

FESHM 5031.8 Boilers

Revision History

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1.0 INTRODUCTION AND SCOPE

Boilers pose a potential hazard to equipment and personnel from rupture, explosion, hot water or steam release. This chapter specifies the procedure to be followed in purchasing, testing, inspecting and operating boilers to reduce hazards.

This chapter applies to any boiler used at Fermilab that falls within the scope of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC), Section IV.

2.0 DEFINITIONS

The Code - ASME BPVC, Section IV. The latest revision of the ASME BPVC shall be applied to a given boiler at the initiation of the boiler procurement.

Qualified Person - A person who, by possession of a recognized degree or certificate of professional standing, or who, by extensive knowledge, training and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

3.0 RESPONSIBILITIES

FESS is responsible for carrying out the requirements of this chapter and shall:

1. Arrange for procurement of any new boiler on the Batavia site.
2. Arrange for testing and inspections of all boilers at the Batavia Site in accordance with Illinois Compiled Statutes (430 ILCS 75) and Illinois Administrative Code (IAC Title 41 Chapter 3 Part 2120 Boiler and Pressure Vessel Safety) requirements as required by the FRA-DOE contract.
3. Certify Boiler compliance with this chapter before placing boiler in service and operating the boiler.
4. Maintain documentation for each boiler, and the inspection history of each boiler.

The ES&H Section shall:

1. Audit FESS on their compliance with this chapter.

The Mechanical Safety Subcommittee (MSS) shall serve the division/section/project heads and Environment, Safety and Health, (ES&H) organization in a consulting capacity on all boiler matters.

4.0 PROCEDURE

1. *FESS's Current Process:* All heating (supply) boilers shall be inspected once every 3 years in accordance with Illinois Compiled Statutes (430 ILCS 75) unless the hot water heating (supply) boiler is operated at a pressure not in excess of 30 psig and having a rating not in excess of 200,000 BTU per hour. FESS engineering shall be notified of any change to the operation, piping, and valving made to an existing boiler.
2. *Purchasing of new boilers:* Prior to the purchase of a new boiler the desired boiler must be approved by FESS engineering to insure its adherence to ASME Boiler and Pressure Vessel Code IV. It is FESS engineering's responsibility to create an engineering note for the desired boiler and upload it to TeamCenter. FESS engineering is also responsible for the initial logging of the boiler into the Fermilab Relief Device Database (FRDD) in which the engineer should also link the TeamCenter engineering note too.
3. *Boiler Marking:* For hot water boilers each shall have at least one safety relief device of the automatic reseating type with the certifying mark V or HV. The safety relief valve shall be set to relieve at or below the MAWP of the boiler. For boilers other than hot water boilers or boilers with 2 or more safety relief valves refer to ASME Boiler Pressure Vessel Code IV, Article 4 for proper marking and valve type/setting requirements. After the creation of an engineering note and the approval of the note by ES&H a silver sticker provided by ES&H shall be issued and placed on the outside of the boiler. The silver sticker signifies that both the boiler and its associated safety relief devices are in adherence to ASME Boiler Pressure Vessel Code IV.
4. *Boiler Testing Inspection Records:* It the responsibility of FESS Operations to ensure the appropriate testing of the safety relief devices is completed in accordance with Illinois Compiled Statutes (430 ILCS 75), Illinois Administrative Code (IAC Title 41 Chapter 3 Part 2120 Boiler and Pressure Vessel Safety), and ASME Boiler Pressure Vessel Code IV. Upon completion of the appropriate testing FESS Operations will log the completed testing into the FRDD keeping it up to date. FESS operations is permitted to use any additional logging system they see fit but the FRDD must be kept up to date in regard to when relief device inspections/testing occur and of all changes to the relief devices.
5. *Boiler removal from service:* If any corrosion is observed in the boiler stop the use of the boiler immediately. Metallurgical testing should be done to ensure the structural integrity of the boiler before continued use. A good indicator of corrosion in a boiler is the appearance of rust in the water gauge glass. Follow the instructions noted in ASME Boiler Pressure Vessel Code Section VI, article 9.6 when removing a boiler from service.