



**Jabatan Keselamatan dan Kesihatan Pekerjaan Malaysia**  
*Department of Occupational Safety and Health Malaysia*



# **GUIDELINES FOR THE FACTORIES AND MACHINERY**

**(SPECIAL SCHEME INSPECTION) (RISK-BASED INSPECTION)**  
**REGULATIONS 2014– [P.U. (A) 96/2014]**

# GUIDELINES FOR THE FACTORIES AND MACHINERY (SPECIAL SCHEME INSPECTION) (RISK-BASED INSPECTION) REGULATIONS 2014– [P.U. (A) 96/2014]

2-16

## CONTENTS

1.0	PURPOSE OF GUIDELINES	3
2.0	INTRODUCTION	3
3.0	TERMS	3
4.0	METHOD OF USE	4
5.0	FIRST SCHEDULE - FORM A	10
6.0	FIRST SCHEDULE - FORM B	12
7.0	SECOND SCHEDULE	13
8.0	CHART 1: APPLICATION FOR RBI SCHEME AND CERTIFICATE OF FITNESS COF <sub>RBI</sub>	15
9.0	CHART 2: RENEWING CERTIFICATE OF FITNESS [COF] <sub>RBI</sub> AFTER 75 MONTHS PERIOD	16



## FROM DESK THE CHIEF INSPECTOR

In line with the modernisation of the provisions of the law, the Department has taken the initiative to review the existing provisions and make adjustments accordingly. This is to ensure that the new provisions are capable of achieving the same objective. This process requires the removal of unnecessary provisions and the inclusion of new provisions that are deemed more appropriate, cost-effective, and can be complied with using the latest technology.

The Factories and Machinery (Special Inspection Scheme) (Risk-based Inspection) Regulations 2014 contains a new provision whereby the employer has the option of complying with Section 19 (1) of the Factories and Machinery Act 1967. The owner can choose to have a Certificate of Fitness every 15 months as provided for under the Factories and Machinery (Notification, Certificate of Fitness, and Inspection) Regulations 1970 or determine for himself the validity period of the Certificate of Fitness based on existing risks.

These Guidelines explain how the industry can apply for the use of the Special Inspection Scheme (Risk-based Inspection) to extend the Certificate of Fitness. It is hoped that the industry will take advantage of this provision and puts the importance of machinery safety as a value in determining the safety and health of workers.

The Chief Inspector  
Department of Occupational Safety and Health  
Malaysia  
2014

## 1.0 PURPOSE OF GUIDELINES

This guidelines is to describe the administration, implementation and enforcement of the Factories and Machinery (Special Scheme of Inspection) (Risk-Based Inspection) Regulations 2014 [P.U. (A) 96/2014].

## 2.0 INTRODUCTION

The enforcement activities on the installation and operation of machinery requiring a certificate of fitness as stipulated under the Factories and Machinery (Notification, Certificate of Fitness and Inspection) Regulations, 1970. Generally, the Certificate is issued pursuant to Section 55 (3) of the Factories and Machinery Act 1967, and Regulations 10 and subregulation 14(2) under the Factories and Machinery (Notification, Certificate of Fitness and Inspection) Regulations, 1970.

To obtain each extension and exemption, the owner is required to prove that the integrity of each pressurized machinery is satisfactory and safe to operate, and explain their impact on the economic and public safety if the regular inspection has to be conducted for the pressurized machinery.

On April 8, 2014, new regulations called the Factories and Machinery (Special Scheme Inspection) (Risk-Based Inspection) 2014 has been enacted, and the purposes are:

- i) to change the concepts from the time-based certificate of fitness to the risk-based certificate of fitness;
- ii) to allow the self-regulation concept practiced by the industry to determine the safety and usability of machinery during operation and transfer the responsibility for the safety of the machinery from the Government to the owner/occupier;
- iii) to encourage the competitiveness of industries in order to focus its efforts towards strengthening the product to meet customer demand by reducing the number of inspection conducted by the Department.

## 3.0 TERMS

**Risk-based inspection (RBI) scheme (hereinafter called the RBI Scheme)** – The RBI Scheme is an inspection scheme, whereby the owner to decide the integrity of the risk-based pressurized machinery whether the machinery is safe to operate. Determination of integrity is performed using inspection data and information related to machinery including damage mechanisms and categorized according to the risk analysis. Duration, type, and planning of inspections can be determined by risk categories which have been analyzed.

**Risk-based certificate of fitness** – This certificate of fitness is issued to the machinery listed in Annex Approval of Risk-Based Inspection Scheme (First Schedule, Form A) once the inspector is satisfied that the machinery meets the requirement under the Factories and Machinery (Special Scheme Inspection) (Risk-Based Inspection) Regulations 2014 and the prescribed inspection fee has been paid.

## 4.0 METHOD OF USE

**RBI Scheme** - An applicant may submit an application to the Chief Inspector for approval of the scheme. Preliminary discussion with Inspector of DOSH state office is recommended so that the administration and implementation matters of this scheme can be made.

**Application and requirement** - Application for approval of the RBI scheme must be made at least six (6) month before the expiry of the time-based certificate of fitness together with the evidences as stipulated under Regulation 4, of the Factories and Machinery (Special Scheme Inspection) (Risk-Based Inspection) Regulations 2014.

- (i) The application is made in writing;
- (ii) Accompanied by a processing fee of fifty thousand ringgit (RM 50,000.00);
- (iii) Attached with the documents indicate that the requirements specified in Part III of the Regulations have been fulfilled, such as:
  - (a) Implement occupational safety and health management system (OSHMS) as MS 1722: 2011 or any other equivalent occupational safety and health management systems as determined by the Chief Inspector;
  - (b) The time-based pressurized machinery is in a satisfactory working condition or is fit for service;
  - (c) Has three (3) internal inspection risk-based data of the pressurized machinery used in the calculation and evaluation of the implementation of RBI scheme as stipulated under Regulation 14;
  - (d) Determine calculation and evaluation of risk-based data as stipulated under Regulation 15,
  - (e) For the purpose of calculating and evaluating the risk-based data as stipulated under Regulation 15, an applicant should apply a methodology as agreed by the Chief Inspector; and
  - (f) Establish the risk-based inspection team as stipulated under Regulation 17.

Submit the application to;

The Chief Inspector  
Department of Occupational Safety and Health  
Level 2, 3 & 4, Block D3 Complex D  
Federal Government Administrative Centre, 62530 Putrajaya

## 4.1 DESCRIPTION OF THE TERMS OF THE RBI SCHEME

### (i) Occupational safety and health management (OSHMS)

Malaysian Standard occupational safety and health (OSH) management systems - requirements (first revision) – MS 1722: 2011 is a document that has been developed by Department of Standards Malaysia. This Standard highlights the minimum requirements about occupational safety and health in the workplace is governed systematically. Applicants must prove that OSH management systems been developed and implemented properly but does not mean it has been certified.

### (ii) Pressurized machinery in satisfactory working condition

Pressurized machinery is in a satisfactory working condition or is fit for service.

### (iii) Methodology of approved risk-based inspection

The applicant has implemented a risk-based inspection methodology outlined such as by the American Petroleum Institute (API) 580 as a baseline. This methodology includes the calculation and assessment of risk-based on the remnant life; the categories of risk; the proposed inspection interval; and the proposed inspection plan. This methodology as agreed by the Chief Inspector.

### (iv) Processing fee

Each application for the RBI scheme is required accompanied by a processing fee of RM 50,000.00.

### (v) Risk-based data

- (a) For a newly installed time-based pressurized machinery, risk-based data from the initial inspection and two regular inspections;
- (b) For an existing time-based pressurized machinery, risk-based data from the last three regular inspections; or
- (c) For a newly installed time-based pressurized machinery or an existing time-based pressurized which the risk-based data cannot be collected from the initial inspection or regular inspection, risk-based data in every six (6) months interval for a period of not less than eighteen month using any other method as determined by the Chief Inspector.

### (vi) Risk-based inspection team

“qualified person” means a person who has an engineering degree and who, in the opinion of the applicant, has adequate knowledge and experience to execute all tasks relating to risk-based inspection scheme.

- (a) An applicant is required to establish a risk-based inspection team to ensure that the RBI scheme is approved, implemented properly and accomplish the purpose of setting up the RBI scheme. Risk-based inspection team is required to consist of at least five (5) members as follows –
- 1) A team leader, who shall be a qualified person;
  - 2) An engineer with corrosion engineering knowledge and expertise, at least degree in engineering;
  - 3) A representative from the process department or production department;
  - 4) A representative from the inspection department or engineering department; and
  - 5) A safety and health officer registered under the Occupational Safety and Health (Safety and Health Officer) Regulations 1997 [P.U.(A) 315/1997] or if a place of work does not require a registered safety and health officer, a person in charge of occupational safety and health.
- (b) Each member of the team should be trained and competent to perform the tasks delegated by the team leader. All results and inconsistency or noncompliance should be recorded by the team leader and reported to the user of the RBI Scheme and the Chief Inspector.

## **4.2 VERIFICATION, DURATION, AND LIST OF MACHINERY INVOLVED**

### **(i) Verification of application**

For the purpose of verification, audit to the premise of the applicant will be conducted and the inspector may request any other documents to support and assist in the application.

### **(ii) Duration of RBI Scheme**

This RBI scheme is for a period of one hundred and fifty (150) months.

### **(iii) Pressurized machinery under RBI Scheme**

Only the pressurized machinery listed in the Annex Approval of Risk-Based Inspection Scheme (First Schedule, Form A) applies in the implementation of this RBI scheme. Other pressurized machineries must comply with the provisions under the Factories and Machinery (Notification, Certificate of Fitness and Inspection) Regulations 1970.

### 4.3 TERMINATION UPON SALE, HIRE OR TRANSFER OF RISK-BASED PRESSURIZED MACHINERY

- (i) If any risk-based pressurized machinery in respect of a RBI scheme sold, hired out or transferred permanently or temporarily to any person –
  - (a) the risk-based certificate of fitness in respect of the risk-based pressurized machinery is required to be terminated; and
  - (b) the RBI scheme, and the risk-based certificate of fitness in respect of any risk-based pressurized machinery which is not sold, hired out or transferred, should remain valid.

If all risk-based pressurized machinery in respect of a RBI scheme are sold, hired out or transferred permanently or temporarily to any person, the RBI scheme and every risk-based certificate of fitness in respect of the risk-based pressurized machinery shall terminate.

### 4.4 RESPONSIBILITIES OF THE RBI SCHEME USER

#### (i) Requirements for RBI Scheme User

RBI Scheme User should ensure that the RBI scheme;

- (a) maintain an occupational safety and health management system established under Regulation 12;
- (b) ensure that the risk-based pressurized machinery is in a satisfactory working condition and is fit for service;
- (c) collect risk-based data in respect of the risk-based pressurized machinery for every twelve (12) months;
- (d) maintain and apply the methodology for calculation and evaluation of risk-based data under Regulation 16; and
- (e) maintain a risk-based inspection team established under Regulation 17 and notify the Chief Inspector in writing of any changes to the team leader within fourteen (14) days of such change.

### 4.5 APPLICATION FOR A NEW DURATION OF RBI SCHEME

Users can apply for the new duration of RBI Scheme at least six (6) months before the expiry of the existing RBI Scheme as stipulated in subregulation 35(2). The Department recommends that the users, to consult in advance with Inspector of DOSH state office to determine implementation matters and administrative of the RBI scheme. This includes provision of information, supporting document and proposed implementation period.

#### **4.6 USING TWO (2) RBI SCHEME AND REVOCATION OF RBI SCHEME**

**(i) Using two (2) or more RBI scheme simultaneously**

If there are two or more RBI schemes being used on the premises, the department recommends that the user can combine the two schemes or more, when a new application of RBI Scheme to be made. However, the pressurized machineries to be incorporated into new applications must meet the provisions of subregulation 23 (2).

**(ii) Revocation of RBI Scheme**

The Chief Inspector may revoke scheme as stipulated in Regulation 29, if there is evidence that the scheme user do not undertake such a scheme under Regulation 22.

#### **4.7 RISK-BASED CERTIFICATE OF FITNESS: ISSUANCE, INSPECTION FEES, RENEWAL AND REVOCATION**

**(i) Issuance of risk-based certificate of fitness**

After an internal inspection has been carried out and the Inspector is satisfied with the RBI analysis of machinery in question and payment of inspection fess has been made, the risk-based certificate of fitness as Form B of the first schedule will be issued. The validity period of the certificate depends on the result of calculation and evaluation by methodology as agreed by the Chief Inspector. The period must not exceed seventy-five (75) months or the remaining term of the RBI scheme, whichever is shorter under Regulation 10.

Within the validity period of the risk-based certificate of fitness, the scheme user must monitor and take action on pressurized machineries such as proposed the inspection intervals and the inspection plan.

**(ii) Inspection fees**

Inspection fees are as set out in the Second Schedule.

**(iii) Renewal of risk-based certificate of fitness**

For the purpose of renewal risk-based certificate of fitness, the pressurized machinery must be opened for risk-based inspection. All latest data and the information obtain from the inspections will be analyzed and the inspector is satisfied with the data related machinery under subregulation 26 (1) and 27 (1). Validation of the certificate may be issued and the period must not exceed seventy-five months (75) or the remaining term of the RBI scheme, whichever is shorter under Regulation 28.

For the purpose of applying risk-based inspection, the Department advised the user to consult with Inspector of DOSH state office to fix the date for the inspection.

**(iv) Revocation of risk-based certificate of fitness**

There are several conditions that can cause termination of this certificate of fitness. These include -

- (a) When the scheme was revoked by subregulation 29 (1);
- (b) When the risk-based pressurize machinery is removed from the location specified in the certificate of fitness;
- (c) When shown the information is used to analyze the risk to the machinery to be fake;
- (d) When the major repair work involves a change in the design and materials used; or
- (e) The Chief Inspector may revoke any risk-based certificate of fitness if he has reasonable grounds to believe that the integrity and strength of the risk-based pressurized machinery have been adversely reduced which cause or is likely to cause the failure of the risk-based pressurized machinery.

## FIRST SCHEDULE

## FORM A

[Regulations 8 and 39]

## FACTORIES AND MACHINERY ACT 1967

FACTORIES AND MACHINERY (SPECIAL SCHEME OF INSPECTION)  
(RISK-BASED INSPECTION) REGULATIONS 2014

## APPROVAL OF RISK-BASED INSPECTION SCHEME

Scheme Approval Number: \_\_\_\_\_

In exercise of the powers conferred by subsection 40(6) of the Factories and Machinery Act 1967, I hereby approve a special scheme of inspection namely, the risk-based inspection scheme to the following scheme user:

Name of scheme user	
Address of scheme user	
Place of operation of risk-based pressurized machinery	
List of risk-based pressurized machinery	As attached in the ANNEX

This risk-based inspection scheme shall be valid for a duration of one hundred and fifty months with effect from \_\_\_\_\_ to \_\_\_\_\_ unless it is revoked, deemed to have been revoked or terminated under Part VII of the Factories and Machinery (Special Scheme of Inspection) (Risk-Based Inspection) Regulations 2014.

Dated: \_\_\_\_\_

\_\_\_\_\_  
(CHIEF INSPECTOR)

#### ANNEX

##### APPROVAL OF RISK-BASED INSPECTION SCHEME

Scheme Approval Number: \_\_\_\_\_

##### LIST OF RISK-BASED PRESSURIZED MACHINERY

<i>No.</i>	<i>Registration No.</i>	<i>Description of Risk-Based Pressurized Machinery</i>

## FORM B

[Regulations 8, 27 and 39]

## FACTORIES AND MACHINERY ACT 1967

FACTORIES AND MACHINERY (SPECIAL SCHEME OF INSPECTION)  
(RISK-BASED INSPECTION) REGULATIONS 2014

## RISK-BASED CERTIFICATE OF FITNESS

Scheme Approval Number: \_\_\_\_\_

In exercise of the powers conferred by regulations 8, 27 and 39 of the Factories and Machinery (Special Scheme of Inspection) (Risk-Based Inspection) Regulations 2014, I hereby issue a risk-based certificate of fitness in respect of the risk-based pressurized machinery as stated below:

Particulars of risk-based pressurized machinery	Description	
	Registered No.	
	Maker's Name	
	Maker's No.	
	Heating surface/ Cubic capacity*	
	Pressure at which safety valve is to operate	
	Place of operation	
Date of risk-based audit		
Date of risk-based inspection		
I am satisfied that the risk-based pressurized machinery can work at a pressure not exceeding		

\*Delete whichever is not applicable

This risk-based certificate of fitness shall be valid for a period of \_\_\_\_\_ with effect from \_\_\_\_\_ to \_\_\_\_\_ unless it is revoked, deemed to have been revoked or terminated under Part VII of the Factories and Machinery (Special Scheme of Inspection) (Risk-Based Inspection) Regulations 2014.

Dated: \_\_\_\_\_

\_\_\_\_\_  
(CHIEF INSPECTOR)

SECOND SCHEDULE  
[Regulations 7, 21, 26 and 38]

INSPECTION FEE

PART 1: STEAM BOILER

The fees for a risk-based inspection of a steam boiler according to the heating surface of the steam boiler are as follows:

<i>No.</i>	<i>Heating surface</i>	<i>Fees (RM)</i>
1.	Below 5 square metres	1,350.00
2.	5 square metres and above but below 10 square metres	3,150.00
3.	10 square metres and above but below 25 square metres	4,050.00
4.	25 square metres and above but below 50 square metres	4,950.00
5.	50 square metres and above but below 100 square metres	6,075.00
6.	100 square metres and above but below 250 square metres	7,650.00
7.	250 square metres and above	9,225.00

## PART 2: UNFIRED PRESSURE VESSEL

The fees for a risk-based inspection of an unfired pressure vessel according to the cubic capacity of the unfired pressure vessel are as follows:

<i>No.</i>	<i>Cubic capacity</i>	<i>Fees (RM)</i>
1.	Below 0.1 cubic metre	450.00
2.	0.1 cubic metre and above but below 0.5 cubic metre	900.00
3.	0.5 cubic metre and above but below 5 cubic metres	1,350.00
4.	5 cubic metres and above but below 10 cubic metres	1,575.00
5.	10 cubic metres and above but below 15 cubic metres	2,250.00
6.	15 cubic metres and above	2,700.00

## CHART 1: APPLICATION FOR RBI SCHEME AND CERTIFICATE OF FITNESS COF<sub>RBI</sub>

### PART VIII APPLICATION FOR NEW SCHEME

- Will be according to Reg.35 to Reg.40;
- Chart 1 shall apply mutatis mutandis; and
- Removing & adding new machinery in the list or combination of scheme is allowed.

### PART IV RISK-BASED INSPECTION

**Reg.18** Agreed on date by DOSH and applicant

**Reg.19** Applicant to comply with any other law related to the Machinery.

**Reg.20** Shall prepare for inspection

**Reg.21** If machine not prepared for inspection:

- Inspector may refuse to inspect and charge will made at the rate of 25% of inspection fees.

### 2<sup>nd</sup> SCHEDULE: INSPECTION FEES

#### 1) Steam Boiler:

	Heating surface (HS)	Fees (RM)
1	< 5 m <sup>2</sup>	1,350
2	5 m <sup>2</sup> < HS < 10 m <sup>2</sup>	3,150
3	10 m <sup>2</sup> < HS < 25 m <sup>2</sup>	4,050
4	25 m <sup>2</sup> < HS < 50 m <sup>2</sup>	4,950
5	50 m <sup>2</sup> < HS < 100 m <sup>2</sup>	6,075
6	100 m <sup>2</sup> < HS < 250 m <sup>2</sup>	7,650
7	>250 m <sup>2</sup>	9,225

#### 2) Unfired Pressure Vessel:

	Cubic capacity (CC)	Fees (RM)
1	< 0.1 m <sup>3</sup>	450
2	0.1 m <sup>3</sup> < CC < 0.5 m <sup>3</sup>	900
3	0.5 m <sup>3</sup> < CC < 5 m <sup>3</sup>	1,350
4	5 m <sup>3</sup> < CC < 10 m <sup>3</sup>	1,575
5	10 m <sup>3</sup> < CC < 15 m <sup>3</sup>	2,250
6	>15 m <sup>3</sup>	2,700

### PART VII REVOCATION, WITHDRAWAL & TERMINATION OF SCHEME

**Reg.29[1]** The Chief Inspector may revoke Scheme:

- User fails to comply to PART V
- User provides info. that is false, misleading or contain material error or omissions.

**Reg.29[2] & [3]** The Chief Inspector to notify user to remedy the breach in 14 days.

**Reg.30** User may withdraw any or all machinery from Scheme.

**Reg.32[1]** If all machinery is withdrawn, scheme is consider as revoked.

### PART V REQUIREMENT FOR SCHEME USER

**Reg.22** Scheme user shall, for any duration of RBI Scheme:

- Maintain OSH MS;
- Ensure machinery is 'Fit for Service' (FFS);
- Collect risk-based data every 12 months;
- Maintain & apply methodology for calculation and evaluation; and
- Maintain RBI Team.

**Reg.4** Application for Scheme-  
a. Made in writing;  
b. Processing Fees RM50K;  
c. PART III Document; and  
d. Submit > 6 months.  
**Reg.5** Additional infos. may be needed by The Chief Inspector.

**Reg.6** Audit to verify PART III Document.

**Reg.7 [1]** To conduct risk-based inspection on machinery according to PART IV.

**Reg.7 [2]**  
a. Report to The Chief Inspector on findings of Reg.6 and Reg.7 [1].  
b. Issue notification of fees - Fees as in 2<sup>nd</sup> Schedule - If aborted, fees will be 25% of 2<sup>nd</sup> Schedule.

**Reg.8 [1] a** Grant of Approval of Risk-Based Inspection Scheme in FORM A of 1<sup>st</sup> Schedule with list of machinery.

**Reg.8 [3]** Form A and Form B come to effect on the same date.

**Reg.9** Duration of Scheme is 150 months.

### PART III REQUIREMENT FOR APPLICATION OF SCHEME

**Reg.12** Establishment of OSH MS

**Reg.13** Machinery is 'Fit for Service' (FFS).

**Reg.14\*\*** Risk-based data;

- from the initial inspection and 2 regular inspections-
- from 3 regular inspections; or
- if risk-based data cannot be collected : get data for every 6 months interval for a period of not less than 18 months using any other method as determined by the Chief Inspector.

**Reg.15** Calculation and evaluation of risk-based data-

- Remnant life;
- Risk category;
- Propose inspection interval; and
- Proposed inspection plan.

**Reg.16** Methodology agreed by the Chief Inspector

**Reg.17** Risk-based Inspection Team -

- Team leader;
- Corrosion engineer;
- Process or production rep.;
- Inspection or engineering; and
- Safety and Health Rep.

**Reg.7 [3]** Payment of fees shall be made within 14 days.

**Reg.8 [1] b** Issue a Certificate of Fitness [COF]<sub>RBI</sub> in FORM B of 1<sup>st</sup> Schedule.

**Reg.10** [COF]<sub>RBI</sub> validity is based on calculation and valuation of RBI data but max. is 75 months.

### PART VII REVOCATION, WITHDRAWAL & TERMINATION OF [COF]<sub>RBI</sub>

**Reg.31** The Chief Inspector may revoke [COF]<sub>RBI</sub> -

- He believe that the strength and integrity machinery cause or likely to cause failure.

**Reg.31 [2] & [3]** The Chief Inspector to notify user to remedy the breach in 14 days.

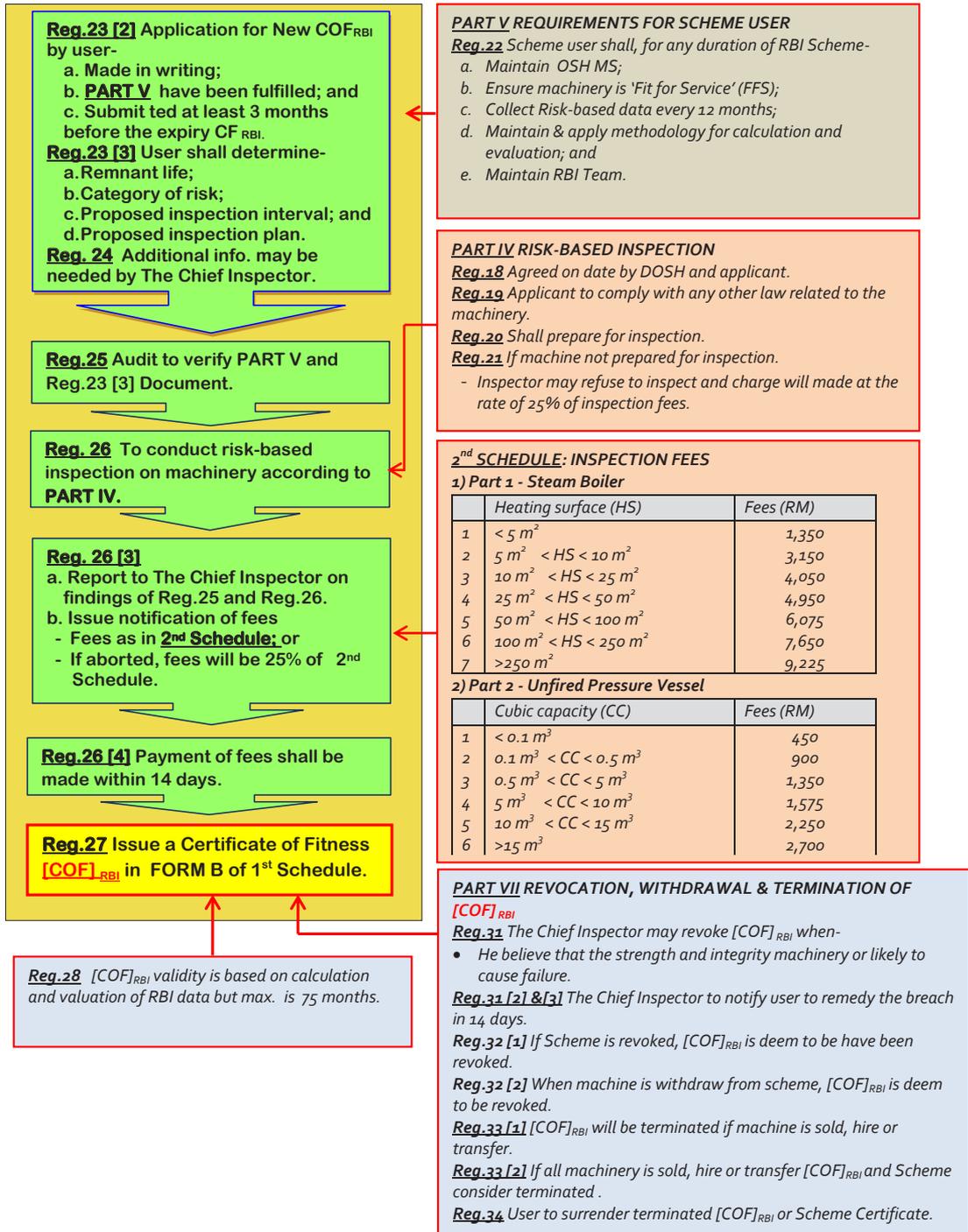
**Reg.32 [1]** If Scheme is revoked, [COF]<sub>RBI</sub> is deem to be have been revoked.

**Reg.32 [2]** when machine is withdrawn from scheme, [COF]<sub>RBI</sub> is deem to be revoked.

**Reg.33 [1]** [COF]<sub>RBI</sub> will be terminated if machine is sold, hire or transfer.

**Reg.33 [2]** If all machinery is sold, hire or transfer [COF]<sub>RBI</sub> and Scheme consider terminated.

**Reg.34** User to surrender terminated [COF]<sub>RBI</sub> or Scheme Certificate.

**CHART 2: RENEWING CERTIFICATE OF FITNESS [COF]<sub>RBI</sub> AFTER 75 MONTHS PERIOD**

**CHART 2: RENEWING CERTIFICATE OF FITNESS [COF]<sub>RBI</sub> AFTER 75 MONTHS PERIOD**