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REPAIRS/MODIFICATIONS OF STATUTORY PRESSURE VESSELS AND PRESSURE PIPING.

Introduction

- 1 Currently, all survey of repairs or modifications of statutory pressure vessels are carried out by the Department of Industrial Safety (DIS).
- 2 There are occasions where pressure vessels require only minor repairs or modifications. In which case the turnaround time could be very short. Under such circumstances the DIS would consider allowing owners of such pressure vessels to engage private Authorised Boiler Inspectors or authorised local inspection agencies to carry out these minor repair or modification surveys.
- 3 The type of minor repairs/modifications to statutory pressure vessels (PV) and pressure piping that may be surveyed by the private Authorised Boiler Inspectors or authorised local inspection agencies are listed in Appendix I.

Type of repair/modification permitted

- 4 Appendix II and III lists the authorised local inspection agencies and private Authorised Boiler Inspectors permitted to survey minor repairs and modifications to pressure vessels and pressure piping, respectively
- 5 All repairs/modifications other than those listed in Appendix I must be surveyed by an Inspector from the Department of Industrial Safety.

Application procedure

- 6 An owner intending to carry out any of the repair or modifications listed in Appendix I, shall write to inform the DIS of :
 - (a) the type of modification or repair that is to be carried out;
 - (b) the name of the private Authorised Boiler Inspector or authorised local inspection agency that has been appointed to carry out the survey (including the name of the inspector from the agency);
 - (c) the repair/modification proposal, which shall comprise the following:
 - i) Repair/modification design review, and drawings checked and endorsed by a Professional Engineer who has experience in the design of pressure vessel or pressure piping as applicable; and
 - ii) Detailed repair or modification procedure, including any NDT and other testing requirement. This shall be checked and approved by the private Authorised Boiler Inspector or authorised local inspection agency that has been appointed to carry out the survey.
- 7 The owner may fax the proposal to the Chief Inspector at facsimile number 5935261.
- 8 **However, the owner shall not proceed with the repair/modification without the written approval of the Chief Inspector.**

Nature of interventions by private Authorised Boiler Inspector or authorised local inspection agency

- 9 The private Authorised Boiler Inspector or authorised local inspection agency appointed to carry out the repair/modification survey must perform the following inspections/interventions:
 - (a) Review repair/modification calculations and drawings
 - (b) Review welding procedure specification and procedure qualification records
 - (c) Review welders' qualification
 - (d) Review qualifications of personnel conducting NDE
 - (e) Review Non Destructive examination procedures
 - (f) Review Non Destructive examination results
 - (g) Witness hydrostatic pressure tests
 - (h) Put up a report on the repair/modification survey carried out. The report shall state:
 - i) the cause of the damage or defect that led to the repair/modification;
 - ii) any other defects found while the repair/modification was in progress; and
 - iii) a declaration that the repair/modification is in compliance with code and regulatory requirement.

Reports

- 10 On completion of the repair or modification of a pressure vessel, the pressure vessel must be inspected/examined by an Authorised Boiler Inspector before being used.
- 11 If the above repair/modification is surveyed by an authorised local inspection agency, the owner must also engage an Authorised Boiler Inspector to inspect the pressure vessel and issue a Report of Examination in accordance to the requirements of the Factories Act.

- 12 If the repair/modification is surveyed by a private Authorised Boiler Inspector, he may issue the Report of Examination in accordance to the requirement of the Factories Act, after the survey is completed (and the survey report issued in Paragraph 9).
- 13 The survey report generated by the private Authorised Boiler Inspector or authorised local inspection agency (in paragraph 9) must be submitted to the Chief Inspector within 14 days of completion of the repair/modification.
- 14 Thank you.

KEITH DE SILVA

For CHIEF INSPECTOR OF FACTORIES

Repairs and modifications that can be surveyed by authorised local inspection agencies and private Authorised Boiler Inspectors

- I. Plugging or replacement of 2% (or less) of total number of tubes in a PV;
- II. Repair of a single crack of length 50mm or less on nozzles or shell;
- III. Replacement/addition of nozzles with diameter of:
 - a) 89 mm or less in vessels with heads or shells of thickness 9.5mm or less;
 - b) 60 mm or less in vessels with heads or shells of thickness more than 9.5mm.
- IV. Re-expansion/beading of tube ends;
- V. Relaying/replacement of refractory;
- VI. Steam piping (design pressure of 35 bar or less).

List of authorised local inspection agencies approved to carry out survey of minor repairs and modifications to pressure vessels and pressure piping (as of 30 Jul 99).

1. Bureau Veritas
2. Llyod's Register Industrial Division
3. ABS Industrial Verification
4. SGS

List of private Authorised Boiler Inspectors approved to carry out survey of minor repairs and modifications to pressure vessels and pressure piping (as of 30 Jul 99).

1. Cheong Kai Wah
2. Leong Yee Thye
3. Mohd Nasser
4. Quak Ser Khoon
5. Philip Tan
6. Jimmy Toh