

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety & Health
Pressure Vessel Unit
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Circular Letter PV-2015-1

February 19, 2015

Subject: Steam Boilers

To Whom It May Concern:

It has come to the attention of this office that there are steam boilers being used for sterilization and cleaning of equipment by employers in the winery and other industries that do not conform to the California Code of Regulations (CCR) Title 8 Subchapter 2 Boiler and Fired Pressure Vessel Safety Orders <http://www.dir.ca.gov/Title8/sub2.html>.

Title 8 § 754 requires that "All new power boilers and high temperature water boilers shall be constructed, inspected, and stamped in full compliance with the applicable sections of the Code, unless the design and construction of the boiler are accepted by the Division as equivalent to Code." § 753 defines *Code* as "The applicable sections of the ASME Boiler and Pressure Vessel Code and of the ANSI Standards." and a *Power Boiler* as "Steam boiler operated at pressure exceeding 15 psi."

Any steam boiler used in a place of employment is required to meet the ASME Section I Power Boiler Code. This Code provides details for acceptable types of materials used for construction, the method of welding, engineering design calculations, non-destructive examination of the boiler, inspection during fabrication, a final pressure test, proper documentation, and the installation of the appropriate appurtenances and safety relief devices and controls on the finished boiler. If the boiler is large enough, it may also require a permit to operate issued by our department and operation by a competent attendant.

A boiler can be identified as ASME Code constructed if there is a nameplate with the ASME Code symbol (a half inch size cloverleaf with a diagonal ASME or an "S" in the middle) stamped in the upper left corner. The boiler will also have a Manufacturer's Data Report (MDR) that provides the specific details describing the boiler. This would include a unique manufacturer's serial number, a National Board number, maximum allowable working pressure, type of boiler, pressure retaining thickness values, and other pertinent information. The MDR can be thought of as the boiler's unique "birth certificate".

The use of austenitic stainless steel in the construction of a steam boiler is prohibited, except for very specific design conditions, due to the susceptibility of the material to intergranular corrosion and stress corrosion cracking in water wetted service. These



degradation mechanisms may result in a catastrophic failure of the boiler. A boiler designed and stamped in accordance with the ASME Code will take these operational conditions into consideration.

The California Labor Code §'s 7750, 7770, and 7771 detail the offenses that may result in either a misdemeanor or felony for the mismanagement of steam boilers.

California Code of Regulations (CCR) Title 8 Subchapter 2 §753 provides an exemption from the ASME Code construction requirements for "coil-type steam vapor cleaners". These cleaners are defined as follows:

Coil-type steam vapor cleaners need not be considered as boilers provided all of the following conditions are complied with:

The largest nominal pipe or tubing size is 3/4," and has no drums or headers attached. They shall be built to good engineering practice with a factor of safety of at least 4.

The nominal water containing capacity does not exceed 6 gallons.

A non-adjustable high limit temperature control shall be set to operate at or below 350°F.

Steam is not generated within the coil.

A safety valve set at or below the stamped maximum allowable working pressure, with relief capacity at least equal to the BTU output of the burner, shall be installed near the outlet.

The burner shall have a safety pilot mechanism installed by the manufacturer that will shut off the fuel to both the main burner and pilot burner in case of failure of the pilot burner or of the spark ignitor. The maximum time until the fuel valve is fully closed shall be 90 seconds for burners not exceeding 400,000 BTU/hr input.

Please contact this office if you need further information.

Sincerely,

A handwritten signature in cursive script that reads "Donald C. Cook".

Donald C. Cook
Principal Safety Engineer