

GUIDELINES FOR THE FACTORIES AND MACHINERY SPECIAL SCHEME OF INSPECTION (SSI) (RISK BASED INSPECTION) REGULATION 2014

2nd REVISION, 2022





PREFACE

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 Scheme of Inspection) (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) and to assist applicant for application of new Risk Based Inspection (RBI) scheme and scheme user for effective implementation and sustainability of the Special Scheme of Inspection (SSI) program.

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 Director General

Department of Occupational Safety and Health

Malaysia

December 2022

ACKNOWLEDGEMENT

The Department of Occupational Safety and Health, Malaysia wishes to thank and acknowledge the following main task force members for their contributions in the preparation of the guidelines

No.	Name	Organization
1.	Ir. Mohd Rosdee bin Yaacob	DOSH
2.	Ir. Ahmad Jailani bin Mansor	DOSH
3.	Dr. Ramuna binti Mohamed	DOSH
4.	Ir. Ts. Zuraidi Hanafi bin Hanafi	DOSH
5.	Ts. Ahmad Shah Heermie bin Abu Bakar	DOSH
6.	Norsuzila binti Sawal	DOSH
7.	Mohd Rosuki bin Idris	DOSH
8.	Badrul Hisham bin Ibrahim	PETRONAS
9.	Ir. Ts. Hambali bin Chik	PETRONAS
10.	Ts. Hashim bin Othman	PETRONAS
11.	Juliana binti Abdul Kadir	PETRONAS
12.	Ts. Ahmad Hassan bin Abdul Hamid	PETRONAS
13.	Micky Anak Gapoh	PETRONAS
14.	Ts. Ahmad Exsan bin Othman	PETRONAS
15.	Muhammad Ikram bin Mustafa	PETRONAS
16.	R. Jaii Ganes	LOTTE CHEMICAL TITAN
17.	Kamaruzaman bin Lias	HENGYUAN REFINING
18.	Saffre bin Sabtu	PETRON REFINING
19.	Ir. Marzuki bin Omar	BASF PETRONAS
20.	Firdaus bin Maarop	SHELL MDS
21.	Zainuddin bin Ali	INEOS PCG ACETYLS

The Department also would like to acknowledge contribution by PETRONAS Special Scheme of Inspection Working Committee (PSSIWC) that provided valuable inputs based on its members' participation in SSI Scheme over the years since 2014.

CONTENT	PAGE
PURPOSE OF GUIDELINE.....	5
INTRODUCTION.....	5
PART 1 - PRELIMINARY.....	7
PART 2 - APPLICATION FOR RISK-BASED INSPECTION SCHEME.....	10
PART 3 - REQUIREMENTS FOR APPLICATION FOR APPROVAL OF RISK-BASED INSPECTION SCHEME..	15
PART 4 - RISK-BASED INSPECTION.....	19
PART 5 - REQUIREMENTS FOR SCHEME USER.....	22
PART 6 - RENEWAL OF RISK-BASED CERTIFICATE OF FITNESS.....	24
PART 7 - REVOCATION, WITHDRAWAL AND TERMINATION..	31
PART 8 - APPLICATION FOR NEW DURATION OF RISK- BASED INSPECTION SCHEME.....	37
PART 9 - GENERAL.....	43
FIRST SCHEDULE – FORM A.....	44
FIRST SCHEDULE – FORM B.....	46
SECOND SCHEDULE – INSPECTION FEE.....	48
APPENDIX 1 CHART 1 – APPLICATION FOR RBI SCHEME AND RISK BASED CERTIFICATE OF FITNESS.....	49
APPENDIX 2 CHART 2 – RENEWING RBI CERTIFICATE OF FITNESS AFTER 75 MONTHS.....	50
APPENDIX 3 SSI (RBI) DECLARATION FORM.....	51
APPENDIX 4 RBI DATA SUMMARY TEMPLATE.....	52
APPENDIX 5 ULTRASONIC THICKNESS DATA RECORD TEMPLATE.....	53



PURPOSE OF GUIDELINE

This guideline provides an interpretation of regulations in the Factories and Machinery (Special Scheme of Inspection) (Risk-Based Inspection) Regulations 2014 [P.U. (A) 96/2014] to assist applicant for application of new Risk Based Inspection (RBI) scheme and scheme user for effective implementation and sustainability of the Special Scheme of Inspection (SSI) program.

This guideline will replace the Guidelines for The Factories and Machinery (Special Scheme of Inspection) (Risk-Based Inspection) Regulations 2014.

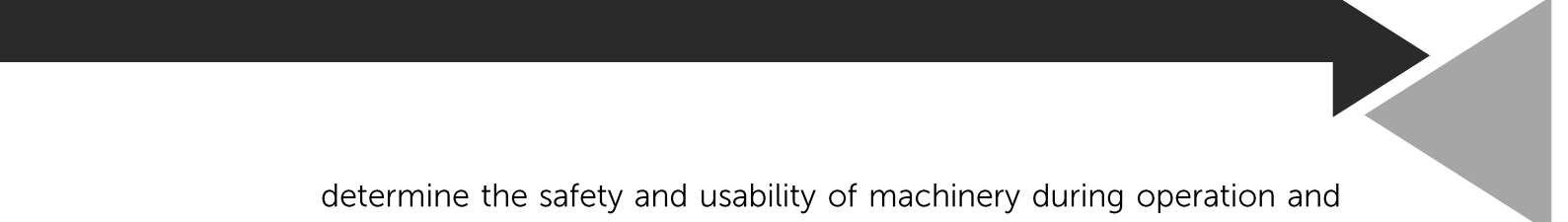
INTRODUCTION

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 19 of the Factories and Machinery Act 1967, and Regulations 10 and sub-regulation 14(2) under the Factories and Machinery (Notification, Certificate of Fitness and Inspection) Regulations, 1970.

To obtain each extension and exemption, the occupier 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, a regulation 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 inspections conducted by the Department.

Based on RBI scheme applicant and user feedbacks, there are arising matters that demand for further clarification as a guide in application, implementation and maintaining the SSI program. Therefore, this guideline provides a standardized interpretation of the regulations for reference of RBI scheme applicants and users.

PART I PRELIMINARY

Citation and commencement

1. (1) These regulations may be cited as the **Factories and Machinery (Special Scheme of Inspection) (Risk-Based Inspection) Regulations 2014**.

(2) These Regulations come into operation on 1 June 2014.

Non-application of Factories and Machinery (Notification, Certificate of Fitness and Inspection) Regulations 1970

2. The Factories and Machinery (Notification, Certificate of Fitness and Inspection) Regulations 1970 [*P.U. (A) 43/1970*] shall not apply to a risk-based pressurized machinery except subregulations 3(3) and 6(1), and regulations 5, 8 and 9.

Interpretation

3. In these Regulations, unless the context otherwise requires—

“risk-based audit” includes an external inspection and a validation of risk-based data;

“remnant life” means the remaining age of a life-span of a pressurized machinery;

“risk-based data” means a record containing data of the design and operating details of a pressurized machinery which includes the operating conditions, process fluid composition, process fluid properties, materials of construction, design specification and the history of the pressurized machinery;



Risk-based data includes inspection and/or non-destructive examination data to assess the identified damage mechanism

“pressurized machinery” means a steam boiler and an unfired pressure vessel used for processing or storage purposes;

“time-based pressurized machinery” means a pressurized machinery which holds a time-based certificate of fitness;

“newly installed time-based pressurized machinery” means a time-based pressurized machinery on which an initial inspection and two regular inspections have been conducted;

“existing time-based pressurized machinery” means a time-based pressurized machinery on which an initial inspection and at least three regular inspections have been conducted;

“risk-based pressurized machinery” means a pressurized machinery which holds a risk-based certificate of fitness;

“risk-based inspection” means an inspection on the interior and exterior parts of a pressurized machinery the interval of which is determined based on the category of risk associated with the pressurized machinery;

“external inspection” means an inspection on the exterior parts of a pressurized machinery which includes testing of safety fittings installed on the pressurized machinery;



Testing of safety fittings installed on the pressurized machinery may include review of its testing records.

“initial inspection” has the meaning assigned to it in the Factories and Machinery (Notification, Certificate of Fitness and Inspection) Regulations 1970;

“regular inspection” has the meaning assigned to it in the Factories and Machinery (Notification, Certificate of Fitness and Inspection) Regulations 1970;

“applicant” means an owner or occupier who makes an application for approval of a risk-based inspection scheme under regulation 4;

“scheme user” means an applicant who has been granted an approval of a risk-based inspection scheme under paragraph 8(1)(a) or 39(1)(a);

“time-based certificate of fitness” means a certificate of fitness issued under regulation 25 of the Factories and Machinery (Notification, Certificate of Fitness and Inspection) Regulations 1970;

“risk-based certificate of fitness” means a certificate of fitness issued under paragraph 8(1)(b) or 39(1)(b) or renewed under subregulation 27(1);



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.

“risk-based inspection scheme” means a special scheme of inspection which is based on a risk-based inspection.



Risk-based inspection (RBI) scheme (hereinafter called the RBI Scheme) - The RBI Scheme is an inspection scheme granted to applicant that implementing the RBI methodology to decide the integrity of the pressurized machinery and to ensure whether the machinery is safe to operate. Determination of integrity is performed using inspection data and information related to machinery including damage mechanisms and risk rating. Duration, type, and planning of inspections can be determined by risk categories from the risk analysis.

PART II APPLICATION FOR RISK-BASED INSPECTION SCHEME

Application for risk-based inspection scheme

4. (1) An applicant may apply to the Chief Inspector for approval of a risk-based inspection scheme in respect of one or more time-based pressurized machinery.

(2) An application under subregulation (1) shall be—

- (a) made in writing;
- (b) accompanied by a processing fee of fifty thousand ringgit;
- (c) attached with the documents indicating that the requirements specified in Part III have been fulfilled; and
- (d) submitted at least six months before the expiry of the time-based certificate of fitness.



- i. An applicant may submit an application to the Chief Inspector for approval of the scheme. The applicant shall conduct preliminary discussion with respective DOSH State to ensure the administration and implementation matters of the scheme application can be made.
- ii. The application shall be accompanied by a processing fee of fifty thousand ringgit (RM 50,000.00) for each scheme (by cheque/bank draft) and payment shall be addressed to; Ketua Pengarah, Jabatan Keselamatan dan Kesihatan Pekerjaan.
- iii. Applicant shall provide additional information and documents as required by DOSH such as:
 - a. Notification letter on intention of SSI Scheme Application (with acknowledgment receipt) or discussion minutes of meeting with respective DOSH State
 - b. Application letter
 - c. RBI Declaration
 - d. RBI Methodology
 - e. Corrosion Study Summary and Process Description

- f. RBI Team Member Organization Chart
 - g. Pressurized machinery data summary ('Ringkasan Data Jentera')
- iv. An applicant shall submit the application to;
- The Director General
Jabatan Keselamatan dan Kesihatan Pekerjaan (JKKP)
Aras 1, 3, 4 & 5 Blok D4, Kompleks D,
Pusat Pentadbiran Kerajaan Persekutuan, 62530 W. P. Putrajaya
- NOTE: Chief Inspector for this regulation refers to DOSH Headquarters (HQ)*

Additional information or document

5. (1) The Chief Inspector may, by notice in writing at any time after the receipt of an application under regulation 4, require the applicant to provide any additional information or document to the Chief Inspector within the period specified in the notice or any extended period granted by the Chief Inspector.

(2) If the additional information or document required under subregulation (1) is not provided by the applicant within the period specified in the notice or any extended period granted by the Chief Inspector, the application shall be deemed to have been withdrawn and shall not be further proceeded with, but without affecting the right of the applicant to make a fresh application.

Risk-based audit

6. (1) Upon receipt of the application under regulation 4 and any additional information or document under regulation 5, an Inspector shall conduct a risk-based audit to verify that the requirements specified in Part III have been fulfilled.

(2) For the purpose of the risk-based audit, the applicant shall provide all facilities and information to the Inspector as may reasonably be required of him.



NOTE: Inspector for this regulation refers to DOSH HQ

Inspection for approval

7. (1) Upon completion of the risk-based audit under regulation 6 and the Inspector being satisfied that the requirements specified in Part III have been fulfilled, a risk-based inspection shall be conducted on the time-based pressurized machinery according to Part IV.

(2) Upon completion of the risk-based inspection under subregulation (1), the Inspector shall—

- (a) report to the Chief Inspector on the findings of the risk-based inspection and the risk-based audit under regulation 6; and
- (b) issue a notification to the applicant for the payment of—
 - (i) in respect of a time-based pressurized machinery on which the risk-based inspection has been conducted, the inspection fee as specified in the Second Schedule; or
 - (ii) in respect of a time-based pressurized machinery on which the Inspector has refused to make or complete the risk-based inspection in pursuance of regulation 21, twenty-five percent of the inspection fee as specified in the Second Schedule.

(3) Upon receipt of the notification under paragraph (2)(b), the applicant shall make the payment of the inspection fee to the Chief Inspector within fourteen days.

**NOTE**

- i. Inspector for regulation 7(1) refer to DOSH HQ.
- ii. Inspector for regulation 7(2) refer to respective DOSH state.
- iii. Chief Inspector for regulation 7(2)(a) refer to Director General.
- iv. Chief Inspector for regulation 7(3) refers to respective DOSH State Director.

Grant of approval

8. (1) Subject to subregulation (2), the Chief Inspector may, after considering the findings under paragraph 7(2)(a)—

- (a) grant an approval of a risk-based inspection scheme in Form A of the First Schedule in respect of one or more time-based pressurized machinery stated in the application under regulation 4; and
- (b) issue a risk-based certificate of fitness in Form B of the First Schedule for every time-based pressurized machinery in respect of which the approval of a risk-based inspection scheme has been granted under paragraph (a).

(2) The Chief Inspector may, after considering the findings under paragraph 7(2)(a), refuse to grant an approval of a risk-based inspection scheme if—

- (a) the Chief Inspector is not satisfied that the requirements under these Regulations or other written laws relating to a pressurized machinery have been complied with; or
- (b) the payment of the inspection fee under subregulation 7(3) has not been made.

(3) The approval granted under paragraph (1)(a) and the risk-based certificate of fitness issued under paragraph (1)(b) shall come into effect on the same date.

(4) The Chief Inspector shall notify in writing the approval granted under paragraph (1)(a) or refusal to grant an approval under subregulation (2) to the applicant as soon as practicable.



NOTE

- i. Chief Inspector for regulation 8(1)(a), 8(2)(a) & 8(4) refer to Director General.
- ii. Chief Inspector for regulation 8(1)(b) refers to respective DOSH State Director.

Duration of risk-based inspection scheme

9. The duration of a risk-based inspection scheme granted under paragraph 8(1)(a) shall be for one hundred and fifty months unless the risk-based inspection scheme is revoked, deemed to have been revoked or terminated under Part VII.

Validity period of risk-based certificate of fitness

10. The validity period of a risk-based certificate of fitness issued under paragraph 8(1)(b)—

- (a) shall be determined by the Chief Inspector based on the calculation and evaluation of risk-based data under regulation 15; and
- (b) shall not exceed seventy-five months.



The validity period of each risk-based certificate of fitness shall be based on the calculation and evaluation of risk-based data under Regulation 15, or calculation and evaluation of risk-based data from the latest risk-based data collected during risk-based inspection after the scheme granted by *Chief Inspector*

NOTE: Chief Inspector for regulation 10(a) refer to respective DOSH State Director.

PART III REQUIREMENTS FOR APPLICATION FOR APPROVAL OF RISK-BASED INSPECTION SCHEME**Application of Part III**

11. This Part shall apply for the purpose of an application for approval of a risk-based inspection scheme under regulation 4.

Establishment of occupational safety and health management system

12. An applicant shall establish an occupational safety and health management system in compliance with MS 1722 Occupational safety and health (OSH) management systems - Requirements (First revision) as declared under the Declaration of Standard Specifications (Revised Specification) [P.U. (B) 411/2012] or any other equivalent occupational safety and health management system as determined by the Chief Inspector.



Applicant has established occupational safety and health management system (OSHMS) such as ISO 45001 or equivalent, and established Process Safety Management as determined by the Chief Inspector (for this regulation, refer to Director General)

NOTE:

- i. *Chief Inspector in this regulation refers to DOSH Director General*
- ii. *MS 1722 Occupational safety and health (OSH) management systems - Requirements (First revision) has been replaced by ISO 45001 : 2018 Occupational safety and health (OSH) management systems – Requirements with guidance for use*

Pressurized machinery in satisfactory working condition, etc.

13. An applicant shall ensure that the time-based pressurized machinery is in a satisfactory working condition or is fit for service.



Satisfactory working condition or fit for service means the time-based pressurized machinery has a valid time-based certificate of fitness.

Risk-based data

14. An applicant shall collect—

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



- i. The regular inspection described in regulation 14(a) & (b) shall be conducted not less than 12 months interval from previous regular inspection as per Factory and Machinery (NCFI, 1970, Regulation 15 (2))
- ii. Subregulation 14(c) is applicable to time-based pressurized machinery in satisfactory working condition where risk-based data cannot be collected due to design constraint (not designed for internal inspection) such as cold box, electrical heater, double wall vessel, fixed welded component, non-entry vessel and vessel in sub-zero or cryogenic service. Previous on-stream data and Integrity Operating Windows (IOWs) data may be used as risk-based data.
- iii. An applicant shall obtain written pre-agreement from DOSH HQ on the intention to apply new RBI scheme using risk-based data other than stipulated in regulation 14.
 - a. Time-based pressurized machinery that intrusive inspection is detrimental to process or integrity such as reactor filled with catalyst or vessel where removal of internal lining (e.g., refractory etc) is required for detail inspection which may affect the integrity for the lining during its reinstatement; or

- b. Time-based pressurized machinery that cannot be isolated due to continuous operation (e.g., flare knock-out drum), and/or preservation requirement (e.g. Integrated installation).
 - c. Using available on-stream risk-based data to fulfil the requirements of sub regulation 14(a) and 14(b).
- iv. Risk-based data of previous time-based/risk-based pressurized machinery that have been replaced with like-to-like pressurized machinery can be used to fulfil regulation 14 requirement provided that
 - a. Application has been made to DOSH HQ for inclusion in the new RBI scheme
 - b. The new pressurized machinery to have in-kind process and operating data.
 - c. No substantial design or material changes that will adversely affect the damage mechanisms or rate of deterioration.
- v. For substantial design and material changes, risk-based data from the previous time-based/risk-based pressurized machinery can be used as interim to fulfil regulation 14 requirement provided that all technical justification and application approved by DOSH HQ for inclusion in the new RBI scheme

NOTE: On-stream risk-based data for this interpretation shall means online risk-based data collected within 12 months before or after regular inspection

Calculation and evaluation of risk-based data

15. An applicant shall determine—

- (a) the remnant life;
- (b) the category of risk;
- (c) the proposed inspection interval; and
- (d) the proposed inspection plan,

of a time-based pressurized machinery by calculating and evaluating the risk-based data collected under regulation 14.

Methodology for calculation and evaluation of risk-based data

16. For the purpose of calculating and evaluating the risk-based data under regulation 15, an applicant shall apply a methodology as agreed by the Chief Inspector.

Risk-based inspection team

17. (1) An applicant shall establish a risk-based inspection team which shall consist of at least five members as follows:

- (a) a team leader, who shall be a qualified person;
- (b) an engineer with corrosion engineering knowledge and expertise;
- (c) a representative from the process department or production department;
- (d) a representative from the inspection department or engineering department; and
- (e) 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.

(2) In this regulation, “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 the risk-based inspection scheme.



- i. An applicant shall ensure all RBI team members are properly trained with the RBI methodology and all required knowledge as identified in the training competency matrix. Refresher training shall be conducted periodically as and when required.
- ii. An applicant is recommended to identify successor for RBI team leader to ensure the sustainability of the SSI program.

PART IV RISK-BASED INSPECTION

Date of risk-based inspection

18. For the purpose of a risk-based inspection, the applicant and the Inspector shall agree on a date for the risk-based inspection to be conducted.



NOTE: Inspector for this regulation refer to respective DOSH state

Compliance of law

19. For the purpose of a risk-based inspection, the applicant shall ensure that the time-based pressurized machinery complies with the requirements under these Regulations and other written laws relating to a pressurized machinery.

Preparation for risk-based inspection

20. (1) On the date agreed by the applicant and the Inspector under regulation 18, the applicant shall prepare every time-based pressurized machinery for the risk-based inspection as follows:

- (a) the time-based pressurized machinery is emptied, cooled and dried, and is thoroughly cleaned inside and outside;
- (b) all manhole, hand hole and sight hole doors and cleaning plugs are removed;
- (c) all cocks and valves are dismantled, cleaned and ground, if necessary;
- (d) the time-based pressurized machinery is disconnected from any other time-based pressurized machinery, and source of steam or hot water;
- (e) the time-based pressurized machinery is free from hazardous fumes and vapour; and

- (f) in respect of a steam boiler—
 - (i) all fire-bars and firebridges are removed;
 - (ii) all smoke tubes, exterior of water tubes, furnaces, smoke-boxes and external flues are thoroughly cleaned; and
 - (iii) all caps in the headers and mud-drums of water tube steam boilers are removed.

(2) During the risk-based inspection, the Inspector may give direction to the applicant to take any other necessary action, including the removal of any lagging, brickwork or masonry, the preparations for carrying out a hydrostatic test or a non-destructive test, and the repair of the time-based pressurized machinery.



- i. An applicant shall obtain prior agreement from DOSH HQ for any risk-based pressurized machinery which intend for any alternative inspection to fulfil this regulation for the following cases:
 - a. Pressurized machinery without access to internal entry for example cold box etc.
 - b. Pressurized machinery that contains catalyst
 - c. Pressurized machinery of packed vessel/column
 - d. Low risk pressurized machinery
 - e. Representative inspection for identical equipment
 - f. Equipment cannot be free from hazardous substances e.g., TENORM, benzene, mercury
 - g. Safety hazards to worker for internal entry maintenance & inspection
- ii. The applicant shall propose to DOSH HQ on the inspection strategy (NDT methods) as alternative for internal inspection.

NOTE: Inspector for this regulation refer to respective DOSH state

Pressurized machinery not prepared for inspection

21. (1) If a time-based pressurized machinery is not prepared for the risk-based inspection as specified in regulation 20, the Inspector may refuse to make or complete the risk-based inspection.

(2) If the Inspector refuses to make or complete the risk-based inspection under subregulation (1)—

- (a) the Inspector shall inform the applicant of his reason for the refusal and the Inspector shall appoint any other date for the risk-based inspection; and
- (b) the applicant shall be charged at the rate of twenty-five percent of the inspection fee as specified in the Second Schedule.



NOTE: Inspector for this regulation refer to respective DOSH state

PART V REQUIREMENTS FOR SCHEME USER

Requirements for scheme user

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



- i. A scheme user shall update the RBI team member organization chart if there are any changes made and the updated organization chart shall be made available during audit.
- ii. A scheme user shall ensure identified damage mechanism of pressurized machinery properly managed including:
 - a. Ensure review of damage mechanisms conducted on a regular basis. During the review, damage mechanism may be added or removed as new information becomes available, such as newly discovered integrity issues during routine inspections, from other plant experiences, or process changes.
 - b. The scheme user shall update the RBI study and RBI Declaration with the addition or deletion of previously declared damage mechanisms and keep record of the changes.

- c. Following such revisions, the updated RBI Declaration shall be made available during audit, outlining the reason(s) for the inclusion or deletion.
- iii. A scheme user shall collect risk-based data in respect of the risk-based pressurized machinery for every twelve (12) months or as agreed monitoring program by DOSH HQ. Data collected shall be analyzed and made available for risk-based audit throughout the duration of risk-based inspection scheme.

NOTE: Chief Inspector in this regulation refer to DOSH Director General

PART VI RENEWAL OF RISK-BASED CERTIFICATE OF FITNESS

Application for renewal of risk-based certificate of fitness

23. (1) A scheme user may apply to the Chief Inspector for a renewal of risk-based certificate of fitness.

(2) An application under subregulation (1) shall be—

- (a) made in writing;
- (b) attached with the documents indicating that the requirements specified in subregulation (3) and Part V have been fulfilled; and
- (c) submitted at least three months before the expiry of the risk-based certificate of fitness.

(3) A scheme user shall determine—

- (a) the remnant life;
- (b) the category of risk;
- (c) the proposed inspection interval; and
- (d) the proposed inspection plan,

of the risk-based pressurized machinery by calculating and evaluating the last twelve months of risk-based data collected under paragraph 22(c).



- i. A scheme user shall apply to DOSH State for a renewal of risk-based certificate of fitness. For the purpose of renewal risk-based certificate of fitness, a scheme user shall;
 - a. Ensure pressurized machinery prepared for risk-based inspection.
 - b. Ensure any risk-based pressurized machinery which intend for alternative inspection shall obtain prior agreement from DOSH HQ as cases discussed in regulation 20
 - c. Consult with DOSH state to agree on the administration, planning, implementation matters of the renewal of risk-based certificate of

fitness activities and to fix a date of inspection for the risk-based inspection.

- d. Notify DOSH HQ on the agreement made with the DOSH state.
- ii. A scheme user may choose to apply for partial renewal of risk-based certificate of fitness in an RBI scheme upon agreement with DOSH HQ and responsible to monitor the validity of remaining risk-based certificate of fitness.
- iii. DOSH state may issue a risk-based certificate of fitness with the validity period not exceeding seventy-five (75) months or the remaining term of the scheme, whichever is shorter as defined under Regulation 28.
- iv. A scheme user may open risk-based pressurized machinery without revoking the risk-based certificate of fitness if it will not affect strength, integrity or functionally capability of that machinery such as open for internal cleaning, catalyst/filter element change-out, process medium sampling, tube plugging activity, or tube renewal not exceeding 10% total tube and without involving welding activity
- v. A scheme user shall obtain agreement from DOSH HQ and followed by an approval from DOSH state prior to repair any risk-based pressurized machinery. Application for repair of any machinery shall be submitted to DOSH state through website <https://mykkp.dosh.gov.my/>.
 - a. For repair with anticipated and emergent damage mechanism
 - A certificate of fitness of any risk-based pressurized machinery which being minor repaired may not require renewal subject to approval by DOSH State Director
 - A certificate of fitness of any risk-based pressurized machinery which being major repaired shall require renewal as per regulation 26 and 27, upon such repair
 - b. For repair with un-anticipated damage mechanism
 - A certificate of fitness of any risk-based pressurized machinery which being minor or major repaired shall require renewal as per regulation 26 and 27, upon such repair

- A certificate of fitness of any risk-based pressurized machinery which being altered shall be subjected to revocation as per to regulation 31
- vi. Any renewal of risk-based certificate of fitness for a pressurized machinery that undergo like-to-like or upgraded replacement, below steps shall be followed;
- a. A scheme user shall obtain prior agreement from DOSH HQ by providing technical justification, proposal for compliance to regulation 14 and proposed online inspection/monitoring in-lieu of warranty shutdown as part of the replacement planning;
 - b. The replaced pressurized machinery has a valid time-based certificate of fitness as interim;
 - c. The replaced pressurized machinery can remain in the existing RBI scheme upon approval by DOSH HQ;

DESCRIPTIONS:

- i. *Anticipated damage mechanism – damage mechanism identified in corrosion study*
- ii. *Un-Anticipated damage mechanism – damage mechanism being negligently unaddressed in corrosion study or abnormally high corrosion rate during operation*
- iii. *Emergent damage mechanism – damage due to unexpected corrodents occur during operation*
- iv. *Repair - Repair shall mean any work done to make good any part of any machinery which has been damaged.*
- v. *Minor Repair - Minor Repair shall mean any work necessary to restore a vessel to a condition suitable for safe operation at the design conditions. If any of the restorative work results in a change to the design temperature, minimum design metal temperature (MDMT), or MAWP, the work shall be considered an alteration and the requirements for rerating shall be satisfied. Any welding, cutting, or grinding operation on a pressure-containing component not specifically considered an alteration is considered a repair.*

- vi. *Major Repair - Major repair shall mean any work that removes and replaces a major part of the pressure boundary other than a nozzle (e.g. replacing part of the shell or replacing a vessel head). If any of the restorative work results in a change to the design temperature, minimum allowable temperature (MAT), or maximum allowable working pressure (MAWP), the work shall be considered an alteration and the requirements for rerating shall be satisfied. An alteration shall not be considered as major repair. For any rerating of a pressurized machinery without physical restorative works shall be considered as major repair*
- vii. *Alteration - Alteration shall mean a physical change in any component that has design implications that affect the pressure-containing capability of a pressure vessel beyond the scope described in existing data reports. The following shall be considered as alterations:*
 - a. *The addition of any reinforced nozzle less than or equal to the size of existing reinforced nozzles, and*
 - b. *The addition of nozzles not requiring reinforcement.**Alteration of risk-based pressurized and time-based pressurized machinery shall require design approval from DOSH*

NOTE:

- i. *Chief Inspector for this regulation refers to respective DOSH State Director*
- ii. *Scheme user shall notify DOSH HQ upon submission of renewal application to DOSH state.*

Additional information or document

24. (1) The Chief Inspector may, by notice in writing at any time after the receipt of an application under regulation 23, require the scheme user to provide any additional information or document to the Chief Inspector within the period specified in the notice or any extended period granted by the Chief Inspector.

(2) If the additional information or document required under subregulation (1) is not provided by the scheme user within the period specified in the

notice or any extended period granted by the Chief Inspector, the application shall be deemed to have been withdrawn and shall not be further proceeded with, but without affecting the right of the scheme user to make a fresh application.



NOTE: Chief Inspector for this regulation refer to respective DOSH State Director

Risk-based audit for renewal of risk-based certificate of fitness

25. (1) Upon receipt of the application under regulation 23 and any additional information or document under regulation 24, an Inspector shall conduct a risk-based audit to verify that the requirements specified in subregulation 23(3) and Part V have been fulfilled.

(2) For the purpose of the risk-based audit, the scheme user shall provide all facilities and information to the Inspector as may reasonably be required of him.



A scheme user shall provide necessary information and facilities for risk-based audit prior to renewal of risk-based certificate of fitness

NOTE: Inspector in this regulation refer to DOSH HQ

Inspection for renewal of risk-based certificate of fitness

26. (1) If the Inspector is satisfied that the requirements specified in subregulation 23(3) and Part V have been fulfilled, a risk-based inspection shall be conducted on the risk-based pressurized machinery according to Part IV.

(2) For the purpose of renewal of a risk-based certificate of fitness under this Part, Part IV shall apply *mutatis mutandis* to the scheme user subject to the following modifications:

- (a) references to a “time-based pressurized machinery” shall be taken as references to a risk-based pressurized machinery; and
- (b) references to an “applicant” shall be taken as references to a scheme user.

(3) Upon completion of the risk-based inspection under subregulation (1), the Inspector shall—

- (a) report to the Chief Inspector on the findings of the risk-based inspection and the risk-based audit under regulation 25; and
- (b) issue a notification to the scheme user for the payment of—
 - (i) in respect of a risk-based pressurized machinery on which the risk-based inspection has been conducted, the inspection fee as specified in the Second Schedule; or
 - (ii) in respect of a risk-based pressurized machinery on which the Inspector has refused to make or complete the risk-based inspection in pursuance of regulation 21, twenty-five percent of the inspection fee as specified in the Second Schedule.

(4) Upon receipt of the notification under paragraph (3)(b), the scheme user shall make the payment of the inspection fee to the Chief Inspector within fourteen days.



NOTE:

- i. Chief Inspector for this regulation refers to respective DOSH State Director
- ii. Inspector for this regulation refers to respective DOSH state

Renewal of risk-based certificate of fitness

27. (1) Subject to subregulation (2), the Chief Inspector may, after considering the findings under paragraph 26(3)(a), renew the risk-based certificate of fitness in Form B of the First Schedule.

(2) The Chief Inspector may, after considering the findings under paragraph 26(3)(a), refuse to renew the risk-based certificate of fitness if—

- (a) the Chief Inspector is not satisfied that the requirements under these Regulations or other written laws relating to a pressurized

machinery have been complied with; or

- (b) the payment of the inspection fee under subregulation 26(4) has not been made.

(3) The Chief inspector shall notify in writing the renewal of the risk-based certificate of fitness under subregulation (1) or refusal to renew the risk-based certificate of fitness under subregulation (2) to the scheme user as soon as practicable.



NOTE: Chief Inspector for this regulation refers to respective DOSH State Director

Validity period of risk-based certificate of fitness upon renewal

28. The validity period of a risk-based certificate of fitness renewed under subregulation 27(1)—

- (a) shall be determined by the Chief Inspector based on the calculation and evaluation of risk-based data under subregulation 23(3); and
- (b) shall not exceed seventy-five months or the remaining duration of a risk-based inspection scheme, whichever is the shorter.



- i. Upon revocation of risk-based certificate of fitness due to repair, scheme user may conduct risk-based inspection for renewal of risk-based certificate of fitness for a new validity of risk-based certificate of fitness
- ii. If no risk-based inspection conducted after repair, the risk-based certificate of fitness validity duration may use the remaining risk-based certificate of fitness validity prior to the repair activity.

NOTE: Chief Inspector for this regulation refers to respective DOSH State Director

PART VII REVOCATION, WITHDRAWAL AND TERMINATION

Revocation of risk-based inspection scheme

29. (1) The Chief Inspector may revoke a risk-based inspection scheme if—
- (a) the scheme user fails to comply with any of the requirements specified in Part V; or
 - (b) the scheme user provides any document or information required under any of the provisions of these Regulations which is false, misleading or contains material errors or omissions.
- (2) Before the Chief Inspector revokes a risk-based inspection scheme under subregulation (1), the Chief Inspector shall give the scheme user—
- (a) a written notice of his intention to revoke the risk-based inspection scheme; and
 - (b) an opportunity to remedy the breach or contravention in paragraph (1)(a) or (b), and to make written submission, within a period specified in the written notice which shall not be less than fourteen days.
- (3) The Chief Inspector shall, after considering the remedy or written submission under paragraph (2)(b), if any, decide whether or not to revoke the risk-based inspection scheme.
- (4) The decision of the Chief Inspector under subregulation (3) shall be notified in writing to the scheme user as soon as practicable.



Director General may revoke a risk-based inspection scheme as stipulated in Regulation 29, if there is evidence that a scheme user do not comply to requirements under Regulation 22 such as:

- a. A scheme user fails to maintain an established occupational safety and health management system including process safety management.

- b. A scheme user fails to ensure all risk-based pressurized machinery in the scheme is in a satisfactory working condition or fit for service, without making necessary remedy to restore the machinery to safe operating condition, as such action led to machinery failure.
- c. A scheme user fails to collect risk-based data in respect of the risk-based pressurized machinery as agreed in regulation 22 (c)
- d. A scheme user fails to maintain same RBI methodology as approved during risk-based scheme application.
- e. A scheme user fails to maintain a risk-based inspection team as required in regulation 17 or fails to notify the DOSH HQ in writing of any changes to the team leader within fourteen (14) days of such change.

NOTE: Chief Inspector for this regulation refer to DOSH Director General

Withdrawal of risk-based pressurized machinery

30. (1) Subject to subregulation (2), a scheme user may, for any reason, withdraw any or all of the risk-based pressurized machinery from a risk-based inspection scheme.

(2) A scheme user shall give a written notice of his intention to withdraw a risk-based pressurized machinery to the Chief Inspector at least fourteen days before the withdrawal.



A scheme user may withdraw any or all risk-based certificate of fitness of pressurized machinery by submitting a written notice to Chief Inspector at least fourteen days before the withdrawal. If all risk-based certificate of fitness of pressurized machinery is withdrawn, the RBI scheme shall also be considered as withdrawn

DESCRIPTION: Withdrawal – When a risk-based certificate of fitness is withdrawn, the pressurized machinery shall no longer applicable in the same SSI scheme and to apply for new time-based certificate of fitness

NOTE: Chief Inspector for this regulation refers to respective DOSH HQ

Revocation of risk-based certificate of fitness

31. (1) 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.

(2) Before the Chief Inspector revokes a risk-based certificate of fitness under subregulation (1), the Chief Inspector shall give the scheme user—

- (a) a written notice of his intention to revoke the risk-based certificate of fitness; and
- (b) an opportunity to remedy the condition of the risk-based pressurized machinery, and to make written submission, within a period specified in the written notice which shall not be less than fourteen days.

(3) The Chief Inspector shall, after considering the remedy or written submission under paragraph (2)(b), if any, decide whether or not to revoke the risk-based certificate of fitness.

(4) The decision of the Chief Inspector under subregulation (3) shall be notified in writing to the scheme user as soon as practicable.



Director General may revoke any risk-based certificate of fitness of pressurized machinery, under several conditions including when:

- a. It is shown that the information used to analyze the risk to the machinery to be false;
- b. An alteration work conducted on the machinery involves a change in the design and materials used;
- c. Any failure of risk-based pressurized machinery subject to damage from emerging damage mechanism not identified in corrosion study; or
- d. The Director General 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.

DESCRIPTIONS:

- i. *Revocation of risk-based certificate of fitness – When a risk-based certificate of fitness is revoked the risk-based certificate of fitness shall be renewed within the same SSI scheme*
- ii. *Termination of risk-based certificate of fitness – When a risk-based certificate of fitness is terminated, the pressurized machinery shall no longer applicable in the same SSI scheme and to apply for new time-based certificate of fitness*

NOTE:

- i. *Revocation of risk-based certificate of fitness require renewal within the same scheme.*
- ii. *Chief Inspector for this regulation refers to DOSH Director General*

Effect of revocation and withdrawal

32. (1) If a risk-based inspection scheme is revoked under regulation 29, every risk-based certificate of fitness in respect of the risk-based inspection scheme shall be deemed to have been revoked.

(2) If any risk-based pressurized machinery is withdrawn from a risk-based inspection scheme under regulation 30, the risk-based certificate of fitness in respect of the risk-based pressurized machinery shall be deemed to have been revoked.

(3) If all risk-based certificates of fitness in respect of a risk-based inspection scheme are revoked under regulation 31 or deemed to have been revoked under subregulation (2), the risk-based inspection scheme shall be deemed to have been revoked.



Post Revocation and Withdrawal of Risk-Based Inspection Scheme

- i. A risk-based pressurized machinery shall be subjected to time-based certificate of fitness and/or application of new RBI scheme upon revocation/withdrawal of the risk-based certificate of fitness.
- ii. All risk-based pressurized machinery in a scheme shall be subjected to time-based certificate of fitness and/or application of new RBI scheme upon revocation/withdrawal of the scheme.
- iii. A scheme user shall notify DOSH State on the withdrawal or revocation of pressurized machinery certificate of fitness and fix a date for regular inspection for time-based certificate of fitness issuance. A scheme user may continue with new RBI scheme application as specified in Part II, III and IV.

NOTE: Chief Inspector for this regulation refers to DOSH Director General

Termination upon sale, hire or transfer of risk-based pressurized machinery

33. (1) If any risk-based pressurized machinery in respect of a risk-based inspection scheme is 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 shall terminate; and
- (b) the risk-based inspection scheme, and the risk-based certificate of fitness in respect of any risk-based pressurized machinery which is not sold, hired out or transferred, shall remain valid.

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

Surrender of approval and certificate of fitness

34. (1) If a risk-based inspection scheme is revoked, deemed to have been revoked or terminated under this Part, the scheme user shall surrender the approval of the risk-based inspection scheme and every risk-based certificate of fitness in respect of the risk-based inspection scheme to the Chief Inspector within fourteen days from the date of such revocation or termination.

(2) If a risk-based certificate of fitness is revoked, deemed to have been revoked or terminated under this Part, the scheme user shall surrender the risk-based certificate of fitness to the Chief Inspector within fourteen days from the date of such revocation or termination.



NOTE: Chief Inspector for this regulation refers to DOSH Director General

PART VIII APPLICATION FOR NEW DURATION OF RISK-BASED INSPECTION SCHEME

Application for new duration

35. (1) After the existing duration of a risk-based inspection scheme expires, a scheme user may apply to the Chief Inspector for approval of a new duration for a risk-based inspection scheme in respect of—

- (a) a risk-based pressurized machinery from the same risk-based inspection scheme or any other risk-based inspection scheme; or
- (b) a combination of a risk-based pressurized machinery and a time-based pressurized machinery.

(2) An application under subregulation (1) shall be—

- (a) made in writing;
- (b) accompanied by a processing fee of fifty thousand ringgit;
- (c) attached with the documents indicating that—
 - (i) in respect of a risk-based pressurized machinery, the requirements specified in subregulation (4) and Part V have been fulfilled;
 - (ii) in respect of a time-based pressurized machinery, the requirements specified in subregulations (3) and (4) have been fulfilled; and
- (d) submitted at least six months before the expiry of the existing duration of the risk-based inspection scheme.

(3) A scheme user shall collect—

- (a) in respect of a newly installed time-based pressurized machinery, risk-based data from the initial inspection and two regular inspections;
- (b) in respect of an existing time-based pressurized machinery, risk-based data from the last three regular inspections; or

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

(4) A scheme user shall determine—

- (a) the remnant life;
- (b) the category of risk;
- (c) the proposed inspection interval; and
- (d) the proposed inspection plan,

of the risk-based pressurized machinery and time-based pressurized machinery by calculating and evaluating the risk-based data collected under subregulation (3) and the last twelve months of risk-based data collected under paragraph 22(c).



- i. The scheme user may combine two or more RBI schemes for a new application of RBI scheme after the scheme expires (including withdrawal option).
- ii. The scheme user may combine risk-based pressurized machinery under multiple schemes with time-based pressurized machinery for a new application of RBI scheme after the scheme expires.

NOTE: Chief Inspector for this regulation refers to DOSH Director General

Additional information or document

36. (1) The Chief Inspector may, by notice in writing at any time after the receipt of an application under regulation 35, require the scheme user to provide any additional information or document to the Chief Inspector within the period specified in the notice or any extended period granted by the Chief Inspector.

(2) If the additional information or document required under subregulation (1) is not provided by the scheme user within the period specified in the

notice or any extended period granted by the Chief Inspector, the application shall be deemed to have been withdrawn and shall not be further proceeded with, but without affecting the right of the scheme user to make a fresh application.



NOTE: Chief Inspector for this regulation refers to DOSH Director General

Risk-based audit for new duration

37. (1) Upon receipt of the application under regulation 35 and any additional information or document under regulation 36, an Inspector shall conduct a risk-based audit to verify that the requirements specified in subregulations 35(3) and (4) and Part V have been fulfilled.

(2) For the purpose of the risk-based audit, the scheme user shall provide all facilities and information to the Inspector as may reasonably be required of him.



NOTE: Inspector for this regulation refers to DOSH HQ

Inspection for new duration

38. (1) If the Inspector is satisfied that the requirements specified in subregulations 35(3) and (4) and Part V have been fulfilled, a risk-based inspection shall be conducted on the risk-based pressurized machinery and time-based pressurized machinery according to Part IV.

(2) For the purpose of approval of a new duration of a risk-based inspection scheme under this Part, Part IV shall apply *mutatis mutandis* to the scheme user subject to the following modifications:

(a) references to a “time-based pressurized machinery” shall include a risk-based pressurized machinery; and

(b) references to an “applicant” shall be taken as references to a scheme user.

(3) Upon completion of the risk-based inspection under subregulation (1), the

Inspector shall—

- (a) report to the Chief Inspector on the findings of the risk-based inspection and the risk-based audit under regulation 37; and
- (b) issue a notification to the scheme user for the payment of—
 - (i) in respect of a risk-based pressurized machinery or a time-based pressurized machinery on which the risk-based inspection has been conducted, the inspection fee as specified in the Second Schedule; or
 - (ii) in respect of a risk-based pressurized machinery or a time-based pressurized machinery on which the Inspector has refused to make or complete the risk-based inspection in pursuance of regulation 21, twenty-five percent of the inspection fee as specified in the Second Schedule.

(4) Upon receipt of the notification under paragraph (3)(b), the scheme user shall make the payment of the inspection fee to the Chief Inspector within fourteen days.



NOTE:

- i. Inspector for regulation 38(1) refer to DOSH HQ.
- ii. Inspector for regulation 38(3) refer to respective DOSH state.
- iii. Chief Inspector for regulation 38(3) refer to Director General.
- iv. Chief Inspector for regulation 38(4) refers to respective DOSH State Director.

Grant of approval of new duration

39. (1) Subject to subregulation (2), the Chief Inspector may, after considering the findings under paragraph 38(3)(a)—

- (a) grant an approval of a new duration of a risk-based inspection

scheme in Form A of the First Schedule in respect of one or more risk-based pressurized machinery or time-based pressurized machinery stated in the application under regulation 35; and

- (b) issue a risk-based certificate of fitness in Form B of the First Schedule for every risk-based pressurized machinery or time-based pressurized machinery in respect of which the approval of a new duration of a risk-based inspection scheme has been granted under paragraph (a).

(2) The Chief Inspector may, after considering the findings under paragraph 38(3)(a), refuse to grant an approval of a new duration of a risk-based inspection scheme if—

- (a) the Chief Inspector is not satisfied that the requirements under these Regulations or other written laws relating to a pressurized machinery have been complied with; or
- (b) the payment of the inspection fee under subregulation 38(4) has not been made.

(3) The approval granted under paragraph (1)(a) and the risk-based certificate of fitness issued under paragraph (1)(b) shall come into effect on the same date.

(4) The Chief Inspector shall notify in writing the approval granted under paragraph (1)(a) or refusal to grant an approval under subregulation (2) to the scheme user as soon as practicable.

New duration of risk-based inspection scheme

40. The new duration of a risk-based inspection scheme granted under paragraph 39(1)(a) shall be for one hundred and fifty months unless the risk-based inspection scheme is revoked, deemed to have been revoked or terminated under Part VII.

Validity period of risk-based certificate of fitness

41. The validity period of a risk-based certificate of fitness issued under paragraph 39(1)(b)—

- (a) shall be determined by the Chief Inspector based on the calculation and evaluation of risk-based data under subregulation 35(4); and
- (b) shall not exceed seventy-five months.



NOTE: Chief Inspector for this regulation refers to DOSH State Director.

Compliance with Part V

42. A scheme user who has been granted an approval of a new duration of a risk-based inspection scheme under regulation 39 shall comply with the requirements under Part V.

PART IX GENERAL

Risk-based audit during risk-based inspection scheme

43. (1) Notwithstanding regulations 6, 25 and 37, an Inspector may conduct a risk-based audit at any time during the duration of a risk-based inspection scheme to verify that the requirements specified in Part V have been fulfilled.

(2) For the purpose of the risk-based audit, the scheme user shall provide all facilities and information to the Inspector as may reasonably be required of him.



NOTE: Inspector for this regulation refers to DOSH HQ.

Risk-based inspection during risk-based inspection scheme

44. Notwithstanding regulations 7, 26 and 38, an Inspector may conduct a risk-based inspection at any time during the duration of a risk-based inspection scheme in respect of any risk-based pressurized machinery as he may deem necessary to ensure the integrity and strength of the risk-based pressurized machinery.



NOTE: Inspector for this regulation refers to DOSH state.

Payment of fee

45. All payments made under these Regulations shall not be refundable

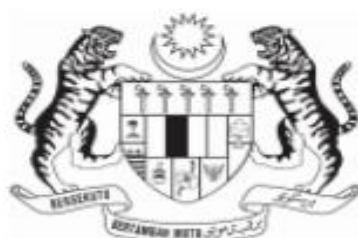
FIRST SCHEDULE FORM A

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

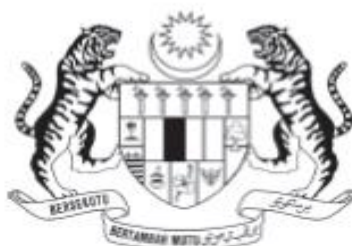
<i>No.</i>	<i>Registration No.</i>	<i>Description of Risk-Based Pressurized Machinery</i>

FIRST SCHEDULE – FORM B

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 – INSPECTION FEE

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

APPENDIX 1: APPLICATION FOR RBI SCHEME AND CERTIFICATE OF FITNESS

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.

2ND SCHEDULE: INSPECTION FEES**1) Steam Boiler:**

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

2) Unfired Pressure Vessel:

	Cubic capacity (CC)	Fees (RM)
1	< 0.1 m ³	450
2	0.1 m ³ < CC < 0.5 m ³	900
3	0.5 m ³ < CC < 5 m ³	1,350
4	5 m ³ < CC < 10 m ³	1,575
5	10 m ³ < CC < 15 m ³	2,250
6	>15 m ³	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[3]** 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-

- Made in writing;
 - Processing Fees RM50K;
 - PART III** Document; and
 - 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]**
- Report to The Chief Inspector on findings of Reg.6 and Reg.7 [1].
 - Issue notification of fees - Fees as in **2ND Schedule** - If aborted, fees will be 25% of **2ND Schedule**.

Reg.8 [1] a Grant of Approval of Risk-Based Inspection Scheme in FORM A of 1st 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]_{RBI} in FORM B of 1st Schedule.**

Reg.10 [COF]_{RBI} validity is based on calculation and valuation of RBI data but max. is 75 months.

PART VII REVOCATION, WITHDRAWAL & TERMINATION OF [COF]_{RBI}

- Reg.31** The Chief Inspector may revoke [COF]_{RBI} -
- 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]_{RBI} is deem to be have been revoked.
- Reg.32 [2]** when machine is withdrawn from scheme, [COF]_{RBI} is deem to be revoked.
- Reg.33 [1]** [COF]_{RBI} will be terminated if machine is sold, hire or transfer.
- Reg.33 [2]** If all machinery is sold, hire or transfer [COF]_{RBI} and Scheme consider terminated.
- Reg.34** User to surrender terminated [COF]_{RBI} or Scheme Certificate.

CHART 1: APPLICATION FOR RBI SCHEME AND CERTIFICATE OF FITNESS

APPENDIX 2: RENEWING CERTIFICATE OF FITNESS AFTER 75 MONTHS PERIOD

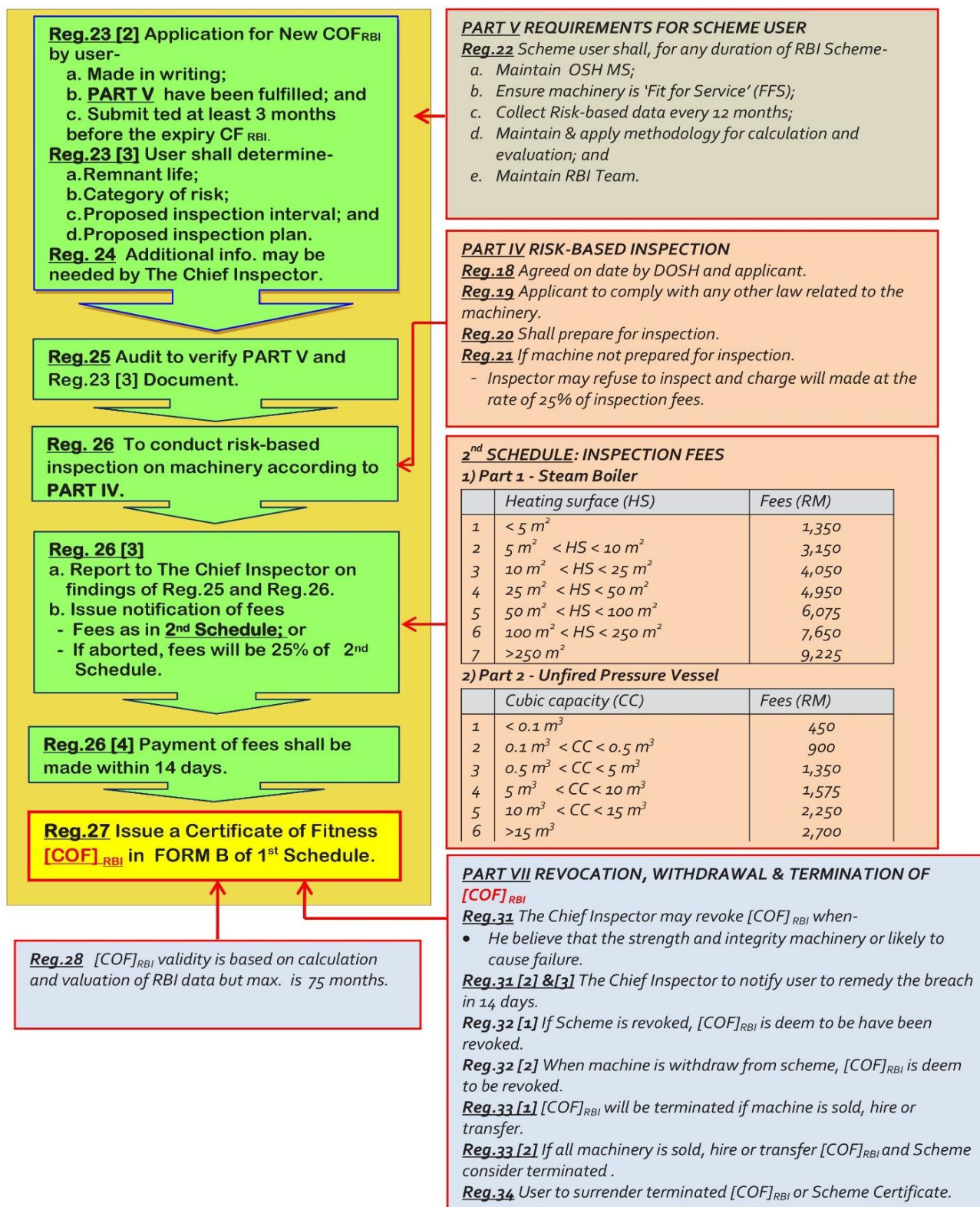


CHART 2: RENEWING CERTIFICATE OF FITNESS AFTER 75 MONTHS PERIOD

APPENDIX 3: SSI (RBI) DECLARATION FORM

I, _____ (*name*), _____ (*i/c*). _____ (*designation*), of _____ (*name and location of plant*) hereby declare as follows:-

1)

- a) As the leader of RBI team, I am responsible and accountable for the implementation of RBI in the plant;
- b) _____ (*name of RBI*) methodology has been implemented in the plant since _____ (*date*);
- c) The plant has established RBI team for the purpose of implementing RBI. The RBI team members are as per required in Part III Reg. 17 Factories And Machinery (Special Scheme of Inspection) (Risk-Based Inspection) Regulations 2014.

2) All of the RBI data used in the study are local data and finalized as per required in Part III Reg. 15 Factories And Machinery (Special Scheme of Inspection) (Risk-Based Inspection) Regulations 2014.

(All RBI data are summarized in Attachment 1)

3) The result of study shows that:

- a) All vessel(s), boiler(s) and pipeline(s) are found to be fit for service;
- b) All vessel(s), boiler(s) and pipeline(s) are found to be subjected to thinning corrosion only and
- c)* i. No other than thinning damage mechanism has been found; or
 * ii. Other than thinning damage mechanism found are _____ (*type of damage mechanism*), and within acceptable limit.

4) This declaration is for _____ (*name of plant*) application with reference number _____ (*application letter reference number*):

Signature : (*RBI Team Leader*)

Name :

IC/ Passport :

Position :

Date :

Official Stamp :

Signature : (*Top Management*)

Name :

IC/ Passport :

Position :

Date :

Note: * Please choose either one, and strikethrough for non-applicable e.g if non-age related DM identified, strikethrough (i) and pls put in attachment if more than one DMs

[illegible]

Thickness Nominal: Thickness measurement at first time installation
Thickness Required: Calculation of T_{min} without CA
Thickness Design: As per design calculation

-End of document-

