July 26, 2004

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U. S. Nuclear Regulatory Commission
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Kewaunee Nuclear Power Plant
Docket 50-305
License No. DPR-43

60-Day Response to Bulletin 2004-01, "Inspection of Alloy 82/182/600 Materials Used in the Fabrication of Pressurizer Penetrations and Steam Space Piping Connections at Pressurized-Water Reactors"

On May 28, 2004, the Nuclear Regulatory Commission (NRC) transmitted Bulletin (BL) 2004-01. The NRC required that specific information be provided within 60 days of the date of the BL. Enclosure 1 contains the Nuclear Management Company, LLC (NMC) response to BL 2004-01 for the Kewaunee Nuclear Power Plant.

Summary of Commitments

This letter contains no new commitments and no revisions to existing commitments.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on July 26, 2004.

Thomas Coutu
Site Vice-President, Kewaunee Nuclear Power Plant
Nuclear Management Company, LLC

Enclosures (1)
cc : Administrator, Region III, USNRC
Project Manager, Kewaunee Nuclear Power Plant, USNRC
Senior Resident Inspector, Kewaunee Nuclear Power Plant, USNRC
Electric Division, PSCW

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ENCLOSURE 1
BULLETIN 2004-01
KEWAUNEE NUCLEAR POWER PLANT 60-DAY RESPONSE

Nuclear Regulatory Commission (NRC) Requested Information

(1) All subject PWR licensees are requested to provide the following information within 60-days of the date of this bulletin.

(a) A description of the pressurizer penetrations and steam space piping connections at your plant. At a minimum, this description should include materials of construction (e.g., stainless steel piping and/or weld metal, Alloy 600 piping/sleeves, Alloy 82/182 weld metal or buttering, etc.), joint design (e.g., partial penetration welds, full penetration welds, bolted connections, etc.), and, in the case of welded joints, whether or not the weld was stress-relieved prior to being put into service. Additional information relevant with respect to determining the susceptibility of your plant's pressurizer penetrations and steam space piping connections to PWSCC should also be included.

Introduction

On May 28, 2004 the NRC issued NRC Bulletin 2004-01: "Inspection of Alloy 82/182/600 Materials Used in the Fabrication of Pressurizer Penetrations and Steam Space Piping Connections at Pressurized-Water Reactors". This bulletin requested a description of the pressurizer penetrations and steam space piping connections at the Kewaunee Nuclear Power Plant (KNPP).

The pressurizer maintains the required reactor coolant pressure during steady-state operation, limits the pressure changes caused by coolant thermal expansion and contraction during normal load transients, and prevents the pressure in the Reactor Coolant System from exceeding the design pressure. The pressurizer shell is constructed of low alloy steel (SA-533 Grade A, Class 1) and the heads are constructed of cast carbon steel (SA-216-GR-WCC). Both the pressurizer shell and heads are designed with their internal surfaces clad with austenitic stainless steel, type 304 or equivalent. All of the penetrations and nozzles contain materials other than alloy 600 piping or alloy 82/182 welds.

Nuclear Management Company, LLC (NMC) Response

NMC has reviewed the pertinent background information to determine that KNPP has no locations subject to the bulletin. The following locations were considered, taking into account the material of construction and weld material.

The pressurizer contains 93 penetrations, which are categorized as follows:

One 14-inch surge line nozzle

Materials of Construction - fabricated of SA-216, Grade WCC carbon steel casting, clad with austenitic stainless steel, and is fitted with a 316L stainless steel safe-end.

Joint Design – The safe end is butt welded to the cast carbon steel lower head surge line nozzle using stainless steel weld material.

Stress Relieved – No.

One 4-inch spray line nozzle

Materials of Construction - fabricated of SA-216, Grade WCC carbon steel casting, clad with austenitic stainless steel, and is fitted with a 316L stainless steel safe-end.

Joint Design – The safe end is butt welded to the cast carbon steel upper head spray nozzle using stainless steel weld material.

Stress Relieved – No.

One 6-inch relief nozzle

Materials of Construction - fabricated of SA-216, Grade WCC carbon steel casting, clad with austenitic stainless steel, and is fitted with a 316L stainless steel safe-end.

Joint Design – The safe end is butt welded to the cast carbon steel upper head relief nozzle using stainless steel weld material.

Stress Relieved – No.

Two 6-inch safety nozzles

Materials of Construction - fabricated of SA-216, Grade WCC carbon steel casting, clad with austenitic stainless steel, and is fitted with a 316L stainless steel safe-end.

Joint Design – Each safe end is butt welded to the cast carbon steel upper head safety nozzle using stainless steel weld material.

Stress Relieved – No.

Six 3/4-inch level nozzles

Materials of Construction - fabricated of SA-213 Type 316 stainless steel tubing and is fitted with a Type 316 stainless steel coupling nozzle.

Joint Design – The tubing is welded to the internal cladding in accordance with ASME Code Section III.

Stress Relieved – The requested heat treatment information resides in storage with the pressurizer vendor. Because all of the pressurizer penetrations and nozzles contain materials other than alloy 600 piping or alloy 82/182 welds, NMC finds that these welds are not applicable to this bulletin and has chosen not to obtain these records.

Two 3/4-inch temperature element nozzles

Materials of Construction - fabricated of SA-213 Type 316 stainless steel tubing and is fitted with a Type 316 stainless steel coupling nozzle.

Joint Design – The tubing is welded to the internal cladding in accordance with ASME Code Section III.

Stress Relieved – The requested heat treatment information resides in storage with the pressurizer vendor. Because all of the pressurizer penetrations and nozzles contain materials other than alloy 600 piping or alloy 82/182 welds, NMC finds that these welds are not applicable to this bulletin and has chosen not to obtain these records.

One 3/4-inch sample nozzle

Materials of Construction - fabricated of SA-213 Type 316 stainless steel tubing and is fitted with a Type 316 stainless steel coupling nozzle.

Joint Design – The tubing is welded to the internal cladding in accordance with ASME Code Section III.

Stress Relieved – The requested heat treatment information resides in storage with the pressurizer vendor. Because all of the pressurizer penetrations and nozzles contain materials other than alloy 600 piping or alloy 82/182 welds, NMC finds that these welds are not applicable to this bulletin and has chosen not to obtain these records.

One 16-inch Manway

Materials of Construction – The manway is cast in the SA-216-GR-WCC carbon steel upper head and clad with austenitic stainless steel. The cover is fabricated of SA-302-GR.B stainless steel. The bolts are fabricated of SA-193-B7 stainless steel. The manway cover utilizes a SA-240 Type 304 stainless steel insert for sealing purposes. The gasket between the manway cover and the manway is fabricated of asbestos filled Inconel stainless steel. This gasket falls outside of the applicability of this Bulletin.

Joint Design – The manway is cast in the carbon steel upper head with the cover bolted into it.

Stress Relieved – The cast upper head was heat-treated but no welds exist on this penetration.

Seventy-Eight Pressurizer heater penetrations

Materials of Construction – The immersion heater bundle consists of 78 individual heater elements, each element is seal welded to a type 316 stainless steel heater well assembly (sheath) and extending into the pressurizer via 78 openings, in the lower head. The sheath and welds are all stainless steel.

Joint Design – Each heater well assembly is rolled and seal welded to the stainless steel weld cladding on the inside of the lower head.

Stress Relieved – The requested heat treatment information resides in storage with the pressurizer vendor. Because all of the pressurizer penetrations and nozzles contain materials other than alloy 600 piping or alloy 82/182 welds, NMC finds that these welds are not applicable to this bulletin and has chosen not to obtain these records.

Conclusion:

All of the pressurizer penetrations and nozzles contain materials other than alloy 600 piping or alloy 82/182 welds.

NRC Requested Information

(b) A description of the inspection program for Alloy 82/182/600 pressurizer penetrations and steam space piping connections that has been implemented at your plant. The description should include when the inspections were performed; the areas, penetrations and steam space piping connections inspected; the extent (percentage) of coverage achieved for each location which was inspected; the inspection methods used; the process used to resolve any inspection findings; the quality of the documentation of the inspections (e.g., written report, video record, photographs); and, the basis for concluding that your plant satisfies applicable regulatory requirements related to the integrity of pressurizer penetrations and steam space piping connections. If leaking pressurizer penetrations or steam space piping connections were found, indicate what followup NDE was performed to characterize flaws in the leaking penetrations.

NMC Response

(b) As described in the response to question (1)(a), all of the pressurizer penetrations and nozzles contain materials other than alloy 600 piping or alloy 82/182 welds. Therefore, there is no specific inspection program for Alloy 82/182/600 materials for the pressurizer.

NRC Requested Information

(c) A description of the Alloy 82/182/600 pressurizer penetration and steam space piping connection inspection program that will be implemented at your plant during the next and subsequent refueling outages. The description should include the areas, penetrations and steam space piping connections to be inspected; the extent (percentage) of coverage to be achieved for each location; inspection methods to be used; qualification standards for the inspection methods and personnel; the process used to resolve any inspection indications; the inspection documentation to be generated; and the basis for concluding that your plant will satisfy applicable regulatory requirements related to the structural and leakage integrity of pressurizer penetrations and steam space piping connections. If leaking pressurizer penetrations or steam space piping connections are found, indicate what followup NDE will be performed to characterize flaws in the leaking penetrations. Provide your plans for expansion of the scope of NDE to be performed if circumferential flaws are found in any portion of the leaking pressurizer penetrations or steam space piping connections.

NMC Response

(c) As described in the response to question (1)(a), all of the pressurizer penetrations and nozzles contain materials other than alloy 600 piping or alloy 82/182 welds. Therefore, there is no need to implement an inspection program to inspect alloy 82/182/600 materials in the pressurizer.

NRC Requested Information

(d) In light of the information discussed in this bulletin and your understanding of the relevance of recent industry operating experience to your facility, explain why the inspection program identified in your response to item (1)(c) above is adequate for the purpose of maintaining the integrity of your facility's RCPB and for meeting all applicable regulatory requirements which pertain to your facility.

NMC Response

(d) NMC understands the relevance of the recent operating experience associated with Alloy 600 in the industry and understand that these materials are susceptible to PWSCC. This response has shown that no alloy 82/182/600 materials exist in the KNPP pressurizer. Meeting the code requirements, together with the inspection requirements stated in Section XI of the ASME Code, is adequate for the purpose of maintaining the integrity of the KNPP reactor coolant pressure boundary.

(2) Within 60 days of plant restart following the next inspection of the Alloy 82/182/600 pressurizer penetrations and steam space piping connections, the subject PWR licensees should either:

(a) submit to the NRC a statement indicating that the inspections described in the licensee's response to item (1)(c) of this bulletin were completed and a description of the as-found condition of the pressurizer shell, any findings of relevant indications of through-wall leakage, followup NDE performed to characterize flaws in leaking penetrations or steam space piping connections, a summary of all relevant indications found by NDE, a summary of the disposition of any findings of boric acid, and any corrective actions taken and/or repairs made as a result of the indications found,

or

(b) *if the licensee was unable to complete the inspections described in response to item (1)(c) of this bulletin, submit to the NRC a summary of the inspections performed, the extent of the inspections, the methods used, a description of the as-found condition of the pressurizer shell, any findings of relevant indications of through-wall leakage, followup NDE performed to characterize flaws in leaking penetrations or steam space piping connections, a summary of all relevant indications found by NDE, a summary of the disposition of any findings of boric acid, and any corrective actions taken and/or repairs made as a result of the indications found. In addition, supplement the answer which you provided to item (1)(d) above to explain why the inspections that you completed were adequate for the purpose of maintaining the integrity of your facility's RCPB and for meeting all applicable regulatory requirements which pertain to your facility.*

NMC Response

Based on the response to request 1(a), the response required within 60 days after plant restart following the next inspection is not applicable and will not be sent.