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Perry Nuclear Power Plant
Docket No. 50-440
Perry Nuclear Power Plant, Unit 1 – TIA 2000-18 Design-Basis Assumptions for Non-Seismic Piping Failures (TAC No. MB1629)

Ladies and Gentlemen:

The Nuclear Regulatory Commission (NRC) informed the Perry Nuclear Power Plant (PNPP) staff by letter dated April 12, 2001, of a Task Interface Agreement (TIA) request made from NRC Region III to the Office of Nuclear Reactor Regulation (NRR). The TIA requested assistance in resolving an issue related to the PNPP staff's application of non-seismic piping failures in the determination of the differential pressure across a motor-operated valve in the Emergency Closed Cooling Water System.

The NRC letter stated that PNPP, as a stakeholder in this matter, is encouraged to provide a written response for input into resolution of the issue.

The PNPP staff's input to the TIA is that the regulations in effect at the time of the design and construction of the PNPP did not provide any guidance with respect to the effects a Safe Shutdown Earthquake has upon a non-seismically designed piping system. Guidance did exist regarding the dynamic effects of postulated piping failures, regardless of the piping system's seismic design. Therefore, the PNPP staff used this guidance in the design of the PNPP. Hence, PNPP is designed such that postulated failures of non-seismic, moderate-energy piping are cracks and not breaks. This position has been a part of the PNPP licensing bases since 1980. Attachment 1 provides a detailed description of the PNPP staff's position on this issue.

If you have questions or require additional information, please contact Mr. Gregory A. Dunn, Manager - Regulatory Affairs, at (440) 280-5305.

Very truly yours,

John K. Wood

Attachment

cc: NRC Project Manager
NRC Resident Inspector
NRC Region III

A001

NON-SEISMIC PIPING FAILURES

EXECUTIVE SUMMARY

The regulations that were in effect at the time of the design and construction of the Perry Nuclear Power Plant (PNPP) required the behavior of a non-seismic system acting upon an interconnected seismic system during a Safe Shutdown Earthquake (SSE) be such that it cannot prevent the seismic system from performing its intended function. However, the regulations did not define any requirements associated with the effect or impact a SSE has upon the non-seismic system.

The existing regulations also required evaluating the dynamic effects associated with postulated piping failures, regardless if the piping system was seismically qualified or not. Given the lack of guidance for non-seismic piping, and that the dynamic criteria is linked to the seismic criteria, it would be conservative to use the design criteria associated with the dynamic effects of postulated piping failures to bound the design of non-seismic piping.

The PNPP is designed such that postulated failures of non-seismic, moderate-energy piping are cracks and not breaks. Furthermore, these postulated cracks have been evaluated such that the effects from these postulated cracks have no impact upon the function of seismically designed systems. This position has been a part of the PNPP licensing bases since 1980. The NRC, in the PNPP Safety Evaluation Report (SER) (May, 1982), has acknowledged this aspect of the PNPP piping system design.

The Task Interface Agreement (TIA) request was prompted by a motor-operated valve calculation associated with the Emergency Closed Cooling (P42) System. The calculation was associated with the PNPP Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," program. It should be noted that the GL states that the 89-10 program is not intended to change the existing plant design and no inference for altering the design exists. Therefore, the PNPP position regarding the postulated failure of non-seismic, moderate-energy piping has not been superseded.

EVALUATION

NRC TASK INTERFACE AGREEMENT 2000-18

In the April 12, 2001 letter, the TIA listed two concerns that needed resolution:

> "1) When evaluating the differential pressure across a motor-operated valve, does NRR believe that non-seismically supported piping will only leak as specified in MEB 3-1, or should the evaluation assume a complete rupture of downstream non-seismic piping?
>
> 2) In general, for determining the operability of a structure, system or component, does NRR believe that it is technically adequate to

> assume that non-seismic piping, for which the licensing/design basis does not take credit in the mitigation of accidents, will only leak instead of completely breaking?"

The PNPP staff interprets both of these concerns as requesting the resolution of a singular issue, that is, how does non-seismic piping fail. Does the piping crack or completely break?

It should be noted the TIA was prompted by a motor-operated valve calculation associated with the Emergency Closed Cooling (P42) System. Therefore, this evaluation will describe a portion of the licensing bases associated with the P42 and the Nuclear Closed Cooling (P43) Systems (the P43 System is directly related to this issue). The evaluation will emphasize system seismic capabilities and the impact of the dynamic effects upon a system associated with piping failures. These are the topics relevant to the issue of the failure mechanism of non-seismic piping (i.e., crack or break).

Additionally, the impact of this issue upon accident analysis will also be addressed.

SYSTEM DESCRIPTION

The P42 system is designed to supply a reliable source of cooling water to safety-related components during various operational conditions including post-accident. P42 is comprised of two independent loops, each supplying an independent train of safety-related components. The system is designed as Safety Class 3 and Seismic Category I. Power is supplied from a Class 1E power supply.

One of the post-accident cooling loads is the Control Complex chiller. The normal cooling supply for this chiller is P43. Upon indication of a Loss Of Offsite Power (LOOP) or a Loss Of Coolant Accident (LOCA), several P42 valves automatically re-position to align P42 as the cooling source for the chiller and isolate the P43 cooling water supply to the chillers. It should be noted that there are two redundant P42 isolation valves in the P43 supply piping to the chiller. One of these valves, 0P42-F295B, is the valve associated with the calculation that was previously mentioned.

As stated in the PNPP Final Safety Analysis Report (FSAR), Revision 0 (May, 1980), Section 9.2.2.3:

> "There is a sufficient number of valves in the switchover piping to satisfy the single failure criteria. The piping and valves associated with this cross-tie arrangement are classified as Safety Class 3 and Seismic Category I."

SEISMIC LICENSING BASES

Regulatory Bases

The seismic regulatory bases are contained in several sections within the Code of Federal Regulations, and in several supporting Regulatory Guides (RG) and NUREGs. The pertinent documents are described below.

10CFR50, Appendix A, GDC 2, "Design Bases for Protection Against Natural Phenomena"

The General Design Criteria (GDC) states that Systems, Structures, and Components (SSCs) important to safety be designed to withstand the effects of natural phenomena such as earthquakes without the loss of capability to perform their safety functions.

10CFR100, Appendix A, "Seismic and Geological Siting Criteria for Nuclear Power Plants"

Section III and VI of the appendix describe the requirements that if a Safe Shutdown Earthquake (SSE) should occur, certain SSCs will remain functional to assure the integrity of the Reactor Coolant Pressure Boundary (RCPB), the capability to shutdown the reactor, and to mitigate the consequences of accidents. It should be noted that Appendix A does not indicate what the effects, if any, are on the SSCs that are not required to remain functional. Nor is the term "functional" defined.

Regulatory Guide 1.29, "Seismic Design Classification"

This RG provides the guidance to determine which SSCs must be designed to withstand the effects of a SSE. The RG is directly related to 10CFR 50, Appendix A, GDC 2 and 10CFR100, Appendix A. Regulatory Position 2 states that for SSCs whose continued function is not required, but whose failure could affect a SSC that is required to function, the non-required SSCs should be designed such that if a SSE occurs there would be no impact upon required SSCs. Regulatory Position 3 states that the interfaces between Seismic Category I and non-seismic SSCs should be designed as Seismic Category I. It should be noted that the RG does not define the terms "functional" or "failure." The RG also does not provide any requirements that could be used in the design of SSCs associated with satisfying Regulatory Position 2.

NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants"

The Standard Review Plan (SRP) sections that are relevant to earthquake design are associated with Sections 2.5, 3.2, 3.7, 3.8, 3.9.2, 3.9.3, and 3.10.

In general, these SRP sections provide guidance with respect to methodologies used to determine such topics as geology, seismology, loadings on SSCs, and seismic instrumentation. Minimal guidance appears to exist on how to evaluate the function(s) of non-seismic SSCs. However, two of the sections do provide some level of information regarding the interaction of non-seismic to seismic SSCs.

SRP Section 3.7.3, "Seismic Subsystem Analysis", under the "Acceptance Criteria", Item h, states that for non-Category I systems attached to Category I systems, the dynamic effects of the non-Category I system should be included in the modeling of the Category I system. The item also states that non-Category systems should be able to be isolated from the Category I systems by means of a constraint or barrier, or be

remotely located from the Category I systems. The item ends by stating:

> "... be designed in such a manner that during an earthquake of SSE intensity it will not cause a failure of the Category I system."

It should be noted that the effects or impact of a SSE upon a non-Category I system is not defined, nor are the terms "constraint" or "barrier" defined. The only requirement is that the behavior of the non-Category I system during a SSE does not cause failure of nearby or attached Category I systems. This SRP section provides amplifying guidance relative to the regulatory positions contained in RG 1.29.

SRP Section 3.9.2, "Dynamic Testing and Analysis of Systems, Components, and Equipment", provides guidance to evaluate criteria, procedures, and analyses employed to assure structural and functional integrity of piping systems under various conditions including postulated seismic events. The guidance assures compliance with GDCs 2 and 4. The guidance contained within the section is similar to that contained in SRP Section 3.7.3.

It is important to note that the aforementioned analyses are related not only to GDC 2 but also to GDC 4. GDC 4 deals with the environmental and dynamic effects of piping systems under various operational conditions. GDC 4 will be discussed later in this evaluation.

Assessment

From the above described regulatory documents, non-Category I systems can be attached to Category I systems as long as the behavior of the non-Category I system during a SSE will not cause the failure of the Category I system to perform its required function. Other than this criterion, there are no defined criteria associated with the effects of the SSE upon non-Category I systems. The effects of a postulated piping failure (e.g., fluid spray and flooding) are prudent considerations for the evaluation of the behavior of the non-Category I system upon the Category I system. This behavior is based upon knowledge of the dynamic and environmental effects associated with postulated piping system failures.

PNPP Specific Licensing Bases

PNPP Final Safety Analysis Report (FSAR), Revision 0, September 1980

FSAR Section 3.7.3.13, "Interaction of Other Piping with Seismic Category I Piping", describes the evaluation associated the interaction of non-seismic to seismic category piping. The section states the following:

> "Non-safety piping ... is designed and constructed such that an SSE would not cause failure of any item important to safety refer to para. C.2 of Reg. Guide 1.29)",

> "piping segments and restraints ... are included to ensure that both the elastic reaction and the effects of masses of the non-Seismic Category I piping on the Seismic Category I piping are adequately represented...", and
>
> "When other piping is attached to Seismic Category I piping, the other piping is analytically simulated in a manner that does not significantly degrade the accuracy of the analysis of the Seismic Category piping."

The notable item from these three statements is that the failure mode or mechanism associated with the non-seismic piping is not described.

PNPP Safety Evaluation Report (SER), May 1982

Section 3.7.2, "Seismic System and Subsystem Analysis", describes the NRC's review of the seismic analysis for Category I SSCs. The section concludes stating that PNPP satisfies GDC 2 and 10CFR100.

Conclusion

None of the NRC documents described above provide any definitive information regarding the effect or impact a SSE has upon non-seismic piping systems.

With respect to the 0P42-F295B issue, applying the NRC guidance to the PNPP, since the P42 system is required for safe plant shutdown, the P42 system should be designed to withstand the effects of a SSE by remaining functional throughout the event. Since there is an interface between the P42 and P43 systems, the portion of the interface should be designed as Seismic Category I, and the modeling of Category I system should include the behavior of non-Category I system.

As stated above, the PNPP FSAR states the P42 – P43 interface piping, including the isolation valves, is designed Seismic Category I, and the modeling of the Category I system includes consideration of the behavior of the non-Category I system. Therefore, the regulatory positions contained within RG 1.29 and amplified by the SRP are considered satisfied.

DYNAMIC EFFECTS LICENSING BASES

Regulatory Bases

10CFR50, Appendix A, GDC 4, "Environmental and Dynamic Effects Design Bases"

The GDC states that SSCs important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents including a LOCA. These SSCs shall be protected against the dynamic effects of missiles, pipe whipping, and discharging fluids that may result from equipment failures.

NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants"

SRP Section 3.6.1, "Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment", Revision 1 - July 1981, describes the requirements for the plant to be designed such that piping failures would not cause the loss of needed functions of safety-related equipment. This section provides assurance for conformance to GDC 4. It should be noted that the cause of the postulated piping failure is not defined, only that the failure needs to be postulated and evaluated.

SRP Section 3.6.1, Section I, "Areas of Review", Item 3, states that the Auxiliary Systems Branch (ASB):

> "reviews analyses of postulated piping failures with respect to the guidelines of Section B.3 of Branch Technical Position (BTP) ASB 3-1. The locations and types of failures to be considered and the dynamic effects associated with the failures are to be reviewed by the Mechanical Engineering Branch (MEB) under SRP 3.6.2", and
>
> "ASB reviews the effects of piping failures in systems not designed to seismic Category I standards on essential systems and components."

Section II, "Acceptance Criteria" states that:

> "acceptance is based on conformance to Branch Technical Position ASB 3-I".

BTP ASB 3-1, "Protection Against Postulated Piping Failures in Fluid Systems Outside Containment", Revision 1, July 1981

The ASB provides an approach for the design of fluid systems located outside of containment to assure the plant can be safely shutdown in the event of piping failures outside of containment.

Section B.3, "Analyses and Effects of Postulated Piping Failures", Item "a" states that:

> "To show that the plant arrangement and **design features provide the necessary protection of essential systems and components, piping failures should be postulated in accordance with BTP MEB 3-1** (emphasis added) ... In applying the provisions of BTP MEB 3-1, each longitudinal or circumferential break in high-energy fluid system piping or **leakage crack in moderate energy** fluid system piping ...(emphasis added)"

Item B.3.d states that:

> "The functional capability of essential systems and components should be maintained after a failure of piping not designed to seismic Category I standards, assuming a concurrent single active failure."

Section 4, "Implementation", Item "c" states that:

> "Designs of plants for which construction permit applications were tendered before July 1,1973 and operating licenses are issued after July 1,1975 should follow the guidance provided in the December 1972 letter from A. Giambusso, Appendix B to this position and provide analyses of moderate energy lines made in conformance with Section B.3 of this position, as part of the operating license application for these plants to demonstrate that acceptable protection against the effects of piping failures outside containment has been provided. Alternately, this position may be used in its entirety as an acceptable basis for this finding."

Note, PNPP application for the Construction Permit was submitted in March 1973, and was docketed by the NRC in June 1973. The Operating License was issued on November 1986. Therefore Appendix B and Section B.3 of the BTP is applicable to the PNPP design.

Section B.3 and Appendix B of the BTP provide guidance for the analysis of the effects of postulated piping failures upon SSCs that are required for safe plant shutdown.

ASB 3-1, Appendix C, Item II, "Piping Systems Containing Moderate-Energy Fluids During Reactor Operation", states that:

> "(a) Piping systems containing moderate-energy fluids are designed ... to develop a limited-size through-wall leakage crack instead of a pipe break
> (b) For each postulated leakage, design measures are included that provide protection from the effects of the resulting water spray and flooding ..."

The BTP contains a definition for "postulated piping failures." The definition states that postulated piping failures are breaks in high-energy fluid system piping and through-wall **leakage cracks in moderate-energy fluid system piping postulated according to the provisions of BTP MEB 3-1** (emphasis added).

SRP Section 3.6.2, "Determination of Rupture Locations and Dynamic Effects Associated with the Postulated Rupture of Piping", Revision 1 - July 1981

This SRP section describes the requirements associated with the analysis for evaluating the effects of postulated breaks and cracks in high and moderate-energy fluid system piping. Satisfying these requirements provides assurance of conformance to GDC 4. SPR 3.6.2, Section II, "Acceptance Criteria", states that the specific criteria for satisfying GDC 4 is contained in BTP MEB 3-1.

BTP MEB 3-1, "Postulated Rupture Locations in Fluid System Piping Inside and Outside Containment", Revision 1, July 1981

The MEB provides guidance for the design of piping by postulating pipe ruptures such that adequate protection of SSCs required for safe plant shutdown may be achieved. It should be noted, that the MEB does not describe the mechanism for the postulated piping failures, only that the failures require analysis.

Section B.2 contains the requirements for moderate-energy fluid system piping.

Item B.2.a states that:

> "... a review of the piping layout and plant arrangement drawings should clearly show that the effects of through-wall **leakage cracks** at any location in piping **designed to** seismic and **nonseismic standards** (emphasis added) are isolated or physically remote from essential systems and components."

Item B.2.c.(2) states that:

> "Through-wall **leakage cracks should be postulated in fluid system piping designed to nonseismic standards as necessary to satisfy B.3.d of BTP ASB 3-1** (emphasis added)."

Section B.3 provides guidance for the analyses of breaks and leakage cracks in fluid system piping. The section also provides guidance for evaluating the environmental effects (e.g., compartment wetting and flooding) from these failures.

SRP Section 3.4.1, "Flood Protection", Revision 2 - July 1981

SRP Section 3.4.1 describes the requirements for flood protection. Guidance from this SRP section states that additional guidance is contained in SRP Section 3.6.

Assessment

The regulations state that for a piping system (regardless of its seismic category) located within the vicinity of a SSC that is required for safe plant shutdown, postulated failure of the piping system and its effect upon the SSC required for safe plant shutdown is required to be analyzed. The regulations provide the guidelines for these analyses. For piping systems that contain moderate energy lines, only cracks have to be postulated. The effects of these postulated piping cracks upon SSCs required for safe plant shutdown appear to be limited to spray effects and flooding. It should be noted that the regulations do not limit the application of the guidance to only seismically-qualified piping.

PNPP Licensing Bases

PNPP Final Safety Analysis Report (FSAR), Revision 0, September 1980

FSAR Section 3.6.1, "Postulated Piping Failures in Fluid Systems Outside of Containment", provides detailed information regarding the analysis of postulated piping failures. FSAR Table 3.6-2, "Moderate Energy Lines", provides a listing of systems that contain moderate-energy lines. The P43 system is listed on the table. FSAR Table 3.6-3, "Safe Shutdown Systems", provides a listing of systems that are required for safe shutdown. The P42 system is listed on the table. FSAR Subsection 3.6.1.2.1.e, describes the inter-relationships between systems located within the Control Complex.

This FSAR section describes potential leakage cracks (and the resultant flooding) in the P43 system and the effects upon safe shutdown equipment, specifically, the P42 system. The result is that there is no impact.

FSAR Subsection 3.6.1.3, "Safety Evaluation", states that:

> "The pipe rupture analysis clearly demonstrates that no system or component required for safe plant shutdown is rendered inoperable as a consequence of any postulated pipe rupture."

FSAR Section 3.6.2, "Determination of Break Locations and Dynamic Effects Associated with the Postulated Rupture of Piping", provides additional information regarding the analysis of postulated piping failures. The section states that for moderate-energy line breaks, all that is required to be postulated are cracks, not complete, circumferential severance. Furthermore, FSAR Subsection 3.6.2.1.3 states:

> "For moderate energy fluid systems, pipe breaks are confined to controlled cracks in piping runs and branch lines. These cracks affect surrounding environmental conditions, only, and do not result in whipping of the cracked pipe."

FSAR Subsection 3.6.2.3.5, "Flooding Analysis", states:

> "Based on ... leakage from moderate energy line cracks, flooding of safety related structures has been determined. In no case are safe shutdown systems jeopardized ..."

FSAR Section 9.2.2, "Emergency Closed Cooling System", describes the Emergency Closed Cooling System. The section states that the Emergency Closed Cooling System conforms to BTP ASB 3-1. The subsection references FSAR Section 3.6 for a discussion of the BTP.

Assessment

The original PNPP FSAR contained the analyses associated with piping ruptures. The analyses defined the systems that contained moderate-energy lines and described the postulated failure of these lines and the effect of the failures upon SSCs required for safe plant shutdown. It should be noted that the failure effects were associated with flooding.

Furthermore, with respect to the P42 and P43 systems, the P43 system contained moderate-energy lines, the P42 system was defined as a safe shutdown system, and the failure of P43 upon P42 was evaluated. As stated above, there was no impact.

PNPP Safety Evaluation Report (SER), May 1982

Section 3.6.1, "Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment", states that:

> "... the staff guidelines for meeting the requirements of GDC 4 concerning protection against postulated piping failures in high-energy and moderate-energy fluid systems outside containment are contained in BTP ASB 3-1, 'Protection Against Postulated Failures in Fluid Systems Outside Containment.' The applicant has identified all high- and moderate-energy piping systems in accordance with these guidelines and has also identified those systems requiring protection from postulated piping failures. The plant design accommodates ... the effects of postulated cracks in moderate-energy fluid systems outside containment with respect to jet impingement, flooding, and other environmental effects.",
>
> "For moderate-energy systems, protection of safety-related systems from the jet, flooding, and other environmental effects of critical cracks is incorporated into the plant design. The staff reviewed the applicant's analysis and concludes that the protection provided against pipe failure outside containment is in conformance with the guidelines of BTP ASB 3-1.", and
>
> "... the staff concludes that the plant design satisfies the requirements of GDC 4 and the criteria set forth in BTP ASB 3-1 with regard to the protection of safety-related systems and components from a postulated high-energy break and with regard to the protection of safety-related systems and components from a moderate-energy line failure."

SER Section 3.4.1, "Flood Protection", concludes that the design of the facility with respect to flood protection satisfies the acceptance criteria of the SRP Section 3.4.1.

SER Section 9.2.2, "Reactor Auxiliary Cooling Water System", describes the NRC's review of several water systems, including the P42 and P43 Systems. The section states that:

> "Protection from flooding of safety-related equipment resulting from failure of the (Nuclear Closed Cooling) system is discussed in Sections 3.4.1 and 9.3.3. Failure of the system does not affect plant safe shutdown ..."

Assessment

The NRC reviewed the PNPP FSAR and accepted the design of the P42 and P43 Systems with respect to position of postulated failure of moderate-energy lines in non-Category I systems as cracks versus breaks.

ACCIDENT ANALYSIS

The accident analysis, as described in Chapter 15 of the PNPP FSAR is based upon a premise that only safety-related equipment is used to mitigate the effects of an "accident event." Chapter 15 also states that for anticipated operational occurrences (transients), other than the initiator of the event, all plant systems (which would include nonsafety-related systems), are available for use. This wording was added into FSAR Amendment 3 in response to NRC questions regarding the analysis of some events described in Chapter 15. The bases of the NRC's premise for "accident" mitigation relying on only safety-related SSCs appears to be based upon guidance contained in 10CFR50, Appendix A and 10CFR100, Appendix A. 10CFR50, GDC 1, states that SSCs that are important to safety be designed commensurate with the importance of the safety function to be performed. 10CFR100 states that should a SSE occur, SSCs important to safety will remain functional. With respect to reliance solely upon safety-related equipment for accident mitigation, the SRP does not provide any amplifying information.

It should be noted that with respect to seismic events the SRP guidance does not include the event as either an anticipated operational occurrence or an accident.

SRP Section 15.0 states:

> "Events such as fires, floods, storms or earthquakes are not explicitly considered in the review of anticipated operational occurrences and postulated accidents in Chapter 15 ..."

As stated in both the PNPP FSAR and PNPP Updated Final Safety Analysis Report (USAR), the PNPP design is based upon the aforementioned premises. It should be noted that in the case of accidents, mitigation is based solely upon safety-related equipment. However, there is no description of what happens to the nonsafety-related equipment during the accident event. Furthermore, no guidance, as of yet, has been identified that places any design or licensing requirements upon nonsafety SSCs during these conditions.

CONCLUSION

The regulations that were in effect at the time of the design and construction of the Perry Nuclear Power Plant (PNPP) required the behavior of a non-seismic system acting upon an interconnected seismic system during a Safe Shutdown Earthquake (SSE) be such that it cannot prevent the seismic system from performing its intended function. However, the regulations do not define any requirements associated with the effect or impact a SSE has upon the non-seismic system.

Evaluating the dynamic effects of postulated pipe failures was also required by the existing regulations. The requirements are applied to piping systems, whether they are seismic or not. Given the minimal guidance for the behavior of non-seismic piping during a seismic event, and that the dynamic criteria is linked to seismic criteria, it was appropriate to use the design criteria associated with the dynamic effects to bound the design of non-seismic piping.

With respect to PNPP, cracking of moderate-energy piping, including non-seismic piping, has been a part of the PNPP licensing basis since 1980. Furthermore, the NRC, as described within the NRC SER for the PNPP, has acknowledged this aspect of the PNPP piping system design.

As stated earlier, the TIA was prompted by a motor-operated valve calculation associated with the Emergency Closed Cooling (P42) System. The calculation was associated with the PNPP Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," program. The GL states that the 89-10 program is not intended to change the existing plant design and no inference for altering the design exists. Therefore, the PNPP licensing bases has not been superseded.

One final note, the NRC withdrew a Request for Additional Information (RAI) regarding the application of pipe break criteria for nonseismic Category I moderate-energy piping at the PNPP by letter dated January 27, 1999 (PY-NRR/CEI-0949L). The letter stated the Staff agreed with PNPP that the BTPs did not provide adequate guidance with respect to this issue. The letter stated that the Staff conducted a survey and determined that plants licensed during the 1980's interpreted the BTPs similarly to PNPP's interpretation. Therefore, the Staff withdrew its RAI and closed this issue.