

from Facility Operating License No. NPF-38, issued to Entergy Operations, Inc., (the licensee), for operation of the Waterford Steam Electric Station Unit, No. 3 (Waterford 3) located in St. Charles Parish, Louisiana.

### Environmental Assessment

#### *Identification of the Proposed Action*

This Environmental Assessment has been prepared to address potential environmental issues related to the licensee's application of November 16, 1993, as supplemented on August 19, 1994, March 30, and June 19, 1995. The proposed action would exempt the licensee from the requirements of 10 CFR Part 50, Appendix J, Paragraph III.D.1.(a), to the extent that a one-time interval extension for the Type A test (containment integrated leak rate test) by approximately 18 months, from the September 1995 refueling outage to the refueling outage in 1997, would be granted.

#### *The Need for the Proposed Action*

The proposed action is needed to permit the licensee to defer the Type A test from the September 1995 refueling outage, to the 1997 refueling outage, thereby saving the cost of performing the test and eliminating the test period from the critical path time of the outage.

#### *Environmental Impacts of the Proposed Action*

The Commission has completed its evaluation of the proposed action and concludes that the proposed one-time exemption would not increase the probability or consequences of accidents previously analyzed and the proposed one-time exemption would not affect facility radiation levels or facility radiological effluents. The licensee has analyzed the results of previous Type A tests performed at Waterford 3 to show good containment performance and will continue to be required to conduct the Type B and C local leak rate tests which historically have been shown to be the principal means of detecting containment leakage paths with the Type A tests confirming the Type B and C test results. It is also noted that the licensee will perform the visual containment inspection although it is only required by Appendix J to be conducted in conjunction with Type A tests. The NRC staff considers that these inspections, though limited in scope, provide an important added level of confidence in the continued integrity of the containment boundary.

The change will not increase the probability or consequences of accidents, no changes are being made in

the types of any effluents that may be released offsite, and there is no significant increase in the allowable individual or cumulative occupational radiation exposure. Accordingly, the Commission concludes that there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential nonradiological impacts, the proposed action does involve features located entirely within the restricted area as defined in 10 CFR Part 20. It does not affect nonradiological plant effluents and has no other environmental impact. Accordingly, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed action.

#### *Alternatives to the Proposed Action*

Since the Commission has concluded there is so measurable environmental impact associated with the proposed action, any alternatives with equal or greater environmental impact need not be evaluated. As an alternative to the proposed action, the NRC staff considered denial of the proposed action. Denial of the application would result in no change in current environmental impacts. The environmental impact of the proposed action and the alternative action are similar.

#### *Alternative Use of Resources*

This action does not involve the use of any resources not previously considered in the Final Environmental Statement for the Waterford Steam Electric Station, Unit No. 3.

#### *Agencies and Persons Consulted*

In accordance with its stated policy, on June 30, 1995, the NRC staff consulted with the Louisiana State official, Prosanta Chowdhun of the LA Radiation Protection Division, regarding the environmental impact of the proposed action. The State official had no comments.

#### **Finding of No Significant Impact**

Based upon the environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the Commission has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated November 16, 1993, as supplemented by letters dated August 19, 1994, March 30, and June 19, 1995, which are available for public

inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, NW., Washington, DC, and the local public document room located at the University of New Orleans Library, Louisiana Collection, Lakefront, New Orleans, LA 70122.

Dated at Rockville, Maryland, this 14th day of July 1995.

For the Nuclear Regulatory Commission.

#### **Chandu P. Patel,**

*Project Manager, Project Directorate IV-1, Division of Reactor Projects III/IV, Office of Nuclear Reactor Regulation.*

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### **Proposed Generic Communication and Draft Regulatory Guide; Issuance, Availability**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Notice of opportunity for public comment on the proposed bulletin and draft guide.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is proposing to issue a bulletin titled "Potential Plugging of Emergency Core Cooling Suction Strainers for Debris in Boiling Water Reactors"; the text of the bulletin is included in this notice under the Supplementary Information heading. The proposed bulletin would request boiling water reactor (BWR) licensees to implement appropriate procedural measures and plant modifications to minimize the potential for clogging of suppression pool suction strainers of emergency core cooling systems (ECCS) by debris generated during a loss-of-coolant accident (LOCA). The NRC has also issued a related Draft Regulatory Guide, DG-1038, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident," which is a proposed Revision 2 to Regulatory Guide 1.82. The draft guide provides additional technical guidance to BWR licensees. The draft guide has not received complete staff review and does not represent an official NRC staff position.

The proposed bulletin and draft guide are being issued to involve the public in the development of a regulatory position in this area. The NRC is seeking comment from interested parties regarding both the technical and regulatory aspects of the proposed bulletin and draft guide. The titles of the proposed bulletin and draft guide should be mentioned in all correspondence.

The staff is also seeking specific technical comments from interested parties on the following questions:

1. Does reflective metallic insulation contribute to the potential clogging of the ECCS suction strainers? Provide any available supporting data with the response.

2. How effective are alternative strainer designs (e.g., the "star" strainer or the "stacked disk" strainer) at preventing or reducing the potential for strainer clogging? Provide any available supporting test data with the response.

3. How effective are active features (e.g., self-cleaning strainer designs or backflushing of strainers) at mitigating or preventing strainer clogging? Provide any available supporting test data with the response.

4. What criteria should be used for determining adequate sizing of passive ECCS suction strainers? The staff is seeking specific comments and supporting technical justification regarding what assumptions should be used in estimating the strainer head loss including types and amounts of debris generated, debris characteristics (e.g., size and shape), amounts of debris transported from the drywell to the suppression pool, calculation of debris quantities entrained on the strainer surfaces, and head loss correlations. Where possible, supporting data should be provided along with recommended assumptions.

5. What actions would be required by licensees to ensure operability of active features (e.g., backflush and self-cleaning strainers) installed in response to the proposed bulletin's requested actions? The staff is also seeking suggestions on ways to incorporate appropriate actions and surveillance requirements into the Technical Specifications (TS) which are consistent with the form of the improved standard TS for the associated safety systems.

The proposed bulletin, draft guide, and supporting documentation were discussed in meeting number 275 of the Committee to Review Generic Requirements (CRGR) on June 27, 1995. The relevant information that was sent to the CRGR to support its review of the proposed bulletin is available in the NRC Public Document Room under accession number 9507200223. The NRC will consider comments received from interested parties before issuing the final version of the proposed bulletin and draft guide. The NRC's evaluation will include a review of the technical position and, as appropriate, an analysis of the value/impact on licensees.

Public Meeting: During the public comment period, the staff will hold a

public meeting with the Boiling Water Reactor Owners Group to discuss the above questions as well as any other comments on the proposed bulletin and draft guide. The meeting will be held on August 24 and 25, 1995. The meeting will run from 8:00 a.m. to 5:00 p.m. on August 24th and from 8:00 a.m. to 12:00 p.m. on August 25th. The public meeting will be held at the Two White Flint North Auditorium, U.S. Nuclear Regulatory Commission, 11545 Rockville Pike, Rockville, Maryland. A meeting notice will be issued approximately two weeks prior that will provide the agenda for the meeting. Interested parties, who have questions about the proposed bulletin or draft guide and plan to attend this meeting, are requested to submit their questions in writing to the staff at least a week before the meeting, so that the staff may be better prepared to respond to the questions at the meeting. Written questions for the meeting should be sent to M. David Lynch, U.S. Nuclear Regulatory Commission, Mail Stop 0-13 D1, Washington, DC 20555-0001.

Visitor parking is very limited around the NRC office in Rockville, Maryland. No visitor parking is available in the NRC buildings. It is recommended that people attending the meeting commute to the meeting via the Metro. The NRC is located immediately across the street from the White Flint Metro stop.

**DATES:** Comment period expires October 2, 1995. Comments submitted after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except for comments received on or before this date.

**ADDRESSES:** The proposed bulletin and the draft guide are available for inspection at the NRC Public Document Room, 2120 L Street NW (Lower Level), Washington, DC. Single copies of the proposed bulletin or the draft guide may be obtained free of charge by writing to the U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Distribution and Mail Services Section. Requests for single copies of the proposed bulletin or draft guide may also be faxed to (301) 415-2260. Telephone requests cannot be accommodated. Regulatory guides and bulletins are not copyrighted, and NRC approval is not required to reproduce them. Both the proposed bulletin and draft guide can be accessed electronically; instructions for doing this are provided below.

Written comments on the proposed bulletin and draft guide may be submitted to the Rules Review and Directives Branch, U.S. Nuclear Regulatory Commission, Washington,

DC 20555-0001. Written comments may also be delivered to 11545 Rockville Pike, Rockville, Maryland, from 7:30 a.m. to 4:15 p.m., Federal workdays. Copies of written comments received may be examined at the NRC Public Document Room, 2120 L Street NW (Lower Level), Washington, DC.

**ELECTRONIC ACCESS:** The proposed bulletin and draft guide may be viewed electronically, and comments may be submitted electronically, in either ASCII text or WordPerfect format (version 5.1 or later), by calling the NRC Electronic Bulletin Board Service (BBS) on FedWorld. The bulletin board may be accessed using a personal computer, a modem, and one of the commonly available communications software packages, or directly via Internet.

By using a personal computer and modem, the NRC subsystem on FedWorld can be accessed directly by dialing the toll free number: 1-800-303-9672. Communication software parameters should be set as follows: parity to none, data bits to 8, and stop bits to 1 (N,8,1). Using ANSI or VT-100 terminal emulation, the NRC NUREGs and RegGuides for Comment subsystem can then be accessed by selecting the "Rules Menu" option from the "NRC Main Menu." For further information about options available for NRC at FedWorld, consult the "Help/Information Center" from the "NRC Main Menu." Users will find that the "FedWorld Online User's Guides" are particularly helpful. Many NRC subsystems and databases also have a "Help/Information Center" option that is tailored to the particular subsystem.

The NRC subsystem on FedWorld can also be accessed by a direct dial phone number for the main FedWorld BBS, 703-321-3339, or by using Telnet via Internet, fedworld.gov. If using 703-321-3339 to contact FedWorld, the NRC subsystem may be accessed from the main FedWorld menu by selecting the "Regulatory, Government Administration and State Systems," then selecting "Regulatory Information Mall." At that point, a menu will be displayed that has an option "U.S. Nuclear Regulatory Commission" that will take the user to the NRC Online main menu. The NRC Online area also can be accessed directly by typing "/go nrc" at a FedWorld command line. If the user accesses NRC from FedWorld's main menu, the user may return to FedWorld by selecting the "Return to FedWorld" option from the NRC Online Main Menu. However, if the user accesses NRC at FedWorld by using the NRC's toll-free number, the user will have full access to all NRC systems, but

will not have access to the main FedWorld system.

If the user contacts FedWorld using Telnet, the user will see the NRC area and menus, including the Rules menu. The user will be able to download documents and leave messages, but will not be able to write comments or upload files (comments). If the user contacts FedWorld using file transfer protocol (FTP), all files can be accessed and downloaded but uploads are not allowed; the user will only see a list of files without descriptions (normal Gopher look). An index file listing all files within a subdirectory, with descriptions, is included. There is a 15-minute time limit for FTP access.

Accessing FedWorld through the World Wide Web, like FTP, only provides access for downloading files and does not display the NRC Rules menu.

For more information on NRC bulletin boards call Mr. Arthur Davis, Systems Integration and Development Branch, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-5780, e-mail axd3@nrc.gov.

**FOR FURTHER INFORMATION CONTACT:** M. David Lynch at (301) 415-3023, e-mail mdl@nrc.gov or Robert Elliott at (301) 415-1397, e-mail rbe@nrc.gov.

#### **SUPPLEMENTARY INFORMATION:**

**United States Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, DC 20555**

#### **NRC Bulletin 95-XX: Potential Plugging of Emergency Core Cooling Suction Strainers by Debris in Boiling Water Reactors**

##### **Addressees**

All holders of operating licenses or construction permits for boiling-water reactors (BWRs).

##### **Purpose**

The U.S. Nuclear Regulatory Commission (NRC) is issuing this bulletin to: (1) Request addressees to implement appropriate procedural measures and plant modifications to minimize the potential for clogging of emergency core cooling system (ECCS) suppression pool suction strainers by debris generated during a loss-of-coolant accident (LOCA), and

(2) Require that addressees report to the NRC whether and to what extent the requested actions will be taken and notify the NRC when actions associated with this bulletin are complete.

##### **Background**

On July 28, 1992, an event occurred at Barseback Unit 2, a Swedish BWR, which involved the plugging of two

ECCS suction strainers. The strainers were plugged by mineral wool insulation that had been dislodged by steam from a pilot-operated relief valve that spuriously opened while the reactor was at 3,100 kPa [435 psig]. Two of the five strainers on the suction side of the containment spray pumps were in service and became partially plugged with mineral wool. Following an indication of high differential pressure across both suction strainers 70 minutes into the event, the operators shut down the containment spray pumps and backflushed the strainers. The Barseback event demonstrated that the potential exists for a pipe break to generate insulation debris and transport a sufficient amount of the debris to the suppression pool to clog the ECCS strainers.

On January 16 and April 14, 1993, two events involving the clogging of ECCS strainers also occurred at the Perry Nuclear Power Plant, a domestic BWR. The first Perry event involved clogging of the suction strainers for the residual heat removal (RHR) pumps by debris in the suppression pool. The second Perry event involved the deposition of filter fibers on these strainers. The debris consisted of glass fibers from temporary drywell cooling unit filters that had been inadvertently dropped into the suppression pool, and corrosion products that had been filtered from the pool by the glass fibers which accumulated on the surface of the strainer. The Perry events demonstrated the deleterious effects on strainer pressure drop caused by the filtering of suppression pool particulates (corrosion products or "sludge") by fibrous glass materials entrained on the ECCS strainer surfaces. These corrosion products are typically present in large quantities in domestic BWRs. Separate test programs have been conducted by the Boiling Water Reactor Owners Group (BWROG) and the staff to quantify this filtering effect.

Based on these events, the NRC issued Bulletin 93-02, "Debris Plugging of Emergency Core Cooling Suction Strainers," on May 11, 1993. The bulletin requested licensees to remove fibrous air filters and other temporary sources of fibrous material, not designed to withstand a LOCA, from the containment. In addition, licensees were requested to take any immediate compensatory measures necessary to ensure the functional capability of the ECCS.

Following these events, the staff performed calculations to assess the vulnerability of each domestic BWR. The results of these calculations showed that the potential existed for the ECCS

pumps to lose net positive suction head (NPSH) margin due to clogging of the suction strainers by LOCA-generated debris. The staff then conducted a detailed study of a reference BWR 4 plant with a Mark I containment. The preliminary results of the staff study are contained in a draft report, "Parametric Study of the Potential for BWR ECCS Strainer Blockage Due to LOCA Generated Debris," which was published in August 1994. The preliminary study results reaffirmed the results of the earlier staff calculations.

Members of the NRC staff also attended an Organization for Economic Cooperation and Development/Nuclear Energy Agency (OECD/NEA) workshop on the Barseback incident held in Stockholm, Sweden, on January 26 and 27, 1994. Representatives from other countries at this conference discussed actions taken or planned which would prevent or mitigate the consequences of BWR strainer blockage. Based on the preliminary results of the staff's study, as reinforced by information learned at the OECD/NEA workshop, the staff issued NRC Bulletin 93-02, Supplement 1, "Debris Plugging of Emergency Core Cooling Suction Strainers," on February 18, 1994. The purpose of the bulletin supplement was to request that BWR licensees take the appropriate interim actions to ensure reliability of the ECCS so that the staff and industry would have sufficient time to develop a permanent resolution. In addition, the bulletin supplement informed licensees of pressurized water reactors (PWRs) and BWRs of new information on the vulnerability of ECCS suction strainers in BWRs and containment sumps in PWRs to clogging during the recirculation phase of a LOCA.

Licensee responses to NRC Bulletin 93-02 and its supplement have demonstrated that appropriate interim measures have been implemented by licensees to ensure adequate protection of public health and safety, and to allow continued operation until the final actions requested in this bulletin are implemented.

In responding to these bulletins, licensees ensured: (1) the availability of alternate water sources (both safety and non-safety related sources) to mitigate a strainer clogging event, (2) that emergency operating procedures (EOPs) provided adequate guidance on mitigating a strainer clogging event, (3) that operators were adequately trained to mitigate a strainer clogging event, and (4) that loose and temporary fibrous materials stored in containment were removed. In addition, a generic safety assessment conducted by the Boiling Water Reactor Owners Group (BWROG)

concluded that operators would have adequate time to make use of alternate water sources (25–35 minutes). The staff also notes that the probability of the initiating event is low. The actions requested in this bulletin will ensure that the ECCS can perform its safety function and minimize the need for operator action to mitigate a LOCA.

#### Discussion

The results of the staff study, initially documented in the draft NUREG/CR-6224, demonstrate that for the reference plant, there is a high probability that the available NPSH margin for the ECCS pumps will be inadequate following dislodging of insulation caused by a LOCA and transport of insulation debris to the suction strainers. In addition, the study calculated that the loss of NPSH could occur quickly (less than 10 minutes into the event). The study also demonstrated that determining the adequacy of NPSH margin for an ECCS system is highly plant-specific because of the large variations in such plant characteristics as containment type, ECCS flow rates, insulation types, plant layout, and available NPSH margin. The final version of NUREG/CR-6224 is scheduled for issuance in September 1995.

The Barsebäck event demonstrated that a pipe break can generate and transport large quantities of insulation debris to the suppression pool where they can be deposited onto strainer surfaces and potentially cause the ECCS to lose NPSH. The Perry events further demonstrated that fibrous insulation debris combined with corrosion products present in the suppression pool (sludge) can exacerbate the problem. This phenomenon was confirmed in the staff study which showed that the calculated loss of NPSH could occur soon (less than 10 minutes) after ECCS initiation. The effect of filtering sludge from the suppression pool water by fibrous debris deposited on the strainer surface was further confirmed in NRC-sponsored testing conducted at the Alden Research Laboratory which demonstrated that the pressure drop across the strainer was greatly increased by this filtering effect. Additional testing sponsored by the NRC at Alden Research Laboratory demonstrated that the energy conveyed to the suppression pool during the "chugging" phase of a LOCA is sufficient to ensure that the fibrous debris and sludge are well-mixed and evenly distributed in the suppression pool, and can remain suspended for a sufficiently long period of time to allow large quantities to be deposited onto the strainer surfaces. The staff has

concluded that this problem is applicable to all domestic BWRs. The basis for the staff's conclusion is as follows: (1) there does not appear to be any features specific to a particular plant, class of plants, or containment type which would mitigate or prevent the generation, transport to the suppression pool, or deposition on the ECCS strainers of sufficient material to clog the strainers, and (2) parametric analyses performed in support of the NUREG/CR-6224 study using parameter ranges which bound most domestic BWRs failed to find parameter ranges which would prevent BWRs with other containment types from being susceptible to this problem. In addition, the staff study was conducted on a Mark I; Barsebäck had a strainer clogging event and is similar in design to a Mark II; and Perry, a Mark III, also had a strainer clogging event.

Section 50.46 of Title 10 of the Code of Federal Regulations (10 CFR 50.46) requires that licensees design their ECCS systems to meet five criteria, one of which is to provide long-term cooling capability of sufficient duration following a successful system initiation so that the core temperature shall be maintained at an acceptably low value and decay heat shall be removed for the extended period of time required by the long-lived radioactivity remaining in the core. The ECCS is designed to meet this criterion, assuming the worst single failure. Experience gained from operating events and detailed analysis, as previously discussed, demonstrate that excessive buildup of debris from thermal insulation, corrosion products, and other particulates on ECCS pump strainers is highly likely to occur, creating the potential for a common-cause failure of the ECCS, which could prevent the ECCS from providing long-term cooling following a LOCA. The staff concludes; therefore, that this issue must be resolved by licensees in order to ensure compliance with the regulations; specifically, to ensure that long-term cooling can be provided in accordance with 10 CFR 50.46.

Plant-specific analyses to resolve this issue are difficult to perform because a substantial number of uncertainties are involved. Examples of these uncertainties include the amount of debris that would be generated by a pipe break for various insulation types; the amount of the debris that would be transported to the suppression pool; the characteristics of debris reaching the suppression pool (e.g., size and shape); and head loss correlations for various insulation types combined with suppression pool corrosion products, paint chips, dirt, and other particulates.

Many of these uncertainties would be plant-specific because of the differences in plant characteristics, such as plant layout, insulation types, ECCS flow rates, containment types, and NPSH margin. Testing may be required to quantify these uncertainties for licensees to demonstrate compliance with 10 CFR 50.46.

The staff has also closely followed the work of the BWROG to resolve this issue. The BWROG has evaluated several potential solutions, and is currently testing three new strainer designs: two passive strainer designs and one self-cleaning design. The ongoing BWROG effort is consistent with the options proposed in this bulletin for resolution of the the ECCS potential strainer clogging issue. These options are discussed in the next section under Requested Actions. The BWROG is also developing a utility resolution guidance (URG) document for providing the utilities with: 1) guidance on evaluation of the ECCS potential strainer clogging issue for their plant, 2) a standard industry approach to resolution of the issue which is technically sound, and 3) guidance which is consistent with the requested actions in this bulletin for demonstrating compliance with 10 CFR 50.46. The staff considers this document to be an important part of the implementation of the final resolution of this issue, and will closely monitor the development and application of the URG.

#### Requested Actions

All BWR licensees are requested to implement appropriate measures to ensure the capability of the ECCS to perform its safety function following a LOCA. The staff has identified three potential resolution options; however, licensees may propose others which provide an equivalent level of assurance that the ECCS will be able to perform its safety function following a LOCA. The three options identified by the staff are as follows:

*Option 1:* Installation of a large capacity passive strainer design. Draft Regulatory Guide DG-1038, proposed Revision 2 of Regulatory Guide 1.82 (RG 1.82), "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident," has been revised to provide additional technical guidance to BWR licensees on the conduct of evaluations to ensure compliance with 10 CFR 50.46. If this option is selected by a licensee, the strainer design used should have sufficient capacity to ensure that debris loadings equivalent to a scenario calculated in accordance with Section C.2.2 of DG-1038 do not cause

a loss of net positive suction head (NPSH) for the ECCS. This option has two main advantages. First, it is completely passive and, therefore, requires no operator intervention. Second, it does not require an interruption of ECCS flow. While this is the most advantageous of the options identified, the staff recognizes that it may be difficult for most licensees to implement this option due to the difficulty in providing sufficient structural support for the strainers to handle LOCA-induced hydrodynamic loads. However, the staff notes that licensees may take appropriate measures in combination with this option to reduce the potential debris sources in containment and the suppression pool, which would, in turn, reduce the required capacity and physical size of the strainer, and therefore, assist in reducing the structural burden of the strainer installation. Licensees choosing this option for resolution should establish programs, as necessary, to ensure that the potential for debris to be generated and transported to the strainer surface does not at any time exceed the assumptions used in estimating the amounts of debris for sizing of the strainers in accordance with DG-1038.

*Option 2:* Installation of a self-cleaning strainer.

This option automatically prevents strainer clogging by providing continuous cleaning of the strainer surface with a scraper blade or brush. Like Option 1, the self-cleaning strainer design would not rely on operator action or interrupt ECCS flow. However, this option does rely on an active component which is fully exposed to the LOCA effects in the suppression pool to keep the strainer surface clean. Therefore, appropriate measures should be taken to ensure the operability of the strainer. Installation of this type of strainer should be combined with the following measures to protect the strainer and ensure its operability: (1) implementation of reasonable measures to eliminate debris sources which could potentially damage or overload the strainer during a LOCA, including, as a minimum, removal of all debris from the suppression pool every refueling outage, and (2) implementation of surveillances to ensure periodic cleaning of the suppression pool and the operability of the strainer.

*Option 3:* Installation of a backflush system.

The backflush system is a reactive system that relies on operator action to remove debris from the surface of the strainer to prevent it from clogging. In order to ensure that operators can

adequately deal with a strainer clogging event, installation of this type of system should be combined with the following measures: (1) reasonable measures to maximize the amount of time before clogging could occur; (2) instrumentation and alarms to indicate when strainer differential pressure increases; (3) operator training on recognition and mitigation of a strainer clogging event, and (4) implementation of surveillances to ensure the operability of the strainer instrumentation and backflush system. A supporting analysis for installation of a backflush system which is consistent with Section C.2.2 of DG-1038 should be performed to demonstrate that operators have sufficient time to recognize the onset of clogging and to take appropriate action, taking into consideration their other responsibilities after a LOCA. In addition, this analysis should ensure that operators have the capability and sufficient time to cycle backflushing at the expected frequency and for the required total number of actuations anticipated in providing long-term core cooling following a LOCA.

Compliance with 10 CFR 50.46 requires the use of safety grade equipment. Any request to deviate from this position would require an exemption with a supporting technical analysis, and must meet the specific requirements of 10 CFR 50.12. Active features such as backflush and the self-cleaning strainer must be supported by test data that demonstrate the design effectiveness for removal of debris entrained on the surface of the strainer. Strainers installed for Option 1 must be supported by test data that demonstrate their performance characteristics, and their ability to handle the worst case scenario for debris deposition on the strainer surface.

On July 22, 1993, the Commission published its final policy statement on Technical Specifications (TS) improvements for nuclear power reactors in the **Federal Register** (58 FR 39132). Part of that policy statement stated that the purpose of TS is to impose those conditions or limitations upon reactor operation necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety by identifying those features that are of controlling importance to safety and establishing on them certain conditions of operation which cannot be changed without prior Commission approval. Based on this purpose and 10 CFR 50.36, the Commission also provided four criteria that delineate those constraints on design and

operation of nuclear power plants that belong in TS. Criterion 3 of the policy statement states that a structure, system or component which is part of the primary success path and which functions or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier should be captured in the TS. The staff believes that self-cleaning strainers, backflush systems, and instrumentation installed to support backflush systems meet Criterion 3 of the Commission's policy and should be captured in the TS because these components are necessary for the primary success path (i.e., the ECCS) to mitigate design basis LOCA. TS should be proposed to support the above actions and should include, where appropriate for the option selected: (1) appropriate limiting conditions for operation (LCOs); (2) channel checks, channel functional tests, and calibrations of strainer instrumentation at an interval commensurate with other ECCS instrumentation, and (3) testing of active features at the same interval as functional tests of the low-pressure coolant injection (LPCI) system. The final version of this bulletin will include sample TS for Options 2 and 3.

Plant procedures and other actions implemented in response to NRC Bulletin 93-02 and its supplement, should remain in place until the final corrective actions requested in this bulletin have been implemented.

All licensees are requested to implement these actions by December 31, 1997. This timeframe for implementation of the final resolution is considered appropriate by the staff due to the interim actions already taken by licensees and the low probability of the initiating event.

#### **Required Response**

All addressees are required to submit the following written reports:

(1) Within 180 days of the date of this bulletin, a report indicating whether the addressee intends to comply with these requested actions, including a detailed description of planned actions and mitigative strategies to be used, the schedule for implementation, and proposed TS; or, if the licensee does not intend to comply with these actions, a detailed description of the safety basis for the decision. The report must contain a detailed description of any proposed alternative course of action, the schedule for completing this alternative course of action, the safety basis for determining the acceptability of the planned alternative course of action, and proposed TSs, if

appropriate, that support the proposed alternative course of action and are consistent with the Commission's Policy Statement on TS. The staff considers the 180-day response period to be appropriate given the amount of engineering that licensees may wish to perform before they provide their formal response to the staff.

(2) Within 30 days of completion of all requested actions, a report confirming completion and summarizing any actions taken.

Address the required written reports to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, under oath or affirmation under the provisions of Section 182a, the Atomic Energy Act of 1954, as amended, and 10 CFR 50.54(f). In addition, submit a copy of the reports to the appropriate regional administrator.

#### Related Generic Communications

NRC Bulletin 93-02, "Debris Plugging of Emergency Core Cooling Suction Strainers," dated May 11, 1993 and its supplement dated February 18, 1994.

#### Backfit Discussion

The actions requested by this bulletin are considered backfits in accordance with NRC procedures and are necessary to ensure that licensees are in compliance with existing NRC rules and regulations. Specifically, 10 CFR 50.46 requires that adequate ECCS flow be provided to maintain the core temperature at an acceptably low value and to remove decay heat for the extended period of time required by the long-lived radioactivity remaining in the core following a design-basis accident. Therefore, this bulletin is being issued as a compliance backfit under the terms of 10 CFR 50.109(a)(4)(i), and a full backfit analysis was not performed. An evaluation was performed in accordance with NRC procedures, including a statement of the objectives of and the reasons for the requested actions and the basis for invoking the compliance exception. A copy of this evaluation will be made available in the NRC Public Document Room.

#### Paperwork Reduction Act Statement

The information collections contained in this request are covered by the Office of Management and Budget clearance number 3150-0011, which expires July 31, 1997. The public reporting burden for this collection of information is estimated to average 160 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and

completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0011), Office of Management and Budget, Washington, D.C. 20503.

Compliance with the following request for information is purely voluntary. The information would assist NRC in evaluating the cost of complying with this bulletin:

(1) The licensee staff time and costs to perform requested inspections, corrective actions, and associated testing;

(2) The licensee staff time and costs to prepare the requested reports and documentation;

(3) The additional short-term costs incurred as a result of the inspection findings, such as the costs of the corrective actions or the costs of down time;

(4) An estimate of the additional long-term costs that will be incurred in the future as a result of implementing commitments such as the estimated costs of conducting future inspections or increased maintenance.

Dated at Rockville, Maryland, this 19th day of July 1995.

For the Nuclear Regulatory Commission.

**Brian K. Grimes,**

*Director Division of Project Support Office of Nuclear Reactor Regulation.*

**John W. Craig,**

*Deputy Director Division of Engineering Technology Office of Nuclear Regulatory Research.*

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[Docket Nos. 50-361 and 50-362]

#### **Southern California Edison Company, et al.; San Onofre Nuclear Generating Station, Units 2 and 3; Issuance of Director's Decision Under 10 CFR 2.206**

Notice is hereby given that the Director, Office of Nuclear Reactor Regulation, has acted on a Petition for action under 10CFR 2.206 received from Richard M. Dean, dated September 19, 1994, as supplemented on December 2 and December 7, 1994, for the San Onofre Nuclear Generating Station (SONGS), Units 2 and 3.

In a letter dated September 19, 1994, the Petitioner requested that the NRC shut down the SONGS facility based upon gross negligence by Southern California Edison Company in not having an escape plan. The Petitioner asserted as a basis for this request that the closure of the Pacific Coast Highway at the Dana Point/San Clemente border (due to a landslide on January 16, 1993) invalidates the emergency evacuation plans for the residents of San Clemente. In letters dated December 2 and December 7, 1994, the Petitioner again requested the NRC to close the SONGS facility. The Petitioner asserted as a basis for this request that the recent financial losses incurred by Orange County called into question the County's ability to effectively participate in emergency evacuation plans in the event of an emergency at SONGS. Since these concerns were closely related to those expressed in the Petitioner's September 19, 1994, petition, they were treated as supplements to this petition.

The Director of the Office of Nuclear Reactor Regulation has determined that the request should be denied for the reasons stated in the "Director's Decision Under 10 CFR 2.206" (DD-95-14), the complete text of which follows this notice and which is available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street NW., Washington, DC 20555, and at the Local Public Document Room located at the University of California Main Library, P.O. Box 19577, Irvine, California 92713.

Dated at Rockville, Maryland, this 24th day of July 1995.

For the Nuclear Regulatory Commission.

**William T. Russell,**

*Director, Office of Nuclear Reactor Regulation.*

#### **Appendix to Director's Decision Under 2.206**

##### *I. Introduction*

By Petition dated September 19, 1994, Mr. Richard M. Dean (Petitioner) requested that the Nuclear Regulatory Commission (NRC) take action with regard to San Onofre Nuclear Generating Station (SONGS). The Petitioner requested that the NRC shut down the SONGS facility based upon gross negligence by Southern California Edison Company in not having an escape plan. The Petitioner asserted as a basis for this request that the closure of the Pacific Coast Highway (PCH) at the Dana Point/San Clemente border (due to a landslide on January 16, 1993) invalidates the emergency evacuation plans for the residents of San Clemente. Notice of receipt of the Petition indicating that a final decision with respect to the requested action would be forthcoming at a later date was