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NMC
Committed to Nuclear Excellence

Kewaunee / Point Beach Nuclear
Operated by Nuclear Management Company, LLC

January 3, 2002

10 CFR 50.54(f)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Ladies/Gentlemen:

Docket Numbers 50-305, 50-266 and 50-301
Kewaunee Nuclear Power Plant (KNPP)
Point Beach Nuclear Plant (PBNP), Units 1 and 2
REVISED RESPONSE TO NRC BULLETIN 2001-01, "CIRCUMFERENTIAL CRACKING OF REACTOR PRESSURE VESSEL HEAD PENETRATION NOZZLES"

Reference: 1. Letter from M. E. Reddemann (NMC) to the USNRC Document Control Desk, dated September 4, 2001, "Response To NRC Bulletin 2001-01, 'Circumferential Cracking Of Reactor Pressure Vessel Head Penetration Nozzles'"

In Reference 1, the Nuclear Management Company (NMC), LLC, licensee for the Kewaunee and Point Beach Nuclear Plants, provided the requested response to NRC Bulletin 2001-01, *Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles.*

This submittal provides additional information regarding NMC's response to the NRC Bulletin. Attachment 1 to this correspondence provides the revised Kewaunee Nuclear Power Plant site-specific information related to NRC Bulletin 2001-01, and Attachment 2 to this correspondence provides the revised Point Beach Nuclear Plant, Units 1 and 2, site-specific information related to NRC Bulletin 2001-01.

Subsequent to our original submittal, NMC identified that the reactor vessel level indication system piping was not described in our response to item 1.e as a system interconnection for either Kewaunee Nuclear Power Plant (KNPP) or Point Beach Nuclear Plant (PBNP).

As stated in item 5 of NRC Bulletin 2001-01, NMC was requested to provide the inspection results from the KNPP inspection in the KNPP response. These results are now available and are provided to the NRC.

Also, after telephone conversations with the NRC on October 30, 2001, and again on December 18, 2001, NMC committed to provide additional information to the PBNP response regarding our proposed inspection techniques for item 4.a.

AD88

Please contact me or a member of my staff if there are any questions, or if additional information is needed.

Sincerely,

Mark E. Reddemann
Site Vice President
Kewaunee Nuclear Power Plant
Point Beach Nuclear Plant, Units 1 and 2

Subscribed and Sworn to
Before Me This 3rd Day
of January 2002.

Notary Public, State of Wisconsin

My Commission Expires:
February 27, 2005

Attachments

ADB

cc: NRC Regional Administrator
NRC Senior Resident Inspector – KNPP
NRC Senior Resident Inspector – PBNP

Attachment 1

Letter from Mark E. Reddemann (NMC)

to

Document Control Desk (NRC)

Dated

January 3, 2002

Kewaunee Nuclear Power Plant

Revised Plant Specific Response

to

NRC Bulletin 2001-01

NRC Request

1.a. "the plant-specific susceptibility ranking for your plant(s) (including all data used to determine each ranking) using the PWSCC susceptibility model described in Appendix B to the MRP-44, Part 2, report;"

KNPP Response

Plant Specific PWSCC Susceptibility Ranking
Kewaunee Nuclear Power Plant (KNPP) has been analyzed for susceptibility relative to Oconee 3 using the time-at-temperature model and plant-specific input data reported in MRP-48 [1].

This evaluation estimated that it will take KNPP 21.9 EFPYs of additional operation from March 1, 2001, to reach the same time-at-temperature as Oconee 3 at the time that leaking nozzles were discovered in March 2001.

KNPP falls into the NRC category of plants greater than 5 EFPY and less than 30 EFPY relative to Oconee 3.

NRC Request

1.b. "a description of the VHP nozzles in your plant(s), including the number, type, inside and outside diameter, materials of construction, and the minimum distance between VHP nozzles;"

KNPP Response

Description of VHP Nozzles
KNPP has 40 total Vessel Head Penetration (VHP) nozzles and one head vent nozzle. The VHPs consist of twenty-nine full length rod; four part-length rod penetrations; three penetrations adapted for columns that support the Core Exit Thermocouple (CET) assemblies; and four spare penetrations that are plugged at the head. The part-length rods have been removed from the core; however, the drive mechanisms remain installed on the reactor vessel head with the lead screws fully withdrawn and locked into position.

The head arrangement and requested nozzle details are provided in Table 2-3 of MRP-48. The VHPs are fabricated of SB-167 material. The VHP centerline to centerline distance is reported in Table 2-3 of MRP 48.

Contrary to the head vent data provided in MRP-48, the inside diameter of the KNPP head vent is 0.77 inches and the outside diameter is 1.014 inches at the RPV head. The head vent nozzle is fabricated of SB-166-63 material. The head vent nozzle is located near the center of the reactor vessel head, at a center-to-center distance of 7.80 inches to the nearest VHP.

NRC Request

1.c. "a description of the RPV head insulation type and configuration;"

KNPP Response

Description of RPV Head Insulation
As reported in Table 2-1 of MRP-48, KNPP has block contoured vessel head insulation. Specifically, KNPP insulation consists of Mirror Panels fabricated of 4 inch thick perforated metal block insulation located inside a metal shroud.

NRC Request

1.d. "a description of the VHP nozzle and RPV head inspections (type, scope, qualification requirements, and acceptance criteria) that have been performed at your plant(s) in the past 4 years, and the findings. Include a description of any limitations (insulation or other impediments) to accessibility of the bare metal of the RPV head for visual examinations;"

KNPP Response

Description of RPV Head and Nozzle Inspections Within Past Four Years
KNPP has performed RPV head and nozzle inspections within the past four years. The inspections consisted of a system leakage test each refueling outage (ASME Section XI Category B-P, item B15.10) in accordance with ASME Section XI, 1989 edition. In addition, a walkdown to look for evidence of leakage of boric acid in the head region in response to GL 88-05 is conducted each refueling outage during the inservice inspection.

Furthermore, in 1998, KNPP performed an examination of one-third of the volume/circumference of the reactor vessel closure head-to-flange weld using volumetric (ultrasonic) and surface (magnetic particle) examination techniques. These examinations were in accordance with the inservice inspection program requirements as required by ASME Section XI, 1989 edition.

Also, in 1989, KNPP performed a visual VT-1 and VT-2 examination of all VHPs. The VT-1 examination was conducted with 100% RPV head insulation and CRDM shroud removed. These VT-1 and VT-2 examinations met the requirements and acceptance standards of ASME Section XI, 1980 edition up to and including Winter 1981 addenda.

No evidence of cracking was identified during any of these inspections.

NRC Request

1.e. "a description of the configuration of the missile shield, the CRDM housings and their support/restraint system, and all components, structures, and cabling from the top of the RPV head up to the missile shield. Include the elevations of these items relative to the bottom of the missile shield."

KNPP Response

Description of Equipment and Cables on Top of Vessel Head

The KNPP missile shield is 24.5' long, 10.5' wide, 1.0' thick, and spans the width of the refueling cavity. The missile shield is a removable structure designed to block any missiles that could be generated by the control rod drive mechanism and is supported by the refueling cavity walls.

The CRDM cooling system is mounted on top of the missile shield. The cooling system is an integral unit with two fans, two heat exchangers supplied by service water and an air inlet plenum. There are three flanged openings on the unit that are connected to ventilation ducts that run down and are connected to the metal shroud that is attached to the reactor vessel head.

Each of the 40 VHPs is attached to a weldment that consists of a threaded 6" OD adapter and a 4" OD body. The adapter is fabricated of ASME SA-182, type 304 stainless steel. Attached to the weldments are:

1) 29 full-length control rod drive mechanisms (CRDMs),
2) four part-length control rod drive mechanisms,
3) four spare capped penetrations, and
4) three conoseal connections for CET instrumentation.

Each attachment is threaded onto the weldment and seal welded (canopy seal weld) to prevent leakage of reactor coolant onto the top of the reactor vessel head.

There are two sources of cabling associated with each full-length CRDM, the operating coil stack and the rod position indication (RPI) coil. The operating coil stack is an independent unit which is installed on the drive mechanism by sliding it over the outside of the latch housing. This coil stack contains a conduit tube that extends from the upper coil housing to the top of the mechanism. The tube holds the cable connector and protects the coil lead wires. Two lead wires from each of the three coils run through the conduit tube to a cable connector at the top of the conduit. This connector connects to the square base plate of the Rod Position Indicator (RPI) coil stack.

The RPI coil stack slides over the top portion the CRDM housing and is used for determining the position of the control rod during operation. At the top of the RPI coil stack is a base plate that holds two separate connectors, one for the rod position indication wiring and one for the operating coil stack. The square base plates from the RPI coil stacks fit together and integral to the coil stack conduit tube at the top of the CRDM housing. For those spare penetrations that are capped, a blank square plate is installed to fit integrally with the RPI coil stack plates.

The spare penetrations are capped and contained within the ventilation shroud. No additional equipment is attached to the caps. The CET columns are sealed by a conoseal closure where they penetrate the ventilation shroud. The CET wiring runs up through to the head lift rig platform.

The reactor vessel level indication system upper level tap is attached to the No. 2 spare penetration. The design includes a 1/2" diameter pipe welded to the side of the stainless steel weldment below the canopy seal with a 3/8" diameter hole drilled through the adapter to provide the fluid connection. 1/2" pipe is then routed to a one inch manual isolation valve mounted on the ventilation shroud. 3/8" tubing is routed from the outlet of this valve to a reference chamber located outside of the refueling cavity. This tubing contains Swagelock fittings at each end to permit removal during refueling. A removable support is attached to the refueling cavity wall and extends approximately 3.5' to provide seismic support for the 3/8" tubing.

The ventilation shroud surrounds all the head penetrations and extends upward to just beyond the CRDM coils. The ventilation shroud is part of the CRDM cooling system and has three flanged openings that are connected to the duct work that runs up to the CRDM cooling unit.

There are three columns attached to the reactor vessel head that provide support for the head lifting rig platform. The head lifting rig platform provides lateral support for the pressure housings and instrument conduits. The platform is constructed with a center opening designed to provide the required lateral support. There are six lateral supports (seismic restraints) attached to the platform at one end and to the refueling cavity walls on the opposite end. The support columns that extend from the reactor vessel head are attached to the platform. A walkway surrounds this opening to provide personnel access. The underside of the platform is constructed of a circular I-Beam. There are three chain hoists mounted on the platform I-Beam that are used to position the reactor vessel stud tensioning devices.

A walkway that extends from the refueling cavity wall to the platform provides personnel access. The instrument and power cables run from the platform through cable racks underneath the walkway to their connection on the cavity wall.

The following equipment elevations are approximate:

Equipment Description	Elevation
Bottom of the missile shield	650'-0"
Reactor Building operating floor	649'-6"
Top of the CRDM housings (including the eye bolts)	648'-8"
Top of the reactor vessel head	629'-3"
Reactor vessel flange	623'-7"

NRC Request

2. "If your plant has previously experienced either leakage from or cracking in VHP nozzles, addressees are requested to provide the following . . ."

KNPP Response

As discussed above, KNPP has not previously experienced leakage from or cracking in any RPV head nozzles. This question is not applicable to KNPP.

NRC Request

3. "If the susceptibility ranking for your plant is within 5 EFPY of ONS3, addressees are requested to provide the following . . ."

KNPP Response

The susceptibility ranking of KNPP is not within 5 EFPY of ONS3. This question is not applicable to KNPP.

NRC Request

4. "If the susceptibility ranking for your plant is greater than 5 EFPY and less than 30 EFPY of ONS3, addressees are requested to provide the following information:

    a. "your plans for future inspections (type, scope, qualification requirements, and acceptance criteria) and the schedule;"

KNPP Response

Plans for Future Inspections

KNPP plans to perform inspections of the RPV head and nozzles. The inspections will consist of an "effective visual examination"* of the reactor vessel head examining 100% of the VHPs for leakage. The "effective visual examination" will be performed by VT-2 qualified personnel with additional training in the type of leakage found on other reactor vessel heads. Acceptance criteria will be no leakage permitted.

The "effective visual examinations" will be performed during the next scheduled refueling outage. The next refueling outage is scheduled to begin in Fall 2001.

NRC Request

4.b. "your basis for concluding that the inspections identified in 4.a will assure that regulatory requirements are met (see Applicable Regulatory Requirements section). Include the following specific information in this discussion:

(1) "If your future inspection plans do not include a qualified visual examination at the next scheduled refueling outage, provide your basis for concluding that the regulatory requirements discussed in the Applicable Regulatory Requirements section will continue to be met until the inspections are performed.

(2) "The corrective actions that will be taken, including alternative inspection methods (for example, volumetric examination), if leakage is detected."

KNPP Response

Basis for Concluding That Regulatory Requirements are Met

The technical basis for concluding that regulatory bases are met for KNPP is provided in Section 3 of MRP-48.

Any evidence of boric acid will be evaluated to determine the source, extent of leakage and possible extent of cracking. Detection of cracking may require characterization by ECT, PT, or UT as applicable and comparison to the acceptance criteria specified in ASME Section XI. Any indication of cracking will be evaluated in accordance with the acceptance standards of ASME Section XI.

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* "Effective visual examination" is defined in NRC Bulletin 2001-01: "an effective visual examination, at a minimum, of 100% of the VHP nozzles that is capable of detecting and discriminating small amounts of boric acid deposits from VHP nozzle leaks, such as were identified at ONS2 and ONS3, may be sufficient to provide reasonable confidence that PWSCC degradation would be identified prior to posing an undue risk. This effective visual examination should not be compromised by the presence of insulation, existing deposits on the RPV head, or other factors that could interfere with the detection of leakage."

NRC Request

5. "Addressees are requested to provide the following information within 30 days after plant restart following the next refueling outage:

   a. a description of the extent of VHP nozzle leakage and cracking detected at your plant, including the number, location, size, and nature of each crack detected;

   b. if cracking is identified, a description of the inspections (type, scope, qualification requirements, and acceptance criteria), repairs, and other corrective actions you have taken to satisfy applicable regulatory requirements. This information is requested only if there are any changes from prior information submitted in accordance with this bulletin."

KNPP Response

Reporting of Future Inspection Results

Plant restart following the KNPP refueling outage began on December 4, 2001. KNPP did not identify any nozzle leakage during the 100% "effective visual examination."

Reference

1. *PWR Materials Reliability Program Response to NRC Bulletin 2001-01 (MRP-48)*, EPRI, Palo Alto, CA: 2001. TP-1006284.

Attachment 2

Letter from Mark E. Reddemann (NMC)

to

Document Control Desk (NRC)

Dated

January 3, 2002

Point Beach Nuclear Plant
Units 1 and 2

Revised Plant Specific Response

to

NRC Bulletin 2001-01

NRC Request

1.a. "the plant-specific susceptibility ranking for your plant(s) (including all data used to determine each ranking) using the PWSCC susceptibility model described in Appendix B to the MRP-44, Part 2, report;"

PBNP Response

Plant Specific PWSCC Susceptibility Ranking
Point Beach Nuclear Plant (PBNP) has been analyzed for susceptibility relative to Oconee 3 using the time-at-temperature model and plant-specific input data reported in MRP-48[1].

This evaluation showed that it will take PBNP Unit 1 11.5 EFPYs and PBNP Unit 2 9.6 EPFYs of additional operation from March 1, 2001, to reach the same time at temperature as Oconee 3 at the time that leaking nozzles were discovered in March 2001.

PBNP Unit 1 and Unit 2 fall into the NRC category of plants greater than 5 EFPY and less than 30 EFPY relative to Oconee 3.

NRC Request

1.b. "a description of the VHP nozzles in your plant(s), including the number, type, inside and outside diameter, materials of construction, and the minimum distance between VHP nozzles;"

PBNP Response

Description of VHP Nozzles
PBNP Unit 1 has 49 total vessel head penetrations (VHPs) nozzles and one head vent nozzle. Of the 49 VHPs, 33 are for control rod drive mechanisms (CRDMs) and have thermal sleeves installed, three are unsleeved penetrations that house core exit thermocouple (CET) instrumentation, and the remaining 13 are unsleeved spare penetrations that are capped.

PBNP Unit 2 has 49 total vessel head penetrations (VHPs) nozzles and one head vent nozzle. Of the 49 VHPs, 33 are for control rod drive mechanisms (CRDMs) and have thermal sleeves installed, three are unsleeved penetrations that house CET instrumentation, four have inactive part-length control rods, and the remaining nine are unsleeved spare penetrations that are capped. The part-length rods have been removed from the core; however, the drive mechanisms remain installed on the reactor vessel head with the lead screws fully withdrawn and locked into position.

The head arrangement and requested nozzle details for both units are provided in Table 2-3 of MRP-48. The VHPs are fabricated of SB-167 material and are welded using weld deposited Inconel. The VHP centerline to centerline distance is reported in Table 2-3 of MRP 48. The head vent nozzle is located near the center of the reactor vessel head, at a center-to-center distance of 7.80 inches to the nearest VHP.

NRC Request

1.c. "a description of the RPV head insulation type and configuration;"

PBNP Response

Description of RPV Head Insulation
As reported in Table 1 of MRP-48, PBNP Unit 1 and Unit 2 have block contoured RPV head insulation. The insulation consists of three inch blocks coated with ¼ inch of Fiberfrax cement. The top of the insulation is then sealed with a waterproof coating.

NRC Request

1.d. "a description of the VHP nozzle and RPV head inspections (type, scope, qualification requirements, and acceptance criteria) that have been performed at your plant(s) in the past 4 years, and the findings. Include a description of any limitations (insulation or other impediments) to accessibility of the bare metal of the RPV head for visual examinations;"

PBNP Response

Description of RPV Head and Nozzle Inspections Within Past Four Years
As reported in Table 1 of MRP-48, PBNP Units 1 and 2 have performed RPV head and nozzle inspections within the past four years. The inspections consisted of a system leakage test each refueling outage for Unit 1 and 2 (ASME Section XI Category B-P, item B15.10) and a system hydrostatic test in the spring 2001 for Unit 1 (ASME Section XI Category B-P, item B15.11) in accordance with ASME Section XI, 1986 edition. In addition, a walkdown to look for evidence of leakage of boric acid in the head region in response to GL 88-05 is conducted each refueling outage during the inservice inspection. These inspections were conducted with the insulation in place on the reactor vessel head.

Furthermore, in November 2000, PBNP performed an examination of essentially 100% of the Unit 2 reactor vessel head-to-flange weld using volumetric (ultrasonic) and surface (magnetic particle) examination techniques. In November 1999, PBNP performed an examination of one-third of the Unit 1 reactor vessel head-to-flange weld using volumetric (ultrasonic) and surface (magnetic particle) examination techniques. These examinations were in accordance with the inservice inspection program requirements as required by ASME Section XI, 1986 edition.

No evidence of cracking was identified during any of these inspections.

NRC Request

1.e. "a description of the configuration of the missile shield, the CRDM housings and their support/restraint system, and all components, structures, and cabling from the top of the RPV head up to the missile shield. Include the elevations of these items relative to the bottom of the missile shield."

PBNP Response

Description of Equipment and Cables on Top of Vessel Head

For PBNP Units 1 and 2, the missile shield is 25.0' long, 13.75' wide, 13" thick, and spans the width of the refueling cavity. The missile shield is a removable structure designed to block any missiles that could be generated by the control rod drive mechanism and is supported by the refueling cavity walls.

The CRDM cooling system is mounted to the top of the missile shield. The cooling system supplies cooling air to three flanged openings of the ventilation shroud which is connected to the top of the RV head. The shroud surrounds all the head penetrations and extends upward to just beyond the CRDM coils.

Each of the 49 VHPs is attached to a weldment that consists of a threaded 6" OD adapter and a 4" OD body. The adapter is fabricated of ASME SA-182, type 304 stainless steel. Attached to the weldments are:

1) 33 full-length control rod drive mechanisms (CRDMs),
2) four part-length control rod drive mechanisms (Unit 2 only),
3) spare capped penetrations – Unit 1 (13) / Unit 2 (9), and
4) three conoseal connections for CET instrumentation.

Each attachment is threaded onto the weldment and seal welded (canopy seal weld) to prevent leakage of reactor coolant onto the top of the reactor vessel head.

There are two sources of cabling associated with each full-length CRDM, the operating coil stack and the rod position indication (RPI) coil. The operating coil stack is an independent unit which is installed on the drive mechanism by sliding it over the outside of the latch housing. This coil stack contains a conduit tube that extends from the upper coil housing to the top of the mechanism. The tube holds the cable connector and protects the coil lead wires. Two lead wires from each of the three coils run through the conduit tube to a cable connector at the top of the conduit. This connector connects to the square base plate of the Rod Position Indicator (RPI) coil stack.

The RPI coil stack slides over the top portion the CRDM housing and is used for determining the position of the control rod during operation. At the top of the RPI coil stack is a base plate that holds two separate connectors, one for the rod position indication wiring and one for the operating coil stack. The square base plates from the RPI coil stacks fit together and integral to the coil stack conduit tube at the top of the CRDM housing. For those spare penetrations that are capped, a blank square plate is installed to fit integrally with the RPI coil stack plates.

The spare penetrations are capped and contained within the ventilation shroud. No additional equipment is attached to the caps. The CET columns are sealed by a conoseal closure where they penetrate the ventilation shroud. The CET wiring run up through to the head lift rig platform.

The reactor vessel level indication system upper level tap is attached to a 1" diameter pipe coming from a spare CET instrumentation VHP on the reactor vessel head to provide the fluid connection. The 1" pipe is then reduced to 3/4" and routed to a 3/4" manual isolation valve (RC-500A) located on the reactor vessel head. 3/8" tubing is routed from the outlet of this valve to a reference chamber located on the wall of the refueling cavity. This tubing contains Swagelock fittings at each end to permit removal during refueling. The tubing is routed from the reference chamber to the remainder of the reactor vessel level indication system.

The ventilation shroud surrounds all the head penetrations and extends upward to just beyond the CRDM coils. The ventilation shroud is part of the CRDM cooling system and has three flanged openings that are connected to the duct work that runs up to the CRDM cooling unit.

There are three columns attached to the reactor vessel head that provide support for the head lifting rig platform. The head lifting rig platform provides lateral support for the pressure housings and instrument conduits. The platform is constructed with a center opening designed to provide the required lateral support. There are four lateral supports (seismic restraints) attached to the platform at one end and to the refueling cavity walls on the opposite end. The support columns that extend from the reactor vessel head are attached to the platform. A walkway surrounds this opening to provide personnel access. The underside of the platform is constructed of a circular I-Beam. There are three chain hoists mounted on the platform I-Beam that are used to position the reactor vessel stud tensioning devices.

A walkway that extends from the refueling cavity wall to the platform provides personnel access. The instrument and power cables run from the platform through cable racks underneath the walkway to their connection on the cavity wall.

The following equipment elevations are approximate:

Equipment Description	Elevation
Bottom of the missile shield	67'-8"
Reactor Building operating floor	66'-0"
Top of the CRDM housings (including the eye bolts)	65'-2"
Top of the reactor vessel head	46'-8"
Reactor vessel flange	40'-8"

NRC Request

2. "If your plant has previously experienced either leakage from or cracking in VHP nozzles, addressees are requested to provide the following . . ."

PBNP Response

As discussed above, PBNP has not previously experienced leakage from or cracking in any RPV head nozzles. This question is not applicable to PBNP.

NRC Request

3. "If the susceptibility ranking for your plant is within 5 EFPY of ONS3, addressees are requested to provide the following . . ."

PBNP Response

The susceptibility ranking of PBNP is not within 5 EFPY of ONS3. This question is not applicable to PBNP.

NRC Request

4. "If the susceptibility ranking for your plant is greater than 5 EFPY and less than 30 EFPY of ONS3, addressees are requested to provide the following information:

   a. "your plans for future inspections (type, scope, qualification requirements, and acceptance criteria) and the schedule;"

PBNP Response

Plans for Future Inspections
PBNP Unit 1 and Unit 2 plan to perform inspections of the RPV head and nozzles. The existing insulation will be removed and an "effective visual examination"* of all RPV head nozzles will be performed. The "effective visual examination" will be performed by VT-2 qualified personnel with additional training in the type of leakage found on other reactor vessel heads. Acceptance criteria will be no leakage permitted.

As previously stated in response to Item 1.c, PBNP Unit 1 and Unit 2 have block contoured RPV head insulation. The insulation consists of three inch blocks coated with ¼ inch of Fiberfrax cement. The top of the insulation is then sealed with a waterproof coating. During the insulation removal, visual inspection will be employed to ensure evidence of boric acid can be distinguished from insulation and other debris to achieve the "effective visual examination" of the RPV nozzle. Both the insulation and the vessel head will be visually examined to identify evidence of leakage.

It is important to note that due to the likelihood of asbestos in the insulation material, NMC will perform asbestos abatement during the insulation removal process. However, this process is not expected to prevent the identification of boric acid deposits or other evidence of leakage on the vessel head or the insulation.

If the inspection results are indeterminate for any given RPV nozzle due to masking or inaccessibility, the RPV nozzle will be examined from underneath the head using techniques capable of ensuring no through-wall pressure boundary leakage is present.

The "effective visual examinations" will be performed during the next scheduled refueling outage. The next refueling outage for Unit 1 is scheduled to begin in Fall 2002 and for Unit 2 in Spring 2002.

NRC Request

4.b. "your basis for concluding that the inspections identified in 4.a will assure that regulatory requirements are met (see Applicable Regulatory Requirements section). Include the following specific information in this discussion:

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* "Effective visual examination" is defined in NRC Bulletin 2001-01: "an effective visual examination, at a minimum, of 100% of the VHP nozzles that is capable of detecting and discriminating small amounts of boric acid deposits from VHP nozzle leaks, such as were identified at ONS2 and ONS3, may be sufficient to provide reasonable confidence that PWSCC degradation would be identified prior to posing an undue risk. This effective visual examination should not be compromised by the presence of insulation, existing deposits on the RPV head, or other factors that could interfere with the detection of leakage."

(1) "If your future inspection plans do not include a qualified visual examination at the next scheduled refueling outage, provide your basis for concluding that the regulatory requirements discussed in the Applicable Regulatory Requirements section will continue to be met until the inspections are performed.

(2) "The corrective actions that will be taken, including alternative inspection methods (for example, volumetric examination), if leakage is detected."

PBNP Response

Basis for Concluding That Regulatory Requirements are Met
The technical basis for concluding that regulatory bases are met for PBNP is provided in Section 3 of MRP-48.

Any evidence of boric acid will be evaluated to determine the source, extent of leakage and possible extent of cracking. Detection of cracking may require characterization by ECT, PT, or UT as applicable and comparison to the acceptance criteria specified in ASME Section XI. Any indication of cracking will be evaluated in accordance with the acceptance standards of ASME Section XI.

NRC Request

5. "Addressees are requested to provide the following information within 30 days after plant restart following the next refueling outage:

   a. a description of the extent of VHP nozzle leakage and cracking detected at your plant, including the number, location, size, and nature of each crack detected;

   b. if cracking is identified, a description of the inspections (type, scope, qualification requirements, and acceptance criteria), repairs, and other corrective actions you have taken to satisfy applicable regulatory requirements. This information is requested only if there are any changes from prior information submitted in accordance with this bulletin."

PBNP Response

Reporting of Future Inspection Results
PBNP will provide the NRC with the requested information within 30 days after plant restart following the next refueling outage.

Reference

1. *PWR Materials Reliability Program Response to NRC Bulletin 2001-01 (MRP-48)*, EPRI, Palo Alto, CA: 2001. TP-1006284.