

Guidelines to Establish the Chief Engineer's Responsibility

N.J.A.C. 12:90 Boiler Pressure Vessel and Refrigeration Rules

JULY 10, 2013

INTRODUCTION

The Boiler, Pressure Vessel and Refrigeration Rules, New Jersey Administrative Code (N.J.A.C.) 12:90 is promulgated under the Boiler, Pressure Vessel and Refrigeration Law (BPVRL) of the New Jersey Statutes Annotated (N.J.S.A.) 34:7.1-20, 34:1-47, 34:1A-3, and 34:7-18. This law creates the Mechanical Inspection Bureau, Boiler and Pressure Vessel Compliance (MIBBPVC), the licensing, inspection laws, specifies the creation of a Rules Board, the creation of regulations, details accountability for owner, users, and others, as well as the punitive consequences for failure to comply (N.J.S.A. 34:7-6; N.J.S.A. 34:7-26). It puts responsibility on the MIBBPVC as the custodian that enforces the law and regulations.

Under the regulatory provisions of N.J.A.C. 12:90-3.9 the Designated Chief Engineer (DCE) is the person who supervises or takes the lead over one or more licensed operators of high-pressure boilers built to the American Society of Mechanical Engineers (ASME) Code Section 1 for Power Boilers or Section VIII, Division 1. This equipment and the balance-of-plant (BOP) equipment is utilized in a facility that is commonly called a power plant, cogeneration plant, physical plant, boiler plant, steam plant, heating plant or merely the boiler room. This document is not specific to any plant or equipment and cannot cover all possible aspects and levels of complexity necessary to operate the various types of plants found in operation today, however it will provide the core requirements that must be adhered to by the DCE.

A DCE is also required for high-pressure refrigeration plants when the refrigerant is of a class identified in the MIBBPVC Refrigeration Advisory¹. The DCE must be a full-time employee whether a direct hire or under contract with a company. Full-time control means the DCE is present and is accountable to management and maintains the level of responsibility encompassed by the term Chief identified and outlined in the MIBBPVC regulations. Management must designate this position and appoint a highly qualified individual licensed by the MIBBPVC, that may already be working as a Plant Engineer, Facilities Manager, Lead Stationary Engineer, as a Shift Engineer, Shift Supervisor, Lead Refrigeration Engineer or Lead Operator.

CORE DETAILS FOR THE DCE AND OWNER

Under the provisions of N.J.A.C. 12:90-3.9 (a) to “establish responsibility for operations” the designated DCE and equipment owner should utilize this guideline to identify and stipulate the duties and responsibilities of the individual holding this key position. The appropriately licensed DCE is designated, appointed by the owner, and shall take all reasonable measures to ensure the safety of personnel and the safe operation of the plant, for which overall responsibility is assigned. In addition, the DCE must assure conformance to the Boiler, Pressure Vessel and Refrigeration Rules and accepted engineering safety practices that include the consensus Codes and Standards adopted by the MIBBPVC. The designation of the DCE shall be on the owner’s letterhead and be kept on file with a copy sent to the MIBBPVC. When any management or organization change takes place, the MIBBPVC must receive an updated DCE designation letter.

The DCE reports to the owner of the equipment who has the ultimate responsibility to ensure compliance with the MIBBPVC regulations. The owner shall at no time pressure the DCE or the plant personnel to put economics over the safety of plant personnel or the safe and efficient operation of the boiler plant, pressure vessels or the refrigeration plant systems. The following guideline describes for the owner various activities which the designated DCE must be able to perform, and which must be allowed to comply with the Boiler, Pressure Vessel and Refrigeration Rules, Regulations and Law.

The MIBBPVC recognizes that the role of the DCE will vary significantly from plant to plant and is dependent upon the actual plant size, type of plant, the complexity of the plant, and in may be limited by the certifications, knowledge, education, training, and skill of the individual designated. However, the competency and the technical ability of the DCE must be consistent and relevant for the plant operation. To ensure the safety of personnel and safe plant operation, the equipment owner must secure appropriately skilled engineering, mechanical, and electrical personnel to support the DCE and facility operation.

The specific duty and responsibility given a Chief Engineer includes, but is not limited to, the following details:

1. The DCE shall ensure the mechanical integrity of the equipment in the plant and that the overall operation of the plant is in accordance with the regulations, original equipment manufacturers’ (OEM) specifications and industry accepted engineering safety practices.
2. The DCE must be fully capable of directing and taking the appropriate and necessary corrective action to protect personnel and safeguard property to prevent a hazardous or potential catastrophic event whenever possible.
3. The DCE must be fully capable of communicating orally and in writing and able to communicate with the licensed engineers, boiler operators and equipment owners daily. The DCE must recognize unsafe conditions or anomalies in the plant and be fully capable of providing the necessary corrective action.

4. The DCE must ensure a sufficient number of Stationary, Power Generation, Refrigeration Engineers, and Boiler Operators are hired, and they must hold the appropriate license specified by N.J.A.C. 12:90 for their plant. The DCE shall ensure personnel are properly trained, are competent, with the pertinent and proven knowledge in the operation of the plant. The DCE may contact the MIBBPVC whenever guidance is needed to ensure compliance, in addition to the following:
 - a. Any employee that is newly hired, promoted, or is working on a temporary basis as a shall have documented evidence of training signed by the DCE prior to working on shift as the Attending Licensed Operator (ALO).
 - b. Develop a program to ensure proficiency training of personnel and develop a checklist that details items essential to the proper functioning of the equipment, plant operations and maintenance needs. The training must include the balance of plant, all connected or integral systems that could directly or indirectly impact plant safety and operation.
 - c. Develop written operations policy, procedures and shift instructions detailing pertinent plant operations, notices, conditions shall be readily available for viewing by all employees.
 - d. The DCE must ensure that all training conducted in the boiler room is recorded in the logbook as required by N.J.A.C. 12:90, and that the company maintains a permanent record of the training.
 - e. The DCE must ensure that all plant personnel and employees who must enter any plant falling under the jurisdiction of the MIBBPVC shall immediately notify the DCE and the ALO on duty at the time of the entry. The ALO must log and identify all activity being conducted in the plant including but not limited to the reason for the visit, the name of the person, the name of new trainees, service contractors, in-house maintenance activity and include the duration of the visit.
 - f. Entry of non-licensed personnel - If anyone entering the plant falling under the jurisdiction of the MIBBPVC does not cooperate with the on duty ALO, adjusts or manipulates a control or device without the approval of the DCE or the on duty ALO, they could be liable to a fine in accordance with N.J.S.A. 34:7-6 and N.J.S.A. 34:7-26. The DCE shall ensure the on duty ALO notes any infractions in the logbook.
5. The DCE, along with management support, must provide essential remedial training of operators in the interest of safety. All such remedial and proficiency training must be documented and maintained on file by the company.
6. The DCE must ensure adequate shift coverage and that all licensed operators communicate shift change issues so as not to compromise safety and the mechanical integrity of the plant.
7. The plant owner and the DCE must ensure that a person with the appropriate class of license is designated to act in their place when there is an absent from the plant for more than 96 hours. If a DCE with the appropriate license classification is not available, the MIBBPVC may allow the appointment of an engineer holding a license one grade lower than what is required upon notification in writing that such a situation exists. See N.J.A.C. 12:90-3.9(e).

8. The DCE must ensure that the shift coverage meets the requirements specified by the MIBBPVC regulations. The DCE and/or Management shall post the shift roster for proper plant operations and appoint an ALO for each shift.
9. The DCE must ensure the owner is aware of the statutory mandate regarding liability for failure to comply with the Licensing and Inspection Law under the provisions of N.J.S.A. 34:7.6 and N.J.S.A. 34:7.26 respectively.
10. The DCE must provide all necessary written instructions to the plant personnel (licensed engineers and operators). The DCE must also ensure the licensed operator's daily logbook indicates the designation of DCE and includes the date of the appointment.
11. The DCE must ensure the facility and owner maintain applicable sections of the Boiler, Pressure Vessel and Refrigeration Regulations, applicable Codes and Standards, instructions and standard operation and maintenance procedures.
12. The DCE must notify the plant owner and the MIBBPVC immediately in the event of an accident involving pressure equipment under the jurisdiction of the MIBBPVC and provide a signed written report of the incident to the MIBBPVC.
13. The DCE must ensure that the operating experience being obtained by engineers and operators seeking to upgrade from one class of certificate to another is appropriate and that a record of time and accumulated experience is logged and that proof in the form of documentation of such training is permanently recorded on file for the duration of their employment and no longer than seven years from their departure to ensure compliance with N.J.A.C. 12:90-8.1 (c).
14. For validating operating experience for licensing, the DCE shall issue upon request, to a person who has obtained operating and other relevant experience, documentation verifying that experience while working within a plant.
15. As necessary, the DCE shall review daily logbook entries and when read, verify by signing and dating the logbook at the time of review. The DCE may maintain a separate personal handwritten or electronic task list or journal entry to assist them in the performance of their duties.
16. The DCE must post, in a conspicuous place on the premises, or in the plant office the Certificates of Inspection of the equipment and the Engineer and Operators licenses as required under the MIBBPVC regulations.
17. The DCE must record plant operational, maintenance, service and repair incidents. For predictive and preventive purposes, document all relevant issues that could or will affect plant safety or the operational readiness of the plant.
18. The DCE must ensure contractors or in-house maintenance personnel provide notification to the DCE when they are required to enter the plant to perform work. The DCE must ensure entry into the operations area of the plant is controlled and restrictive for the protection of the

contractor and facility operators. Written procedures shall indicate that the contractor must report to the Stationary Engineer or Operator on duty when the work scope involves any systems that directly or indirectly affect plant integrity or operation.

19. The DCE must meet all pertinent industry specific safety practices to isolate and secure equipment.
20. The DCE must document and maintain all staff training and ensure licensed operators are qualified on the specific equipment found at the facility. The DCE must also provide and maintain written procedures for start-up, shutdown, normal, and emergency operating conditions.
21. The DCE must review and when necessary, revise all written policies and procedures annually and communicate changes by written notification and confirmation to facility personnel.
22. The DCE must ensure that all necessary safety inspection checks and observations shall be made by all engineers, operators, trainees, apprentices, and helpers working within the plant and that hold or will hold a valid license issued by the MIBBPVC. The checks, inspections and observations shall include, but are not limited to the following:
 - a. Visible indications on a pressure-retaining items that shows discoloration of the metal or insulation due to excessive heat.
 - b. Visible distortion of any part of the pressure retaining item.
 - c. Obvious leakage from any pressure-containing boundary on the vessel that includes but is not limited to all pressure retaining equipment within the plant, all ancillary, integral systems, connected systems monitored, pumps, piping, fittings, valves, devices, controls, gauges, instrumentation, found within the plant or that is outside the plant that could have a direct or indirect impact on the operation or load within the plant.
 - When a steam or water leak is seen by the licensed operator it shall always be reported and detailed within the boiler plant, facility, maintenance and other logbooks.
 - Leaks shall not be allowed to persist without appropriate corrective action taken. Repair dates can coincide with plant outages provided an imminent threat to life does not exist. Appropriate safety measures should be used to isolate a leak when possible.
 - Specific repairs dates should be determined, logged, and indicated by the DCE records, who may work out a shutdown plan to repair leaks with the maintenance engineer/manager.
 - The DCE must ensure that all leaks continue to be logged by every shift operator until repairs have been made.
 - d. Visible or suspected indications of internal corrosion or erosion or external corrosion due to environmental conditions.
 - e. Visual observations and reports shall include but not be limited to all components, systems, accessories, pumps, piping, compressors, controls, valves, and processes in the plant including all water treatment systems.

23. The DCE must ensure installation, repair, service and maintenance of boiler, pressure vessel and refrigeration systems are in accordance with the rules, regulations and the Codes and Standards adopted by reference. The DCE must work directly with and assist the Maintenance Manager or similar position for all work activity performed on the plant systems, BOP, piping and other integral components under DCE control and area of responsibility.
24. The DCE must ensure all controls, devices, components, or systems are properly calibrated, serviced, repaired, and replaced and that all function properly in accordance with the OEM specifications and the codes and standards adopted by reference.
25. The DCE must ensure compliance of the controls and safety devices to the specifications and testing established by the manufacturer of the device and in the ASME Controls and Safety Devices (CSD)-1 for boilers up to 12,499,000 Btu/Hr fuel input and the National Fire Protection Association (NFPA) 85 for boilers 12,500,000 Btu/Hr fuel input and higher.
26. The DCE must ensure that appropriately licensed and qualified personnel repair, replace and maintain the electrical switchgear, relays, and components in accordance with accepted engineering and safety practices. The DCE must also properly document and maintain all diagnostic, service and calibration records and ensure accessibility for review by regulatory inspectors.

SUMMARY

Anyone who owns, uses, operates, installs, services, repairs new or used equipment falling under the jurisdiction of the MIBBPVC, is held responsible to be familiar with the BPVRL, the regulations N.J.A.C. 12:90, and the codes and standards adopted and incorporated by reference which include engineering specifications that provide detailed requirements that include but is not limited to equipment manufacturing, fabrication, assembly, installation, repair, alteration, maintenance, and operation.

Proper use of this document will assure uniformity of operation for the industries that fall under the jurisdiction of the MIBBPVC. The Designated Chief Engineer (DCE) must assure compliance with the MIBBPVC regulations. Proper implementation of this guideline enhances existing management policy, contracts, or agreements and it provides reasonable measures for plant operation under the control of a qualified DCE.

To Contact the Examining Board of the
Mechanical Inspection Bureau of Boiler and Pressure Vessel Compliance

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¹MIBBPVC Bulletins, Alerts and General Information:
<https://www.nj.gov/labor/lse/content/bbpvc.html>

N.J.S.A. 34 and N.J.A.C. 12:90 website link:
https://www.nj.gov/labor/lse/laws/Laws_and_Regulations.html