm system normal supply failure	A,V	Column 2, table 8.3 II-1/51.2.2*
P	9.7.1	Fire detection system alarm	A,V	Column 2, table 8.1 II-2/13*
P	9.8	Gas detection and alarm system	A,V	! Column 2, table 8.1

* Cross reference to SOLAS regulation

Table 9.1.2 - Location: machinery space/machinery control room

Priority	IMO Instrument	Function	Type	Notes
	SFV Protocol 1993 Chapter IV			
P	6(2)	Oil-fired steam boiler low water level, air supply failure or flame failure	A,V	! II-1/32.2*
P	8(1)(e)(iii)	Machinery failure advance alarm	A,V	!
S	8(1)(d)	Propulsion control station in control	I	Column 3, table 8.2 II-1/31.2.5* II-1/49.3*
P	8(1)(g)	Propulsion machinery remote control failure	A,V	! Column 3, table 8.2 II-1/31.2.7*
P	8(1)(h)	Low propulsion starting air pressure	A,V	! Column 3, table 8.2 II-1/31.2.9*
S	15(4)(b)	Refrigerant leak alarm	A,V	
S	17(6)	Emergency battery discharge	I	! Column 3, table 8.1 II-1/42.5.3*
S	18(4)(b)	Electrical distribution system low insulation level	A or I	! Column 3, table 8.1 II-1/45.4.2*
P	19(7)	Internal combustion engine monitors	MI	Column 3, table 8.3 II-1/47.2*
P	22(2)(a)	Essential and important machinery parameters	A,V	Column 3, table 8.3 II-1/51.1.1*
P	22(3)(b)	Alarm system normal power supply failure	A,V	Column 3, table 8.3 II-1/51.2.2*
P	23(2)	Automatic changeover of propulsion auxiliaries	A,V	Column 3, table 8.3 II-1/53.4.2*
P	24	Automatic shutdown of propulsion machinery	A,V	Column 3, table 8.3 II-1/52*
P	24	Automatic propulsion shutdown override	I	Column 3, table 8.3 II-1/52*

* Cross reference to SOLAS regulation

Table 9.1.2 (continued) - Location: machinery space/machinery control room

Priority	IMO Instrument	Function	Type	Notes
	IGS			
S	3.14.11	Low water level alarm	A,V	Column 3, table 8.1 II-2/62.19.1.7*
	MARPOL 73/78 Annex I			
P	16(5)	Alarm for excessive oil content in oily mixture discharge into the sea	(A,V)	!
	HSC Code			
P	7.7.2.1.4	Fire detection signal	A,V	Column 3, table 8.2
P	7.7.3.1	Fire detection for periodically unattended machinery spaces	A,V	Column 3, table 8.3 II-2/14.2*
P	9.2.1	Auto fire detection system	A,V	Column 2, table 8.3 II-2/11.8*;14.2*
P	9.2.1	Bilge alarm	A,V	Column 2, table 8.3 II-2/48.1*;48.2*
P	9.2.1	Remote machinery alarm system	A,V	Column 2, table 8.3
P	9.4.2	Fuel line failure	A,V	Column 3, table 8.2
P	9.4.5	Lubricating oil pressure or level falling below a safe level	A,V	Column 3, table 8.2
P	9.5.6	Lubrication fluid supply failure or lubricating fluid pressure loss	A,V	Column 3, table 8.2
S	10.2.7.3	High temperature alarm (oil fuel or settings tank)	V	!
S	10.3.12	Unattended space bilge alarm	V	! Column 3, table 8.2 II-1/48.1*

* Cross reference to SOLAS regulation

Table 9.1.2 (continued) - Location: machinery space/machinery control room

Priority	IMO Instrument	Function	Type	Notes
	HSC Code (cont.)			
P	11.2.1	Failure of any remote or automatic control system	A,V	Column 2, table 8.3
P	11.4.1	Malfunction or unsafe condition	A,V	! Column 3, table 8.2
P	11.4.1.3	Indication of conditions in 11.4.1.1 requiring immediate action	A,V	
P	11.4.1.3	Indication of conditions in 11.4.1.2 requiring action to prevent degradation of an unsafe condition	A,V	Column 3, table 8.2; visual display to be distinct from that of alarms referred in 11.4.1.1
P	11.5	Shutdown system activation	A,V	! Column 3, table 8.2
P	12.5.1	Steering system electric overload	A,V	! Column 3, table 8.2 II-1/30.3*
P	12.5.2	Steering system electric phase failure	A,V	Column 3, table 8.2 II-1/30.3*
S	12.6.3	Electrical distribution system low insulation level	A or I	! Column 3, table 8.2 II-1/45.4.2*
	1989 MODU Code			
P	4.2.7	Machinery failure pre-alarm	A,V	! Column 3, table 8.1
P	4.5.2	Manual overriding of the automatic control indicator	I	Column 3, table 8.1
S	5.3.12	Emergency battery discharge	I	Column 3, table 8.1 II-1/42.5.3*
S	5.5.7	Electrical distribution system low insulation level	A or I	! Column 3, table 8.1 II-1/45.4.2*
P	7.3.1	Water tube boiler high water level alarm	A,V	Column 3, table 8.1
S	7.4.2.4 8.5.4	Propulsion machinery orders from bridge	I	Column 3, table 8.2 II-1/31.2.4*; II-1/49.2*
S	7.4.2.5 8.5.5	Propulsion station in control indication	I	Columns 1&3, table 8.2 II-1/31.2.5*; II-1/49.3*
P	7.4.2.9	Low starting air pressure	A,V	Columns 1&3, table 8.2 II-1/31.2.9*

* Cross reference to SOLAS regulation

Table 9.1.2 (continued) - Location: machinery space/machinery control room

Priority	IMO Instrument	Function	Type	Notes
P	7.6.1	Steering gear running	I	Columns 1&!3, table 8.1 II-1/30.1*
P	8.3.1	HP fuel oil pipe leakage	A,V	! Column 3, table 8.3 II-2/15.5.3*
P	8.3.3	Fuel heating temperature alarm	A,V	! Column 3, table 8.3 II-2/15.5.3*
P	8.3.6	Fire detection alarm for boiler/propulsion machinery	A,V	! Column 3, table 8.3 II-1/47.1*
P	8.3.7	Internal combustion engine monitors	MI	Column 3, table 8.3 II-1/47.2*
P	8.5.7	Propulsion machinery remote control failure	A,V	Column 3, table 8.3 II-1/49.5*
P	8.7.1	Fault requiring attention	A,V	At a normally manned control station in addition to main machinery control station including 8.3.5.1, 8.4.1, 8.8.6 and 8.9 II-1/51.1*
P	8.8.3	Automatic changeover of propulsion auxiliaries	A,V	Column 3, table 8.3 II-1/53.4.2*

* Cross reference to SOLAS regulation

Table 9.1.3 - Location: central fire control station where provided

Priority	IMO Instrument	Function	Type	Notes
	SFV Protocol 1993 Chapter V			
S	14(3)(c)	Automatic sprinkler system pressure	MI	II-2/12.2.3*
	HSC Code			
P	+7.7.2.1.2	Fixed fire detection and fire alarm systems' power loss or fault conditions	A,V	Column 2, table 8.2 II-2/13-1.1.3*
P	+7.7.2.1.4	Fire detection signal	A,V	Column 2, table 8.2
	1989 MODU Code			
P	9.7.1	Fire detection system	A,V I	II-2/13*
P	9.8	Gas detection and alarm systems	A,V	!

* Cross reference to SOLAS regulation

+ These alarms may be omitted if they are provided at the central fire control station

Table 9.1.4 - Location: at the equipment or at the location being monitored

Priority	IMO Instrument	Function	Type	Notes
	SFV Protocol 1993			
	Chapter II			
S	13(1)	Shell valve closure	A,V	II-1/17.9.2.1*
S	13(2)	Shell valve closure	A,V	II-1/17.9.3*
	Chapter IV			
S	11(7)	Collision bulkhead valve closure	I	II-1/21.2.12*
S	13(3)	Rudder angle indicator	MI	
S	15(4)(a)	Refrigerant leak indicator	I	
P	15(5)	Refrigerating machinery spaces alarm	A,V	At escape exits
	Chapter V			
S	14(3)(c)	Automatic sprinkler system pressure	MI	At each section stop valve II-2/12.2.3*
S	14(5)(a)	Automatic sprinkler tank level	MI	II-2/12.4.1*
P	15(2)(b)	Fire detection alarm	A	To ensure fire alarm sounding on the deck where the fire is detected
	IGS			
S	3.15.3.2.1	Effluent drain valve position indicator	I	!
S	6.2	Tank pressure sensors	MI	!
	VEC systems			
S	2.3.1	Isolation valve position indicator	I	
P	2.4.1.3	Liquid level indicator	MI	At the location where cargo transfer is controlled

* Cross reference to SOLAS regulation

Table 9.1.4 (continued) - Location: at the equipment or at the location being monitored

Priority	IMO Instrument	Function	Type	Notes
	VEC systems (cont.)			
P	2.4.1.4	Liquid level indicator	MI	Portable gauging device on the tank
P	3.2.1.3	Cargo vapour shutoff valve position indicator	I	Near terminal vapour connection
P	3.3.3	Terminal vapour pressure sensing devise	MI	! (3)
P	3.3.3.2	Terminal vapour pressure alarm	A,V	! (3)
P	3.3.3.3	Signal for sequential shutdown of onshore pumps and remotely operated cargo vapour shutoff valve	(A,V)	! (3)
	IMDG Code (vol I) (Amendment 27)			
S	21.4.4	Cargo control temperature less +25°C	A,V	!, Alarms independent of power supply of the refrigeration system
	HSC Code			
EM	7.7.6.1.6	Release of fire-extinguishing medium	A	Spaces in which personnel normally work or to which they have access. II-2/5.1.6*
EM	7.9.3.3.2	Fire door closing	A	Sounding alarm before the door begins to move and until completely closed
S	7.13.1	Manually operated sprinkler system alarms	M,I	! Column 2, table 8.2
S	10.9.5	Bilge cocks and valve position indication	I	To indicate open or closed position

* Cross reference to SOLAS regulation

Table 9.1.4 (continued) - Location: at the equipment or at the location being monitored

Priority	IMO Instrument	Function	Type	Notes
	Diving Code			
P	2.5.3	Diving bell internal pressure	MI	! At the location of the attendant monitoring diving operations
P	2.5.5	Diving bell, etc. overpressure alarm	A,V	! At the location of the attendant monitoring diving operations
P	2.9.3	Diving equipment fire detection alarm	A,V	! At the location of the attendant monitoring diving operations
	1989 MODU Code			
S	3.6.4.2	Watertight doors and hatch cover positions alarm	A,V	
S	4.3.5	Water level of essential boiler	MI	II-1/32.6*
S	4.4.3	Steam pressure	MI	II-1/33.3*
S	4.8.6	Bilge valve indicator	I	II-1/21.2.12*
S	4.9.8	Ballast valve position indicator	I	
S	4.11.11	Cable tension windlass power amount of cable paid out	I	

* Cross reference to SOLAS regulation

Table 9.1.5 - Location: engineer's accommodation

Priority	IMO Instrument	Function	Type	Notes
	SFV Protocol 1993			
	Chapter IV			
P	14	Engineers' alarm	A	Column 4, table 8.3 II-1/38*
P	22(2)(b) 22(2)(c)	Fault requiring attention of engineer on duty	A,V	Column 4, table 8.3 II-1/51.1.2*; II-1/51.1.5*
	HSC Code			
P	7.7.3.1	Fire detection for periodically unattended machinery spaces	A,V	Column 4, table 8.3 II-2/14.2*
	1989 MODU Code			
P	7.8	Engineers' alarm	A	Column 4, table 8.3 II-1/38*
P	8.7.1	Fault requiring attention	A	Activate engineers' alarm required by 7.8 including 8.3.5.1, 8.4.1, 8.8.6 and 8.9 II-1/51.1.5*

* Cross reference to SOLAS regulation

Table 9.1.6 - Location: miscellaneous

Priority	IMO Instrument	Function	Type	Notes
	SFV Protocol 1993			
	Chapter II			
P	2(6)	Watertight door position	I	At remote operating position II-1/15.6.4*
P	4(1)	Freezer room weathertight door position	A,V	! At the attended location
	Chapter IV			
P	15(5)	Refrigerating machinery spaces alarm	A,V	At an attended location (control) station
P	19(5)	Fire detection alarm	A,V	At appropriate spaces when the vessel is in harbour
P	20(1)	Bilge high-water level alarm	A,V	At places where continuous watch is maintained when navigating bridge not manned II-1/21.1.6.2*
	Chapter V			
P	14(2)(b)	Fire detection or automatic sprinkler operation	A,V	Alarm at location easily accessible to crew at all times II-2/12.1.2.2*
P	15(2)(b)	Fire detection alarm	A,V	Alarm at location easily accessible to crew at all times II-2/40.3* II-2/13.1.6*
	Chapter VIII			
EM	2(1)	General emergency alarm	A	Throughout all the accommo-dation and normal crew working spaces III/6.4.2* III/50*

* Cross reference to SOLAS regulation

Table 9.1.6 (continued) - Location: miscellaneous

Priority	IMO Instrument	Function	Type	Notes
	Nuclear Merchant Ship Code			
P	3.9.3	Spaces containing NSSS safety equipment Fire detection alarm	A,V	! Alarm at main control position and emergency control position
P	6.4.3	Controlled areas indication of radiation levels and airborne contamination	I	At main control position
P	6.10.2	Containment structure purge system radioactivity alarm	A,V	At main control position
P	6.10.4	Controlled and supervised areas exhaust for radioactivity alarm	A,V	At main control position
	HSC Code			
EM	4.2.1	General emergency alarm	A	Clearly audible throughout all the accommodation and normal spaces and open decks 8.2.2.2 III/6.4.2*; III/50*
P	7.7.2.1.4	Fire detection signal	A	Clearly audible throughout the crew accommodation and service spaces
P	7.7.2.1.6	Fire detection manual operated call point section unit indicator	A,V	Alarm at location easily accessible to crew at all times II-2/13.1.6*
	1989 MODU Code			
S	3.6.2	Watertight boundary valve position indicator	I	At the remote control station
P	4.3.2	Oil-fired boiler low-water level, air supply failure or flame failure	A,V	Alarm at an attended location II-1/32.2*
S	4.8.1	Presence of water indicator	I	
S	4.11.12	Cable tension speed and direction of wind	I	At a manned station

* Cross reference to SOLAS regulation

Table 9.1.6 (continued) - Location: miscellaneous

Priority	IMO Instrument	Function	Type	Notes
S	6.3.1.1.3	Loss of ventilation	A,V	At a manned station
S	6.3.1.2.3	Loss of ventilation	A,V	At a manned station
S	6.3.1.3.3	Loss of ventilation overpressure	A,V	At a manned station
P	8.7.1	Fault requiring attention	A,V	Including 8.3.5.1, 8.4.1, 8.8.6 and 8.9 II-1/51.1*
P	9.7.1	Fire detection system alarm	A,V	At alarm location easily accessible to crew at all times II-2/13.1.6*
EM	9.7.1	Fire detection alarm not receiving attention	A	Alarmed to crew, may be part of general emergency alarm II-2/13.1.4*
P	9.8	Gas detection and alarm system	A,V	! Alarm at a location easily accessible to crew at all times
EM	10.16.1	General emergency alarm	A	Clearly perceptible in all parts of the unit III/6.4.2*; III/50*
	Diving Code			
P	2.5.2	Compression chamber internal pressure	MI	At central control position
P	2.5.3	Diving bell external pressure	MI	Within the bell
P	2.9.3	Diving equipment fire detection alarm	A,V	! At an attended location other than the above
P	2.11.2	Compression chamber/diving bell parameters	MI	At central control position
P	2.11.3	Diving bell oxygen and CO_2 levels	MI	Within the bell

* Cross reference to SOLAS regulation

Table 9.1.7 - Location: cargo control station

Priority	IMO Instrument	Function	Type	Notes
	IGS			
S	3.15.3.2.1	Effluent drain valve position indicator	I	!
S	6.2	Tank pressure sensors	MI	!If required
	VEC systems			
P	2.5.2.3	Tank overflow alarm	A,V	! (2)
P	2.5.2.4	Signal for sequential shutdown of onshore pumps or valves or both and of the ships' valves	(A,V)	! (2)
P	2.5.2.5	Overflow alarm and shutdown signal	(A,V)	At an attended location ! (2)
P	2.5.2.6	Loss of power to the alarm system	(A,V)	! (2)
P	2.5.2.6	Tank level sensor electrical circuitry failure	(A,V)	! (2)
P	2.6.4	Main vapour collection line pressure	MI	! (2) VEC is equipped, common to two or more tanks
P	2.6.4.1	High vapour pressure alarm	(A,V)	! (2) VEC is equipped, common to two or more tanks
P	2.6.4.2	Low vapour pressure alarm	(A,V)	! (2) VEC is equipped, common to two or more tanks

* Cross reference to SOLAS regulation

Table 9.1.8 - Location: not indicated by IMO instruments

Priority	IMO Instrument	Function	Type	Notes
	1989 MODU Code			
S	4.9.15	Draught indicator	MI	! At an attended location ** II-1/8.7.3*

* Cross reference to SOLAS regulation

Table 9.1.9 - Location: central ballast control station of column-stabilized MODUs

Priority	3 IMO Instrument	Function	Type	Notes
	1989 MODU Code			
S	3.6.4.1	Watertight doors and hatch cover position indicator	I,V	
S	3.6.4.2	Watertight doors and hatch cover position alarm	A,V	
S	4.8.8.1	Flooding detector	I	
P	4.8.8.3	Propulsion and pump room bilge high water level alarm	A,V	
S	4.9.10.2	Ballast pump status indicating system	I	For details see also 4.9.12
S	4.9.10.4	Ballast valve position indicating system	I	For details see also 4.9.17
S	4.9.10.5	Tank level indicating system	I	For details see also 4.9.14
S	4.9.10.6	Draught indicating system	I	For details see also 4.9.15
S	4.9.10.7	Heel and trim indicators	I	
S	4.9.10.8	Main and emergency power available indication	I	
S	4.9.10.9	Ballast system hydraulic/pneumatic pressure indicating system	I	
S	4.9.14.1	Ballast tanks liquid level	MI	
S	4.9.14.2	Other tanks liquid level	MI	
S	4.9.17	Ballast valve position	I	!