Minnesota Board of High Pressure Piping Systems

STATEMENT OF NEED AND REASONABLENESS

Proposed Permanent Rules Adopting High Pressure Piping Regulations, Minnesota Rules, Chapter 5230; Revisor’s ID Number RD-4472, OAH Docket # 71-9001-34987

INTRODUCTION

The Minnesota Board of High Pressure Piping Systems (“Board”) proposes to adopt amendments to the rules governing the Minnesota High Pressure Piping (“HPP”) Code in Minnesota Rules, chapter 5230. Within the pipefitting industry, the HPP Code regulates high pressure steam or heating media piping systems, ammonia piping systems, and bioprocess piping systems. High pressure steam, heating media, and ammonia refrigeration systems are located almost exclusively in industrial facilities, commercial facilities, and educational and business campuses. Some of these locations include power generating facilities, petrochemical refineries, food processing companies, college campuses, and ice hockey rinks. Bioprocess piping systems are used in pharmaceutical research and production facilities that require ultra-pure steam.

The HPP Code was last updated in 2015 to incorporate by reference the most recent national standards in the industry. Then-current national standards regarding HPP systems were incorporated by reference for the first time in 2009. The proposed rule amendments adopt the most recent editions of those standards, as amended.

In developing the proposed rules, the Board created the following subcommittees:

- Ammonia Committee
- Bioprocess and Steam Committee
- Welding Committee

The three subcommittees represent areas regulated under the HPP Code. The Board has historically formed subcommittees when amending the rules in chapter 5230, and the subcommittees were made up of members of the full Board that possess knowledge on the specific part of the HPP Code. The Ammonia and Bioprocess and Steam subcommittees held public meetings on June 8, 2017, July 13, 2017, and October 12, 2017 and made recommendations to the full Board.1 The Welding subcommittee held a public meeting on August 14, 2017 and made recommendations to the Board.2 The Board discussed and voted on

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1 SUBCOMMITTEE MINUTES, June 8, 2017. Bioprocess and Steam subcommittee meeting minutes can be found at http://www.dli.mn.gov/HPPSteamComm.asp. Ammonia subcommittee meeting minutes can be found at http://www.dli.mn.gov/BohpBoundaryComm.asp.

2 SUBCOMMITTEE MINUTES, August 14, 2017; subcommittee meeting minutes can be found at http://www.dli.mn.gov/PDF/hpp/minutes_welding0817.pdf
the recommendations to form the proposed rule on October 12, 2017.³

ALTERNATIVE FORMAT

Upon request, this information can be made available in an alternative format, such as large print, braille, or audio. To make a request, contact Ethan Landy at Minnesota Department of Labor and Industry, 443 Lafayette Road North, St. Paul, Minnesota 55155, or by phone at 651-284-5302 or email at Ethan.landy@state.mn.us.

STATUTORY AUTHORITY

The Board’s statutory authority to adopt the rules is in Minnesota Statutes section 326B.925, subdivision 2(a), clause 3, which states:

Subd. 2. Powers; duties; administrative support. (a) The board shall have the power to:

(3) adopt the high pressure piping code that must be followed in this state and any high pressure piping code amendments thereto. The board shall adopt the high pressure piping code and any amendments thereto pursuant to chapter 14, and as provided in subdivision 6, paragraphs (b), (c), and (d); …

The quoted portion of this statute references subdivision 6 when adopting amendments to the HPP Code. Subdivision 6 states that each amendment of the HPP Code requires an affirmative two-thirds or more majority vote of all voting members of the Board in order to be including in the HPP Code rulemaking.

Under this statute, the Board has the necessary statutory authority to adopt the proposed rules.

Minnesota Statutes, section 14.125 does not apply because this rulemaking is an amendment of existing rules for which the Legislature has not revised the statutory authority since it was granted.

REGULATORY ANALYSIS

Minnesota Statutes, section 14.131, sets out eight factors for a regulatory analysis that must be included in the SONAR. Paragraphs (1) through (8) below quote these factors and then give the Board’s response.

³ BOARD MINUTES, October 12, 2017; Board Meeting minutes can be found at http://www.dli.mn.gov/PDF/hpp/minutes1017.pdf.
(1) “a description of the classes of persons who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule;”

Persons affected by the rule amendments will likely include high pressure pipefitters; high pressure pipefitting contractors and businesses; persons and entities owning, operating, improving, or constructing high pressure piping systems; mechanical and biotechnical design professionals; manufacturers of integrated high pressure piping systems; unlicensed individuals who wish to assist in the practical construction and installation of high pressure piping and appurtenances while in the employ of a licensed high pressure piping business; engineers; designers, owners, managers and users of high pressure piping systems; state and local inspectors and enforcement authorities of high pressure piping systems; and employees and members of the public who occupy buildings with high pressure piping systems.

The classes of persons that will bear the costs of the proposed rule are those that own high pressure piping systems. The classes of persons that will benefit from the proposed rule are those that use or own buildings with high pressure piping systems.

(2) “the probable costs to the agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues;”

Because the Board does not enforce or administer the rules and has no budget, the Board will not incur costs in enforcing the rules. The Minnesota Department of Labor and Industry (“Department”), the agency that enforces rules adopted by the Board, anticipates costs to include the cost to purchase updated code books for state employees who inspect HPP systems or respond to HPP Code questions and the cost to revise license examinations to reflect the updated code. However, because there is a high pressure piping rule currently in place and enforced, there is little to no change in other enforcement costs.

There will be no costs for any other agency since the Department is the only agency that regulates high pressure piping systems.

The rules will not affect state revenues. The costs of enforcing the HPP Code are covered through the collection of license fees under Minnesota Statutes, section 326B.092, and filing and inspection fees under Minnesota Statutes, section 326B.02, subdivision 3. The Department does not receive general fund allocations to enforce the HPP Code.

(3) “a determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule;”

The purpose of the proposed rule is to adopt a high pressure piping code and adopt rules to regulate the licensure or registration of persons involved in work relating to high pressure piping. The proposed rule incorporates by reference multiple standards developed by respected institutions that represent the most current best practices in the high pressure piping industry. Incorporating these standards by reference is the least costly and intrusive method for achieving the purpose of the proposed rule in accordance with the statutory requirements.
(4) “a description of any alternative methods for achieving the purpose of the proposed rule that were seriously considered by the agency and the reasons why they were rejected in favor of the proposed rule;”

No alternative methods for achieving the purpose of the proposed rule were seriously considered by the Board for this rulemaking. The American Society of Mechanical Engineers (“ASME”) and the International Institute of Ammonia Refrigeration (“IIAR”) are the only organizations that publish codes relating to design and construction of high pressure piping systems that are generally accepted and used throughout the United States. The Board began adopting established industry standards issued by ASME and IIAR in 2008, as it was considered the best method for adopting a high pressure piping code. The proposed rule adopts updated versions of the standards adopted in 2015.

(5) “the probable costs of complying with the proposed rule, including the portion of the total costs that will be borne by identifiable categories of affected parties, such as separate classes of governmental units, businesses, or individuals;”

The probable costs of complying with the proposed rule when compared to the costs of complying with the existing rule are approximately the same. The costs will be borne by any owners or managers of high pressure piping systems that must comply with these rules.

These costs include contractors, high pressure piping system designers, and government inspection departments purchasing updated copies of the standards, estimated at: ASME BPE, 2016 edition ($285.00); ASME Boiler and Pressure Vessel Code, section I 2017 edition ($442.00); ASME B31.1, 2016 edition ($295.00); ANSI/IIAR 2, 2014 revision ($300.00); ASME B31.5, 2016 revision ($200.00); and ASME Boiler and Pressure Vessel Code, section IX, 2017 edition ($514.00).

(6) “the probable costs or consequences of not adopting the proposed rule, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals;”

There would be no costs if the amendments were not adopted. If the new ASME and IIAR standards are not adopted, the existing HPP Code would remain in force. The existing HPP Code adopts outdated standards. Therefore, the probable consequences of not adopting the proposed rule would be that the HPP Code does not incorporate the latest technologies and safety practices in the field.

(7) “an assessment of any differences between the proposed rule and existing federal regulations and a specific analysis of the need for and reasonableness of each difference;”

There are no federal regulations governing high pressure piping that would apply to state projects, and the Department does not have jurisdiction over federally regulated projects or properties. Therefore, there are no differences to analyze.
(8) “an assessment of the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the rule. . . .” Cumulative effect means “the impact that results from incremental impact of the proposed rule in addition to other rules, regardless of what state or federal agency has adopted the other rules. Cumulative effects can result from individually minor but collectively significant rules adopted over a period of time.”

There is no cumulative effect of the rule to consider because there are no other state or federal high-pressure piping system regulations.

PERFORMANCE-BASED RULES

Minnesota Statutes, sections 14.002 and 14.131, require that the SONAR describe how the agency, in developing the rules, considered and implemented performance-based standards that emphasize superior achievement in meeting the agency’s regulatory objectives and maximum flexibility for the regulated party and the agency in meeting those goals. The proposed rules are based on national model standards that are generally performance-based.

ADDITIONAL NOTICE

This Additional Notice Plan (“Notice Plan”) was reviewed by the Office of Administrative Hearings and approved in an Order dated January 23, 2018 by Administrative Law Judge Jessica Palmer-Denig.

The Notice Plan includes giving notice required by statute. The Board will mail or email the rules and Notice of Intent to Adopt to everyone who has registered to be on the Board’s rulemaking mailing lists under Minnesota Statutes, section 14.14, subdivision 1a. The Board will publish the proposed rules, the Statement of Need and Reasonableness, and Notice on the Board’s webpage on the Department of Labor and Industry’s web site at http://www.dli.mn.gov/PDF/docket/5230docket-ref.pdf. The Board will also give notice to the Legislature as required by Minnesota Statutes, section 14.116.

In addition to the rulemaking mail and email lists, the Board will mail or email the Notice and proposed rule to state-wide trade associations and labor unions, municipal inspection departments, and fire service personnel interested or directly involved in high pressure piping systems and work. While high-pressure piping is a specialized subset of pipefitting, all pipefitting and trade organizations in the state will receive notification. The Additional Notice Plan also includes all unionized gasfitters and pipefitters in Minnesota, non-union pipefitters and contractors that are part of the Associated Builders and Contractors, Inc., and unionized contractors in the Minnesota Mechanical Contractors Association. The Additional Notice Plan is as follows:

a. Associated Builders and Contractors, Inc.—Minnesota/North Dakota Chapter
b. Local chapter of the Association of Minnesota Building Officials (“AMBO”)
c. National Association of Elevator Safety Authorities (“NAESA”)
d. Minnesota Mechanical Contractors Association
The Notice Plan does not include notifying the Commissioner of Agriculture because the rules do not affect farming operations under Minnesota Statutes, section 14.111.

**CONSULTATION WITH MMB ON LOCAL GOVERNMENT IMPACT**

As required by Minnesota Statutes, section 14.131, the Board has consulted with Minnesota Management and Budget (MMB) “to help evaluate the fiscal impact and fiscal benefits of the proposed rule on units of local government.” This was accomplished by sending MMB copies of the documents that were sent to the Governor’s Office for review and approval on the same day they were sent to the Governor’s office and before the Board’s publishing of the Notice of Intent to Adopt. The documents included: the Governor’s Office Proposed Rule and SONAR Form; the proposed rules; and the near-final SONAR.

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On December 7, 2017, MMB Executive Budget Officer Marianne Conboy responded, in part, as follows: “[B]ased on the current information provided to me, the proposed rule amendments will not impose a significant cost on local governments.”

DETERMINATION ABOUT RULES REQUIRING LOCAL IMPLEMENTATION

Pursuant to Minnesota Statutes, section 14.128, subdivision 1, the Board has considered whether these proposed rules will require a local government to adopt or amend any ordinance or other regulation in order to comply with these rules. The Board has determined that no local government is required to adopt an ordinance to comply with these rules.

COST OF COMPLYING FOR SMALL BUSINESS OR CITY

Agency Determination of Cost

As required by Minnesota Statutes, section 14.127, the Board has considered whether the cost of complying with the proposed rules in the first year after the rules take effect will exceed $25,000 for any small business or small city. The Board has determined that the cost of complying with the proposed rules in the first year after the rules take effect will not exceed $25,000 for any small business or small city.

The Board has made this determination based on the probable costs of complying with the proposed rule, as described in the Regulatory Analysis section of this SONAR. The probable costs are expected to be the costs of purchasing new code books and modifying training curricula to reflect the amendments. These costs will not exceed $25,000 for any small business or small city during the first year after the rules take effect.

LIST OF WITNESSES

If these rules go to a public hearing, the Board anticipates having the following witnesses testify in support of the need for and reasonableness of the rules:

1. Larry Stevens Jr., Chair, Minnesota Board of High Pressure Piping Systems, will testify about the Board’s interest in adopting the national standards, with amendments, and in adopting amendments to the licensing and registration rules.

2. Todd Green, Chief High Pressure Piping Inspector, Department of Labor and Industry and Commissioner’s representative on the Board, will provide technical information

5 A small business is defined as a for-profit or nonprofit business with less than 50 full-time employees. A small city is defined as a city with less than ten full-time employees. See Minnesota Statutes, section 14.127, subdivision 1.
about the high pressure piping code and the need for these rule amendments in both the code and licensing rules.

RULE-BY-RULE ANALYSIS

5230.0220 BIOPROCESS PIPING

Subpart 1. The proposed amendment adopts the 2016 ASME BPE standard to replace the 2012 edition. It is reasonable and necessary to adopt the 2016 edition in order to keep the HPP Code current with industry standards and practices.

Subpart 2. Chapter references in this subpart are renumbered to reflect chapter and section renumbering that occurred in the 2016 edition of ASME BPE. The amendments are reasonable and necessary to correctly identify the referenced portion of the updated ASME BPE that is being incorporated in these rules.

5230.0260 SCOPE.

The proposed amendment adopts the 2017 edition of the “ASME Code for Power Boilers” standard to replace the 2013 edition. It is reasonable and necessary to adopt the 2017 edition in order to keep the HPP Code current with industry standards and practices.

5230.0265 ADOPTION OF ASME B31.1 BY REFERENCE.

The proposed amendment adopts the 2016 edition of ASME B31.1 to replace the 2012 edition. It is reasonable and necessary to adopt the 2016 edition in order to keep the HPP Code current with industry standards and practices.

5230.0295 CHAPTER III, MATERIALS.

The section reference in this subpart is renumbered to reflect chapter and section renumbering that occurred in the 2016 edition of ASME B31.1. The proposed amendment is reasonable and necessary to correctly identify the referenced portion of the updated ASME B31.1 that is being incorporated in these rules.

5230.0305 CHAPTER VI, INSPECTION, EXAMINATION, AND TESTING.

The proposed amendment changes the subsections deleted within section 136 of ASME B31.1. Minnesota Rules, part 5230.0335, “Examination of Welded Pipe Joints,” references section 136.4.2 and sections 136.4.3 to 136.4.6 of ASME B31.1. Therefore, the entire section should not be deleted. The amendment is needed to resolve the issue of referencing parts of B31.1 that were deleted in previous rulemaking. It is reasonable because users of the HPP Code are already familiar with the requirements for examination of welded pipe joints in Minnesota since they are currently referenced in the HPP Code in Minnesota Rules, part 5230.0335.

5230.5001 INCORPORATIONS BY REFERENCE.

Subpart 1. ANSI/IIAR 2. The proposed amendment adopts the 2014 ANSI/IIAR 2 standard to
replace the 2008 edition and also changes the document title to reflect the current title of the 2014 ANSI/IIAR 2. The address of the International Institute of Ammonia Refrigeration is changed to reflect the current address of the publisher. It is reasonable and necessary to update the adopted standard to the most current version in order to keep the HPP Code current with industry standards and practices.

Subp. 2. ASME B31.5. The proposed amendment adopts the 2016 ASME B31.5 standard to replace the 2013 edition and also changes the document title to reflect the current title of the 2016 ASME B31.5. It is reasonable and necessary to adopt the 2016 edition in order to keep the HPP Code current with industry standards and practices.

5230.5003 DEFINITIONS.

The section reference in this chapter is renamed and renumbered to reflect chapter and section renaming and renumbering that occurred in the 2014 edition of ANSI/IIAR 2. The proposed amendment is reasonable and necessary to correctly identify the referenced portion of the updated ANSI/IIAR 2 that is being incorporated in these rules.

5230.5005 CHAPTER 13, PIPING.

The section references in subparts 1, 2, 3, and 4 are renamed and renumbered to reflect chapter and section renumbering that occurred in the 2014 edition of ANSI/IIAR 2. The proposed amendments are reasonable and necessary to correctly identify the referenced portion of the updated ANSI/IIAR 2 that is being incorporated in these rules.

Other amendments include grammatical changes that help make it easier to follow the rules. The changes are necessary to clarify when the Board is modifying an existing section of the 2014 version of ANSI/IIAR 2 or adding a new section. The amendments are reasonable because the Board is not making additional substantive changes and is instead making it easier to use the HPP Code.

5230.5006 CHAPTER 14, PACKAGED SYSTEMS AND EQUIPMENT.

This proposed amendment adds a section requiring installers of packaged systems to submit a copy of a manufacturer’s design specifications for the packaged systems. The amendment is necessary to ensure high pressure piping contractors who install packaged ammonia refrigeration systems use only packaged systems and equipment that complies with the adopted standards in the HPP Code. It is reasonable to request installers submit specifications since packaged systems are fully constructed when shipped, and therefore cannot be inspected at various points during construction to determine compliance with HPP Code requirements under parts 5230.05000 to 5230.5915.

5230.5007 CHAPTER 15, OVERPRESSURE PROTECTION DEVICES

Subpart 1. Chapter 15.2.5. The section reference is renamed and renumbered to reflect chapter and section renaming and renumbering that occurred in the 2014 edition of ANSI/IIAR 2. The proposed amendment is reasonable and necessary to correctly identify the referenced portion of the updated ANSI/IIAR 2 that is being incorporated in these rules.
Subpart 2. Chapter 15.2.6.2. The section reference is renamed and renumbered to reflect chapter and section renaming and renumbering that occurred in the 2014 edition of ANSI/IIAR 2. The proposed amendment is reasonable and necessary to correctly identify the referenced portion of the updated ANSI/IIAR 2 that is being incorporated in these rules.

Subpart 3. Chapter 15.3.2. The section reference is renamed and renumbered to reflect chapter and section renaming and renumbering that occurred in the 2014 edition of ANSI/IIAR 2. The proposed amendment is reasonable and necessary to correctly identify the referenced portion of the updated ANSI/IIAR 2 that is being incorporated in these rules.

It is necessary to delete the previous part 11.2.5 to prevent duplication of information that is published within the 2014 ANSI/IIAR2. It is reasonable to do so because these requirements are listed in chapter 15.3.5.

Section 15.3.2.1 is added because this requirement was in sections 7.1.1.3 and 7.2.1.4 of the 2008 revision of ANSI/IIAR 2, but was deleted in the 2014 edition. This amendment is necessary to ensure additional safety on certain condenser circuits that may be isolated by closing valves which could lead to overpressurization. It is reasonable to add this clause because parties are already familiar with this provision and it does not change the requirements of the HPP Code as currently enforced.

Subpart 4. Chapter 15.4.3. The section reference is renamed and renumbered to reflect chapter and section renaming and renumbering that occurred in the 2014 edition of ANSI/IIAR 2. The proposed amendment is reasonable and necessary to correctly identify the referenced portion of the updated ANSI/IIAR 2 that is being incorporated in these rules.

5230.5009 CHAPTER 5, GENERAL SYSTEM DESIGN REQUIREMENTS.

The section title and references in this part are renamed and renumbered to reflect chapter and section renaming and renumbering that occurred in the 2014 edition of ANSI/IIAR 2. The proposed amendment is reasonable and necessary to correctly identify the referenced portion of the updated ANSI/IIAR 2 that is being incorporated in these rules.

5230.5915 PIPING JOINTS.

Subpart 1. Design standards.

It is necessary to amend item A to prevent duplicating information that is now published in ANSI/IIAR 2. It is necessary to delete the phrase, “One and one quarter inch and smaller joints may be threaded or welded” in item A because the threaded pipe joint size limitation is now addressed in chapter 13.2.4.3 of the 2014 edition of ANSI/IIAR 2. This amendment is reasonable because it aligns the HPP Code with current industry standards and practices.

It is also necessary to delete, “Threaded fittings must be 2,000 pounds per square inch rating. Threaded fittings must be forged steel” because section 13.2.4.2 of the 2014 edition of ANSI/IIAR 2 requires class 3000 pipe fitting and now includes the forged steel requirement. The amendments to this item are reasonable because they align the HPP Code with current industry standards and practices.
It is necessary to delete previous items B, C, and D to prevent duplicating information that is now published in ANSI/IIAR 2. These amendments are reasonable because updated piping joint requirements that address the previous items are now found in chapter 13 of the 2014 edition of ANSI/IIAR 2, as follows:

- Previous Item B: Chapter 13.2.4.3 states that “threaded joints shall not be used for refrigerant piping larger than 2 in. in diameter.” The change to a 2-inch maximum is necessary to align the HPP Code with current industry standards and practices. It is also reasonable to delete this item because chapter 13.2.4 contains the socket weld and butt weld fitting requirements for ammonia refrigeration service.
- Previous Item C: Flange requirements for ammonia refrigeration service can now be found in chapter 13.2.5.1.
- Previous Item D: Gasket requirements for ammonia refrigeration service can now be found in chapter 13.2.5.2.

Finally, it is reasonable and necessary to change previous item E to item “B” to correspond with the deletion of the other items as described above.

Subpart 2. Branch, run-outs, laterals, and saddles. The proposed deletion of the terms “WELD-O-LET” and THREAD-O-LET” within the subpart is needed because it allows for the use of reinforced branch fittings manufactured by more companies than the manufacturer who holds these two trademark fittings, Bonney Forge Corporation. This amendment is reasonable because allowing reinforced branch fittings other than those manufactured and trademarked by Bonney Forge Corporation will reduce costs for high pressure piping systems.

The striking of the term “registered” and the insertion of the word “licensed” is needed to align with the classification of professional engineers in Minnesota Statutes, section 326.02. It is reasonable to amend this term because it conforms to the statutory language and does not affect the substance of the rule.

Subpart 6. Examination of welded pipe joints. The section reference in this chapter is renumbered to reflect section renumbering that occurred in the 2016 edition of ASME B31.5. The proposed amendment is reasonable and necessary to correctly identify the referenced portion of the updated ASME B31.5 that is being incorporated in these rules.

5230.5920 QUALIFICATION OF WELDING PROCEDURES, WELDERS, AND WELDING OPERATORS

Subpart 2. Incorporation by reference. The proposed amendment adopts the 2017 edition of ASME section IX to replace the 2013 revision. It is reasonable and necessary to update the adopted standard to the most current version in order to keep the HPP Code current with industry standards and practices.

EFFECTIVE DATE. In accordance with Minnesota Statutes, section 326B.13, subdivision 8, the Board has determined that it is necessary to establish an effective date for amendments to Chapter 5230 of five working days after publication of the amendments’ notice of adoption in the State Register. The Board has found and determined that an earlier effective date for the proposed rules is necessary to protect public health and safety because the standards and
practices being adopted include the most recently published safety requirements for the field of high pressure piping. Additionally, there is adequate time for compliance and training with the rule. All of the codes and standards being adopted have been available since at least August, 2017, including some revisions from 2014 and 2016. Updated codes and standards are already being used by high pressure pipefitters in the field. Various formal and informal training opportunities have commenced and will be made available before and following the adoption of these amendments.

CONCLUSION

Based on the foregoing, the proposed rules are both needed and reasonable.

1/25/18                      Larry Stevens, Jr. Chair
Date                      MN Board of High Pressure Piping Systems

This Statement of Need and Reasonableness was made available to the public on February 1, 2018.