

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

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Report No: 50-346/96008

Licensee: Toledo Edison Company

Facility: Davis-Besse Nuclear Power Station

Location: 5503 N. State Rte. 2
Oak Harbor, OH 43449

Dates: June 24 - July 11 and August 14-15, 1996

Inspector: D. Schrum, Reactor Engineer

Approved by: R. N. Gardner, Chief, Engineering Branch 2

Report Details

IV. Plant Support

F1 Control of Fire Protection Activities

F1.1 Motor Operated Valve (MOV) Hot Shorts

a. Inspection Scope

The inspector reviewed the circumstances surrounding a potential condition outside of the facility's Appendix R design basis. The condition involved plant fires which could cause a loss of remote shutdown capability due to fire-induced spurious energization of MOVs to a stalled condition, thus damaging the valves and preventing subsequent manual operation from outside the control room to achieve and maintain safe shutdown. This issue was previously identified as Unresolved Item 50-346/96002-05(DRP) in Inspection Report 50-346/96002.

b. Findings and Observations

In the mid-1980's, the licensee identified the potential for hot shorts to adversely effect MOVs during postulated plant fires. The licensee had identified such MOVs in the safe shutdown procedures and Fire Hazards Analysis Report (FHAR); however, the licensee had assumed that manual actions could be taken to reposition valves during and following the fire.

On February 28, 1992, the NRC issued Information Notice (IN) 92-18, "Potential for Loss of Remote Shutdown Capability During a Control Room Fire." This IN identified a potential common mode failure mechanism of MOVs in which a postulated fire could cause hot short damage to the valve control circuit in such a way as to bypass the valve protective features (i.e., valve limit switches and torque switches). The resulting fire-induced spurious operation of a valve could result in physical damage to the valve operator or the valve itself.

The licensee's initial evaluation of IN 92-18 was performed in April 1994. Davis-Besse followed Nuclear Energy Institute's (NEI) (formerly NUMARC) recommendation not to take corrective actions for IN 92-18 because NEI considered a fire in the control room a low probability event. The licensee stated in its evaluation that certain safe shutdown MOVs were susceptible to hot short damage; however, the licensee took no action and cited NEI guidance as its basis.

In March 1996, after the NRC stated that the licensee's response to IN 92-18 was not adequate, the licensee initiated further evaluations of circuits associated with MOVs credited for safe shutdown in the event of a fire. The licensee performed an evaluation of its MOVs using weak link/valve actuator thrust data. The potential for body-to-bonnet bolt failures was also evaluated. The evaluation indicated that no valve

body-to-bonnet bolt failures would occur, which would result in the loss of the Reactor Coolant System (RCS) pressure boundary. However, 41 valves were identified as susceptible to damage. These valves could be damaged such that they would fail open or closed, and they could not be manually repositioned during a design base fire. Therefore, this valve damage puts the plant outside of the Appendix R post-fire safe shutdown design basis.

The licensee's corrective actions included: (1) modifications to ensure that a hot short in the valve circuit does not cause valve damage or affect its ability to be repositioned from emergency control stations; (2) procedure changes to take credit for alternative valves to achieve shutdown; (3) evaluations to show certain valves were not needed; and (4) identification of those valves not needed early during the shutdown. From the original population of 41 valves susceptible to damage, 25 were eliminated from the list due to the effects of plant changes made since original Appendix R evaluations were completed. Listed below are the most significant valves identified during the resolution of the hot short issue and the potential consequences during a fire.

b.1 Plant Modifications

The following four valves required a circuit wiring modification to ensure that they are available following a design base fire.

1. MOV AF3870 - Auxiliary Feedwater (AFW) Pump 1 Discharge to Steam Generator (SG) 1

This MOV could have been damaged during a control room fire. A valve failure in the closed position would have resulted in a loss of feedwater to SG 1. This was the only SG assumed available in the event of a control room fire. The licensee stated that there was an alternate path that could be used to add water to the SG; however, the alternate path was not identified in the licensee's Appendix R safe shutdown analysis as being free of fire damage.

2. MOV HP31 - High Pressure Injection (HPI) Pump 2 Recirculation Valve

This valve could have been damaged during a fire in fire area AB. The fire scenario assumes a Safety Feature Actuation Signal start of the HPI pump and the loss of both Makeup (MU) pumps. A valve failure in the closed direction would cause the HPI pump to overheat and fail in approximately five minutes. The plant would be in a forced cooldown to allow reactor coolant water to be added using core flood tanks and Low Pressure Safety Injection. This could result in the plant's subcooling margin being exceeded. The licensee stated that the control room is manned during this fire, so operators may have been able to identify that the HPI pump was running and shut it off. In addition, there may have been sufficient time to establish an alternate recirculation path or the HPI pump could have remained turned off until reactor coolant pressure was below the pressure required to inject water. A mitigating circumstance for this event is the raised loop design which would give

additional time (hours) to restore an alternate source of water before core damage. However, this alternative shutdown method has not been analyzed and, therefore, its availability due to potential fire damage has not been fully demonstrated.

3. MOV MS106 - Auxiliary Feedwater Pump Turbine (AFPT) 1 Main Steam (MS) Isolation Valve.

This MOV could have been damaged during a control room fire or a fire in other areas. A valve failure in the closed direction would have resulted in no steam being available to power the turbine driven AFW pump. In addition, damage was also assumed for MS106A, which is the steam cross-tie from the second SG. The potential existed for the licensee to use alternate steam paths or use the motor driven feedpump; however, these measures were not analyzed for potential fire damage and their availability has not been fully demonstrated in the licensee's safe shutdown analysis.

4. MOV RC11 - Power Operated Relief Valve (PORV) Block Valve

This MOV could have been damaged during a control room fire. In this fire scenario, the PORV is assumed to fail open. Consequently, a failure of valve RC11 in the open direction would result in a blowdown of the reactor vessel (equivalent to a Loss of Coolant Accident). Operator response involving feed/bleed activities would be assumed to maintain core cooling; however, these actions were not included in the licensee's safe shutdown analysis. The license stated that the consequences of block valve damage were reduced by steps in the safe shutdown procedure to shut the PORV block valve prior to abandoning the control room during a fire and by guidance to depower the valve to prevent valve damage soon after leaving the control room.

b.2 Procedure Changes

For the following four valves, procedure changes were required to describe operator actions to accomplish the indicated function following a design base fire.

1. MOV AF 3869 - AFW Pump 1 Discharge to SG 2

This MOV could be damaged during a control room fire. Damage to this valve would result in an overfill of SG 2 and damage to AFW pump 1 turbine (steam is used from SG 2 to power the AFW pump). However, plant operators would have greater than 21 minutes to take actions to prevent SG overfill by taking control of AFW pump speed and/or taking steps to isolate feed system valves.

2. MOV MU6419 - MU Discharge Valve

This MOV could be damaged during a control room fire. Damage to this valve could result in the loss of MU capability. However, this event would involve a slow inventory loss problem and operators would have

reactor coolant pump seal injection available as well as alternate injection paths.

3. MOV SW1399 - CW Heat Exchanger (HX) in Header Isolation Valve

This MOV could be damaged during a control room or fire area BF fire. Damage to this valve could result in a diversion of service water (SW) to the non-safety related equipment and inadequate cooling of the safety related equipment. Safety related safe shutdown equipment could be damaged. However, the staff could identify this problem during the implementation of the shutdown procedure and close the manual isolation valve, which is located in the same area as this valve.

4. MOV MS107 AFPT 1 MS in Isolation Valve

This MOV could be damaged during a control room fire or a fire in other areas. A valve failure in the closed direction would result in no steam being available to power the turbine driven AFW pump. A procedure change provided instructions to use an available redundant steam path in the same area.

b.3 Long Term Actions

The following valves were determined not to be time-line critical in that manual operations of these valves could be performed in the long term during post fire shutdown.

MOV Decay Heat (DH) 2733 DH Pump 1 Boiling Water Storage Tank (BWST) Suction Valve

MOV DH 2734 DH Pump 2 BWST Suction Valve

MOV SW1366 Containment Air Cooling (CAC) 1 in Isolation Valve

MOV SW1367 CAC 2 in Isolation Valve

MOV SW1368 CAC 3 in Isolation Valve

MOV SW1382 AFW Pump 1 Suction Valve from SW

b.4 Root Causes

The following root causes contributed to the licensee not identifying and correcting the MOV hot short problem:

1. The licensee's initial reviews of Appendix R hot short requirements were not adequate in identifying the MOV problems discussed in this report.
2. The licensee performed a minimal review of IN 92-18. In addition, operability determinations were not made for the conditions described in the IN. Also, INs were given a low priority for review, so INs were reviewed one to two years after they were issued.
3. NEI (formerly NUMARC) issued a memorandum which stated that corrective actions for hot shorts that cause valve damage were not necessary because it was such a low probability event.

c. Conclusions - Licensee Immediate and Long Term Corrective Actions

After the NRC identified that the response to IN 92-18 was not acceptable, the licensee initiated an evaluation to determine which MOVs were susceptible to damage during a fire. Subsequently, the licensee took corrective actions to ensure that the plant could safely shut down following a design base fire. The inspector reviewed the licensee's MOV modifications, alternative actions for potentially damaged MOVs, and the licensee's analysis for the remaining valves that were not required for safe shutdown during a fire. The inspector had no concerns with the remaining six valves which were included on the licensee's long term corrective action list. The inspector reviewed the changes to the FHAR and safe shutdown procedures to ensure that applicable changes had been made to implement actions required for safe shutdown. Also, the inspector concluded that adequate improvements had been made to the licensee's IN review process to prevent these types of problems not being identified in the future.

However, prior to April 16, 1996, the licensee did not have alternative shutdown capability, because potential fire-induced hot shorts put the plant outside of its Appendix R safe shutdown design basis necessary to achieve and maintain hot shutdown conditions. This is an apparent violation of 10 CFR 50, Appendix R, Section III.G.3, Fire Protection of Safe Shutdown Capability. The corrective actions to resolve these Appendix R post-fire safe shutdown deficiencies will be reviewed during subsequent NRC inspections.

F1 Control of Fire Protection Activities

F1.2 Inoperable Thermo-lag Radiant Energy Shields

a. Inspection Scope

The inspectors reviewed the adequacy of radiant heat energy shields installed in the containment and containment annulus areas. This issue was previously identified as Unresolved Item 50-346/96003-06(DRP) in Inspection Report 50-346/96003.

b. Findings and Observations

In 1990, the licensee submitted an exemption request from Appendix R, Section III.G., regarding the use of radiant energy shields in the annulus surrounding the containment. This request was based on the lack of separation for safe shutdown cables. At that time, the licensee believed that radiant energy shields constructed of Thermo-lag were acceptable. Approximately 170 linear feet of Thermo-lag energy shields were installed in the containment and containment annulus.

Appendix R, Section III.G., precludes the use of combustibles to (1) provide separation of redundant safe shutdown trains or (2) provide radiant energy shield protection for shutdown components inside containment. On December 15, 1992, IN 92-82, "Results of Thermo-lag

330-1 Combustibility Testing," was issued to alert licensees that, based on ASTM testing, Thermo-Lag fire barrier material was found to be combustible. On May 31, 1995, IN 95-27, "NRC Review of Nuclear Energy Institute, Thermo-Lag 330-1 Combustibility Evaluation Methodology Plant Screening Guide," was issued. This document stated that the NRC did not accept the use of the NEI guide to justify the use of Thermo-lag materials where noncombustible materials are specified by NRC fire protection requirements or to assess the combustibility hazards presented by Thermo-lag materials.

A fire in the containment and containment annulus could affect the ability to safely achieve and maintain safe shutdown. The probability of fire occurring in these areas is low due to the lack of an ignition source and low combustible loading. However, the safety consequences of a fire in these areas could be high.

The radiant energy shields in containment are installed on electrical circuits for CAC power and pressurizer level instrumentation. The radiant energy shields in the containment annulus protect electrical circuits, including CAC power, pressurizer level instrumentation, high point vent control, PORV power and PORV block valve power. Appendix R safe shutdown would be affected by the loss of these circuits; however, the licensee has indicated that actions could be taken to reach cold shutdown without the affected equipment.

b.2 Root Causes

The following root cause contributed to the failure to identify the containment and annulus Thermo-lag radiant energy shields as unacceptable and take compensatory measures for the impaired barriers.

The licensee performed a minimal review of INs. Also, INs were given a low priority for review, so INs were reviewed one to two years after they were issued.

c. Conclusion - Apparent Violation of Appendix R

IN 92-82 and IN 95-27 gave the licensee prior opportunities to declare the Thermo-lag radiant energy shields in the containment and in the containment annulus areas inoperable and take adequate compensatory measures until these barriers were replaced.

Based on the combustibility of Thermo-lag and the fire resistant ratings being indeterminate, most licensees who had Thermo-lag inside containment implemented the required compensatory measures for inoperable radiant energy heat shields. Davis-Besse did not implement compensatory measures for the containment and the containment annulus until after a conference call with the NRC on April 16, 1996.

10 CFR 50, Appendix R, Section III.G.2.f., requires radiant heat shields to be constructed from noncombustible materials. In addition, Generic Letter (GL) 86-10, Enclosure 2, Response to Question 3.7.1, provided

additional guidance pertaining to the design of radiant energy heat shields inside containment. GL 86-10 specifies that these shields should be capable of directing convective energy for the fire away from the protected division or train and the material used to construct these shields should have a fire rating of 1/2 hour.

The failure to meet the this requirement is an apparent violation of 10 CFR 50, Appendix R, Section III.G.2.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors met with licensee representatives after the inspection on August 15, 1996, to discuss the scope and findings of the inspection. During the exit meeting, the inspectors discussed the documents and processes reviewed by the inspectors during the conduct of this inspection and the likely informational content of the inspection report. Licensee representatives did not identify any such documents or processes as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Centerior Energy/Toledo Edison

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V. Patton, Fire Protection Advisor

NRC

R. Gardner, Engineering Branch Chief
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INSPECTION PROCEDURES USED

IP 64704	Fire Protection Program
IP 71707	Plant Operations
IP 37550	Engineering
IP 37551	Onsite Engineering
IP 40500	Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems
IP 92902	Followup - Engineering

DEFINITIONS

Unresolved Items

Unresolved Items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. Unresolved items are discussed in Paragraphs F.1.1.a and F.1.2.a.

LIST OF ACRONYMS USED

AFPT	Auxiliary Feedwater Pump Turbine
AFW	Auxiliary Feedwater
BWST	Boiling Water Storage Tank
CAC	Containment Air Cooling
DH	Decay Heat
FHAR	Fire Hazards Analysis Report
GL	Generic Letter
HPI	High Pressure Injection
HX	Heat Exchanger
IN	Information Notice
ISO	Isolation
MOV	Motor Operated Valve
MS	Main Steam
MU	Makeup
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
PORV	Power Operated Relief Valve
RCS	Reactor Coolant System
SG	Steam Generator
SW	Service Water

factors in arriving at the appropriate severity level will be dependent on the circumstances of the violation. However, if a licensee refuses to correct a minor violation within a reasonable time such that it willfully continues, the violation should be categorized at least at a Severity Level IV.

D. Violations of Reporting Requirements

The NRC expects licensees to provide complete, accurate, and timely information and reports. Accordingly, unless otherwise categorized in the Supplements, the severity level of a violation involving the failure to make a required report to the NRC will be based upon the significance of and the circumstances surrounding the matter that should have been reported. However, the severity level of an untimely report, in contrast to no report, may be reduced depending on the circumstances surrounding the matter. A licensee will not normally be cited for a failure to report a condition or event unless the licensee was actually aware of the condition or event that it failed to report. A licensee will, on the other hand, normally be cited for a failure to report a condition or event if the licensee knew of the information to be reported, but did not recognize that it was required to make a report.

V. Predecisional Enforcement Conferences

Whenever the NRC has learned of the existence of a potential violation for which escalated enforcement action appears to be warranted, or recurring nonconformance on the part of a vendor, the NRC may provide an opportunity for a predecisional enforcement conference with the licensee, vendor, or other person before taking enforcement action. The purpose of the conference is to obtain information that will assist the NRC in determining the appropriate enforcement action, such as: (1) A common understanding of facts, root causes and missed opportunities associated with the apparent violations, (2) a common understanding of corrective action taken or planned, and (3) a common understanding of the significance of issues and the need for lasting comprehensive corrective action.

If the NRC concludes that it has sufficient information to make an informed enforcement decision, a conference will not normally be held unless the licensee requests it. However, an opportunity for a conference will normally be provided before issuing an order based on a violation of the rule on Deliberate Misconduct or a civil penalty to an unlicensed person. If a conference

is not held, the licensee will normally be requested to provide a written response to an inspection report, if issued, as to the licensee's views on the apparent violations and their root causes and a description of planned or implemented corrective action.

During the predecisional enforcement conference, the licensee, vendor, or other persons will be given an opportunity to provide information consistent with the purpose of the conference, including an explanation to the NRC of the immediate corrective actions (if any) that were taken following identification of the potential violation or nonconformance and the long-term comprehensive actions that were taken or will be taken to prevent recurrence. Licensees, vendors, or other persons will be told when a meeting is a predecisional enforcement conference.

A predecisional enforcement conference is a meeting between the NRC and the licensee. Conferences are normally held in the regional offices and are not normally open to public observation. However, a trial program is being conducted to open approximately 25 percent of all eligible conferences for public observation, i.e., every fourth eligible conference involving one of three categories of licensees (reactor, hospital, and other materials licensees) will be open to the public. Conferences will not normally be open to the public if the enforcement action being contemplated:

- (1) Would be taken against an individual, or if the action, though not taken against an individual, turns on whether an individual has committed wrongdoing;
 - (2) Involves significant personnel failures where the NRC has requested that the individual(s) involved be present at the conference;
 - (3) Is based on the findings of an NRC Office of Investigations report; or
 - (4) Involves safeguards information, Privacy Act information, or information which could be considered proprietary;
- In addition, conferences will not normally be open to the public if:

- (5) The conference involves medical misadministrations or overexposures and the conference cannot be conducted without disclosing the exposed individual's name; or
- (6) The conference will be conducted by telephone or the conference will be conducted at a relatively small licensee's facility.

Notwithstanding meeting any of these criteria, a conference may still be open if the conference involves issues related to an ongoing adjudicatory proceeding with one or more intervenors or where the evidentiary basis for the conference

is a matter of public record, such as an adjudicatory decision by the Department of Labor. In addition, with the approval of the Executive Director for Operations, conferences will not be open to the public where good cause has been shown after balancing the benefit of the public observation against the potential impact on the agency's enforcement action in a particular case.

As soon as it is determined that a conference will be open to public observation, the NRC will notify the licensee that the conference will be open to public observation as part of the agency's trial program. Consistent with the agency's policy on open meetings, "Staff Meetings Open to Public," published September 20, 1994 (59 FR 48340), the NRC intends to announce open conferences normally at least 10 working days in advance of conferences through (1) notices posted in the Public Document Room, (2) a toll-free telephone recording at 800-952-9674, and (3) a toll-free electronic bulletin board at 800-952-9676. In addition, the NRC will also issue a press release and notify appropriate State liaison officers that a predecisional enforcement conference has been scheduled and that it is open to public observation.

The public attending open conferences under the trial program may observe but not participate in the conference. It is noted that the purpose of conducting open conferences under the trial program is not to maximize public attendance, but rather to determine whether providing the public with opportunities to be informed of NRC activities is compatible with the NRC's ability to exercise its regulatory and safety responsibilities. Therefore, members of the public will be allowed access to the NRC regional offices to attend open enforcement conferences in accordance with the "Standard Operating Procedures For Providing Security Support For NRC Hearings And Meetings," published November 1, 1991 (56 FR 56251). These procedures provide that visitors may be subject to personnel screening, that signs, banners, posters, etc., not larger than 18" be permitted, and that disruptive persons may be removed.

Members of the public attending open conferences will be reminded that (1) the apparent violations discussed at predecisional enforcement conferences are subject to further review and may be subject to change prior to any resulting enforcement action and (2) the statements of views or expressions of opinion made by NRC employees at predecisional enforcement conferences, or the lack thereof, are not intended to represent final determinations or beliefs.

Persons attending open conferences will be provided an opportunity to submit written comments concerning the trial program anonymously to the regional office. These comments will be subsequently forwarded to the Director of the Office of Enforcement for review and consideration.

When needed to protect the public health and safety or common defense and security, escalated enforcement action, such as the issuance of an immediately effective order, will be taken before the conference. In these cases, a conference may be held after the escalated enforcement action is taken.

VI. Enforcement Actions

This section describes the enforcement sanctions available to the NRC and specifies the conditions under which each may be used. The basic enforcement sanctions are Notices of Violation, civil penalties, and orders of various types. As discussed further in Section VI.D, related administrative actions such as Notices of Nonconformance, Notices of Deviation, Confirmatory Action Letters, Letters of Reprimand, and Demands for Information are used to supplement the enforcement program. In selecting the enforcement sanctions or administrative actions, the NRC will consider enforcement actions taken by other Federal or State regulatory bodies having concurrent jurisdiction, such as in transportation matters. Usually, whenever a violation of NRC requirements of more than a minor concern is identified, enforcement action is taken. The nature and extent of the enforcement action is intended to reflect the seriousness of the violation involved. For the vast majority of violations, a Notice of Violation or a Notice of Nonconformance is the normal action.

A. Notice of Violation

A Notice of Violation is a written notice setting forth one or more violations of a legally binding requirement. The Notice of Violation normally requires the recipient to provide a written statement describing (1) the reasons for the violation; or, if contested, the basis for disputing the violation; (2) corrective steps that have been taken and the results achieved; (3) corrective steps that will be taken to prevent recurrence; and (4) the date when full compliance will be achieved. The NRC may waive all or portions of a written response to the extent relevant information has already been provided to the NRC in writing or documented in an NRC inspection report. The NRC may require responses to Notices of Violation

to be under oath. Normally, responses under oath will be required only in connection with Severity Level I, II, or III violations or orders.

The NRC uses the Notice of Violation as the usual method for formalizing the existence of a violation. Issuance of a Notice of Violation is normally the only enforcement action taken, except in cases where the criteria for issuance of civil penalties and orders, as set forth in Sections VI.B and VI.C, respectively, are met. However, special circumstances regarding the violation findings may warrant discretion being exercised such that the NRC refrains from issuing a Notice of Violation. (See Section VII.B, "Mitigation of Enforcement Sanctions.") In addition, licensees are not ordinarily cited for violations resulting from matters not within their control, such as equipment failures that were not avoidable by reasonable licensee quality assurance measures or management controls. Generally, however, licensees are held responsible for the acts of their employees. Accordingly, this policy should not be construed to excuse personnel errors.

B. Civil Penalty

A civil penalty is a monetary penalty that may be imposed for violation of (1) certain specified licensing provisions of the Atomic Energy Act or supplementary NRC rules or orders; (2) any requirement for which a license may be revoked; or (3) reporting requirements under section 206 of the Energy Reorganization Act. Civil penalties are designed to deter future violations both by the involved licensee as well as by other licensees conducting similar activities and to emphasize the need for licensees to identify violations and take prompt comprehensive corrective action.

Civil penalties are considered for Severity Level III violations. In addition, civil penalties will normally be assessed for Severity Level I and II violations and knowing and conscious violations of the reporting requirements of section 206 of the Energy Reorganization Act.

Civil penalties are used to encourage prompt identification and prompt and comprehensive correction of violations, to emphasize compliance in a manner that deters future violations, and to serve to focus licensees' attention on violations of significant regulatory concern.

Although management involvement, direct or indirect, in a violation may lead to an increase in the civil penalty, the lack of management involvement may not be used to mitigate a civil penalty. Allowing mitigation in the latter case could encourage the lack of

management involvement in licensed activities and a decrease in protection of the public health and safety.

1. Base Civil Penalty

The NRC imposes different levels of penalties for different severity level violations and different classes of licensees, vendors, and other persons. Tables 1A and 1B show the base civil penalties for various reactor, fuel cycle, materials, and vendor programs. (Civil penalties issued to individuals are determined on a case-by-case basis.) The structure of these tables generally takes into account the gravity of the violation as a primary consideration and the ability to pay as a secondary consideration. Generally, operations involving greater nuclear material inventories and greater potential consequences to the public and licensee employees receive higher civil penalties. Regarding the secondary factor of ability of various classes of licensees to pay the civil penalties, it is not the NRC's intention that the economic impact of a civil penalty be so severe that it puts a licensee out of business (orders, rather than civil penalties, are used when the intent is to suspend or terminate licensed activities) or adversely affects a licensee's ability to safely conduct licensed activities. The deterrent effect of civil penalties is best served when the amounts of the penalties take into account a licensee's ability to pay. In determining the amount of civil penalties for licensees for whom the tables do not reflect the ability to pay or the gravity of the violation, the NRC will consider as necessary an increase or decrease on a case-by-case basis. Normally, if a licensee can demonstrate financial hardship, the NRC will consider payments over time, including interest, rather than reducing the amount of the civil penalty. However, where a licensee claims financial hardship, the licensee will normally be required to address why it has sufficient resources to safely conduct licensed activities and pay license and inspection fees.

2. Civil Penalty Assessment

In an effort to (1) emphasize the importance of adherence to requirements and (2) reinforce prompt self-identification of problems and root causes and prompt and comprehensive correction of violations, the NRC reviews each proposed civil penalty on its own merits and, after considering all relevant circumstances, may adjust the base civil penalties shown in Table 1A and 1B for Severity Level I, II, and III violations as described below.