

November 13, 2002

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

**PALISADES NUCLEAR PLANT**  
**DOCKET 50-255**  
**LICENSE DPR-20**  
**REQUEST FOR ENFORCEMENT DISCRETION – SAFETY INJECTION TANKS (SITs)**

Nuclear Management Company, LLC (NMC), the licensee for the Palisades Nuclear Plant, requests regional enforcement discretion from compliance with certain requirements of Technical Specification 3.5.1, "Safety Injection Tanks (SITs)." Condition B of Technical Specification 3.5.1 requires that with one SIT inoperable for reasons other than Condition A, restore the SIT to operable status within 24 hours. Condition C of Technical Specification 3.5.1 states that if the required action and associated completion time of Condition B is not met, then be in Mode 3 within 6 hours.

Palisades is operating at approximately 60% power. SIT T-82D was declared inoperable at 1345 hours on November 11, 2002, when a non-isolable leak was discovered on the lower sensing line attached to the main discharge piping from SIT T-82D. The root cause of this leakage has not yet been determined. The repair and post-maintenance testing are scheduled to be complete at approximately 0900 hours on November 13, 2002. Without enforcement discretion, Palisades is required to be in at least Mode 3 by 1945 hours on November 12, 2002. Enforcement discretion is requested to extend the allowed outage time by an additional 24 hours to avoid a plant shutdown that would impose an unnecessary plant transient without a significant offsetting safety benefit.

The attachment provides the information specified in Nuclear Regulatory Commission (NRC) Regulatory Issue Summary 2001-20, "Revisions to Staff Guidance for Implementing NRC Policy in Notices of Enforcement Discretion," dated November 14, 2001.

This request was verbally transmitted to members of the NRC staff on November 12, 2002, at 1130 hours, with subsequent approval being verbally granted at 1332 hours.

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SUMMARY OF COMMITMENTS

This letter contains two new commitments and no revisions to existing commitments. The new commitments are:

Ensure compensatory actions provided in section 7 of the attachment are continued for the duration of this enforcement discretion.

Identify systems, structures or components that were wetted with boric acid solution as a result of the leak and remove boric acid residue to preclude damage to such systems, structures, and components, by November 18, 2002.

I declare under penalty of perjury that the foregoing is true and accurate. Executed on November 13, 2002.



Daniel J. Malone  
Plant General Manager, Palisades

CC Regional Administrator, USNRC, Region III  
Project Manager, USNRC, NRR  
NRC Resident Inspector, Palisades

Attachment

**ATTACHMENT**

**NUCLEAR MANAGEMENT COMPANY  
PALISADES NUCLEAR PLANT  
DOCKET 50-255**

**November 13, 2002**

**REQUEST FOR ENFORCEMENT DISCRETION  
SAFETY INJECTION TANKS (SITs)**

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**REQUEST FOR ENFORCEMENT DISCRETION  
SAFETY INJECTION TANKS (SITs)**

**1. TECHNICAL SPECIFICATION REQUIREMENT OR LICENSE CONDITION  
THAT WILL BE VIOLATED**

Palisades Technical Specification 3.5.1, "Safety Injection Tanks (SITs)," requires four SITs to be operable in Modes 1 and 2. Condition B of Technical Specification 3.5.1 provides required actions for one SIT inoperable for reasons other than those described in Condition A. If one SIT is inoperable, action is required to restore the SIT to operable status within 24 hours. In the event that the required action and associated completion time of Condition B are not met, Condition C provides further required actions to be in Mode 3 within 6 hours.

**2. CIRCUMSTANCES SURROUNDING THE SITUATION, INCLUDING  
APPARENT ROOT CAUSES, THE NEED FOR PROMPT ACTION AND  
RELEVANT HISTORICAL EVENTS**

On November 11, 2002, operations noted apparent leakage from SIT T-82D via trending of multiple plant parameters. Subsequently, SIT T-82D and associated piping were visually inspected for evidence of leakage. During this inspection, leakage was visually observed from the  $\frac{3}{4}$ " piping side of the sock-o-let attaching the lower sensing line for level transmitter LT-0374 to the main 12" downcomer from SIT T-82D. The leak is non-isolable from SIT T-82D. SIT T-82D was declared inoperable at 1345 hours on November 11, 2002, and Condition B of Technical Specification 3.5.1 was entered. The root cause of this leakage, which is on an American Society of Mechanical Engineers (ASME) Class 2 piping component, has not been determined.

In order to both repair the leak and preserve the flawed portion of piping for root cause analysis, the piping segment between the 12" downcomer and the first elbow will be replaced. This segment was made up of the leaking branch connection fitting (sock-o-let) off the T-82D downcomer and the  $\frac{3}{4}$ " pipe between the sock-o-let and first elbow out from the 12" downcomer.

The repair is in accordance with ASME Section XI for Class 2 piping. Specifications of the components involved in the repair are as follows:

- The new sock-o-let is a 12" to 6" X  $\frac{3}{4}$ ", 3000#, ASTM SA-182 grade F-304 stainless steel fitting.
- The new  $\frac{3}{4}$ " pipe is schedule 40, ASTM SA-376/312 grade 304 stainless steel.

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- The pre-existing 12" downcomer is ASTM A-358 grade 304 stainless steel with a minimum wall thickness of 0.250".
- The pre-existing ¾" elbow is ASTM A-182 grade F-304 stainless steel, 2000# or 3000# fitting.

Three welds are required for the repair. 1) A full penetration weld between the 12" downcomer and the sock-o-let, 2) an 1/8" socket weld between the sock-o-let and the ¾" pipe and 3) an 1/8" socket weld between the ¾" pipe and the pre-existing elbow. All welds will be made with the gas tungsten arc welding process using ER308L filler metal. An argon back purge will be established prior to making the sock-o-let to the 12" pipe weld.

All welds will be examined using the liquid dye penetrant method. As an added precaution, no liquid dye penetrant indications will be allowed on the socket welds due to the low number of weld layers on joints of this size.

The leak location is part of a replacement fitting installed in 1992 following similar leakage. A root cause evaluation was conducted on the failed joint in the T-82D level sensing line connection in 1992. The evaluation indicated the most likely cause of the failure to be an improper manufacturing process, which led to a chromium deficient area in the fitting. The chemistry data and the failure location (adjacent to the base metal of the fitting) led to the conclusion that lack of chromium in the fitting yielded a vulnerability to the fabricated sensitization. Destructive testing of the joint was not performed.

Nuclear Management Company (NMC) plans to perform destructive testing of the joint for the recent failure. Extent of condition work has been focused on the routings associated with the failure because the routing of the failed joint has an eccentricity that the routings from the other three SITs do not have, and the sock-o-let fitting is different than the fitting associated with the other recently inspected fittings on the other trains.

Weld repair of the leak location is estimated to take up to 48 hours from the time Condition B was entered. Condition C of Technical Specification 3.5.1 would require the plant to be in Mode 3 by 1945 hours on November 12, 2002, before the repair is complete.

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**3. SAFETY BASIS FOR THE REQUEST, INCLUDING AN EVALUATION OF THE SAFETY SIGNIFICANCE AND POTENTIAL CONSEQUENCES OF THE PROPOSED COURSE OF ACTION, INCLUDING RISK ASSESSMENT**

The functions of the four SITs are to supply water to the reactor vessel during the blowdown phase of a large break loss-of-coolant accident (LOCA), to provide inventory to help accomplish the refill phase that follows thereafter, and to provide primary coolant system (PCS) makeup for a small break LOCA (as pressure becomes low enough for injection to occur from the SITs).

The SITs are pressure vessels partially filled with borated water and pressurized with nitrogen gas. The SITs are passive components, since no operator or control action is required for them to perform their function. Internal tank pressure and elevation head are sufficient to discharge the contents to the PCS, if PCS pressure decreases below the SIT pressure.

Each SIT is piped into one PCS cold leg via the injection lines utilized by the high pressure safety injection and low pressure safety injection (HPSI and LPSI) systems. Each SIT is isolated from the PCS by a motor-operated isolation valve and two check valves in series. The motor-operated isolation valves are normally open, with power removed from the valve motor to prevent inadvertent closure prior to or during an accident.

The SIT gas and water volumes, gas pressure, tank elevation, and outlet pipe size are selected to allow three of the four SITs to partially recover the core before significant clad melting or zirconium water reaction can occur following a large break LOCA. The need to ensure that three SITs are adequate for this function is consistent with the large break LOCA assumption that the entire contents of one SIT will be lost via the break during the blowdown phase of a LOCA.

The SITs are credited in both the large and small break LOCA analyses at full power. These design basis accidents (DBAs) establish the acceptance limits for the SITs. Reference to the analyses for these DBAs is used to assess changes to the SITs as they relate to the acceptance limits.

In performing the large break LOCA calculations, conservative assumptions are made concerning the availability of safety injection flow. These assumptions include signal generation time, equipment starting times, and delivery time due to system piping. In the early stages of a large break LOCA with a loss of offsite power, the SITs provide the sole source of makeup water to the PCS. The assumption of a loss of offsite power is required by regulations. This situation exists because the LPSI pumps and HPSI

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pumps cannot deliver flow until the diesel generators (DGs) start, come to rated speed, and go through their timed loading sequence. In cold leg breaks, the entire contents of one SIT are assumed to be lost through the break during the blowdown and reflood phases. For the small break LOCA, SITs are credited as available and contribute to PCS makeup once PCS pressure lowers enough for SIT injection to occur.

This request for enforcement discretion has been evaluated from a probabilistic risk standpoint. This evaluation determined that there is no net increase in risk by allowing the plant to operate an additional 24 hours with the SIT T-82D inoperable. The evaluation was performed using the Palisades probabilistic risk assessment model that accounts for the current plant configuration. The evaluation also includes the assumption that the LPSI system, HPSI system, and three remaining SITs remain available. The results of the evaluation indicate an increase in the core damage probability (CDP), over the baseline configuration, of  $4E-11$ . The CDP is low because of the assumed availability of the LPSI system, HPSI system, and three remaining SITs. The Palisades probabilistic safety assessment credits SITs for mitigating the consequences of a large break LOCA only, but does not credit the SITs when evaluating the risk of a small break LOCA.

This increase in CDP is significantly less than the increase in CDP associated with a reactor shutdown, which has been estimated to be  $1E-06$  for Palisades. This is based, in part, on potential failures of electrical or mechanical failures of the reactor protection system and control rod drive system that could occur when the reactor is transitioned from Mode 1 to Mode 3.

Therefore, the risk associated with maintaining the reactor at power for an additional 24 hours with the SIT T-82D inoperable is lower than the risk associated with performing a reactor shutdown.

The leakage of borated water from the failed fitting has wetted structures, systems and components (SSCs) in the near vicinity and below the point of leakage. Actions have been taken to identify affected SSCs and to remove boric acid residue to preclude damage to such SSCs. NMC will complete these actions before November 18, 2002.

Since the exposure of these SSCs has been to ambient temperature borated water and has been over a short period of time (less than one week), it is judged that no significant damage will have occurred to any affected SSCs.

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**4. JUSTIFICATION FOR THE DURATION OF THE NONCOMPLIANCE**

NMC proposes to extend the completion time for Technical Specification 3.5.1 Condition B, by 24 hours, for a total of 48 hours, to allow for restoration of SIT T-82D to operable status. The duration of the noncompliance is limited to the time required to complete the remaining restoration activities and conduct required testing, plus margin to accommodate unforeseen circumstances. The 24-hour extension is appropriate based on the projected completion time of 0900 hours on November 13, 2002.

**5. BASIS FOR DETERMINING THAT THE NONCOMPLIANCE WILL NOT BE OF POTENTIAL DETRIMENT TO THE PUBLIC HEALTH AND SAFETY AND THAT NO SIGNIFICANT HAZARD CONSIDERATION IS INVOLVED**

Nuclear Management Company (NMC) has evaluated this request for enforcement discretion against the criteria set forth in 10 CFR 50.92 and concludes that the request involves no significant hazards consideration. The evaluation is provided below.

1. Does the change involve a significant increase in the probability of occurrence or consequences of an accident previously evaluated?

The proposed action does not physically alter any plant structures, systems, or components and does not affect or create new accident initiators or precursors. The allowed outage time for a component is not an accident initiator; therefore, there is no significant increase in the probability of accidents previously evaluated.

Extending the Technical Specification allowed outage time for a safety injection tank does not involve a significant increase in consequences of an accident previously evaluated. Required safety injection flows are maintained, and the core damage probability is not significantly increased for the proposed extension to the allowed outage time. The proposed action does not affect the types or amounts of radionuclides released following an accident, or the initiation and duration of their release. Therefore, the probability of occurrence or the consequences of accidents previously evaluated are not significantly increased.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

The proposed action does not physically alter any structures, systems, and components, and does not affect or create new accident initiators or precursors.

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The accident analysis assumptions and results are unchanged. No new failures or interactions have been created.

Therefore, the proposed action does not create the possibility of a new or different kind of accident from any accident previously evaluated.

**3. Does the change involve a significant reduction in a margin of safety?**

The margin of safety is related to the ability to supply water to the reactor vessel during the blowdown phase of a large break loss-of-coolant accident (LOCA), to provide inventory to help accomplish the refill phase that follows thereafter, and to provide primary coolant system makeup for a small break LOCA.

The proposed action does not involve a significant reduction in the margin of safety because the required safety injection flows are maintained. The core damage probability is not significantly increased for the proposed extension to the allowed outage time. Although the proposed action deviates from a requirement in Technical Specification 3.5.1, it does not affect any safety limits or other operational parameter limits or setpoints in the Technical Specifications. Therefore, the proposed action does not significantly reduce the margin of safety.

**6. BASIS FOR CONCLUDING THAT THE REQUEST WILL NOT INVOLVE  
ADVERSE CONSEQUENCES TO THE ENVIRONMENT**

NMC has evaluated the requested enforcement discretion against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. NMC has determined that the requested action meets the criteria for a categorical exclusion set forth in 10 CFR 51.22(c)(9). This determination is based on the fact that the proposed action is being requested as enforcement discretion to a license issued pursuant to 10 CFR 50, and that the change involves no significant hazards considerations.

Although the proposed action involves noncompliance with a requirement of the Technical Specifications,

- (i) The proposed action involves no significant hazards consideration.
- (ii) There is no significant change in the types or a significant increase in the amounts of any effluent that may be released offsite, since the proposed action

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does not affect the generation of any radioactive effluent nor does it affect any of the permitted release paths; and

- (iii) There is no significant increase in individual or cumulative occupational radiation exposure. The action proposed in this request for enforcement discretion will not significantly affect plant radiation levels, and, therefore, do not significantly affect dose rates and occupational exposure.

Accordingly, the proposed action meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9).

### **7. PROPOSED COMPENSATORY MEASURES**

The following compensatory measures are in effect for the duration of the enforcement discretion:

- a. No additional equipment associated with the safety injection systems (HPSI, LPSI, or other SITs) or their support or supported systems will be removed from service.
- b. If the risk achievement worth (RAW) is increased above the current value due to an equipment failure or addition of a maintenance activity to the work schedule, the Plant Review Committee will re-evaluate plant status and determine the need to notify the Nuclear Regulatory Commission (NRC).
- c. All switchyard activities will be suspended.

### **8. PLANT REVIEW COMMITTEE APPROVAL**

This request was reviewed and approved by the Plant Review Committee.

### **9. WHICH NOED CRITERION FOR APPROPRIATE PLANT CONDITIONS IS SATISFIED AND HOW IT IS SATISFIED**

NMC has evaluated the requested enforcement discretion against the criteria specified in section B of NRC Inspection Manual, Part 9900: "Technical Guidance, Operations – Notices of Enforcement Discretion [NOED]," issued November 2, 2001. This section states, "for an operating plant, the NOED is intended to (a) avoid unnecessary transients as a result of compliance with the license condition and, thus, minimize the potential safety consequences and operational risks, or (b) avoid testing, inspection, or system realignment that is inappropriate for the particular plant conditions."

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The NOED criteria in section 2.1.1(a) for an operating plant are satisfied. Palisades is operating at approximately 60% power. Compliance with Technical Specification, 3.5.1 Condition B, would initiate an unnecessary transient by requiring the plant to shutdown on November 12, 2002. Extending the completion time up to an additional 24 hours beyond the 24-hour Technical Specification allowed time would allow continued plant operation for only that additional time needed to perform the required repair and testing. Approval of the NOED will preclude the operational risk associated with a transient during the shutdown. No corresponding health and safety benefit is gained by requiring a plant shutdown. Based on the above, the criteria are satisfied.

**10. MARKED-UP TECHNICAL SPECIFICATIONS PAGES IDENTIFYING  
PROPOSED CHANGES (IF APPLICABLE)**

No Technical Specification changes are required. A license amendment is not practical because the plant will return to compliance with the existing license in a short period of time.

**11. DISCUSSION OF CIRCUMSTANCES INVOLVING SEVERE WEATHER OR  
OTHER NATURAL EVENTS**

The proposed enforcement discretion does not involve severe weather or other natural events.