BIRO KLASIFIKASI INDONESIA

RULES
FOR THE CLASSIFICATION
AND CONSTRUCTION OF
SEAGOING STEEL SHIPS

RULES
FOR OIL RECOVERY VESSELS

EDITION 2005

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Section 1

General, Character of Classification, Document for Approval, Surveys

A. General

1. These Rules apply to seagoing and inland waterway steel vessels with and without their own means of propulsion which are intended for service in the event of accidental oil spills.

They may be engaged in connection with oil spills (e.g. for the recovery of oil floating on the water) or generally for combating oil pollution.

For special duties, e. g. lightening damaged oil tankers with cargo spillage and for ships of specialized types, measures beyond the scope of these Regulations may be necessary.

For vessels intended for restricted services, materials other than steel may be used for construction.

2. These Rules apply where oil with a flashpoint of 60 °C (closed cup test) or less and a Reid vapour pressure below atmospheric pressure is intended to be handled. For oils with flashpoints above 60 °C [1]), see B.4.

3. These Rules may also analogously be applied to oil recovery equipment which does not fall within the scope of ship classification.

4. In addition to these Rules, the current Construction Rules for Seagoing Ships and where relevant for Inland Waterway Vessels, Chapter 1 - Hull Construction, Chapter 2 - Machinery Installations and Chapter 3 - Electrical Installations are also applicable.

Guidance
*It is assumed that the provisions of Annex I to the "International Convention for the Prevention of Pollution from Ships; 1973" including the 1978 Protocol(**MARPOL 73/78**) are complied with, where this is required by the authorities*

[1]) For inland waterway vessels (ADNR) 55 °C applies

B. Character of Classification

1. Ships which comply with these Rules and which are equipped with means for recovering oil floating on the water as well as with tanks for storing the recovered oil will have the notation "Oil Recovery Vessel" appended to the character of classification.

2. Ships complying with 1., however, without tanks for carrying the recovered oil will be assigned the notation "Without cargo tanks" to the character of classification.

3. Ships equipped neither with means for recovering oil floating on the water nor with tanks for storing recovered oil which, however, otherwise comply with these Rules and are suitable for operation in oil-covered waters will be assigned, in addition to the appropriate class notation, e.g. "Tug", "Supply Vessel" etc., the notation "Suitable for use in oil-covered waters".

4. Ships intended for oil with a flashpoint above 60 °C [1]) (closed cup test) only will be assigned in addition to the character of classification, the notations "Oil Recovery Vessel" and "Not suitable for products with a flashpoint of 60 °C [1]) and less."

The following Rules do not apply.

The Rules for Construction in accordance with 1, 2 and 3 relating to tankers for the carriage of liquids with flashpoints above 60 °C are applicable.

C. Definitions

The following definitions apply in addition to those stipulated in the Rules for Hull, Volume II, Section 24, A.4.2.

1. Hazardous areas

Hazardous areas are areas in which combustible or explosive gases or vapours are liable to accumulate in dangerous concentration.

Hazardous areas are divided into Zones [2]) 0, 1 and 2 according to the likelihood of a dangerous explosive atmosphere occurring there.

1.1 Zone 0:

.1 Cargo tanks for the storage of oil and the insides of pipelines and vessels belonging to the cargo containment system;

.2 Spaces extending to a height of 1 m above the oil-covered surface of the water or the deepest load waterline.

1.2 Zone 1:

.1 Cofferdams and other spaces adjacent to cargo tanks.

.2 Cargo pump rooms.

.3 Enclosed or semi-enclosed spaces directly above cargo tanks or with boundaries in line with cargo tank bulkheads ("cruciform joint").

.4 Stowage spaces for cargo hoses and oil recovery equipment (oil skimmers).

.5 Spaces on the open deck including semi-enclosed spaces within a spherical radius of 3 m of tank openings and openings to pump rooms or cofferdams (e.g. cargo tank hatches, inspection holes, ventilation openings, access openings).

.6 Spaces on the open deck over the full width and length of the ship up to a height of 2,4 m above the uppermost continuous deck.

On ships whose uppermost continuous deck is Zone 0, Zone 1 extends up to 2,4 m above Zone 0.

.7 Spaces without overpressure ventilation which can be entered directly (without air lock) from Zone 1 or which have openings to Zone 1.

.8 Enclosed or semi-enclosed spaces containing pipelines belonging to the cargo containment system.

1.3 Zone 2:

.1 Spaces above Zone 1 over the full width and length of the ship to a height of not less than 6 m above the deepest load waterline;

.2 Spaces without overpressure ventilation which can be entered directly (without air lock) from Zone 2 or which have openings to Zone 2.

2. Non-hazardous zones

Non-hazardous zones are zones not included in Zones 0, 1 and 2.

D. Documents for Approval

1. Apart from the documents listed in Rules for Hull, Volume II, Section 1, G, the following documents are to be submitted in triplicate: [3])

.1 General arrangement plan showing the arrangement of equipment for oil recovery operations.

.2 Details of entrances (including air locks) and openings in use in normal operation or not fitted with gastight closures when the ship is engaged in oil recovery operations.

.3 Details of entrances and openings gastight closed when the ship is engaged in oil recovery operations.

.4 Details of arrangement and capacity of cargo tanks and of media to be carried.

.5 Drawings of cargo tanks and details of materials used.

.6 Details of cargo tank foundations and fastenings where tanks independent of the hull are fitted.

[2]) In accordance with IEC 79-10 (see Fig. 1.1).

[3]) For ships flying Indonesian flag in quadruplicate, one of which intended for the Indonesian Government

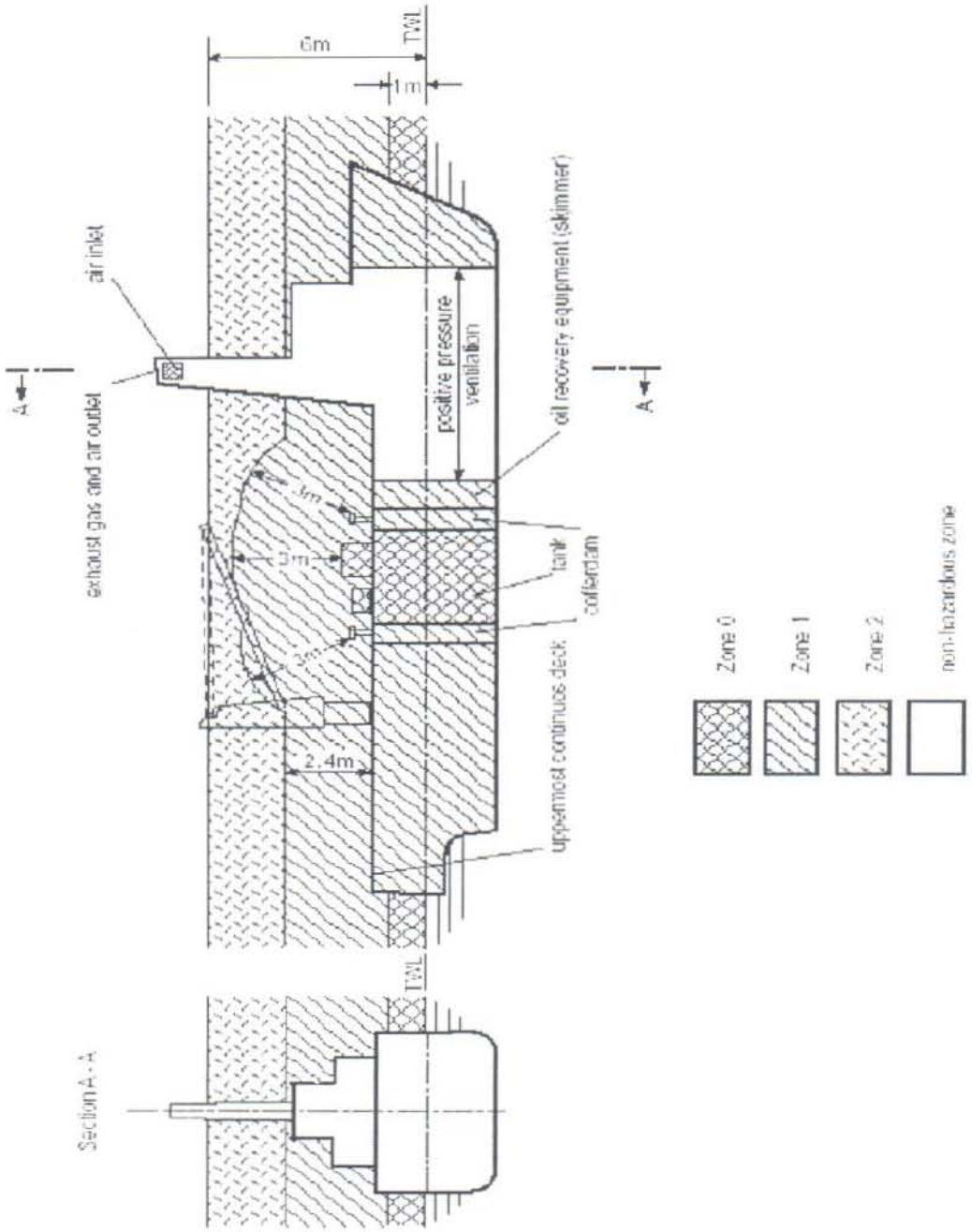

Fig. 1.1 Hazardous Areas (Example, Seagoing Ship)

2. Apart from the documents listed in Rules for Machinery Installations, Volume III, Section 15, A.3 and Inland Waterway Vessels, Chapter 2 – Machinery Installations, Section 1, B respectively the following documents are to be submitted in triplicate: [3])

.1 Operations and equipment manual for oil recovery operations.

.2 Schematic drawings of pipeline systems connected to the ship during oil recovery operations, including pumps.

.3 Drawings showing the disposition and arrangement of the oil recovery equipment connected to the ship during oil recovery operations or carried loose including all technical details and material specifications.

.4 Ventilation layout showing the spaces with overpressure ventilation and the arrangement of air locks.

.5 Plan of closing appliances for oil recovery operations (where necessary).

.6 The documents listed in Rules for Electrical Installations, Volume IV, Section 1, C.

E. Surveys

The relevant requirements are given in the Rules for Classification and Surveys, Volume I, Section 4, C.

Section 2

Ship Arrangements

A. Cargo Area

1. The segregation of tanks for recovered oil from all spaces outside the cargo area is governed by Rules for Hull, Volume II, Section 24, A.6 and for Inland Waterway Vessels, Chapter 1 – Hull Construction, Section 17 respectively.

2. The provisions of 1. also apply to tanks intended only for the interim storage of recovered oil or for use only as settling tanks.

B. Entrances and Openings

1. Entrances, ventilation openings (inlets and outlets) and other openings to non-hazardous locations such as accommodation, service and machinery spaces, control stations and the wheelhouse, which are in normal use or not provided with gastight closures during oil recovery operations, are to be located outside hazardous zones.

Unless agreed upon otherwise they are to be located not lower than 6 m above the deepest load waterline.

Reduced heights may be approved subject to additional safety measures to be decided in individual occasions.

The Rules for Hull, Volume II, Section 24, A.4.4 and for Inland Waterway Vessels, Chapter 1 – Hull Construction, Section 17 respectively are also to be observed.

2. Entrances from hazardous areas to the non-hazardous locations referred to in 1. are to be arranged in such a way, e.g. by means of air locks according to C. that hazardous vapours can not penetrate.

Openings in those areas must be closed during oil recovery operations. (For overpressure ventilation see Section 3, B.3.)

3. Spaces are to be regarded as hazardous if entrances and openings are located in hazardous locations and do not comply with the provisions stipulated in 2.

4. For special operation modes heights exceeding 6 m as specified in 1. may be required.

C. Air Locks

1. An air lock is to consist of two steel doors substantially gastight which should be spaced not less than 1,5 m apart. The doors are to be self-closing and without any holding back arrangements. The door sill is not to be less than 300 mm in height. Any additional requirements of the competent authority are to be complied with.

2. The design of air locks shall be such that they are flushed with air from inside outwards in order to remove any vapours/gases which may have entered when using the air lock.

Section 3

Machinery Installations

A. General

The exhaust lines of diesel engines, boilers and equipment containing sources of ignition and the vents of diesel engine crankcases are to be led to a position outside the hazardous zones as per Section 2, B.1.

For spark arresters, see Rules for Machinery Installations, Volume III, Section 15, B.9 and for Inland Waterway Vessels, Chapter 2 – Machinery Installations, Section 14, B.9 respectively.

B. Mechanical Ventilation

1. The design, type and construction of mechanical ventilation systems are subject to Rules for Machinery Installations, Volume III, Section 15, B.5 and for Inland Waterway Vessels, Chapter 2 – Machinery Installations, Section 14, B.5 respectively.

2. Spaces with entrances and openings into hazardous areas in Zone 2 which are normally used during oil recovery operations must be mechanically ventilated from outside the hazardous areas as per Section 2, B.1. Provision is to be made for at least 6 changes of air per hour.

If the equipment in these spaces is not provided with Zone 2 type protection, ventilation in accordance with Section 2, B.2 is to be installed.

3. Spaces with entrances and openings into hazardous areas in Zone 1 which are normally used during oil recovery operations must be mechanically ventilated from outside the hazardous areas as per Section 2, B.1. and must be kept at overpressure. The overpressure in these spaces should be approximately 0,5 – 1 mbar and is to be monitored.

4. Spaces in Zones 0 and 1 which are not normally used during oil recovery operations are not to be ventilated from hazardous Zones 0 and 1 even if their equipment is provided with the corresponding explosion protection. Spaces which must be accessible at all times for safety reasons, such as the steering gear compartment, are to be equipped with a ventilation system of the extraction type ensuring at least 6 changes of air per hour.

C. Gas Detection and Alarm Systems

1. For the purposes of explosion protection, ships are to be equipped with permanently installed gas detection systems which actuate an audible and a visual alarm when a concentration equal to 30 %[1]) of the lower explosion limit (LEL) is exceeded.

Detection points are to be sited as follows:

- close to the ventilation inlets in accordance with B.1 and 2.
- in air locks
- on the main deck

} (to be situated at a low level)

Further detection points may be made necessary by special structural features and conditions of service.

2. The equipment is to be type-tested by BKI.

3. A portable instrument for detecting explosive atmospheres must also be provided. Any additional regulations issued by the competent authority are to be complied with.

D. Fire Extinguishing Equipment

1. In addition to the general fire extinction and protection equipment stipulated in Rules for Machinery Installations, Volume III, Section 12 and Inland Waterway Vessels, Chapter 2 – Machinery Installations, Section 11 respectively vessels with the class notation "Oil Recovery Vessel" must also be equipped with a foam extinguishing system. The design and construction of this equipment is to comply

[1]) If no other data are available, propane may be used as reference

with Rules for Machinery Installations, Volume III, Section 12, K.

2. In the case of ships with class notation "Oil Recovery Vessel" "Without cargo tanks" in accordance with Section 1, B.2., a foam extinguishing system may be required if, during oil recovery operations, equipment for the storage of oil or parts thereof (pumps, pipelines, hoses etc.) are located on board.

E. Equipment and Systems in Hazardous Areas

1. Oil recovery equipment is to comply with the Rules referred to in Section 1, A.4, wherever applicable. Such equipment must be suitable for the intended application and must be electrically bonded to the ship's hull.

2. Hoses must have adequate electrical conductivity (see Rules for Machinery Installations, Volume III, Section 15, B.9.).

3. By selecting suitable materials and by appropriate protective measures, steps are to be taken to ensure that no sparks capable of causing ignition can be produced by the use of oil recovery equipment (see Rules for Machinery Installations, Volume III, Section 15, B.9.).

4. Surface temperatures of appliances and equipment are not to exceed 200 °C.

Section 4

Electrical Installations

A. Power Supply Systems

1. Systems complying with Rules for Electrical Installations, Volume IV, Section 1, G and Inland Waterway Vessels, Chapter 3 – Electrical Installations, Section 1, C respectively are permitted on ships without cargo tanks according to Section 1, B.2. and on ships according to Section 1, B.3. and B.4.

2. Only systems conforming to Rules for Electrical Installations, Volume IV, Section 12, C and Inland Waterway Vessels, Chapter 3 – Electrical Installations, Section 2, A are permitted on ships with class notation "Oil Recovery Vessel" according to Section 1, B.1.

B. Electrical Equipment in Hazardous Areas

1. Equipment in hazardous areas which is of non-certified safe type must be capable of being disconnected in service by cutting off the main power supply at a central point. These switches must be safeguarded against unintentional re-connection and must be appropriately marked to that effect.

2. The use of electrical appliances in hazardous areas is to be restricted to operationally essential equipment.

2.1 The following are permitted in Zone 0:

.1 Intrinsically safe (Ex ia) or for Zone 0 approved intrinsically safe equipment/circuits.

.2 Other explosion-proof appliances with special approval of the Society and embodying a combination of two types of protection, e.g. Ex d + Ex e, provided that their use in this area is indispensable.

2.2 The following are permitted in Zone 1:

.1 Flameproof enclosure Ex d

.2 Pressurized enclosure Ex p

.3 Increased safety Ex e

.4 Powder filling Ex q

.5 Encapsulation Ex m

.6 Intrinsic safety Ex i.

On ships with cargo tanks in accordance with Section 1, B.1., the limitation on the use of equipment in hazardous zones must also comply with Rules for Electrical Installations, Volume IV, Section 13 and for Inland Waterway Vessels, Chapter 3 – Electrical Installations, Section 2, C respectively.

2.3 The following are permitted Zone 2:

.1 Explosion-proof equipment permitted in Zones 0 and 1.

.2 Equipment with Ex n type ignition protection.

.3 Equipment which cannot rise to temperatures above 200 °C and in which no sources of ignition occur when in service.

.4 Equipment with a housing conforming to minimum protection class IP55, the surface temperature of which does not exceed 200 °C.

2.4 Temperature class/Apparatus group

Explosion-proof electrical equipment must meet at least the following requirements:

- Temperature class T3
- Apparatus group IIA.

NO.	AUDIT NO. DEPT.AUDITED AUDIT DATE AUDITORS TOTAL NC(s) FOUND	NC. NO.	DESCRIPTION OF NC(s)	ESTIMATE DATE OF C.A. COMPLETION	CLOSE OUT DATE	STATUS
		Obs1	Penyimpanan file supaya dapat menggambarkan urutan proses	-	-	-
		Obs2	Untuk mencegah hilangnya surat permohonan maka Surat Permohonan Survey di file tersendiri dan yang beredar merupakan salinannya.	-	-	-
		Obs3	Keterlambatan pembuatan Laporan Survey periodik yang disebabkan oleh belum lengkapnya dokumen hasil pengukuran dan pengujian supaya segera diatasi.	-	-	-
29.	29/IQA/XI/05 BKI BELAWAN 22-24 NOP.2005 JOE & SDA 3 NC.	1	Prosedur kendali mutu sesuai PRO-A-01 telah dilaksanakan akan tetapi sosialisasi terhadap prosedur/petunjuk kerja terbaru sesuai butir 4.5.3 belum dilaksanakan. Objective evidence : Hasil sosialisasi dan pemahaman tidak dicatat dalam pemahaman.	23-02-2006		
		2	Prosedur Administrasi Perkantoran sesuai PRO-A-08 telah dilaksanakan akan tetapi penyediaan Kotak P3K sesuai Pengendali lingkungan pada butir 4.6 belum dilaksanakan. Objective evidence : Kotak P3K tidak ditemukan	23-02-2006		
		3	Prosedur WI-C-03 belum sepenuhnya dilaksanakan. Objective evidence : Alat-alat uji seperti UT & MPI belum dilakukan kalibrasi	23-02-2006		
		Obs1	Masa berlaku safety helmet supaya menjadi perhatian	-	-	-
		Obs2	Penyusunan kegiatan survey supaya memperhatikan kegiatan survey yang batal	-	-	-
		Obs3	Kualitas pelayanan perusahaan penyedia peralatan penunjang operasional (komputer, printer, jasa perawatan A/C) supaya dievaluasi setiap tahunnya	-	-	-
		Obs4	Semua kegiatan survey agar dicatat pada buku agenda kegiatan survey.	-	-	-
30.	30/IQA/XII/05 BKI PADANG 05-06 DES. 2005 CHA & SDA 2 NC.	1	Sesuai PRO-A-04 Prosedur kendali ketidaksesuaian, keluhan pelanggan, tindakan perbaikan / pencegahan & program penyempurnaan belum sepenuhnya dilaksanakan pada point 4.2 kendali ketidaksesuaian. Objective evidence : Surat no. 1118/USJ-GLK/X/2005 keluhan perhitungan stabilitas 10 kapal belum diselesaikan, TK. 76 M. Tank Barge PT. Usda Seroja Jaya gambar-gamabr dikirim tgl. 05-10-2005 no. surat A. 328/SV.001/PD/KI-05 belum kembali ke Padang	06-01-2006		

Section 5

Operational Requirements

A. Operations and Equipment Manual

An operations and equipment manual is to be submitted to BKI for approval.

The manual is to contain a description of the safety precautions needed when preparing for and carrying out oil recovery operations. These include:

.1 Measures for effecting the closures necessary for explosion protection (see Section 2, B.2.) and for protection of the personnel.

.2 A plan of the spaces with overpressure ventilation showing the arrangement of air locks.

.3 Measures for starting up the overpressure ventilation and gas detection systems.

.4 Disconnection according to Section 4, B.1. of all non-certified safe type electrical equipment in the hazardous zones.

.5 A list of appliances and equipment provided for oil recovery operations with instructions on their installation and operation.

.6 Plans showing the arrangement and disposition of the appliances and equipment used in oil recovery operations.

.7 A list of all electrical equipment to be disconnected when carrying out oil recovery operations.

.8 A checklist of the steps to be taken in preparation for oil recovery operations.

B. Personnel Protection [1])

Zones in which vapours liable to injure health occur should be entered only with full protective clothing and wearing a self-contained breathing apparatus.

Protective clothing and approved self-contained breathing apparatus are to be provided.

The serviceability of breathing apparatus and gas detectors is to be checked by regular inspection.

Provisions should be made for the rescue of the personnel.

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[1]) Not part of the classification. The requirements of the competent authorities are to be observed.