

SAFETY AND HEALTH STANDARDS

PRESSURE RETAINING EQUIPMENT AND PRESSURE RELIEF DEVICES

Effective Date: 11/1/18

Standard: 16.14

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16.14.1 **PURPOSE**

The purpose of this standard is to identify the statutory and code requirements associated with pressure retaining equipment and pressure relief devices at Rio Tinto Kennecott Company (RTKC). These items, and their care and maintenance, are regulated by the State of Utah Labor Commission, Utah Occupational Safety and Health (UOSH), and Mine Safety and Health Administrations (MSHA). Adherence to this standard, and the associated codes, is directly related to Critical Risk Management and the asset integrity of RTKC equipment.

16.14.1.1 **Pressure retaining equipment (PRE)**

For the purpose of this standard all equipment that is designed and installed to American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME BPVC) is included. This equipment is designed with a maximum allowable working pressure (MAWP) at or above 15 psig, as stamped on the equipment nameplate. Select PREs are exempt from the initial commissioning inspection and Certification of Inspection (COI) requirements described in this standard. Exemptions are listed in The State of Utah Boiler and Pressure Vessel Compliance Manual Part II Section A-2, Subsections B-N (Appendix A). Exempt PREs built to ASME BPVC, and their associated PRDs, shall still be maintained and repaired according to this standard.

16.14.1.2 **Pressure relief devices (PRD)**

For the purpose of this standard all pressure safety valves (PSV), rupture disks (RD), and vacuum breakers (VB) are included.

16.14.1.3 **Jurisdictional requirements**

Requirements in place to control the potential hazards associated with PREs and PRDs. These require that all applicable codes and standards associated with design, operation, inspection, testing, alterations, and maintenance are strictly followed. The jurisdictional body is the State of Utah Labor Commission. All PREs located on MSHA sites are considered under federal control, and therefore the State of Utah Labor Commission defers its jurisdictional governance of these PREs to MSHA.

16.14.1.4 **SAFETY AND PREPERATION**

Entry into pressure vessels is not allowed except as permitted by the RTKC Safety and Health Standard 16.2 Confined Space Entry Requirements and RTKC Safety and Health Standard 16.12 Isolation.

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16.14.1.5 **Exclusions**

This standard does not include gas pressure vessels covered by the Department of Transportation. (See Safety and Health Standard 16.15)






16.14.2 **PRESSURE RETAINING EQUIPMENT**

16.14.2.1 **ASME BPVC Section I – Power Boilers**

Power boilers are boilers in which steam or other vapor is generated at a pressure of more than 15 psig **OR** high temperature water boilers intended for operation at pressures exceeding 160 psig and/or temperatures exceeding 250 degrees F. These boilers shall be designed and built according to ASME Section I. They shall be installed, operated, maintained, inspected, and repaired according to the National Board Inspection Code (NBIC).

Automatically fired power boilers shall be in compliance with ASME CSD-1 Controls and Safety Devices for Automatically Fired Boilers. This code book gives specific requirements and provisions on materials, testing, maintenance, certification and reporting for the required control devices installed on automatically fired boilers. Devices include Low-water fuel cutoff, automatic fuel cutoff, pressure controls, temperature controls, and combustion controls.

16.14.2.1.1 **Nameplate Stamping** – PREs built to ASME BPVC Section I are identified by any of the following stamps displayed on the item's nameplate:

	S	Power Boilers
	A	Power Boiler Assemblies
	E	Electric Boilers
	M	Miniature Boilers
	PP	Pressure Piping



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16.14.2.1.2 Installation Requirements – For initial commissioning inspections of power boilers, on UOSH sites, the inspection shall be performed by an AI employed by the State of Utah. For all UOSH inspections, after initial commissioning and all MSHA power boilers, the inspection shall be performed by an NBIC Authorized Inspector (AI) working for Rio Tinto’s insurance provider. The insurance provider uses ARISE for required inspections. All power boilers installed at RTKC shall be in compliance with ASME BPVC Section I and NBIC Part 1 Section 2.

Power boilers shall have a certified pressure indicator installed in a way to accurately read the boiler’s pressure. It shall also have a gauge range from 150% - 200% of the set point of the lowest PSV installed, digital gauges meet all range requirements.

16.14.2.1.3 Inspection and Maintenance Requirements – Annual internal and external inspections of power boilers shall be performed by an AI working for Rio Tinto’s insurance provider. A power boiler COI is issued for 12 months from the date of external inspection. In order to maintain a current COI, a power boiler shall also have an internal inspection performed by the AI within 18 months of the previous internal inspection. Detailed requirements for obtaining a COI are listed in the current edition of the State of Utah Boiler and Pressure Vessel Compliance Manual and NBIC Part 2 Section 2.

After completing a successful external inspection, a COI will be issued. For MSHA sites the COI is issued directly from the insurance provider (ARISE), and for UOSH sites the COI is issued from the State of Utah Labor Commission. Once the COI is received it shall be submitted to Document Control, and retained for the life of the PRE. All RTKC power boilers are required to maintain a current COI.

An inspection log shall be kept for each power boiler. Entries shall be made on the log each time an inspection or test is conducted. The entries shall include conditions noted, repairs completed, and results of any tests performed. A file shall be kept for each power boiler which includes a copy of the original specifications, drawings, certifications, repair records, inspection and testing records.

16.14.2.1.4 Safety Valve Requirements – All PRDs installed on power boilers shall be in compliance with NBIC Part 1 Section 2.9 and Part 4 Section 2.2. Other general PRD requirements are listed in the PRD section of this standard.

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General in-service inspection requirements of PRDs on power boilers shall conform to NBIC Part 4 Section 3.2. Testing frequencies for PRDs on power boilers shall conform to NBIC Part 4 Section 3.2.6 Subsection (a).

1) Pressure less than 400 psig (2.76 MPa): Manual check every 6 months; pressure test annually to verify nameplate set pressure or as determined by operating experience as verified by testing history.

Manual tests are also known as a try-lever test and are performed by lifting the try-lever on the PRD for basic functionality testing. This test shall be documented on "RTKC – Manual Try-Lever Test for PRD on Power Boilers with PRD set pressure less than 400 psig" shown in Appendix B. These tests shall only be performed by someone tasked trained by the Asset Integrity Department.

2) Pressure of 400 psig (2.76 MPa) or greater: Set pressure test to verify nameplate set pressure every three years or as determined by operating experience as verified by testing history.

3) Set pressure tests should be performed prior to bringing the boiler down for planned internal inspection so needed repairs or adjustments can be made while the boiler is down.

Set pressure tests shall be performed by a "VR" Certificate Holder.

- 16.14.2.1.5 Repairs and Alterations** – Any repairs that require welding or alterations made on the boiler proper or boiler external piping, of a power boiler, shall be performed by an "R" Certificate Holder. The boiler proper and boiler external piping are defined in ASME BPVC Section I Preamble.

A repair or alteration of a power boiler shall conform with NBIC Part 3 Sections 2 – Welding and Heat Treat, 3 – Requirements for Repairs and Alterations, 4 – Examination and Testing, and 5 – Certification/Documentation and Stamping.

16.14.2.2 ASME BPVC Section IV – Heating Boilers

Heating boilers include Steam Heating Boilers, Hot-Water Heating Boilers, Hot-Water Supply Boilers, and Potable Water Heaters. These boilers shall be designed and built according to ASME Section IV. They shall be installed, operated, maintained, inspected, and repaired according to the NBIC. Each specific type of boiler is defined below.

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Steam Heating Boiler — A steam boiler installed to operate at pressures not exceeding 15 psig.

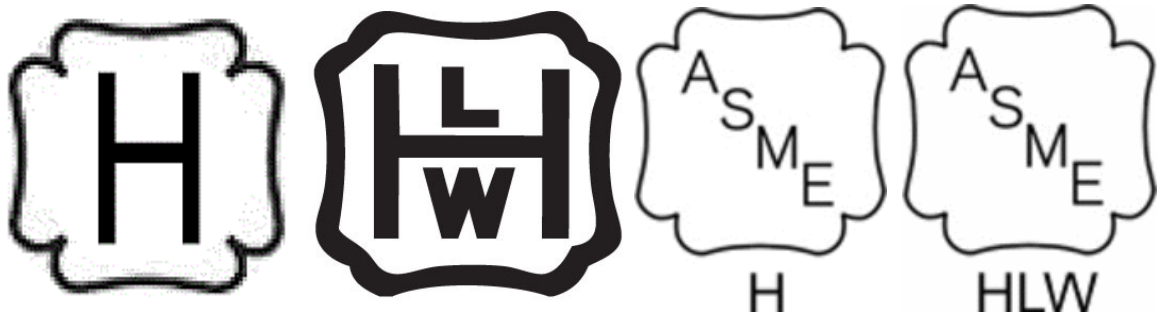
Hot-Water Heating Boiler — A hot water boiler installed to operate at pressures not exceeding 160 psig and/or temperatures not exceeding 250°F, at or near the boiler outlet.

Hot-Water Supply Boiler — A boiler that furnishes hot water to be used externally to itself at a pressure less than or equal to 160 psig or a temperature less than or equal to 250°F at or near the boiler outlet.

Potable Water Heaters (HLW) — A corrosion resistant appliance that includes the controls and safety devices to supply potable hot water at pressure not exceeding 160 psig and temperature not in excess of 210°F. Fired Storage Water Heater, Indirect Fired Water Heater, and Circulating Water Heaters are specific types of heating boilers.

Automatically fired heating boilers shall follow the requirements of ASME CSD-1 Controls and Safety Devices for Automatically Fired Boilers. This code book gives specific requirements and provisions on materials, testing, maintenance, certification and reporting for the required control devices installed on automatically fired boilers. Devices include Low-water fuel cutoff, automatic fuel cutoff, pressure controls, temperature controls, and combustion controls.

16.14.2.2.1 **Nameplate Stamping** – PREs built to ASME BPVC Section IV are identified by any of the following stamps displayed on the item's nameplate:



16.14.2.2.2 **Installation Requirements** – Initial commissioning inspections of heating boilers, on UOSH sites, shall be performed by an AI employed by the State of Utah. For all UOSH inspections, after

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initial commissioning, and all MSHA heating boilers the inspection shall be performed by an AI working for Rio Tinto's insurance provider. The insurance provider uses ARISE for required inspections. All heating boilers installed at RTKC shall be in compliance with ASMC BPVC Section IV and NBIC Part 1 Section 3.

Heating boilers shall have a certified pressure indicator installed in a way to accurately read the boiler's pressure. It shall also have a gauge range from 150% - 200% of the set point of the lowest PSV installed, digital gauges meet all range requirements.

- 16.14.2.2.3 Inspection and Maintenance Requirements** – External inspections of heating boilers shall be performed every other year by an AI working for Rio Tinto's insurance provider. A heating boiler COI is issued for 24 months from the date of external inspection. Detailed requirements for a COI are listed in the current edition of the State of Utah Boiler and Pressure Vessel Compliance Manual and NBIC Part 2 Section 2.

After completing a successful external inspection, a COI will be issued. For MSHA sites the COI is issued directly from the insurance provider (ARISE), and for UOSH sites the COI is issued from the State of Utah Labor Commission. Once the COI is received it shall be submitted to Document Control, and retained for the life of the PRE. All RTKC heating boilers are required to maintain a current COI.

An inspection log shall be kept for each heating boiler. Entries shall be made on the log each time an inspection or test is conducted. The entries shall include conditions noted, repairs completed, and results of any tests performed. A file shall be kept for each heating boiler which includes a copy of the original specifications, drawings, certifications, repair records, inspection and testing records.

- 16.14.2.2.4 Safety Valve Requirements** – There are several detailed requirements for pressure relief devices installed on heating boilers. See NBIC Part 1, Section 3.9 for specific PRD requirements for heating boilers. Other general PRD requirements are listed in the Pressure Relief Device section of this standard.

General in-service inspection requirements of PRDs on heating boilers can be found in NBIC Part 4 Section 3.2. Testing frequencies for PRDs

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on heating boilers are listed in NBIC Part 4 Section 3.2.6 Subsection (e and f).

e) Hot-Water Heating Boilers Manual check quarterly; pressure test annually prior to heating season to verify nameplate set pressure. Note: The frequencies specified for the testing of pressure relief valves on boilers is primarily based on differences between high pressure boilers that are continuously manned, and lower pressure automatically controlled boilers that are not monitored by a boiler operator at all times. When any boiler experiences an overpressure condition such that the pressure relief valves actuate, the valves should be inspected for seat leakage and other damage as soon as possible and any deficiencies corrected.

f) Water Heaters Manual check every two months, or as determined based upon inspection history and manufacturer recommendations. Every 3 years, remove temperature and pressure relief valve to inspect temperature probe for damage, buildup, or corrosion. The temperature probe shall be checked for the condition of the coating material and freedom of movement without detaching. If the probe pulls out or falls off during inspection, the valve shall be repaired or replaced. Due to the relatively low cost of temperature and pressure relief valves for this service, it is recommended that a defective valve be replaced with a new valve if a repair or resetting is indicated.

16.14.2.2.5 Repairs and Alterations – Any repairs that require welding or alterations made within the pressure boundary or pressure piping areas of a heating boiler shall be performed by an accredited “R Stamp” repair company. All repairs and alterations performed on heating boilers at RTKC shall be in compliance with NBIC Part 3 Sections 2 – Welding and Heat Treat, 3 – Requirements for Repairs and Alterations, 4 – Examination and Testing, and 5 – Certification/Documentation and Stamping.

16.14.2.3 ASME BPVC Section VIII Division 1 – Unfired Pressure Vessels
An unfired pressure vessel is a vessel in which pressure is obtained from an external source, or by the application of heat from an indirect or direct source. Vessels may contain gases, vapors, or liquids at various pressures and temperatures. Examples include air receivers, pressurized filter housings, separators, steam vessels, heat exchangers, autoclaves, LPG storage tanks and many more. These vessels shall be designed and built according to ASME Section VIII

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Division 1. They shall be installed, operated, maintained, inspected, and repaired according to the NBIC.

- 16.14.2.3.1 **Nameplate Stamping** – PREs built to ASME BPVC Section VIII Division 1 are identified by any of the following stamps displayed on the nameplate:



- 16.14.2.3.2 **Installation Requirements** – For initial commissioning inspections of unfired pressure vessels, on any site, the inspection shall be performed by an AI working for Rio Tinto’s insurance provider. All unfired pressure vessels installed at RTKC shall be in compliance with ASME BPVC Section VIII Division 1 and NBIC Part 1 Section 4.

Unfired pressure vessels shall have a pressure indicator installed in a way to accurately read the vessel’s pressure. It shall also have a gauge range of at least 125% of the set point of the installed PSV, digital gauges meet all range requirements.

- 16.14.2.3.3 **Inspection and Maintenance Requirements** – External inspections of unfired pressure vessels shall be performed every 48 months by an AI working for Rio Tinto’s insurance provider. An unfired pressure vessel COI is issued for 48 months from the date of the external inspection. Detailed requirements for a COI are listed in the current edition of the State of Utah Boiler and Pressure Vessel Compliance Manual and NBIC Part 2 Section 2.

After completing a successful external inspection, a COI will be issued. For MSHA sites the COI is issued directly from the insurance provider (ARISE), and for UOSH sites the COI is issued from the State of Utah Labor Commission. Once the COI is received it shall be submitted to Document Control, and retained for the life of the PRE. All RTKC unfired pressure vessels are required to maintain a current COI.

An inspection log shall be kept for each unfired pressure vessel. Entries shall be made on the log each time an inspection or test is conducted. The entries shall include conditions noted, repairs completed, and results of any tests performed. A file shall be kept for

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each certified pressure vessel which includes a copy of the original specifications, drawings, certifications, repair records, inspection and testing records.

- 16.14.2.3.4 Safety Valve Requirements** – There are several detailed requirements for pressure relief devices installed on unfired pressure vessels. See NBIC Part 1, Section 4.5 for specific PRD requirements for unfired pressure vessels. Other general PRD requirements are listed in the Pressure Relief Device section of this standard.

General in-service inspection requirements of PRDs on unfired pressure vessels can be found in NBIC Part 4 Section 3.2. Testing frequencies for PRDs on unfired pressure vessels are listed in NBIC Part 4 Section 3.2.6 Subsection (g).

Frequency of test and inspection of pressure relief devices for pressure vessel service is greatly dependent on the nature of the contents, external environment, and operation of the system, therefore only general recommendations can be given. Inspection frequency should be based on previous inspection history. If, during inspection, valves are found to be defective or damaged, intervals should be shortened until acceptable inspection results are obtained.

- 16.14.2.3.5 Repairs and Alterations** – Any repairs that require welding or alterations made within the pressure boundary of an unfired pressure vessel shall be performed by an accredited “R Stamp” repair company. All repairs and alterations performed on unfired pressure vessels at RTKC shall be in compliance with NBIC Part 3 Sections 2 – Welding and Heat Treat, 3 – Requirements for Repairs and Alterations, 4 – Examination and Testing, and 5 – Certification/Documentation and Stamping.

16.14.3 PRESSURE RELIEF DEVICES

- 16.14.3.1 General PRD Requirements** – Pressure vessels shall be fitted with appropriate pressure relief devices designed for the type of vessel and use for which it is intended.

Pressure relief devices **shall not** be separated from the pressure vessel with an isolation valve. Any valve installed between the vessel and the relief valve shall have written approval from the AI and the State of Utah Chief Boiler Inspector.

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Pressure relief devices shall be installed according to NBIC Part 4 Section 2 and meet all requirements including general installation requirements, number of valves, location, capacity, and set pressure.

Pressure relief devices shall be inspected and certified on a frequency established by previous testing history, according to NBIC Part 4 Section 3. When previous testing history is not available the general guidelines for testing shall be followed until testing history can be established for that specific PRD.

Where test records and/or inspection history are not available, the following inspection and test frequencies are suggested:

Service	Inspection Frequency	
	Suggested (no insp hist)	Max (per insp hist)
Steam	Annual	Every five years
Air and Clean Dry Gasses	Every three years	
PRVs in combination w/RDs	Every five years	
Propane or Refrigerant	Every five years	
All others	Per inspection history	

Pressure relief devices shall only be certified and repaired by a "VR" Certificate Holder.

At a minimum all PRDs will have a visual inspection and a Manual Try-Lever Test, shown in Appendix C, performed according to the frequencies established from testing record or the above chart when records are not available. If manually testing a PRD is not possible (RDs and VBs) the valve will be visually inspected by a "VR" Certificate Holder and documentation retained by the Asset Integrity Department. A "VR" Certificate Holder should perform inspections and tests of PRDs when possible.

- 16.14.3.1 Pressure Safety Valves** – A Pressure Safety Valve (PSV), also known as safety valve, relief valve, pop-it, or pilot valve, is a type of valve used in industrial processing facilities to quickly release gasses or liquids from equipment in order to avoid over pressurization and potential process safety incidents. It is fast acting and usually closes automatically once the over pressure situation has passed. All boilers and pressure vessels shall have a properly functioning, correctly installed, and correctly set PSV for over pressure protection.

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16.14.3.2 **Rupture Disks** – A rupture disc (RD), also known as a pressure safety disc, burst disc, bursting disc, or burst diaphragm, is a non-reclosing pressure relief device that, in most uses, protects a pressure vessel, equipment or system from over pressurization or potentially damaging vacuum conditions.

16.14.3.3 **Vacuum Breakers** – A vacuum breaker (VB), also known as a vacuum pressure safety valve, or pressure breaker, is an automatic valve that mechanically relieves negative pressure in a system. Although these are exempt from ASME BPVC, RTKC shall include all VBs in the testing and inspection programs of PRDs.

16.14.4 **DEFINITION OF TERMS**

Alteration – A change in the item described on the original Manufacturer’s Data Report which affects the pressure containing capability of the pressure-retaining item. (See NBIC Part 3, 3.4.3, Examples of Alteration) Nonphysical changes such as an increase in the maximum allowable working pressure (internal or external), increase in design temperature, or a reduction in minimum temperature of a pressure-retaining item shall be considered an alteration. Alterations shall also require an approved MOC.

Jurisdiction – The National Board member Jurisdiction where the organization is located. Alternatively, where the Jurisdiction elects not to perform the review or where there is no Jurisdiction or where the Jurisdiction is the organization’s Authorized Inspection Agency, The National Board of Boiler and Pressure Vessel Inspectors will represent the Jurisdiction. At the Jurisdiction’s discretion, the Jurisdiction may choose to be a member of the review team if the Jurisdiction chooses not to be the team leader.

Manufacturer’s Documentation – The documentation that includes technical information and certification required by the original code of construction.

Pilot Operated Pressure Relief Valve – A pressure relief valve in which the disk is held closed by system pressure, and the holding pressure is controlled by a pilot valve actuated by system pressure.

“R” Certificate Holder – An organization in possession of a valid “R” Certificate of Authorization issued by the National Board. R stands for Repair.

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Repair – The work necessary to restore pressure-retaining items to a safe and satisfactory operating condition.

“VR” Certificate Holder – An organization in possession of a valid “VR” Certificate of Authorization issued by the National Board. VR stands for Valve Repair.

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APPENDIX A

A-2 Exemptions

The following boilers and pressure vessels shall be exempt from this standard.

B. A boiler or a pressure vessel that is excluded from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code.

C. Pressure vessels used for transportation and storage of compressed gases when constructed in compliance with specifications of the U.S. Department of Transportation and when charged with gas marked, maintained, and periodically re-qualified for use, as required by appropriate regulations of the U.S. Department of Transportation.

D. Pressure vessels located on vehicles operating under the rules of other state authorities and used for carrying passengers or freight.

E. Pressure vessels containing liquefied petroleum gas (LPG) under the scope of Utah Code Annotated, Title 53 Chapter 7 Part 3 "Liquefied Petroleum Gas Act". These vessels fall under the jurisdiction of the State Fire Marshal's office.

F. Pressure vessels installed on the right-of-way of railroads and used directly in the operation of trains.

G. Pressure vessels having an internal or external operating pressure not exceeding 15 psig with no limit on size.

H. Pressure vessels having an inside diameter, width, height or cross section diagonal not exceeding 6 inches with no limitation on length of the vessel or pressure.

I. Pressure vessels for containing water under pressure, including those containing air, the compression of which serves only as a cushion, when none of following limitations are exceeded:

1. a design pressure of 300 psig;
2. a design temperature of 210°F

J. Pressure vessels containing water heated by steam or any other indirect means when none of the following limitations are exceeded:

1. a heat input of 200,000 BTU per hour;
2. a water temperature of 210°F provided such pressure vessels are equipped with an ASME/NB stamped safety relief valve;

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APPENDIX A

K. Hot water supply boilers used exclusively for supplying hot water which are heated by oil, gas or electricity, when none of the following limitations are exceeded:

1. a heat input of 200,000 BTU (58.6kW) per hour;
2. a water temperature of 210°F;
3. a nominal water capacity of 120 gallons.

L. Potable water heaters and hot water storage tanks for operations at a pressure not exceeding 160 psig where none of the following limitations are exceeded:

1. a heat input of 200,000 BTU per hour;
2. a water temperature of 210°F;
3. a nominal water capacity of 120 gallons; except that they shall be equipped with safety devices in accordance with the ASME Boiler and Pressure Vessel Code Section IV HLW.

M. Pressure vessels which may be classified as pressure containers which are integral parts or components of rotating or reciprocating mechanical devices such as pumps, compressors, turbines, generators, engines and hydraulic or pneumatic cylinders where the primary design considerations and stresses are derived from the functional requirements of the device.

N. Continuous coil-type hot water boilers used only for “steam vapor” cleaning of such things as machinery and buildings when none of the following limitations are exceeded:

1. one (1) inch diameter tubing or pipe size with no drums or headers attached;
2. nominal water containing capacity does not exceed six (6) gallons;
3. water temperature does not exceed 350°F;
4. steam is not generated within the coil, except that they shall be provided with one or more relief valves meeting the requirements of B-5.

In any circumstance, the owner or user may confer with the Chief Boiler Inspector regarding exemption or non-exemption.

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APPENDIX B

RTKC – Manual Try-Lever Test for PRD on Power Boilers with PRD set pressure less than 400 psig

Steps to perform (read and understand all steps before starting test)

- 1) Check with operations about scheduling a good time to perform the test. It is best if testing can be done when going into an outage or inspection down time. This allows for operations to bring the boiler down safely in the event of a failed test.
- 2) Gather tools. You will need a hammer, wire cutters, gloves, radio and any other PPE required by the area you are working in. The wire cutters and hammer are in case the valve sticks open.
- 3) Remove all insulation pads or covers as to have full access to the lifting handle.
- 4) Radio the control room and inform them you will be testing the PRDs.
- 5) Check that the vessel pressure is at a minimum of 75% of the set point of the PRD.
- 6) Get in a stable body position to pull the lifting lever and pull up and out away from the valve. Once the valve has opened and discharged steam, release the handle and let it fall back onto the seat. If the valve sticks open you will need to cut the wire holding the cap on and remove the cap. This will allow you access to the valve stem. You will then hit the valve stem with the hammer until the valve closes. If the valve sticks open or closed it has failed and shall be replaced.
- 7) Radio the control room with the results of the test.
- 8) Fill out the following information and submit this form to Asset Integrity Department.

Valve Functional Location _____

Date of Test _____ Time of Test _____

Nameplate Information

Manufacturer _____ Model Number _____

Serial Number _____ Set Pressure _____ Capacity _____

Inlet Size _____ Inlet Connection _____

Outlet Size _____ Outlet Connection _____

Test Information

Did it Lift? _____ Did it Reseat? _____ Pass or Fail? _____

Number of Times valve was lifted manually _____

Notes _____

Tested By _____ Signature _____

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APPENDIX C

RTKC – Manual Try-Lever Test for Non-Boiler PRDs

Steps to perform (read and understand all steps before starting test)

- 1) Check with operations about scheduling a good time to perform the test. It is best if testing can be done when going into an outage or inspection down time. This allows for operations to bring the equipment down safely in the event of a failed test.
- 2) Gather and don any PPE required by the area you are working in.
- 3) Remove all insulation pads or covers as to have full access to the lifting handle.
- 4) Radio the control room and inform them you will be testing the PRDs.
- 5) Check that the vessel pressure is at a minimum of 75% of the set point of the PRD.
- 6) Get in a stable body position to pull the lifting lever and pull up and out away from the valve. Once the valve has opened and discharged, release the handle and let it fall back onto the seat. If the valve sticks open you can try to push the stem down to force it to seat. If the valve sticks open or closed it has failed and shall be replaced before bringing the equipment back into service.
- 7) Radio the control room with the results of the test.
- 8) Fill out the following information and submit this form to Asset Integrity Department.

Valve Functional Location _____

Date of Test _____ Time of Test _____

Nameplate Information

Manufacturer _____ Model Number _____

Serial Number _____ Set Pressure _____ Capacity _____

Inlet Size _____ Inlet Connection _____

Outlet Size _____ Outlet Connection _____

Test Information

Did it Lift? _____ Did it Reseat? _____ Pass or Fail? _____

Number of Times valve was lifted manually _____

Notes _____

Tested By _____ Signature _____

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REFERENCES:

ASME BPVC Section I, IV, VI, VII and VIII Division 1
 ASME B31.1-2016 Power Piping
 ASME CSD-1-2015 Controls and Safety Devices for Automatically Fired Boilers
 2017 Edition of the National Board Inspection Code Part 1, 2, 3 and 4 (NBIC)
 Utah Code Title 34A – Chapter 7 – Part 1 – Boilers and Pressure Vessels Rule 616-2. Boiler and Pressure Vessel Rule
 2017 Edition of the State of Utah Boiler and Pressure Vessel Compliance Manual
 RTKC Safety and Health Standard 16.2 Confined Space Entry Requirements
 RTKC Safety and Health Standard 16.12 Isolation
 RTKC Safety and Health Standard 16.15 Compressed Gases

REVISION HISTORY:

MOC#	Description of Change	Prepared By	Date
17387	Scheduled Review and update. Include document retention times and definitions. Also, updated format and Document number added.	KUC Safety and Health Standards Committee	10/11
46086	Updated standard to cover all pressure retaining items and pressure relief devices according to current codes and standards	Mechanical Integrity Department – Justin Bird	09/18