See page 3 for one editorial change made by NR task group 7-17-17

NB16-0603 NR Task Group 1-9-16

SUPPLEMENT 6

PROCEDURES FOR REPAIRS ~~TO ASME "NV" STAMPED PRESSURE RELIEF DEVICES~~ OF NUCLEAR SAFETY RELATED PRESSURE RELIEF VALVES

S6.1 SCOPE

~~ASME Code "NV" Class 1, 2, or 3 stamped pressure relief devices,~~Nuclear safety related pressure relief valves and power operated pressure relief valves ~~which have been capacity certified by the National Board,~~ may be repaired provided the following requirements are met.

S6.2 DEFINITIONS

Safety Related – As used in this supplement and when applied to nuclear power plants, safety related means a structure, system, or component or part thereof that affects its safety function necessary to assure:

a) The integrity of the reactor coolant pressure boundary;

b) The capability to shut down the reactor and maintain it in a safe shutdown condition; or

c) The capability to prevent or mitigate the consequence of accidents which could result in potential offsite exposures.

S6.3 NUCLEAR SAFETY RELATED VALVE GROUPS

These rules classify nuclear safety related pressure relief valves into three groups based upon the original code of construction and capacity certification status.

Group 1: ASME Section I and Section VIII pressure relief valves used in nuclear safety related service with National Board capacity certification.

Comment [AC1]: These PRVs can be repaired under a Standard VR Certification.

Group 2: ASME Section III NV stamped Class 1, 2, or 3 pressure relief valves with National Board capacity certification.

Group 3: Pressure relief valves not addressed in Group 1 or Group 2. This group shall include pressure relief valves without National Board capacity certification and/or pressure relief valves constructed to codes or standards other than ASME (see NBIC Part 3, Category 3).

Comment [AC2]: These PRVs cannot be VR Repaired according to NBIC.

The term pressure relief valve includes power operated pressure relief valves. Replacement of rupture disks in rupture disk holders or in systems is not considered a repair activity under the scope of this supplement.

S6.~~4~~2 ADMINISTRATIVE PROCEDURES

a) The repair organization shall ~~hold~~ obtain a ~~valid~~ "VR" *Certificate of Authorization* ~~and stamp~~.

b) The repair organization shall obtain a National Board "NR" *Certificate of Authorization* ~~and stamp~~. The requirements for said certificate ~~and stamp~~ includes, but ~~are~~ is not limited to the following. The repair organization shall:

Comment [AC3]: Why does an Organization need an NR to perform repairs to Safety Related PRVs in Group 1?

1) Maintain a documented quality assurance program that meets the applicable requirements of NBIC Part 3, 1.8. This program shall also include all the applicable requirements for the use of the "VR" stamp;

2) Have a contract or agreement with an Authorized Inspection Agency that is qualified in accordance with the requirements of ASME QAI-1, *Qualifications for Authorized Inspection* to provide inspection of repaired nuclear ~~"NV" stamped~~ pressure relief ~~devices~~ valves ~~by Inspectors who have been qualified in accordance with the requirements of ASME QAI-1, *Qualifications for Authorized Inspection*~~;

3) Successfully complete a survey of the quality assurance program and its implementation. This survey shall be conducted by representatives of the National Board, the Jurisdiction wherein the applicant's repair facilities are located, and the applicant's Authorized Inspection Agency. Further verification of such implementation by the survey team may not be necessary if the applicant holds a valid ASME "NV" certificate and can verify by documentation the capability of implementing the quality assurance program for repair of "NV"-stamped pressure relief ~~devices~~valves, covered by the applicant's ASME "NV" certificate.

c) The application of the "NR" *Certificate of Authorization* and stamp shall clearly define the scope of intended activities with respect to the repair of ~~Section III, "NV" stamped~~ nuclear pressure relief ~~devices~~valves.

d) Revisions to the quality assurance program shall be acceptable to the Authorized Nuclear Inspector Supervisor and the National Board before being implemented.

e) The scope of the "VR" *Certificate of Authorization* shall include repair of ~~"NV" stamped~~ nuclear pressure relief ~~devices~~valves (denoted on the VR Certificate as Section III).

f) Verification testing of valves repaired by the applicant shall not be required provided such testing has been successfully completed under the applicant's "VR" certification program for the applicable test fluids.

Comment [AC4]: This implies that testing of an NV Stamped PRV on a fluid NOT listed on the VR Certificate makes it possible to have a hybrid Scope of Work. Bad Idea.

g) A survey of the applicant for the "VR" *Certificate of Authorization* and endorsement of the repair of ~~"NV" stamped~~nuclear pressure relief ~~devices~~valves may be made concurrently.

h) S6.~~5~~3 GENERAL RULES

a) Group 1 and Group 2 pressure relief valves ~~ASME Code Section III, "NV" stamped pressure relief devices,~~ which have been repaired in accordance with these rules, shall be stamped with both the "VR" and "NR" stamps. They shall be classified as either NR Category 1 or Category 2 as applicable. Group 3 pressure relief valves which have been repaired in accordance with these rules shall be stamped with the "NR" stamp. They shall be classified as either NR Category 2 or Category 3 as applicable.

Comment [AC5]: Group ! PRVs should not be NR Stamped

b) The "VR" and "NR" stamps shall be applied only to ~~"NV" stamped (Class 1, 2, or 3) National Board capacity certified~~nuclear safety related pressure relief ~~devices~~valves that have been disassembled, inspected, and repaired as necessary, such that the valves' condition and performance are equivalent to the standards for new valves.

c) All measuring and test equipment used in the repair of pressure relief ~~devices~~valves shall be calibrated against certified equipment having known valid relationships to nationally recognized standards.

d) Documentation of the repair of ~~"NV" stamped~~nuclear safety related pressure relief ~~devices~~valves shall be recorded on the National Board Form NVR-1, *Report of Repair/ Replacement Activities for Nuclear Pressure Relief Devices*, in accordance with the requirements of NBIC Part 3, 1.8. The original code of construction and capacity certification status shall be identified on the NVR-1 form.

e) When an ASME "V", "UV" or "NV" stamped pressure relief device requires a duplicate nameplate because the original nameplate is illegible or missing, it may be applied using the procedures of NBIC Part 3, 5.12.5 provided

Comment [AC6]: This is a total change to the NR Stamp Program. I do not agree with this proposal.

concurrence is obtained from the Authorized Nuclear Inspector and Jurisdiction. In this case the nameplate shall be marked "SEC I", "SEC. III", or "SEC VIII" to indicate original ASME Code stamping.

f) Repair activities for pressure relief ~~devices~~valves shall not include rerating of the device. Set pressure changes within the range of the valve manufacturer's capacity certification and the design pressure of the valve (see 4.7.3) are permitted, provided the new set pressure and capacity rating are reconciled with the design of the system where the device will be used. ~~Set pressure~~ changes are not considered to be rerating.

Comment [AC7]: Does this mean change the ASME Code Stamp or the Pressure rating of the PRV design Pressure & Temperature?

g) Conversions of pressure relief ~~devices~~valves as described in 4.2 b) are permitted as part of repair activities.

h) Set pressure changes or conversions of pressure relief ~~devices~~valves shall be described in the "Remarks" section of Form NVR-1.

These

July 18, 2017

Subject: Response to Letter Ballot Negative Comments for Item NB16-0603

Prepared by; J. F. Ball

Comment [AC1]: These PRVs can be repaired under a Standard VR Certification.

JFB Response: While true from the VR side, these valves have additional regulatory requirements put upon them because they are on nuclear systems. This item is an attempt to make sure the nuclear issues are considered during repairs, which will help program users and make the program more acceptable to other regulatory agencies.

Comment [AC2]: These PRVs cannot be VR repaired according to NBIC.

JFB Response: The comment is correct under the current VR program. The change is in response to the need to address valves built during a period when capacity certification was not a Section III requirement. The goal is that those valves be repaired following the same process and procedures used for valves that are capacity certified. It is a small population of valves that will not get larger over time, but are still being encountered by users and repairers.

Comment [AC3]: Why does an Organization need an NR to perform repairs to Safety Related PRVs in Group 1?

JFB Response: See response to comment AC1. The NR accreditation assures that the nuclear concerns are considered during repairs and makes the program more acceptable to regulatory authorities.

Comment [AC4]: This implies that testing of an NV Stamped PRV on a fluid NOT listed on the VR Certificate makes it possible to have a hybrid Scope of Work. Bad Idea.

JFB Response: I believe the voter is mistaken. This clarification does not change the current requirement that a certificate holder must qualify for each test fluid they intend to use. The addition makes sure that if they would have or add a fluid that was not on their current VR scope of work (qualified by the test of Section I or VIII valves) they would in fact need to test a Section III valve on the fluid they did not have.

Comment [AC5]: Group 1 PRVs should not be NR Stamped.

JFB Response: One of the main purposes of this item is to give these valves the recognition of their usage in the nuclear system. By following the NR quality assurance procedures (which include third party inspection and enhanced material traceability) they then become qualified to have the NR applied.

Comment [AC6]: This is a total change to the NR Stamp Program. I do not agree with this proposal.

JFB Response: This requirement again is recognizing the unique usage of older Section I or VIII valves *in nuclear service*. In this usage there is additional regulatory oversite where the third party inspection process is considered as an integral part of the repair process.

Comment [AC7]: Does this mean change the ASME Code Stamp or the Pressure rating of the PRV design Pressure & Temperature?

JFB Comment: Please see the Glossary for the definition of re-rating. It does not include changes of the ASME Code Symbol stamp. Rules for items that can be changed on a pressure relief valve are those contained in Part 4, par. 4.7.3 which have not changed.

Re-rating (re-rate) — See alteration. Re-rate does not apply to pressure relief devices.

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.

NB16-3101 Proposal 7/18/17

PART 4, 3.2.5.2 (PART 2 2.5.7 g))VALVE ADJUSTMENTS

a) If a set pressure test indicates the valve does not open within the requirements of the original code of construction, but otherwise is in acceptable condition, minor adjustments (defined as no more than twice the permitted set pressure tolerance) shall be made by a ~~qualified organization accredited by the~~ National Board "VR" or "T/O" Certificate Holder to reset the valve to the correct opening pressure. All adjustments shall be resealed with a seal identifying the responsible organization and a tag shall be installed identifying the organization and the date of the adjustment. ~~Qualified organizations are considered to be National Board "VR" Certificate Holders, or organizations authorized by the Jurisdiction to make adjustments. See Supplement 3 for more information.~~

PART 4, 3.2.6.2 (PART 2 2.5.8.2) ESTABLISHMENT OF SERVICE INTERVALS

b) Pressure relief valves are mechanical devices that require periodic preventive maintenance even though external inspection and test results indicate acceptable performance. There may be wear on internal parts, galling between sliding surfaces or internal corrosion, and fouling which will not be evident from an external inspection or test. Periodic re-establishment of seating surfaces and the replacement of soft goods such as o-rings and diaphragms are also well advised preventive maintenance activities that can prevent future problems. If the valve is serviced, a complete disassembly, internal inspection, and repair as necessary, such that the valve's condition and performance are restored to a like new condition, should be done by a National Board "VR" Certificate Holder.~~an organization accredited by the National Board.~~

Item 17-116 Proposal 7-18-17

PART 4, 2.2.1 (PART 1, 2.9.1) GENERAL REQUIREMENTS

Part 4,

a) Only direct spring loaded, pilot operated, or power operated pressure relief valves ~~or pilot operated pressure relief valves~~ designed to relieve steam shall be used for steam service.

~~b) Pressure relief valves are valves designed to relieve either steam or water, depending on the application.~~

~~c~~b) Pressure relief valves shall be manufactured in accordance with a national or international standard.

~~d~~c) Deadweight or weighted-lever pressure relief valves shall not be used.

~~e~~d) For high temperature water boilers, pressure relief valves shall have a closed bonnet, and valve bodies shall not be constructed of cast iron.

~~f~~e) Pressure relief valves with an inlet connection greater than NPS 3 (DN 80) and used for pressure greater than 15 psig (100 kPa), shall have a flanged inlet connection or a welding-end inlet connection. The dimensions of flanges subjected to boiler pressure shall conform to the applicable standards.

~~g~~f) When a pressure relief valve is exposed to outdoor elements that may affect operation of the valve, the valve may be shielded with a cover. The cover shall be properly vented and arranged to permit servicing and normal operation of the valve.

Part 4, **2.2.10 INSTALLATION AND DISCHARGE REQUIREMENTS**

d) No valves of any type except a changeover valve ~~as defined below~~, shall be placed between the pressure relief valves and the boiler, nor on the discharge pipe between the pressure relief valves and the atmosphere.

A changeover valve~~, which allows two redundant pressure relief valves to be installed for the purpose of changing from one pressure relief valve to the other while the boiler is operating,~~ may be used provided ~~the changeover valve~~it is in accordance with the original code of construction. It is recommended that the Jurisdiction be contacted to determine the acceptability of the changeover valves on boiler applications. The changeover valve shall be designed such that there is no intermediate position where both pressure relief valves are isolated form the boiler.

NEW GLOSSARY TERM

Changeover Valve—A valve that allows two redundant pressure relief devices to be installed for the purpose of changing from one pressure relief device to the other while the system is operating.

Item 121 Proposal 7-18-17

Part 4, **2.2.10 INSTALLATION AND DISCHARGE REQUIREMENTS**

e) When two or more pressure relief valves are used on a boiler, they ~~should~~ shall be ~~mounted~~ installed either separately ~~or,~~ as twin valves ~~made by placing individual valves~~ on a Y-base~~s~~, or duplex valves having two valves in the same body casing. ~~Twin valves made by placing individual valves on Y-bases or duplex valves having two valves in the same body~~If twin or duplex valves are used, they shall be of equal size.

f) When two valves of different sizes are installed singly, the relieving capacity of the smaller valve shall not be less than 50% of that of the larger valve.

g) When a boiler is fitted with two or more pressure relief valves on one connection, this connection to the boiler shall have a cross-sectional area not less than the combined areas of inlet connections of all the pressure relief valves with which it connects.

h) All pressure relief valves shall be piped to a safe point of discharge ~~so located or piped as to be carried clear from running boards or platforms~~. Provision for an ample gravity drain shall be made in the discharge pipe at or near each pressure relief valve, and where water or condensation may collect. Each valve shall have an open gravity drain through the casing below the level of the valve seat. For iron- and steel- bodied valves exceeding NPS 2 (DN 50), the drain hole shall be tapped not less than NPS 3/8 (DN 10).

Item 17-123 Proposal 7-18-17

PART 4, 2.3.6 INSTALLATION

h) A ~~suitable~~ condenser that will condense all the vapors discharged from the pressure relief valve may be used in lieu of piping the vapors to the atmosphere.

ITEM 17-125 PROPOSAL 7-18-17

PART 4, 2.4.2 (PART 1, 3.9.2) PRESSURE RELIEF VALVE REQUIREMENTS FOR STEAM HEATING BOILERS

a) Pressure relief valves shall be manufactured in accordance with a national or international standard.

b) Each steam boiler shall have one or more National Board capacity certified pressure relief valves of the spring pop type adjusted and sealed to discharge at a pressure not to exceed 15 psig (100 kPa).

c) No pressure relief valve for a steam boiler shall be smaller than NPS 1/2 (DN 15). No pressure relief valve shall be larger than NPS 4 (DN 100). ~~The inlet opening shall have an inside diameter equal to, or greater than, the seat diameter.~~

Item 17-127 Proposal 7-18-17

PART 4, 2.4.4.1 (PART 1, 3.9.4.1) INSTALLATION

Temperature and pressure relief valves shall be installed by either the water heater manufacturer or installer ~~or the manufacturer~~ before a water heater is placed in operation.

Item 17-130 Proposal 7-18-17

PART 4, 2.5.6 (PART 1, 4.5.6)

f) ~~Pressure relief device discharges shall be arranged such that they are not a hazard to personnel or other equipment and, when necessary, lead to a safe location for disposal of fluids being relieved.~~All pressure relief devices shall relieve to a safe point of discharge.