

5. Unnecessary regulatory burdens on petrochemicals manufacturers

5.1 Certificate of Fitness

A petrochemicals manufacturer has to obtain Certificate of Fitness (CF) for their machinery and plants from DOSH. The Factories And Machinery (Notification, Certificate Of Fitness And Inspection) Regulations, 1970 states such requirements:

- Part I - Notification of operation of factory, use of machinery, accidents and industrial diseases
- Part II - Certificate of fitness
- Part III - Inspection
- Part IV - Inspection fees

The CF is valid for 15 months and must be renewed. Application for an extension of CF is a two stage approval process. DOSH guidelines require that petrochemicals manufacturers apply for an extension six months prior to the expiry of the existing CF. The application has to be made at the state DOSH office.

The state DOSH officers carry out inspection at the site to verify the current integrity of equipment as claimed in the report submitted by petrochemicals manufacturers as part of the justification for the application. Once the inspection report is prepared, the application is sent to DOSH headquarter in Putrajaya.

DOSH Putrajaya will review the report, and if necessary, carry out inspection at the site. The report is then submitted to the Director of Major Hazard Division for endorsement prior to approval by the Director General of DOSH. The state DOSH then issues the CF to the petrochemicals manufacturer.

Box 5.1

The Factories and Machinery (Notification, Certificate of Fitness And Inspection) Regulations, 1970

Regulation 10. Machinery requiring certificate of fitness.

- (1) *The owner of every steam boiler, unfired pressure vessel or hoisting machine other than a hoisting machine driven by manual power shall hold a valid certificate of fitness in respect thereof so long as such machinery remains in service.*
- (2) *A certificate of fitness for every steam boiler, unfired pressure vessel and hoisting machine shall be as Forms A, B and C in the Sixth Schedule to these regulations.*
- (3) *The period of validity of every certificate of fitness shall ordinarily be fifteen calendar months from the date of inspection or such longer period not exceeding three years as the Chief Inspector in his discretion may consider appropriate:*

Provided where any steam boiler, unfired pressure vessel or hoisting machine is out of service for a long period immediately subsequent to an inspection by reason of dismantling or repair of any defect the Inspector may issue a certificate effective from the date when such machinery is replaced in service.

- (4) *Where the components of any combination of unfired pressure vessel, hoisting machine are so interconnected that it would be unreasonable to issue certificates of fitness for each component the Chief Inspector may direct that one certificate of fitness be issued to cover the combination of components.*
- (5) *The certificate shall be in the form prescribed for that component of the combination which, in the opinion of the Chief Inspector, is the most appropriate and the inspection fee shall be charged accordingly.*

Regulation 25. Issue of certificate of fitness.

Following the inspection of every steam boiler, unfired pressure vessel and hoisting machine other than a hoisting machine driven by manual power and on payment of the prescribed fee the Inspector shall where he is satisfied that such machinery complies with the provisions of the Act and the regulations relating thereto, issue the appropriate certificate of fitness:

Provided that where any steam boiler, unfired pressure vessel or hoisting machine is out of service for a prolonged period immediately subsequent to an inspection by reason of dismantling or repair of any defect, the Inspector may issue a certificate operative from the date when such machinery is replaced in service.

Regulation 27. Machinery or factory not complying with the Regulations.

Pursuant to sub-section (3) of section 39 and sub-section (4) of section 40 of the Act where the Inspector is of the opinion that such factory or machinery does not comply with any of the provisions of the Act or any regulations made thereunder, he shall issue to the occupier or owner a notice as Form A in the Eighth Schedule to these regulations requiring him to make good or remove any defect or otherwise cause the factory or machinery to comply with such requirements of the Act or any regulations made thereunder within such period as he shall specify therein.

Provided that where the defect is, in his opinion, likely to cause immediate danger to life or property he shall issue to the owner or occupier a notice to cease operation forthwith as Form A in the Eight Schedule to these regulations.

Regulation 28. Machinery operated without certificate.

Where an Inspector finds that there is no current certificate of fitness in respect of any machinery for which a certificate of fitness is prescribed, he shall give a notice in pursuance to section 19 (2) of the Act prohibiting the use of such machinery to the owner. Such notice shall be in Form B in the Eighth Schedule to these regulations.

5.1.1 Issues

Poor administration of the regulations proved to be burdensome to business. There is sometimes delay in approving the application for an extension of CF even though they comply with the application requirements.

The overall process from the submission of application to the approval by the highest authority may sometimes take longer than 6 months.

5.1.2 The objective of Certificate of Fitness

The main objective of the regulation is to ensure that the workplace is safe for workers in accordance with the *Factories and Machinery Act 1967*.

5.1.3 What are the impacts of these regulatory arrangements?

The main implication of the delay in the issuance of CF to business is that there is a period when the petrochemicals manufacturing plant is forced to continue its

operation without a CF. This is a serious concern as it has a direct impact on insurance coverage especially in cases of fire or fatal accidents.

5.1.4 Options to resolve the issues

The following options are put forward to resolve the issue of delay in the issuance of CF

1. Maintain the current approval process
2. DOSH review and re-engineer its entire process in issuing Certificates of Fitness to speed up the process. The implementation of the Special Scheme of Inspection (SSI) will help address this issue. The provision for SSI is already incorporated into the *Factories and Machinery Act 1967* (Section 40 (5)) (Box 5.2) and has been recently approved by the Ministry of Human resources (MOHR).
3. Smart collaboration between petrochemicals manufacturers and DOSH to simplify and speed up the process without sacrificing safety issues. Regular meetings between them could be held to solve issues related to both parties with regard to issuance of CF.
4. Designating a competent staff of the petrochemicals manufacturer as the representative of DOSH at the plant is another possibility that could be considered.
5. DOSH could establish a database on petrochemical manufacturers as reference material for its officers.

Box 5.2

The Factories and Machinery Act 1967 (Revised-1974)

"special scheme of inspection" means an inspection system approved by the Chief Inspector pertaining to periodical inspections for certain classes of machinery and its auxiliary;

Section 40. Periodical inspections

(5) Any factory owner or occupier may apply to the Chief Inspector for approval for a special scheme of inspection.

(6) The Chief Inspector may approve the application under subsection (5) if he is satisfied that the prescribed requirements in respect of the machinery in question in relation to the special scheme of inspection have been fulfilled

(7) Upon the approval under subsection (6), the inspection of the machinery shall be conducted according to the special scheme of inspection

5.1.5 Recommendations

Option 2 would result in shorter and less frequent shutdowns, reducing costs related to direct inspection as well as costs due to loss of production.

5.2 DOSH inspection

Part III of the Factories And Machinery (Notification, Certificate Of Fitness And Inspection) Regulations, 1970, requires inspections of petrochemicals manufacturing facilities by DOSH officers. DOSH carries out an initial inspection of the petrolchemicals manufacturing facilities. This is followed by inspections at regular intervals so long as the plant remains in operation.

Box 5.3 The Factories And Machinery (Notification, Certificate of Fitness and Inspection) Regulations, 1970: Part III- Inspection

Regulation 13. Initial inspection.

An initial inspection of every factory or machinery shall be conducted by an Inspector.

Regulation 14. Regular inspection.

(1) After an initial inspection every factory and every machinery shall be inspected at regular intervals by an Inspector so long as such factory remains in operation or such machinery remains in use.

(2) The regular interval shall ordinarily be fifteen months subject to such extension not exceeding thirty-six months in any particular case as may be authorised by the Chief Inspector in his discretion, and the regular inspection shall ordinarily be carried out during the fifteen months following the month in which the last inspection was made or where the interval has been extended by the Chief Inspector during the month following the expiry of the extended interval.

Regulation 17. Preparation for regular inspection.

The occupier of any factory or owner of any machinery, if not the occupier, shall upon receipt of a notice of intended regular inspection ensure at the due date that such factory or machinery is prepared for inspection in accordance with the following:

(a) In respect of any steam boiler-

(i) that such steam boiler including any economiser and superheater connected thereto is empty, cool and dry and has been thoroughly cleaned inside and outside;

(ii) that all firebars and firebridges have been removed;

(iii) that all smoke-tubes, exterior of water-tubes, furnaces, smoke-boxes and external flues have been thoroughly cleaned;

(iv) that all manhole, handhole and sight-hole doors and cleaning plugs have been removed;

(v) that all caps in the headers and mud-drums of water-tube steam boilers have been removed;

(vi) that all cocks and valves have been dismantled, cleaned and ground where necessary;

(vii) that the steam boiler has been effectively disconnected from any other steam boiler and source of steam or hot water in the manner prescribed therefor; and

(viii) that any special requirements which the Inspector may have specified, in writing on the notice of inspection have been complied with. Such special requirements may be in respect of the drilling of any plates, the removal of any lagging, brick-work or masonry, the preparations for a hydrostatic test of the steam boiler, or its mountings and associated piping, the withdrawal tubes, the verification of the pressure gauge, and the dismantling for inspection of any part of any associated steam engine.

(b) In respect of any unfired pressure vessel, that the preparations as for steam boilers and contained in sub-paragraphs (i), (iv), (vi), (vii) and (viii) of paragraph (a) of this regulation are complied with so far as is appropriate.

(c) In respect of any hoisting machine, that arrangements have been made to enable such hoisting machine to be tested under conditions of maximum safe working load and so as to cause all safety devices to function.

(d) In respect of any other machinery, that arrangements have been made, so far as practicable, to operate any driven machinery under maximum load and to have all safety devices in proper working order.

(e) In respect of factory premises that arrangements have been made, so far as practicable, to have such premises clean and tidy, and have a readiness all such means and appliances for safe access, as requested by an Inspector, as to facilitate good and proper inspection in

accordance with the provisions of the Act and the appropriate regulations made thereunder.

Regulation 19. Supplementary inspection- steam boilers and unfired pressure vessels.

(1) In addition to the initial and regular inspection prescribed an Inspector shall make a supplementary inspection of every steam boiler and unfired pressure vessel within a period of three months subsequent to the date of the initial and of every regular inspection, except that in the case of any unfired pressure vessel not under pressure of steam such supplementary inspection may be made as and when the Chief Inspector may direct.

(2) The owner of every steam boiler or unfired pressure vessel shall ensure, during any supplementary inspection, that conditions of maximum working pressure are maintained.

(3) An Inspector shall give reasonable notice to an owner, in writing, of his intention to make a supplementary inspection, in Form B set out in the Seventh Schedule to these regulations.

(4) No fee shall be charged for a supplementary inspection.

5.2.1 Issues

Manufacturers complain that there is poor enforcement and administration of regulations due to inadequate and inexperienced resources of regulators. There are only ten state DOSH officers who are certified to carry out inspection of manufacturing facilities. These same officers also carry out inspection of all manufacturing plants and industrial workplaces in the state.

Businesses also complain of high turnover of DOSH officers. New officers are usually inexperienced, which is a matter of concern.

5.2.2 The objective of DOSH inspection

The main objective of the regulation is to ensure that the workplace is safe for workers in accordance with the *Factories and Machinery Act 1967*.

5.2.3 What are the impacts of these regulatory arrangements?

Inexperienced officers and inadequate resources contribute to poor quality of inspection which may affect the safety of workplace and hence the safety of workers and others.

5.2.4 Options to resolve the issues

The following options are recommended as solutions for the issue of DOSH inspection

1. DOSH studies the needs and workloads of its workforce
2. DOSH adopts risk-based inspections, the Special Scheme of Inspection (SSI) so that only high risk business facilities and machinery receive the frequent and stringent inspections. The provision for SSI is already incorporated into the Factories and Machinery Act 1967 (Section 40 (5)) (Box 5.2) and has recently been approved by the Ministry of Human Resources (MOHR).
3. DOSH improves inspection and technical competencies of its workforce through qualifications, training and continuous learning programme.

5.2.5 Recommendations

Option 2 would provide the basis for allocating inspection resources by prioritising inspections so that potentially high risk areas undergo more effective and more comprehensive inspection, while low risk areas are inspected accordingly. The overall cost of inspection would also be reduced.

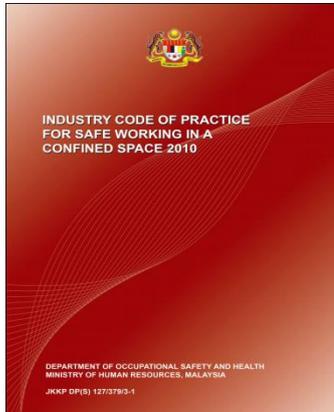
Option 3 would ensure that inspection resources are competent to carry out their duties.

5.3 Authorised Gas Tester

The Industry Code Of Practice For Safe Working In A Confined Space 2010 was issued by DOSH. The governing act is the *Occupational Safety and Health Act 1994*. The main objective of the industry code is to provide guidance for the safety and health of all persons who need to enter or work in confined spaces.

Box 5.4 Industry Code of Practice

Box 5.4 Industry Code of Practice



“This industry code of practice is intended to provide guidance for the safety and health of all persons who need to enter or work in confined spaces by preventing exposure to hazards which may otherwise be experienced when working in a confined space, and thereby prevent collapse, injury, illness or death arising from exposure to those hazards.”

This industry code of practice shall apply to works in a confined space.

- *This industry code of practice shall not apply to underground mining or works in a space at other than atmospheric pressure.*
- *For the purpose of this industry code of practice, a person whose head or upper body is within a confined space is considered to have entered the confined space*

‘Confined space’ is defined as an enclosed or partially enclosed space that is at atmospheric pressure during occupancy and is not intended or designed primarily as a place of work, and

a) is liable at any time to –

- (i) have an atmosphere which contains potentially harmful levels of contaminants;*
- (ii) have an oxygen deficiency or excess; or*
- (iii) cause engulfment; and*

b) could have restricted means for entry and exit.

The following are some examples of confined spaces –

- a) storage tanks, tankers, boilers, silos and other tank like compartment usually*

having a manhole for entry;

b) open-topped spaces such as pits or degreasers;

c) pipes, sewers, tunnels, shafts, ducts and similar structures; and

d) any shipboard spaces entered through a small manhole, cargo tanks, cellular double bottom tanks, duct keels, ballasts and oil tanks.

The following are some examples of the activities in a confined space –

a) cleaning of sludge and other waste materials;

b) inspection of the physical integrity of process equipment;

c) maintenance, including abrasive blasting and application of surface coatings;

d) repair, including welding, modification and adjustments to mechanical equipment;

e) rescue of workers who are injured or overcome inside the confined space; and

f) construction purposes;

According to the industry code of practice, workers working in a confined space need to undergo a training programme on “safe working in a confined space” and pass an examination before they are allowed to work in the area. Currently the training programme is provided either by the National Institute of Occupational Safety and Health (NIOSH) or approved training providers.

Authorised Gas Testers are competent persons who carry out atmosphere tests for confined space. As such, they have to attend the training programme and pass the examination. In addition, they must also be registered as a Competent Person with DOSH. Authorised Gas Testers have to undergo a refresher course every two years using the module approved by the Director General of DOSH.

Box 5.5 Training’s objectives and admission requirements

Authorised Gas Tester And Entry Supervisor

1. Objectives

The test is conducted to test the candidate's level of understanding of working in a

confined space, understand the methods of the correct use of breathing apparatus and be able to test gas.

2. Admission.

a. Must be able to read and write in Malay or English language; and

b. Has attended Authorised Entrant and Standby Person courses conducted by NIOSH or other training provider recognized by DOSH and passed the prescribed examination (conducted by NIOSH); and

c. Has attended Authorised Gas Tester and Entry Supervisor courses conducted by NIOSH or other training provider recognized by DOSH; and

*d. Have at least SPM or equivalent qualifications and credits in science or at least a **grade C in science subjects**; and*

*e. Have at least **5 years work experience** related to the confined space*

5.3.1 Issues

Prior to the introduction of the industry code of practice in 2010, experienced staff could be enrolled into the training programme conducted by NIOSH to become an Authorised Gas Tester. However the new requirement imposes a minimum grade C for science in Sijil Pelajaran Malaysia (SPM) on existing and potential Authorised Gas Testers.

5.3.2 The objective of these regulatory arrangements

It is likely that the requirement of grade C for science in SPM is to ensure that the personnel have the appropriate intelligence and sufficient basic knowledge to deal with gas works.

5.3.3 What are the impacts of these regulatory arrangements?

Experienced Authorised Gas Testers, who do not possess SPM grade C for science subject, are no longer allowed to carry out the job. It is not only a waste of resources but also a burden on businesses as they have to hire new staff and send them for

training. In the meantime they have to redeploy the existing Gas Testers. This results in the increase in the operational cost of doing business.

5.3.4 Options to resolve the issues

The following options are suggested as means to resolve the issue of Authorised Gas Tester

1. DOSH studies on the new requirement of SPM grade C for Science existing Authorised Gas Testers. One suggestion is to incorporate a study on the correlation between the occurrence of accidents and Authorised Gas Testers without grade C in the science subject.
2. DOSH allows those without grade C in Science but have passed the examination to continue work as Authorised Gas Testers.
3. Maintain the current practice

5.3.5 Recommendations

Option 2 is recommended as it is more practical to implement and ensure fairness to those who have passed the examination prior to this new regulation.

5.4 Person in charge

The Factories And Machinery (Person-In-Charge) Regulation 1970 requires that a competent person be in charge of machinery.

Box 5.6 **The Factories And Machinery (Person-In-Charge) Regulation 1970**

Part I - machinery required to be in charge of persons holdings certificates of competency

Regulation 3. Machinery requiring certificated person in charge.

Pursuant to section 29 (2) of the Act, a person in charge of any steam boiler, steam engine, internal combustion engine or dredge shall, except as provided hereafter, hold an appropriate certificate of competency prescribed by these Regulations.

Regulation 5. Steam boilers and engines not a dredge.

(1) This regulation shall apply to steam boilers and steam engines not installed on a dredge and in this regulation-

"driver" means the holder of a driver's certificate of competency for steam boilers and steam engines;

"engineer" means the holder of an engineer's certificate of competency for steam boilers and steam engines;

"heating surface" means, in respect of any steam boiler, the total surface of all plates and tubes exposed to heat on one side and in contact with water on the other, measured on the water or fire side, whichever is the greater, and excluding the heating surface of any economiser and super heater connected thereto;

"visiting engineer" means the holder of an engineer's certificate of competency for steam boilers and steam engines who is employed by an owner to make periodical visits to and inspections of, his machinery.

(2) (i) Where the heating surface of a steam boiler, or the aggregate heating surface of steam boilers connected to a common range, is **five hundred square feet or less**, a **first or second grade driver shall be in charge** of such boiler or boilers during each shift; and

(ii) Where **more than one steam boiler** is connected to a common range or there is more than one associated steam engine, **the driver in charge shall be assisted** during each shift **by other first or second grade drivers** sufficient to ensure that including **the driver in charge there shall not be more than two steam boilers or two steam engines or one combined steam boiler and steam engine to each driver.**

(3) Where the heating surface of a steam boiler, or the aggregate heating surface of steam boilers connected to a common range, is **greater than five hundred square feet but not greater than two thousand square feet**, a first grade driver shall be in charge of such boiler or boilers during each shift, and the provisions of paragraph (2) (ii) shall apply.

(4) Where the heating surface of a steam boiler, or the aggregate heating surface of steam boilers connected to a common range is **greater than two thousand square feet but not greater than five thousand square feet**, a first grade driver shall be in charge of such boiler or boilers during each shift, and the provisions of paragraph (2) (ii) shall apply. In addition the owner shall employ a first or second grade visiting engineer who shall comply with the provisions of regulations 10, 11 and 12.

(5) (i) Where the heating surface of a steam boiler or the aggregate heating surface of steam boilers connected to a common range, is **greater than five thousand square feet but not greater than ten thousand square feet**, a first or second grade engineer shall be in charge of such boiler or boilers; and

(ii) where more than one steam boiler is connected to a common range or there is more than one associated steam engine, the engineer in charge shall be

assisted during each shift by such first grade drivers as shall be sufficient to ensure that there shall not be more than two steam boilers or two steam engines or one combined steam boiler and steam engine to each driver.

5.4.1 Issues

The Factories And Machinery (Person-In-Charge) Regulation 1970 unnecessarily constrains how companies use their competent persons. For example, it specifically indicates that competent persons carry out specific roles based on specific heating surface of and quantity of steam boilers.

Some big companies have several petrochemicals manufacturing set ups. Instead of having a specific team of staff for each set up, they want to use the same people as a support services unit to a number of manufacturing set ups and thus reduce costs.

Furthermore, with the advance in technology, managing the performance of the petrochemical facilities and machinery can be conducted with fewer people.

5.4.2 The objective of person in charge

The main objective of the regulation is to guarantee a safe working environment by ensuring that business has adequate number of competent persons to manage the facilities and machinery, and thus ensure safety.

5.4.3 What are the impacts of these regulatory arrangements?

The regulatory arrangements constrain business from reducing the cost of business. Business wants to employ proven techniques in managing their facilities and machinery to both ensure safety and maintain their competitiveness.

5.4.4 Options to resolve the issues

The following options are recommended as means to resolve the issue of person in-charge

1. DOSH studies the regulation with regard to the requirement of specific competent persons for each manufacturing set-up by taking into consideration “performance-based” and/or “risk-based approach”.
2. DOSH carries out comparative studies with the objective of determining best practices.
3. DOSH allow companies to apply for an exemption from the requirement on a competent person.

5.4.5 Recommendations

DOSH has confirmed that there is already a provision for Option 3. It is suggested that DOSH communicate the option to companies and provide a clear guideline on how companies can qualify and apply for such exemption.