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NRC-97-132



Wisconsin Public Service Corporation (a subsidiary of WPS Resources Corporation) 600 North Adams Street P.O. Box 19002 Green Bay, WI 54307-9002 1-920-433-5544 fax

December 15, 1997

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

Ladies/Gentlemen:

Docket 50-305 **Operating License DPR-43** Kewaunee Nuclear Power Plant 1995 In service Inspection Summary Report - Additional Information

- References: 1) Letter from CA Schrock (WPSC) to Document Control Desk (US NRC) dated December 16, 1993.
 - 2) Letter from ML Marchi (WPSC) to Document Control Desk (US NRC) dated August 11, 1995
 - 3) Letter from RJ Laufer (US NRC) to ML Marchi (WPSC) dated April 14, 1997.
 - 4) Letter from ML Marchi (WPSC) to Document Control Desk (US NRC) dated June 16, 1997.
 - 5) Letter from ML Marchi (WPSC) to Document Control Desk (US NRC) dated September 10, 1997.
 - 6) Letter from RJ Laufer (US NRC) to ML Marchi (WPSC) dated October 16, 1997.
 - 7) Letter from CA Schrock (WPSC) to Document Control Desk (US NRC) dated August 5, 1994

By letter dated April 14, 1997 (Reference 3), the Nuclear Regulatory Commission (NRC) requested information regarding the Kewaunee Nuclear Power Plant (KNPP) 1995 In service Inspection Summary Report (Reference 2). Wisconsin Public Service Corporation (WPSC) provided the requested information in Reference 4. On October 16, 1997, the NRC informed WPSC that the staff needed additional information to continue its review of the 1995 In service Inspection Summary Report.

During design and construction of KNPP, efforts were made to permit baseline NDE examinations consistent with construction practice at that time. Obviously, the designers were not able to anticipate all future ISI requirements. KNPP began commercial operation on June 16, 1974 with implementation of an In service inspection program based primarily upon guidance from the 1970 Edition of Section XI of the ASME Boiler and Pressure Vessel Code. The ISI program has been modified several times during the plant's life to address new ISI intervals, rulemaking, and updated



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Document Control Desk December 15, 1997 Page 2

editions of Section XI. Notwithstanding the limited original design considerations for ISI, WPSC was able to design their ISI program (with exceptions permitted by either the Code of Federal Regulation or NRC granted relief) to be in compliance with the 1989 Edition of Section XI. Where industry experience has shown that Code specified examinations may not be sufficient for ensuring component integrity, WPSC has implemented rigorous augmented inspections to enhance detection of degradation. In total these efforts have resulted in the implementation of a comprehensive and cost effective In service inspection program for the Kewaunee Nuclear Plant.

WPSC's response to each of the NRC's questions are provided in Attachment 1 to this letter. The complexity, ambiguity and generic nature of the Code are evidenced by both the questions in the information request and our response. If this information is not sufficient to address your questions, perhaps a more expedient resolution could be affected by a meeting to discuss our response.

If a meeting is desired or additional information is needed, please feel free to contact me or Mr. Rick Pulec of my staff.

Sincerely,

m7 March.

M. L. Marchi Manager-Nuclear Business Group

CAT

Attach.

cc- US NRC-Region III US NRC Semior Resident Inspector

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ATTACHMENT 1

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Letter from M.L. Marchi (WPSC)

То

Document Control Desk (NRC)

Dated

December 15, 1997

Response to NRC Request for Additional Information

Regarding the 1995 In service Inspection Summary Report

<u>Request 1</u>

In response to a question concerning the 10 CFR 50.55a(g)(6)(ii)(A) augmented examination of the reactor pressure vessel (Attachment 1, p. 1), the licensee stated that all circumferential seams were 100% inspected during the 1995 refueling. Please clarify whether any longitudinal seam welds were examined during the 1995 refueling? If so, what was the coverage obtained on these?

WPSC Response

The KNPP reactor vessel is fabricated from cylindrical ring forgings which do not contain longitudinal seam welds; consequently, no longitudinal seam welds were examined during the 1995 refueling outage. Drawing M-1193 titled "Reactor Vessel" is included in the Third Ten Year ISI Plan (Reference 1) and provides weld location details.

Request 2

The licensee stated that the American Society of Mechanical Engineers (ASME Code) Section XI does not provide adequate guidance regarding examination coverage required (Attachment 1, pp. 1-2). However, in the staff's opinion, guidance is currently available. Please refer to IWX-2500, which contains several figures that depict the areas of various components that are required to be examined. Further, Appendix III of Section XI (for austenitic piping welds), and Article 4 of Section V (for vessels) describe requirements for ultrasonic examinations. Please explain why ASME XI does not provide adequate guidance regarding examination coverage required.

WPSC Response

WPSC's statement that neither Section XI nor the Code of Federal Regulation provides adequate guidance regarding examination coverage (i.e., extent) was not worded as carefully as it should have been. Our intent was to call attention to the varying level of detailed guidance on examination coverage included within Tables IWX-2500-1 of the 1989 Edition of Section XI. This variation in detail leaves significant room for user interpretation of the Code.

Some of the Examination Categories of Table IWX-2500-1 contain quantitative requirements with regard to the extent of examination and other Examination Categories state very general or qualitative requirements. Furthermore, the column of Table IWX-2500-1 that specifies requirements for extent of examination rarely makes reference to the IWX-2500 Figures; the figures are more often identified on the Table column under Examination Requirements. These variations result in ambiguous requirements for the extent of examination coverage specified by the Code. Some examples of this inconsistent guidance are provided below.

1) For components that require visual examination, the "Extent and Frequency of Examination" column within Tables IWX-2500-1 does not specify a quantitative value for extent of examination in terms of lengths, areas, or volumes. Instead, the "Extent and Frequency of





Examination" column states the extent of examination requirements more qualitatively. This situation exists, and can be observed, for the following Examination Categories extracted from Table IWB-2500-1.

Table IWB-2500-1 Extent of Examination for Components Requiring Visual Exams				
Examination Category	Extent and Frequency of Examination			
B-E	All nozzles			
B-G-1	All bolts, studs, nuts, bushings, and flange surfaces			
B-G-2	All bolts, studs, and nuts			
B-M-2	Internal surface ³ (Footnote 3 - Examination of the internal pressure boundary shall be performed to the extent practicable.)			
B-L-2	Internal surfaces			
B-N-1	Refueling outages			
B-N-2	Welds			
B-N-3	Surfaces			

The "Examination Requirements/Fig. No." column for these cases also only provides general guidance: Examination Category B-E, states "External surfaces"; Examination Category B-G-1, states "Surfaces"; Examination Category B-G-2, states "Surface"; Examination Category B-M-2, states "Internal surfaces"; Examination Category B-N-1, states "Accessible areas"; Examination Category B-N-2, states "Accessible welds" and Examination Category B-N-3, states "Accessible surfaces".

As seen above, for the visual examination method, neither the "Extent" or "Examination Requirements" column provides clear quantitative requirements for examination coverage.

2) Generically, Tables IWX-2500-1 specify the required extent of examination under the column entitled "Extent and Frequency of Examination" with the corresponding footnotes. In a few cases, the "Extent and Frequency of Examination" column, also, references the figures for the purpose of defining the extent of examination as can be seen in Examination Category B-B. However, most of time, reference to the figures is through the column entitled "Examination Requirements/Fig. No.". The figures are examples of typical component configurations and are not representative of those at KNPP in all cases. The column entitled "Examination Requirements/Fig. No." communicates general information and guidance (to the industry at large including NDE organizations, designers, inspection agencies, and Owners) for NDE procedure development, design and selection of calibration blocks, input for inspection requirements for fabrication of new components, for use in determining acceptance criteria, etc.

Information listed under the column entitled "Extent and Frequency of Examination" is for determining the extent of examination requirements; and the Code explicit identification of some figures (i.e., Category B-B) for determining extent of examination and qualitative statements for other categories can result in ambiguous guidance and inconsistent application.

- With respect to extent of examination, the Examination Categories located in Tables IWX-2500-3) 1 include two situations : 1) those item numbers that do not specify a numerical value for required coverage, and 2) those item numbers that require either "essentially 100%" or "100% of each ..." coverage. The basis for inspection and examination of ASME Section XI systems/structures/components is as follows. Both the NRC and ASME Code has applied a graded classification system for inspection and examination of ASME Section XI systems/structures/components. NRC Regulatory Guide 1.26, 10 CFR 50, and Section XI Subsection IWA provide rules for classifying ASME Section XI systems/structures/ components into three groups (i.e., Class 1, Class 2, and Class 3) based on their importance to safety. The Code Committees further developed this concept of graded classification in that they have based upon the for extent of examination established requirements systems/structures/components importance to safety and their ability to be inspected and examined. For systems/structures/components that can readily be examined the Code specifies that the extent of examination is either "essentially 100%" or "100% of each ...". And for systems/structures/components that can not be readily inspected and examined. Section XI does not specify a quantitative value for extent of examination. This graded approach is evidenced in Tables IWX-2500-1 and corresponding footnotes which specify the applicable extent of examination.
- a.) The Code does not specify a quantitative value for coverage for the following ASME Code Class 1 and 2 Table IWX-2500-1 Examination Categories:

Table IWX-2500-1 Examination Categories Without Explicit Extent of Examination			
Examination Category	Description		
B-D	Full Penetration Welds of Nozzles in Vessels		
B-F	Pressure Retaining Dissimilar Metal Welds		
B-G-1	Pressure Retaining Bolting Greater than 2" in Diameter		
B-O	Pressure Retaining Welds in Control Rod Housings		
С-В	Pressure Retaining Nozzle Welds in Vessels		
C-D	Pressure Retaining Bolting Greater Than 2" in Diameter		
C-G	Pressure Retaining Welds in Pumps and Valves		

Notwithstanding situations where a specific value for examination coverage is not provided, the Code states:

Examination shall be performed using a sufficiently long examination beam path to provide coverage of the required examination volume in two-beam path directions. The examination shall be performed from two sides of the weld, where practicable, or from one side of the weld, as a minimum.

For these Examination Categories, the Code intends users to examine 100% of the examination volume where possible keeping in mind that limitations associated with accessibility, component geometry, and metallurgical characteristics will be encountered that may reduce the examination coverage. Section XI does not specify a value for extent of examination for these items due to the inherent difficulty associated with examining complex component geometries. WPSC believes that the Code Committees made a deliberate decision to not specify a value for extent of examination for these items so as to not impose an undue hardship on the Owner. Consistent with Code requirements, WPSC documents any limitation on the NDE data sheet(s).

b.) The Code specifies an extent of examination of either "essentially 100%" or "100% of each ..." for ASME Code Class 1 and 2 components associated with the following Table IWX-2500-1 Examination Categories:

Table IWX-2500-1 Examination Categories With Extent of Examination Based on "essentially 100%" or "100% of each"				
Examination Category	Description			
B-A	Pressure Retaining Welds in Reactor Vessel			
B-B (Circ.)	Pressure Retaining Welds in Vessels Other Than Reactor Vessels			
B-H	Integral Attachments For Vessels			
B-J (Circ.)	Pressure Retaining Welds in Piping			
B-K-1	Integral Attachments for Piping, Pumps, and Valves			
B-L-1	Pressure Retaining Welds in Pump Casings			
B-M- 1	Pressure Retaining Welds in Valve Bodies			
C-A	Pressure Retaining Welds in Pressure Vessels			
C-C	Integral Attachments for Vessels, Piping, Pumps, and Valves			
C-F-1 (Circ.)	Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Steel Piping			
C-F-2 (Circ.)	Pressure Retaining Welds in Carbon or Low Alloy Steel Piping			

these Section XI Code Class 1 and 2 of examination for The extent systems/structures/components has been defined as "essentially 100%" or "100% of each ..." based on their importance to safety and their ability to be readily inspected and examined. Again, the intent of the Code is to examine either "essentially 100%" or "100% of each ..." of the required examination region, where possible, keeping in mind that limitations associated with accessibility, component geometry, and metallurgical characteristics may be encountered that could reduce the examination coverage. To account for minor limitations encountered during examinations, both the Code and NRC have endorsed ASME Code Case N-460 for assessment of the inspection coverage.

Neither the Code nor Code of Federal Regulation provides a definition of "essentially 100%" applicable to all ASME Section XI Code Class 1, 2, and 3 components. For situations when the Code uses the terminology "essentially 100%", the Code Committees often times reference ASME Code Case N-460. This Code Case establishes a minimum value of 90% coverage for examination of Class 1 and 2 welds, due to encountering limitations associated with accessibility, component geometry, and/or metallurgical characteristics.

4) As a general observation for surface or ultrasonic examinations of non-welded components, WPSC's review of Tables IWX-2500-1 finds that little specific guidance exists regarding examination coverage.

The ambiguities and lack of specificity discussed above contribute to some of the difficulties associated in determining the examination coverage requirements of the Code.

Lastly, we agree that Article 4 of Section V describes requirements for ultrasonic examinations. However, paragraph T-410 of Article 4, entitled "Scope" clearly states that the referencing Code section shall be consulted for specific requirements for "extent of examination and/or volume to be scanned". Thus, the applicable requirements related to extent of examination would be those specified in Section XI.

<u>Request 3</u>

There appears to be a misunderstanding with regard to the ASME Code coverage requirements for piping welds. Kewaunee stated "...Section XI <u>only</u> requires, as a minimum, the use of a 45° transducer and scanning from one side of the weld." However, Articles III 4420 and 4430 of Appendix III describe how to examine the weld for reflectors oriented parallel and transverse to the weld seam, respectively. In the first of these, the ASME Code states:

The examination shall be performed using a sufficiently long examination beam path to provide coverage of the required examination volume in two-beam path directions. The examination shall be performed from two sides of the weld, where practicable, or from one side of the weld, as a minimum.

Clearly, the ASME Code intends for licensees to evaluate the required examination volumes from two directions, when possible. If the licensee is unable to obtain the required coverage, a request for relief is required. Again, please identify the component, explain why the examination was limited, and clarify whether a relief request was submitted to the NRC.

WPSC Response

WPSC's practices conform with cited Code requirements (i.e., ... examination from two sides of the weld, where practicable, or from one side of the weld, as a minimum). In addition, WPSC has reviewed both the Code requirements and the NDE data sheets for those examinations that were noted as limited to verify that implementation of the KNPP ISI Program is in conformance with the Code. This review focused on the following:

• verifying that the extent of examination coverage associated with limitations described on the data sheets (included in References 2 and 5) is consistent with the cited Code requirements,

- verifying that the percentage requirements of Table IWX-2412-1 for the first period have been satisfied, and
- assessing the need for future actions to ensure Code compliance for the second and third periods.

For these examinations, this review (which included assessing the number of components examined, weld volume/area examined, etc.) determined that full credit was not required for all the examinations identified with limitations and that the percentage requirements of Tables IWX-2412-1 have been properly satisfied for the first period of the third ISI interval. Therefore, WPSC is in conformance with the Code.

WPSC will pursue several options to ensure continued Code compliance over the second and third period of the third ISI interval. For the few specific components where full examination coverage was not obtained, the requirements of Table IWX-2412-1 provide sufficient flexibility to permit management of these limitations to ensure compliance throughout the interval. It is this flexibility in combination with the examinations completed to date that establishes our conclusion that the KNPP ISI program is in Code compliance. Therefore, a relief request has not been submitted and is not required for these components at this time. Future actions being considered by WPSC that will permit proper management of examinations without full coverage include: reexamination/substitution of another component, utilization of another examination method such as radiography, and research and development to create a better NDE procedure and/or calibration block. WPSC will submit relief requests as necessary after exhausting reasonable options for ensuring continued Code compliance. Since implementation of the ISI Plan is a living process, in that WPSC will continue to take advantage of various opportunities to satisfy the Code thru June 16, 2004, the submittal of any needed relief requests will correspond with requirements defined in the 10CFR50.55a(g)(5)(iv), i.e., not later than 12 months after the expiration of each subsequent 120-month period of operation during which the examination is determined to be impractical.

<u>Request 4</u>

The licensee briefly describes the method by which coverage is calculated at Kewaunee (Attachment 1, p.2) i.e., a method based on supplemental examinations performed on each weld. The licensee has elected to apply supplemental ultrasonic angles, although the ASME Code coverage requirements are the standard that must be satisfied. Please provide the coverage obtained based on the ASME Code requirements and, if necessary, submit an alternative method for approval or a relief request if these requirements cannot be met for specific welds.

WPSC Response

The augmented ultrasonic examinations performed at KNPP do not represent a change or modification to accepted NDE industry ultrasonic methodology. The primary purpose of augmented examinations is to enhance the ability to detect potential flaws. An indirect benefit of augmented



examinations is either an increase in the examination coverage and/or redundant examination coverage. Augmented examinations are implemented as a regular practice where configurations and accessibility allow.

Because there was a weakness in our reporting of examination coverage, WPSC has reevaluated the examination coverage (for the examinations previously identified as having less than 100% coverage) based on ASME requirements without taking credit for the supplemental examinations. The results of this reevaluation has been integrated into our response to question 3 above. As described there, WPSC has determined that the percentage requirements of Table IWX-2412-1 have been satisfied for the first period, and therefore, the KNPP ISI Program is in compliance with the Code. Thus, alternative methods for determining coverage and relief requests are not required at this time.

Request 5a, 5b, 5c

In response to the percentage of examinations completed (Attachment 1, pp. 7-8), the licensee makes several statements that are unclear. First, the licensee states that during the refueling outage in 1995, examinations were completed to satisfy the inservice inspection program requirements for two separate intervals. This is inconsistent with current ASME Code requirements.

5a) The ASME Code allows that an inspection interval may be increased, or decreased, by as much as 1 year to allow inspections to be performed coincident with outages. However, the ASME Code also states that <u>successive</u> intervals shall be adjusted so as not to increase the cumulative length of all intervals (40 years) by more than 1 year. Given these requirements, please discuss the appropriateness of performing inservice inspections during one outage for two intervals (e.g., is the subsequent interval going to be decreased to account for the extension of the previous interval?).

In addition, the licensee states that the second interval was extended by 1 year to permit 100% examination of the reactor pressure vessel (RPV) in 1995, so as to preclude the need to require examination twice during one 40-month period.

5b) The ASME Code requires that portions of the RPV be examined during both the first and third periods of the current interval. Code Case N-521, which allows deferral of the first period examinations, has been approved on a case-by-case basis provided certain requirements are met. Please clarify whether a request for approval of the use of this code case or a similar alternative was submitted to the NRC?

Finally, the licensee states that "for various reasons" originally scheduled welds were not examined and other welds in the same Code category were examined as substitutes. Successive examination criteria were specified in IWX-2420(a), which states:

The sequence of component examinations established during the first inspection interval shall be repeated during each successive inspection interval, to the extent practical.

5c) The ASME Code requires that each initially selected component be examined approximately every 10 years unless there are strongly mitigating circumstances. Please provide justification necessary to support deviation from this ASME Code requirement.

WPSC Response to 5a

The KNPP began commercial operation on June 16, 1974. Since an inspection interval consists of 120 months, the first and second inspection intervals at KNPP generally extended from June 16, 1974 to June 16, 1984 and from June 16, 1984 to June 16, 1994, respectively. The third inspection interval will extend from June 16, 1994 thru June 16, 2004. In all cases KNPP began performing inspections in accordance with the rules of the governing Code at the start of each new inspection interval. However, at the end of each inspection interval a few inspection requirements remained outstanding. To satisfy these outstanding inspection requirements, the inspection requirements the inspection intervals were increased by one year for <u>only</u> these outstanding items. For all of the other inspection requirements the inspection interval was not extended. Inspection requirements that were completed during each of the one year extensions included hydrostatic pressure tests and/or examination of various portions of the reactor vessel. These requirements were satisfied during the one year extension to coincide with the plant outage schedule.

During the first year of the second inspection interval, it was prudent for KNPP to perform inspections to satisfy two different ISI Plans (for the first interval and for the second interval). Examinations performed to satisfy the second interval ISI Plan requirements were performed in accordance with the rules of the 1980 Edition thru Winter 1981 Addenda of Section XI. Examinations performed for the first inspection interval were performed in accordance with the requirements of the 1974 Edition of Section XI thru Summer 1975 Addenda. When an examination was performed to satisfy a scheduling requirement for the second interval, no credit was taken for this examination for the first interval and vice versa.

As KNPP concluded the end of the second inspection interval there were again a few outstanding inspection requirements. During the first year of the third inspection interval KNPP performed inspections to satisfy two different ISI Plans (for the second interval and for the third interval). Examinations performed to satisfy the third inspection interval ISI Plan requirements were performed in accordance with the rules of the 1989 Edition of Section XI. Examinations performed for the second inspection interval were performed in accordance with the requirements of the 1980 Edition thru Winter 1981 Addenda of Section XI. Again as examinations were performed to satisfy a scheduling requirement for the second interval, no credit was taken for this examination for the third interval and vice versa.



KNPP's practice is to start performing inspections to satisfy each of the new ISI Plan requirements and to fulfill any outstanding inspection requirement from the previous inspection interval during the first refueling outage of the new inspection interval. Thus, KNPP implemented two separate ISI Plans during the first refueling outage of each new inspection interval. At KNPP, each inspection interval has a duration of 120 months except that any outstanding inspection requirement is fulfilled during the one year extension, if necessary. This practice is appropriate since each of the scheduled inspection requirements have been completed within the allotted time period---either during the 120 month interval or during the one year extension, in accordance with the applicable governing Code, and credited to only one inspection interval. The Code states that when a one year extension is taken the Owner must adjust the successive intervals so as not to increase the cumulative length of all intervals (40 years) by more than one year. KNPP has satisfied this requirement in that each of the successive inspection intervals has been initiated to start corresponding to the end of the previous 120 month interval as discussed above.

WPSC Response to 5b

As discussed above, it was prudent for KNPP to manage two separate ISI Plans in full compliance with the Code during 1995, one to satisfy the third period second interval inspection requirements and the other to fulfill the third inspection interval for the reactor vessel. Neither a relief request or utilization of Code Case N-521 was needed to satisfy the scheduling requirements for examination of the reactor vessel in 1995. KNPP completed 100% examination of the reactor vessel in 1995 based on satisfying scheduling requirements for both second and third inspection interval requirements. Some portions of the reactor vessel were examined to satisfy third period second interval requirements while other portions were examined to satisfy first period third interval requirements. Portions of the examination were credited to either the second interval or third interval but not to both intervals. The Code does not require a 100% examination of the reactor vessel be performed during any one 40-month period. Section XI is flexible enough to permit portions of the reactor vessel to be examined during either the first or third periods of the current inspection interval. All of the portions of the reactor vessel that were examined to satisfy third period second interval requirements will need to be re-examined in accordance with the 1989 Edition of Section XI during the third period of the third inspection interval in order that all of the reactor vessel examination requirements of the third interval be satisfied. These examinations are currently scheduled to be performed in the third interval ISI Plan.

This scheduling practice ensures that all of the periodic examination requirements (for the reactor vessel) are completed every ten years, thus satisfying the intent of the Code.

WPSC Response to 5c

As detailed in the KNPP Third Interval ISI Plan, the methodology used for selecting a weld/surface/component/component support to be examined was based on one or more of the following factors.

- As stated in 10CFR 50.55a(b)(2)(ii), if the facility's application for a construction permit was docketed prior to July 1, 1978, the used of the ASME Boiler and Pressure Vessel Code, 1974 Edition with Addenda through and including Summer 1975 is acceptable for selection of Code class 1 pipe welds under examination category B-J. (However, the method, frequency, and applicable footnotes were extracted from ASME Boiler and Pressure Vessel Code Section XI, 1989 Edition.)
- b. Inspection Program B.
- c. Section XI specified 100 percent of welds/surfaces/components/component supports requires examination.
- d. Section XI clearly specifies which weld/surface/component/component support is to be examined (e.g., structural discontinuity welds, longitudinal welds that intersect the circumferential weld, terminal ends in each pipe or branch run connected to vessels,...,spaces above and below the reactor core.)
- e. Section XI specifies that less than 100 percent of the items identified in item "d" are required to be examined. This selection is further based on location, multiple stream requirements and a representative cross sampling of systems.
- f. An additional item number was created to address Safety Injection ISI Class 2 pressure retaining piping welds. These welds are not subject to examination since the nominal wall thickness is less than the lower limit (0.375") specified in Table IWC-2500-1. The item number that was assigned to these welds is C5.14. These welds have been included in the total weld count to which the sampling rate has been applied in accordance with ASME Section XI.

Strict adherence to the Code in this regard and not conducting examinations on piping welds that are below the nominal wall thickness requirements essentially eliminates examinations to ISI Class 2 pressure retaining piping welds in the residual heat removal system and the internal containment spray system since all of this piping is less than the nominal wall thickness specified in the Code. Therefore, these RHR and ICS piping welds were assigned an item number of C5.13, and as a good practice, an appropriate sample of these welds was selected and scheduled for examination during the Third Inspection Interval.

As stated in Code Case N-491, "Piping supports to be examined shall be the supports of piping not exempt under, IWB-1220, IWC-1220, IWD-1220, IWE-1220." Since the piping welds would not normally be selected for examination, the supports that are on this piping have not been scheduled for examination.

g. High energy line whip restraints that do not provide component support are excluded from the requirements of ASME Boiler and Pressure Vessel Code Section XI.

Note, these factors have been extracted from various paragraphs of the 1989 Edition of Section XI or are consistent with industry practice at the time the third interval ISI Plan was written.

Since the selection criteria for the third interval ISI Plan is based primarily on written guidance, such as footnotes taken from Tables IWX-2500-1 of the 1989 Edition of Section XI, it stands to reason that the items scheduled for examination during the third inspection interval will, therefore, be different than those scheduled in the second and third inspection intervals since the selection criteria contained in the earlier editions and addenda of Section XI used at KNPP (i.e., 1974S75 and 1980W81) are not identical to those included in the 1989 Edition of Section XI. For the extent of examination of the Class 1 pipe welds, KNPP has taken the approach to use the requirements of Table IWB-2500 and Table IWB-2600 Category B-J of Section XI of the ASME Code in the 1974 Edition and Addenda through the Summer 1975 Addenda. Under this approach a different group of approximately twenty five percent of the applicable weld population is examined during each inspection interval. Thus, the entire applicable weld population is generally examined over the life of the plant. In this case, during the third inspection interval, if a class 1 weld is not able to be examined for some reason then another weld from the applicable weld population would be substituted to ensure that the percentage requirements defined in Table IWB-2412-1 are satisfied. Generally speaking, a higher priority would be given to selecting a weld that had not been previously examined. It should be pointed out that because KNPP has historically examined more welds than required by the Code some of the welds will need to be reexamined over the life of the plant to satisfy the minimum required weld population requirements imposed for each inspection interval. For the examination of other Class 1 items KNPP follows IWB-2420(a) to the extent practical.

For Class 2 pipe welds the selection criteria has evolved over the years. The selection criteria included in the 1989 Edition of Section XI is not identical to the selection criteria listed in other edition and addenda of ASME Section XI used during the first and second inspection intervals at KNPP. Thus, the class 2 welds selected for examination and even the applicable weld population is different from one inspection interval to the next. When the second inspection interval ISI Plan was written the Code of Federal Regulation permitted the extent of examination of Class 2 pipe welds to be determined in accordance with the requirements of Section XI of the ASME Code in the 1974 Edition and addenda through the Summer 1975 Addenda. The selection criteria described in the 1974 Edition and addenda through the Summer 1975 Addenda of Section XI, which was used during the first and second inspection intervals at KNPP, attempts to divide the required Class 2 examinations among the number of components of the same size and geometry in each of the multiple streams of a system which perform the same (or redundant) functions, such that the total examinations completed over the system's service lifetime will be equivalent to having performed 100% of the required examinations in one of the multiple streams of the system. The selection criteria of the 1989 Edition of Section XI is based on a sampling rate of 7.5% of nonexempted Class 2 pipe welds and the goal is to reexamine this population during subsequent inspection intervals.

The Class 2 pipe weld portion of third interval ISI Plan was written based on the selection criteria listed in (b) thru (g) above which was taken from various paragraphs of the 1989 Edition of Section XI and is consistent with industry practice for that time. Since the selection criteria for the 1989

Edition of Section XI is different than the selection criteria of the earlier edition and addenda of Section XI, used during the first and second inspection intervals, the Class 2 pipe welds selected for examination are not the same. During the third inspection interval (to ensure that the percentage requirements listed in Table IWC-2412-1 are satisfied) when examination of a scheduled Class 2 pipe weld is impractical for some reason, then another Class 2 pipe weld from the applicable weld population will be selected in accordance with the criteria listed in (b) thru (g) above. Selection of another Class 2 pipe weld may come from the population of Class 2 pipe welds having already been examined during the first or second inspection intervals. However, since the selection criteria used during the first and second inspection intervals is different than the selection criteria being used in the current inspection interval there may be times when it is desirable to select another weld within the applicable weld population that has not been previously examined.

For examination of other Class 2 items, KNPP follows IWC-2420(a) to the extent practical.