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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 4, 1996

Mrs. Carol V. Morris
6516 Roy Shafer Road
Middletown, Maryland 21769

Dear Mrs. Morris:

As discussed between you and Mr. James F. McDermott of the NRC Office of Personnel, I am providing the following information and enclosed documents delineating the staff's actions on the six items initiated by your late husband, Mr. Charles Morris.

Two letters from Mr. William T. Russell to you close out two of the six items raised by Mr. Morris: (1) July 25, 1996, regarding Three Mile Island Unit 1 safety concerns; and (2) September 17, 1996, regarding residual voltage transfer capabilities. In his letter dated April 10, 1996 addressing the Three Mile Island Unit 1 safety concerns, Mr. Morris asserts misfeasance on the part of the staff in the apparent suppression of a safety evaluation that he prepared during his employment as an NRC reviewer. On September 23, 1996, the staff referred this assertion to the NRC Inspector General for his consideration.

A third item was initiated by Mr. Morris' letter dated June 18, 1996, where he asserted that the staff did not properly disposition the potential safety issues that he had raised in his petitions filed pursuant to 10 CFR 2.206. He also asserted that the staff mishandled issues while he was employed with the NRC. On August 23, 1996, the staff referred these assertions to the NRC Inspector General for his consideration.

I am also enclosing two Director's Decisions addressing the two petitions filed by Mr. Morris under 10 CFR 2.206. These Director's Decisions complete the staff actions for another two of the six items:

1. September 26, 1996, regarding undervoltage relay setpoint error at nuclear plants.

2. October 10, 1996, regarding Catawba breaker miscoordination.

Completed staff action for the sixth item, a Differing Professional View that originated from Mr. Morris' concern about the Catawba breaker miscoordination, is also enclosed.

Sincerely,

Steven A. Varga

Steven A. Varga, Director
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures: As stated (5)

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 26, 1996

Mrs. C. Morris
6516 Roy Shafer Road
Middletown, Maryland 21769

Dear Mrs. Morris:

This letter is in response to the Petition filed by your husband on March 5, 1996. His Petition was considered pursuant to Section 2.206 of Title 10 of the Code of Federal Regulations (10 CFR 2.206). In his Petition, Mr. Morris requested that the operating licenses of all nuclear power plants be suspended within 90 days and remain suspended until such time as the licensees of those plants have (1) discovered the reason for what he asserted are repeated errors in the undervoltage relay (UVR) setpoints (SPs) and electrical distribution system (EDS) designs and (2) provided convincing evidence that these deficiencies have finally been corrected. Since he had requested action within 90 days, his request was treated as a request for immediate relief. He also requested that the aforementioned evidence be reviewed by a competent third party, in addition to the U.S. Nuclear Regulatory Commission (NRC) staff, and that if the NRC staff concludes that plants may safely operate with UVRs that cannot be properly set for long periods, the NRC should reach these conclusions by way of a public meeting.

In a letter dated April 17, 1996, he was informed that his request for the suspension of all nuclear power plant licenses within 90 days for the purposes of remedying repeated errors in UVR SPs and EDS designs of those plants was denied because licensees have, to a large degree, already addressed the issues that he had raised. Also, he was informed that his request was being evaluated pursuant to 10 CFR 2.206 of the NRC's regulations and that a decision, as provided for in 10 CFR 2.206, would be made on his request within a reasonable time.

For the reasons given in the enclosed Director's Decision, his Petition has been denied. A copy of the decision will be filed with the Secretary of the Commission for the Commission's review in accordance with 10 CFR 2.206(c). As

provided by this regulation, the decision will constitute the final action of the Commission 25 days after the date of issuance of the decision unless the Commission, on its own motion, institutes a review of the decision within that time. A copy of the notice of decision that is being filed with the Office of the Federal Register for publication is also enclosed.

Sincerely,

William T. Russell, Director
Office of Nuclear Reactor Regulation

Enclosures: 1. Director's Decision DD-96-12
2. Federal Register Notice

cc w/encls: See next page

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7590-01

UNITED STATES NUCLEAR REGULATORY COMMISSION

ALL NUCLEAR POWER PLANTS

ISSUANCE OF DIRECTOR'S DECISION UNDER 10 CFR 2.206

Notice is hereby given that the Director, Office of Nuclear Reactor Regulation, has taken action with regard to a Petition dated March 5, 1996, by Mr. C. Morris. The Petition pertains to all operating nuclear power plants.

In the Petition, the Petitioner requested that the operating licenses of all nuclear power plants be suspended within 90 days and remain suspended until such time as the licensees of those plants discovered the reason for what the Petitioner asserts are repeated errors in the undervoltage relay (UVR) setpoints (SPs) and electrical distribution system (EDS) designs and provided convincing evidence that these deficiencies had finally been corrected. Since the Petitioner had requested action within 90 days, the request was treated as a request for immediate relief. The Petitioner also requested that the aforementioned evidence be reviewed by a competent third party, in addition to the staff of the U.S. Nuclear Regulatory Commission (NRC), and that if the NRC concludes that plants may safely operate with UVRs that cannot be properly set for long periods, the NRC should reach these conclusions by way of a public meeting.

The Director of the Office of Nuclear Reactor Regulation has denied the Petition. The reasons for this denial are explained in the "Director's Decision Under 10 CFR 2.206" (DD-96-), the complete text of which follows this notice and is available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC.

A copy of the decision will be filed with the Secretary of the Commission for the Commission's review in accordance with 10 CFR 2.206(c) of the Commission's regulations. As provided by this regulation, the decision will constitute the final action of the Commission 25 days after issuance unless the Commission, on its own motion, institutes review of the decision in that time.

Dated at Rockville, Maryland, this 26th day of September, 1996.

FOR THE NUCLEAR REGULATORY COMMISSION

W. Russell

William T. Russell, Director
Office of Nuclear Reactor Regulation

DD-96-12

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION
William T. Russell, Director

In the Matte of	)	All Dockets
	)	
ALL NUCLEAR POWER PLANTS	)	All Licenses
	)	

DIRECTOR'S DECISION UNDER 10 CFR 2.206

I. INTRODUCTION

On March 5, 1996, Mr. Charles Morris (Petitioner) filed a Petition with the Executive Director for Operations pursuant to Section 2.206 of Title 10 of the Code of Federal Regulations (10 CFR 2.206). The Petitioner requested that the operating licenses of all nuclear power plants be suspended within 90 days and remain suspended until such time as those plants have (1) discovered the reason for what the Petitioner asserts are repeated errors in the undervoltage relay (UVR) setpoints (SPs) and electrical distribution system (EDS) designs and (2) provided convincing evidence that these deficiencies have finally been corrected. Since the Petitioner had requested action within 90 days, the request was treated as a request for immediate relief. The Petitioner also requested that the aforementioned evidence be reviewed by a competent third party, in addition to the Nuclear Regulatory Commission (NRC) staff, and that if the NRC concludes that plants may safely operate with UVRs that cannot be properly set for long periods of time, the NRC should reach these conclusions by way of a public meeting.

On April 17, 1996, the Petitioner was informed that the request for the suspension of all nuclear power plant licenses within 90 days for the purposes of remedying repeated errors in UVR SPs and EDS designs was denied because licensees have, to a large degree, already addressed the issues which the

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Petitioner had raised. Also the Petitioner was informed that the request was being evaluated pursuant to 10 CFR 2.206 of the NRC's regulations and that a decision, as provided by 10 CFR 2.206, would be made on the request within a reasonable time.

On the basis of my review of the issues raised by the Petitioner as discussed below, I have concluded that no substantial health and safety issues have been raised that would require the initiation of the action requested by the Petitioner.

II. DISCUSSION

In his Petition, the Petitioner stated his concern that the "enduring and widespread nature of the electrical distribution system (EDS) and undervoltage relay (UVR) setpoint (SP) errors (e.g., incorrect UVR and thermal overload setpoints) was recognized by neither the licensees nor the NRC staff," and was not included in NRC Information Notice (IN) 93-99, "Undervoltage Relay and Thermal Overload Setpoint Problems."

IN 93-99 did, in fact, inform all holders of operating licenses or construction permits of the widespread nature of the setpoint errors by listing approximately 40 licensees with incorrectly set UVRs or thermal overload (TOL) protective devices. The identification of these problems was not inadvertent, but was the result of concerted NRC staff attention to these issues. As was indicated to the Petitioner in a April 17, 1996, letter acknowledgir receipt of his March 5, 1996, 10 CFR 2.206 Petition, the Petitioner himself recognized that Electrical Distribution System Functional Inspections (EDSFIs) were highlighting these issues and that licensees were

conducting self-initiated design basis reviews (possibly in anticipation of pending EDSFIs) to identify problems and were undertaking corrective actions.

In his March 5, 1996, Petition, the Petitioner listed seven specific reasons that he believed caused repeated EDS and UVR deficiencies. The following is a description of each concern accompanied by the NRC staff's response:

1. The Petitioner stated that NRC Branch Technical Position PSB-1, "Adequacy of Station Electric Distribution System Voltages," contained in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," which requires a degraded voltage relay with a long delay and a loss of power relay with a short delay, is inadequate because it does not recognize the complexity of the matter. Except for the arbitrary time delays associated with the UVRs, no recognition has been made of voltage dynamics and time dependence. Signal bandwidths, responses of tap changing transformers, and UVR time delays have been overlooked and should be considered.

   RESPONSE:

   NRC Branch Technical Position PSB-1 does not recommend that licensees arbitrarily select time delays for UVRs. On the contrary, PSB-1 states that "the selection of undervoltage and time delay setpoints shall be determined from an analysis of the voltage requirements of the Class 1E loads at all onsite system distributions levels." Further, it states that "Tap settings selected should be based on an analysis of the voltage at the terminals of the Class 1E loads. The analyses performed to determine minimum operating voltages should typically consider maximum unit steady state and transient loads..."

Additionally, "the first time delay should be of a duration that established the existence of a sustained degraded voltage condition (i.e., something longer than a motor starting transient)" and "the second time delay should be of a limited duration such that the permanently connected Class 1E loads will not be damaged."

Therefore, the staff concludes that NRC Branch Technical Position PSB-1 is adequate as it addresses those topics which the Petitioner believes are neglected by the Branch Technical Position.

2. The Petitioner asserted that UVR tolerances are statistical in nature and not, as the staff and design engineers often regard them, limits to the errors in the relay setpoints. This is a significant problem which may not be solved if previous approaches are utilized and decision analysis is not applied to study the consequences of attempting to prevent the occasional loss of the most vulnerable safety load at the expense of transferring a complete division to another power source with attendant problems.

RESPONSE:

Regulatory Guide 1.105, "Instrument Setpoints for Safety-Related Systems," states that ISA-S67.04-1982, "Setpoints for Nuclear Safety-Related Instrumentation Used in Nuclear Power Plants," establishes NRC staff guidance for ensuring that instrument setpoints in safety-related systems are initially within and remain within the technical specification limits. Section 4.3.1 of ISA-S67.04 states that instrument accuracies (uncertainties, errors or tolerances) may be combined in one of five ways: algebraically, square root of the sum of

the squares, statistically, probabilistically, or combinations of the first four. Justification is to be provided for the method used.

Regulatory Guide 1.105 expands upon this point:

> Paragraph 4.3 of the standard specifies the methods for combining uncertainties in determining a trip setpoint and its allowable values. Typically, the NRC staff has accepted 95% as a probability limit for errors. That is, of the observed distribution of values for a particular error component in the empirical data base, 95% of the data points will be bounded by the value selected. If the data base follows a normal distribution, this corresponds to an error distribution approximately equal to a "two sigma" value.

Although the use of "two sigma" values (values equal to twice the standard deviations of the errors) does not completely ensure that the measured parameter will not exceed the safety analysis limit without accompanying protective action, the probability of all the individual errors occurring simultaneously at their extreme, non-conservative, random values is very low. Therefore, the regulatory guide and the industry standard together support a credible, statistical approach for establishing setpoints that considers such things as sample size of error values, random versus non-random errors, and independence of errors.

The preparatory training for EDSFI team members also did not overlook the statistical nature of the UVR tolerances. In Section 4.8.2 of the EDSFI training textbook, a discussion of instrumentation setpoint problems was provided with a sample application of ISA-S67.04 to degraded voltage relays. This methodology was also discussed in the course itself. Using this knowledge EDFSIs were conducted and findings were written covering improper degraded voltage relay setpoints. As a result, licensees then followed this action with event notification and other activities as described in Information Notice 93-99.

Additionally, in response to a request from Region III pertaining to an unanalyzed degraded voltage concern at Perry Nuclear Power Plant, the Electrical Engineering Branch (EELB) of NRR in an April 13, 1992, memo provided inspectors in NRC Regional Offices with guidance for establishing an adequate setpoint for the degraded voltage relays by way of reference to Section 4.8.2 of the EDSFI training course manual and Regulatory Guide 1.105. Furthermore, the staff informed all holders of operating licenses about a statistical approach for establishment of UVR setpoints when IN 91-29, "Deficiencies Identified during Electrical Distribution Functional Inspections," made reference to ISA-S67.04-1982 for useful guidance in determination of setpoints.

The staff therefore has regarded the UVR setpoint determinations as statistical in nature.

3. The Petitioner stated that although General Design Criterion (GDC) 17, "Electric power systems," requires all EDS to be testable, only parts are tested because plants cannot conveniently be placed in a condition where actual loads can be placed on the EDS and measured.

RESPONSE:

The staff has always been aware that in certain situations it is not practical nor safe to test each and every component in the exact way it is used. General Design Criterion 18, "Inspection and testing of electrical power systems," states that "systems shall be designed with a capability to test periodically...the operability of the systems as a whole and, under conditions as close to design as practical...." Regulatory Guide 1.118, "Periodic Testing of Electric Power and Protection Systems," Revision 2, endorses IEEE Std 338-1977, "Criteria

for the Periodic Testing of Nuclear Power Generating Station Safety Systems," which states that "the test program of each system shall be designed to provide for minimum interference with related operational channels, systems, or equipment." It further states that "wherever possible, tests shall be accomplished under actual or simulated operating conditions, including sequence of operations, for example, diesel load sequencing," but also

> where it is not practicable to initiate the protective action, the system shall be designed such that... Designs...shall be justified on the basis that there is no practical system design that would permit operation of the actuated equipment without adversely affecting the safety or operability of the plant, and that the probability of failure of actuated equipment not tested during plant operation is acceptably low, and that the actuated equipment can be routinely tested when the plant is shut down.

It is the staff's goal to have all components of the EDS periodically tested in a manner that is both reasonable and practical. Various practical test methods such as the use of miniflow paths, overlap testing, simulated loads, etc. have been found acceptable by the staff.

NRC Temporary Instruction 2515/107 (which provided guidance for performing EDSFIs) required the EDSFI teams to "verify that the surveillance and test procedures are adequate to demonstrate the functionality of the equipment or system being tested or the design assumptions being verified."

Therefore, as shown above, testing of the EDS is evaluated in terms of satisfying NRC requirements (GDC-17 and GDC-18) utilizing the guidance provided by Regulatory Guide 1.118 for a reasonable and practical approach (in lieu of testing each system as a whole), and tests are properly implemented in the manner described above.

4. The Petitioner pointed out that load nameplate ratings are used in voltage analyses even when common knowledge shows that most loads are operated at a fraction of their ratings. Furthermore, worst-case ambient temperatures are used to select motor protection time delays even though few loads, if any, see those conditions except during a loss-of-coolant accident when the motor protection is bypassed. Additionally, UVR output delays are treated as known quantities, when the protection of loads by time delays and inverse time overcurrent relays is a crude mitigating approach. As a related matter, the Petitioner objects to the inconsistent use of significant figures to represent EDS and UVR SP parameters.

RESPONSE:

The aforementioned temporary instruction (TI) for the EDSFIs stated that the inspectors should verify that values for mechanical loads used for electrical calculations are based on actual system operating points during both normal and accident conditions. The staff expects licensees to perform accurate, conservative, and bounding calculations involving worst-case estimates for parameters such as ambient temperatures and loads. The licensees' analyses are reviewed by the staff utilizing engineering judgment and applicable industry guidance to ensure that reasonable, yet adequately safe solutions are provided.

It is true that, occasionally, designs proposed by licensees do involve basic approaches (such as inverse time delay relays) and that some calculations performed by licensees involve the use of ultra-precise numerical values. What the staff does require is that the

designs utilized by licensees meet applicable NRC regulations and that adequate protection of public health and safety is ensured.

The staff, therefore, concludes that component characteristics are treated and utilized properly in calculations that support EDS and UVR designs.

5. The Petitioner believed that when licensees have discovered that UVR SPs are set too low, the typical response has been to raise the setpoints. This, in turn, reduces the safety advantage of providing UVRs for the EDS due to more frequent and unnecessary UVR actuations accompanied by possible undesirable power systems transfers.

RESPONSE:

In a letter dated August 8, 1979, addressed to all power reactor licensees regarding the adequacy of station electric distribution systems voltages, the staff stated that:

> Protection of safety loads from undervoltage conditions must be designed to provide the required protection without causing voltages in excess of maximum voltage ratings of safety loads and without causing spurious separations of safety buses from offsite power.

Moreover,

> Voltage-time settings for undervoltage relays shall be selected so as to avoid spurious separation of safety buses from offsite power during plant startup, normal operation and shutdown due to startup and/or operation of electric loads.

NRC Branch Technical Position PSB-1 states that:

> ...imporper (sic) voltage protection logic can itself cause adverse effects on the Class 1E systems and equipment such as...spurious separation of Class 1E systems from offsite power due to normal motor starting transients.

Additionally, in IN 95-37, "Inadequate Offsite Power System Voltages during Design-Basis Events," the staff informed power reactor licensees that although raising UVR setpoints ensures that adequate voltages exist

at equipment input terminals, the higher setpoints also increase the potential for separation from the offsite power system during design-basis events over the range of normally anticipated offsite grid voltages.

In a more specific example, a February 23, 1995, staff safety evaluation of the degraded voltage design for the Edwin I. Hatch Nuclear Plant, determined that a combination of automatic and manual actions was an acceptable alternative approach to meet the branch technical position in lieu of raising the degraded voltage setpoints which could lead to unwanted plant trips. That safety evaluation and the above staff guidance provide evidence that the staff has considered avoidance of spurious bus trips as one objective to be considered when selecting an adequate setpoint for UVRs.

The staff, therefore, has repeatedly and in detail both considered the detrimental effects of raising the UVR setpoints and communicated its concerns to licensees.

6. The Petitioner stated that in IN 95-05, "Undervoltage Protection Relay Settings Out of Tolerance Due to Test Equipment Harmonics," the staff discovered that peak reading voltmeters calibrated for root-mean-square (RMS) are affected by the proportions of harmonics in the AC bus voltages and in the calibrators used to set the UVRs. Additionally, the harmonics affect the UVR responses by changing their setpoints when the harmonic content of the bus voltage changes.

RESPONSE:

IN 95-05 discusses three occurrences, reported by licensees, where harmonics in the output voltage of the power supplies used during testing and calibration of UVRs resulted in the relay setpoints being

out of tolerance. The setpoint errors were also affected by the use of digital voltmeters which do not respond to the harmonic content of the test input voltage as do the UVRs. The purpose of the IN was to inform all operating power plant licensees that harmonics in the voltage inputs (test source voltage or normal bus voltage) to the UVRs impact the actual operating points of those relays, as the Petitioner believes, and to instruct the licensees to take appropriate action (i.e., install filters, adjust setpoints, select proper test equipment, etc.) to ensure that UVR setpoints are adequate.

The staff, therefore, has addressed this concern and brought it to the attention of licensees who are taking appropriate action as discussed above.

7. The Petitioner concluded that impedances and inrush currents to motors and other loads are not known to the precision with which the staff and the licensees' engineers have been trying to set UVRs. Both groups must recognize that their task may be impossible and that their attempts to do so have increased the risk of a nuclear accident.

RESPONSE:

Branch Technical Position PSB-1 states that voltage analyses (including effects of impedances and inrush currents) should be performed with analytical techniques and assumptions verified by actual measurement. It also states that, in general, test results should not be more than 3% lower than the analytical results. This level of precision has been determined to be acceptable based on engineering judgment.

Furthermore, as stated in the response to the Petitioner's fourth concern, even though licensees propose solutions involving different equipment and unique, precise calculations (which should be supported by actual test data as mentioned above), staff reviews are conducted utilizing both guidance from Branch Technical Position PSB-1 and engineering judgment to ensure that all applicable regulations are met and that adequate protection of public health and safety is ensured. This approach provides reasonable assurance that the level of risk of a nuclear accident is not increased and remains acceptable.

Choosing a setpoint above an analytical limit based on minimum voltage requirements and below nominal voltage ranges while accounting for instrumentation errors and analytical inaccuracies is often a challenge which leads licensees to use more precise equipment and more precise calculations. It is concerns such as these that have led the staff to consider alternative approaches to its position on degraded voltage protection on a plant-specific basis as noted above in the staff's response to the Petitioner's fifth concern.

Therefore, although the staff has concluded that the task is not impossible, it has recognized alternative approaches that address degraded voltage concerns without increasing the risk of an accident.

To continue the discussion, identification of problems with UVRs and EDSs was not inadvertent. The NRC staff had undertaken more global measures to ensure that concerns such as those raised by the Petitioner were addressed satisfactorily. Because previous NRC inspection teams had observed that the required functional capabilities of certain safety-related systems (including EDSs) were compromised due to a lack of proper engineering support and the

introduction of various design deficiencies, EDFSIs were scheduled to be conducted for all operating plants beginning with pilot inspections in 1989. NRC Temporary Instruction (TI) 2515/107 was issued on October 19, 1990, to be made part of the NRC Inspection Manual. That TI stated that calculations to establish protective relay setpoints had not been initially performed or were not updated to reflect setpoint changes and plant modifications. These failures constituted some of the deficiencies that had been encountered by previous inspection teams. The TI stated, with regard to those concerns voiced by the Petitioner, that the forthcoming inspections should verify:

- That ratings and setpoints have been correctly chosen and controlled for protective and control relays and circuit breakers to assure proper coordination, protection, required automatic action, and annunciation.
- The adequacy of the load study, voltage profiles, voltage drop calculations, motor starting study, load shedding, engineered safety features (ESF) bus load sequencing and overload trip settings for ESF loads including consideration of steady-state and accident-transient loads and consideration of acceleration of the loads during degraded voltage conditions that may occur during various modes of plant operation and accident mitigation scenarios.
- The adequacy of short circuit calculations, design of protective relay logic and relay setting calculations, grounding calculations and schemes, and protective device coordination studies.
- That setpoints for overcurrent protective relays are correctly chosen (1) to assure proper breaker coordination between different voltage levels; (2) to prevent exceeding the vendor-specified thermal limits on motors, containment electrical penetrations and cable insulation

systems; (3) to allow starting of electrical equipment under degraded voltage conditions; and (4) to provide adequate pre-trip alarms, when applicable.

- The adequacy of setpoints and time delays for other protective relays for attributes such as undervoltage, underfrequency, reverse power, ground faults, differential current, thermal overload and phase synchronization to assure functionality of the EDS.
- That mechanical loads, such as pump horsepower, correspond to actual system operating points during normal and accident conditions and have been correctly translated to electrical loads and incorporated in the electrical load list as appropriate.
- That surveillance and test procedures are adequate to demonstrate the functionality of the equipment or system being tested or the design assumptions being verified.

NRC inspectors (including NRC contractors) assigned to the EDSFI teams attended a week-long course (held in September and December 1990) to enhance their knowledge of EDSs, the TI and related requirements. Using the guidance provided by the TI and the EDSFI training course, the EDSFI teams then conducted inspections of the EDSs through early 1994 at most operating nuclear power plants. As a result, numerous deficiencies were identified and documented in plant-specific EDSFI inspection reports, and corrective actions were taken. Those corrective actions were subsequently evaluated, found acceptable by the staff and documented in follow-up inspection reports. Many of these deficiencies and corrective actions were listed in IN 93-99 and include incorrect UVR relay and thermal overload setpoints caused by design errors, as well as other points raised by the Petitioner.

In summary, as stated in my April 17, 1996, letter, I believe the NRC staff recognized the existence of repeated errors and widespread EDS design deficiencies, including those associated with UVR SPs, took appropriate actions (conducted EDSFIs, identified deficiencies, required corrective actions) based on those observations, and made all licensees aware of typical design deficiencies encountered during EDSFIs and licensees' self-initiated efforts by issuing INs such as IN 91-29, "Deficiencies Identified During Electrical Distribution System Functional Inspections," its supplements, and IN 93-99. Additionally, the staff has continued to inform power reactor licensees of other design deficiencies when they are encountered (e.g., IN 95-37 which discusses UVR setpoints in relationship to inadequate offsite power system voltages during design-basis events) and will continue to do so in the future when necessary. Such action by the staff is appropriate to address repeated errors in UVR setpoints and EDS designs and to provide reasonable assurance of adequate protection of public health and safety.

III. CONCLUSION

The institution of proceedings pursuant to 10 CFR 2.206 is appropriate only if substantial health and safety issues have been raised. See Consolidated Edison Co. of New York (Indian Point Units 1, 2, and 3) CLI-75-8, 2 NRC 173, 175 (1975) and Washington Public Power Supply System (WPPSS Nuclear Project No. 2) DD-84-7, 19 NRC 899, 924 (1984). This is the standard that has been applied to the concerns raised by the Petitioner to determine whether the action requested by the Petitioner, or enforcement action, is warranted.

On the basis of the preceding assessment, I have concluded that no substantial health and safety issues have been raised by the Petitioner that

would warrant the action requested by the Petitioner. I further conclude that the Petitioner's concerns have been adequately addressed by the staff and that there is no need for a third party review. Additionally, with regard to plants with UVRs that cannot be properly set, the staff has shown in plant-specific evaluations, such as described above, that other alternative designs are acceptable.

The Petitioner's request for action pursuant to 10 CFR 2.206 is denied. As provided for in 10 CFR 2.206(c), a copy of the decision will be filed with the Secretary of the Commission for the Commission's review. The decision will constitute the final action of the Commission 25 days after issuance unless the Commission, on its own motion, institutes review of the decision in that time.

FOR THE NUCLEAR REGULATORY COMMISSION

W T Russell

William T. Russell, Director
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,
this 26 day of September, 1996.

DRPE ltr'd 3/19

Assigned to: Dick Clark

ACTION

EDO Principal Correspondence Control

04/05/96

FROM: DUE: ~~04/29/96~~ EDO CONTROL: GT96105
DOC DT: 03/05/96
FINAL REPLY:

C. Morris
Middletown, MD

TO:

James M. Taylor

FOR SIGNATURE OF : ** GRN ** CRC NO:

DESC:

2.206 PETITION TO SUSPEND THE OPERATING LICENSES OF ALL NUCLEAR POWER PLANTS - UNDERVOLTAGE RELAY SET POINT ERRORS

ROUTING:

Taylor
Milhoan
Thompson
Blaha
Russell, NR
Lieberman, OE

DATE: 03/06/96

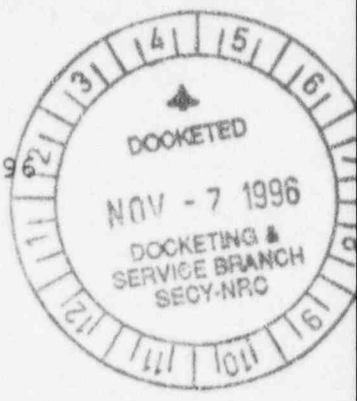
ASSIGNED TO: CONTACT:
~~OGC~~ DE Sheron ~~EDO~~

SPECIAL INSTRUCTIONS OR REMARKS:

NRR RECEIVED: MARCH 18, 1996
NRR ACTION: ~~DE: SHERON~~ DRPE: Varga

NRR ROUTING:
RUSSELL
MIRAGLIA
TRADANI
ZIMMERMAN
CRUTCHFIELD
BOHRER

ACTION
DUE TO NRR DIRECTOR'S OFFICE
BY April 3, '96



05 March 1996

James M. Taylor
Executive Director for Operations
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

Dear Mr. Taylor:

The following is a petition under 10 CFR 2.206.

On 21 December 1993, IN 93-99 (Attachment 4 to this petition) was belatedly issued by the NRC. Approximately forty licensees were listed in Attachment 1 to IN 93-99, as having had undervoltage relay set point corrections. However, the IN, as issued, was a bowdlerized notice in that a major concern of the principal reviewer (PR), the author of this 2.206 petition, had been deleted. That concern was that the enduring and widespread nature of the electrical distribution system (EDS) and undervoltage relay (UVR) set point (SP) errors was recognized by neither the licensees nor the NRC staff.

The concern was carried, as an exception, in a box, on the concurrence page (Attachment 5 to this petition) to the draft IN, dated 15 November 1993, which went as far as, Brian Grimes D/DORS:NRR. No notice was taken by him or any one else in the NRC, of the concern, then or thereafter. In fact, contrary to the ostensible philosophy of the NRC to treat the public as a partner in the regulatory process, both C. Berlinger, C/EELB/DE:NRR and W. Russell, ADT/NRR, separately, but not independently, told the PR that he could not write, even in an internal note (Attachments 1 and 2 to this petition) to his section chief E. Weiss, that it was "an awe-inspiring circumstance" that after repeated attempts, many, if not most, licensees could not get their UVR SPs and EDS designs right. The reason the PR could not write this, and suggest that an investigation of the problem was long overdue, was said by both these managers to be because the public might become inflamed by such a statement. Russell was not receptive to the PR's suggestion that the public had every reason to be so and that the management of the NRC should be, also.

The fear of FOIA requests was responsible for the sensitivity of managers to the PR's remark about the extent of the UVR SP and EDS problems. It is improper, however, for the agency to behave in this way and to, once again, subordinate public safety to the maintenance of an image of safe nuclear power.

ACTION REQUESTED

The NRC should suspend, within 90 days, the operating licenses of all nuclear power plants, and not just those listed in the IN 93-99 table: Representative List of Undervoltage Relay Set Point

Revision Notifications and Technical Specification Change Proposals for 1988-1993. The licenses should remain suspended until such time as the licensees shall have discovered the reason for the repeated errors in their UVR SPs and in their EDS designs, and given convincing evidence that they have finally corrected the deficiencies.

The convincing evidence should be submitted to the review of a competent third party and not only to the NRC staff, who have shown, by their repeated concurrences in the erroneous calculations of many licensees, that the competence of the staff is not sufficient to the task.

If the NRC decides, as it surely will, that the licensees can continue to operate safely with UVRs that cannot be properly set for long, the NRC should do so in a public meeting.

Some of the reasons for these repeated EDS and UVR deficiencies follow:

1. The BTP PSB-1 requirement for licensees to provide a degraded grid voltage relay with a long delay and a loss of power relay with a short delay, while admirable in intention, like the intention to be good, is by itself, inadequate in that it does not recognize the complexity of the matter. Thus, except for the arbitrary time constants associated with the UVRs, no recognition of the dynamics of the voltages to which the relays are to respond can be found. In fact, time dependence has, for the most part, been resolutely ignored, as in an IN which discusses the corrections on safety bus voltages by tap changing transformers. In this IN, the need to consider the bandwidths of the signals and the responding filters; i.e., the tap changing transformers and UVRs with time delays, has been overlooked. In other words, the rates at which AC bus voltages change and the rates at which tap changing transformers can change their output voltages in response should have been considered.

It has been known, at least since World War II, (vide: Radiation Laboratory Series, Volume 25, 1947) that automatic systems cannot be properly designed without consideration of the statistical properties of their input signals, in this case the AC voltages on the safety buses the UVRs are installed to protect.

2. The tolerances on the UVRs are statistical in nature and as such are not, as the reviewing staff and the design engineers seem often to regard them, limits to the errors in the UVR SPs. The tolerances are the standard deviations on normal distributions and as such only mean that .67 of the UVRs are within the specified tolerance. It also means that .95 of them fall within twice the specified tolerances and that .99 of them

fall within three times the specified tolerances. Is that good enough? No one has noticed, in print, that there is a problem here, much less tried to solve it.

Perhaps the UVR SP/EDS problems are, in fact, not resolvable in the ways that have been attempted. Then new techniques must be introduced and not the current piecemeal approaches to patch what cannot be fixed.

The ACRS has commented on the sometimes original use of statistics by the staff, as did the author of this petition, on 12 January 1995, in response to the NRC request for public comment on the proposed application of PSA to regulatory concerns. The ACRS comments have been largely ignored; the comments by this reviewer were "lost" by the NRC.

No one on the staff has attempted to apply decision analysis to the EDS and UVR SP, which would include the consequences of trying to prevent the occasional loss of the most vulnerable safety load at the expense of transferring the entire safety division to another pow. supply with attendant opportunities for upsets and even greater losses.

The NRC has innocently tried to do the impossible before, as when, in 10 CFR 50.49 (e) (5), it required that safety equipment be tested in the end-of-life condition. When it turned out that for many materials there was neither theoretical nor practical knowledge to make it possible to do so, and after millions of dollars had been expended in research to find a way, the NRC modestly averted its gaze and accepted licensees' submittals, based on myths, as responsive.

2. Although all EDS are required by GDC 17 to be testable, testable has had a weak interpretation put on it by the staff, in that only parts of the EDS and its logic are tested because licensees say that plants cannot be conveniently put in a state where the actual emergency loads could be put on the EDS and measured.

3. Load nameplate ratings are used to analyze the voltages on the EDS, when, as every design engineer knows, most of the loads are operated at a fraction of their ratings. Furthermore, the worst case ambient temperatures are used in selecting time delays for motor protection, even though few, if any, of the loads are actually run under these conditions, except during that never to be LOCA, when safety load protections are bypassed, anyway. In addition, the output delays allowed to UVRs which protect loads against overheating on degraded grid voltages are treated as precisely known quantities when, in fact, the protection of loads by time delays and inverse time overcurrent relays is a crude, if economic, mitigating measure.

A related matter could be ignored did it not indicate a more serious concern with this entire means of guarding against persistent low voltages and that is the variable and inconsistent use of significant figures purporting to represent EDS and UVR parameters. Nothing much has changed since Carl Friedrich Gauss!

The analysis of EDS and UVR SP problems may not need much precision, but the theory of the design of experiments should have been applied before the need to apply excessive precision reached such ubiquitous acceptance. Study, as belated as it would now be, is needed before licensees and the agency staff expend thousands more review hours at 140 dollars an hour.

5. Although in April 1993, C. Berlinger, C/EELB:DE:NRR, deleted, from a draft IN 93-99, (Attachment 3 to this petition) this PR's caution to licensees that raising the UVR SPs might have consequences, a remark to the same effect, in an SER dated 25 January 1995, for Hatch entitled, Degraded Voltage Relay Set Points, suggests that with a new branch chief in EELB, the subject may have become respectable, so that I introduce it again, in this petition, with less hesitation than I might otherwise feel.

The invariable response of the NRC and its licensees to UVR SPs too low to protect safety loads on their associated buses has been to raise the SPs. The UVR SPs were set as low as possible in the initial EDS design so that there would be as few UVR induced PS transfers as possible, as, for example, during large motor starts.

As UVR SPs are raised, the safety advantage of providing UVRs on the EDS is reduced because more frequent, unnecessary actuations of the UVRs has to be the consequence. If smaller dips in the bus voltage can start UVR timers, then they will start more often than if they are filtered out by lower UVR SPs, since it is in the nature of reliable PS that there should be more frequent small perturbations than large ones. It is likewise true that lower frequency perturbations to the safety bus voltage will cause the UVR timers to start more often than before the UVR SPs were raised. If one recalls that frequency is the reciprocal of period this will be immediately apparent. Some of these timed starts will lead to the associated logic initiating unnecessary PS transfers.

6. In IN 95-05, rather late in the day, staff discovered that peak reading voltmeters calibrated for RMS are affected by the proportions of harmonics in the AC voltages on the bus and in the calibrators used to set the UVRs. Harmonics also affect the response of the UVRs, in effect changing their SPs, when the harmonic content of the bus voltages changes.

7. Impedances and inrush currents to motors and other loads are not known to the precision with which the staff and licensee engineers have been trying to set UVRs. Both must recognize that they may have been trying, in many cases, to do the impossible, and that, in so trying, they have increased the risk of a nuclear accident.

Problems with the text of IN 95-05 suggest that some of the staff may still not be clear as to the function of UVRs, so that one may expect the long history of UVR concerns to continue, if licensees continue to operate nuclear power plants with design deficiencies; they should not be allowed to.

ADDENDUM

> If you do not say a thing in an irritating way, you may just as well not say it at all, since nobody will trouble themselves about anything that does not trouble them.
>
> G.B. Shaw

C Morris

C. Morris
6516 Roy Shafer Road
Middletown, MD 21769

Attachments:

1. Memorandum to E.Weiss, S/C, EELB 19 April 1993
2. Memorandum to E.Weiss, S/C, EELB 03 November 1993
3. NRC IN 93-XXXX: Undervoltage Relay Setpoint [sic] April XX 1993 (draft)
4. NRC IN 93-99: Undervoltage Relay and Thermal Overload Setpoint Problems, December 21, 1993
5. IN 93-XX, November XX, 1993, page 3 of 3

cc. Shirley Ann Jackson, Chairman, USNRC

ATTACHMENT 1

Make corrections by EW + C3 + Resubmit. 1300 hrs 21Apr93

MEMORANDUM TO : E. Weiss, S/C, EELB 19 April 1993

FROM : C. Morris, EELB

SUBJECT : Attached Proposed Draft Information Notice (IN-III)

On two occasions before your tenure, memos of mine to my section or branch chief were revised. I put this warning early so you won't waste your time revising the following matter. When I write for the branch I try, of course, to write in the manner that you have told me you want; when I write to you in order to clarify some issue within the section, I hope you will pardon me if I write to please myself.

The attached draft IN is for your emendation.

A few historical comments may be in order as this document has a long history. On 25 September 1992 my S/C, the S/C who preceded your appointment, instructed me to write an IN on the overall issue of degraded grid voltage conditions which B.Grimes had, on October 8, 1992, written to Region II, EELB would do. The draft of my response to these instructions was not well received by C. Berlinger, B/C, who said among many things, which it is unnecessary to introduce here, that an IN should consist of two to four pages and contain nothing but what was found at the plants and what was done in consequence. I will not dwell on the overstatement made then, but pass on to C.Berlinger's subsequent reception of the IN draft of March 2, 1993. He returned the draft IN unsigned with a note saying," Haven't there been a considerable number of plants that have recently determined that their grid undervoltage protection/ trip settings were too low and have resolved issue by raising UVTrip settings-----? See Trehan." N.Trehan provided me with a list of 11 plants. While looking for dates and other related matters, I found that in fact there had been many more, over 30 to date and that those UVR mistakes not discovered by EDSFIs were found by licensees through self initiated design basis reviews (DBR). These DBR may be owed to licensee attempts to avoid discoveries by NRC inspections and thereby to anticipate them. I told you of this and some of my conclusions about so many UVR mistakes, at so many plants, over such a long time. I pass over your indignation at that time and its shadow on my mid-year Performance Appraisal to connect these latter events to the draft IN you are about to review.

(IN-I) (IN-II) (IN-III)

It is impossible to obey the branch chief's strictures regarding the contents and the length of an IN when so many plants are included. In an attempt to do so, I have tried to concentrate on the licensee's need to resolve the seemingly perpetual recurrence of UVR setpoint errors and of undersized thermal overloads, and have simply listed the names and dates of many licensees who have discovered such errors with and without the assistance of the NRC. If you have other ideas as to how to include in an IN the details, however sketchily, of so many events I am sure you will

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let me know. We might then speak to the Branch Chief about a TAC to investigate, further, the awe inspiring circumstance of scores of nuclear power plants being unable, after repeated attempts, to get their EDS designs right.

C.Morris

C.Morris, EELB

MEMORANDUM FOR: Gail Marcus, Chief
Generic Communications Branch
Division of Operating Reactor Support
Office of Nuclear Reactor Regulation

FROM: Carl Berlinger, Chief
Electrical Engineering Branch
Division of Engineering
Office of Nuclear Reactor Regulation

SUBJECT: INFORMATION NOTICE 93- XXXX , UNDERVOLTAGE RELAY SETPOINTS AND THERMAL OVERLOAD RATINGS

By memorandum dated August 31, 1992 A. Gibson, Director, Division of Reactor Safety, Region II proposed that the NRC issue a draft Information Notice (IN) entitled, Non-conservative Overload Relay Settings. The attached proposed IN incorporates the substance of the Grand Gulf and other licensee concerns by citation and by this means addresses the much larger general concern.

We recommend that this information notice be issued.

Carl H. Berlinger, Chief
Electrical Engineering Branch
Division of Engineering

means, No ?

Enclosure:
As stated

cc:

Contact: C. Morris, EELB/DE
X2778

OFFICE	EELB/DE	SC/EELB/DE	BC/EELB/DE	PDLR
NAME	C.Morris	E.Weiss	C.Berlinger	S.Newberry
DATE	04/ /93	04/ /93	04/ /93	04/ /93

OFFICIAL RECORD COPY

You may prefer to put PDLR on cc rather than concurrence. I have been told S Newberry now coordinat

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ATTACHMENT 2

MEMORANDUM TO: E. WEISS, S/C, EELB "03 NOV. 1993"

FROM: C. MORRIS, EELB

IN RES: CONCURRENCE IN IN 93-XX: UNDERVOLTAGE RELAY SETPOINT CHANGES

Yesterday you returned to me the latest version of the subject information notice initialed by G. Marcus, B/C, OGCB and B. Grimes, D/D, DORS, et alii, together with a note saying, " Please review this and let me know if it is O.K. by you. Eric."

It is not, and not because I find any errors in the remaining text, but because my principle concern with the undervoltage relay set point problem, which I told you of, orally in March 1993, and in my memorandum to you of 19 April 1993, has been all but eliminated. Only the most experienced reader, the most curious and the most persistent, will be able to suspect its presence when he reads the version you returned to me for my O.K. The public will not.

Anticipating these spins and elisions, I am, after all, as you have often told me, an experienced reviewer, I had already diluted and tempered the substance of my concern, which I will again restate now, and only now, so as to avoid the anticlimactic.

My principle concern, when I reviewed the many examples of undervoltage relays set too low, was that they had continued for so long, and in so many plants, and despite repeated reviews by the licensee and his contractors, and by the NRC staff, continued to recur.

I pass over your reaction, then, to my observations, to come to my present concern. Calculating undervoltage setpoints should be within the competence of undergraduate electrical engineers. It appears not to be. Either then the licensee engineers are incompetent, and some NRC staff, or there are factors present of which I am unaware. Either way, an investigation is warranted. I proposed just such a task in my April 19th memorandum to you.

I do not expect you or the branch chief to agree with me. After all, W. Russell, A/D, ADT, found my remark about the persistence of so many improperly set undervoltage relays, namely that it was an awe-inspiring circumstance, inflammatory and inappropriate. He did not change his opinion when I insisted that it certainly was awe-inspiring and that something should be done. You are therefore politically correct and can rest easy.

To conclude, I could accept the present innocuous version of the subject IN, provided I could place on the concurrence page a sentence to the effect that while there is nothing to object to in what remains, there is much to object to in what does not. If this is too high a price for my concurrence, please remove my name from the concurrence page. I should of course be more than happy to remain as the technical contact.

C. Morris
EELB

ATTACHMENT 3

Setpoint is one word not set point!

major comment on a typo! And it's wrong.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

NRC INFORMATION NOTICE 93-XXXX: UNDERVOLTAGE RELAY SETPOINT CHANGES

ADDRESSEES

All holders of operating licenses, or construction permits, ~~and vendors~~ for nuclear power plants.

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC) is issuing this Information Notice (IN) to alert addressees to continuing discoveries of undervoltage relays (UVR) with setpoints too low. Other licensees have found thermal overloads (TOL), that are ~~too small~~ set too low. UVR and TOL protect safety loads during degraded grid voltage (DGV) episodes. setpoints

It is expected that recipients will review the information herein for applicability to their facilities, and consider actions to avoid similar problems. However, suggestions contained in this IN are not NRC requirements; therefore, no specific action or written response is required.

DESCRIPTION of CIRCUMSTANCES

Utilities have, in the last few years, initiated extensive efforts to improve the adequacy and completeness of the set of design bases, design analyses, and final design output documents that define the design of their facilities. The principal reason for these initiatives has been the consistent findings of NRC safety system functional inspections (SSFIs) and safety system outage modification inspections (SSOMIs) that some licensees have made ~~inappropriate~~ plant modifications which have affected the functionality of safety systems. ~~These modifications were made without the licensee having a firm understanding of the available design margins and the effect that the modifications have on these margins.~~ The NRC inspection findings prompted many licensees to review and reconstitute their design bases. Attachment 1 is a list of licensees who have discovered, since 1988, design deficiencies in their onsite electrical distribution system (EDS). As a result of earlier deficiencies, the NRC has developed the electrical distribution system ~~field~~ inspection (EDSFI), to evaluate the EDS. Since 1989, the NRC has performed over 50 EDSFIs, and has found design weaknesses in several areas including, UVR setpoints for DGV. Between May 1990 and January 1993, over 30 licensees have written to the NRC about changing UVR set points. They have found that the UVR setpoints were set so low that safety loads ~~have~~ not been protected ~~when~~ the grids ~~have~~ experienced DGVs.

could during functional

NOTE WE REFER TO THE LIST LATER ON

would have had

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Final part of this pg also copied from (IN ?) *

An additional ③ (three) licensees discovered a related deficiency, in which the TOL ~~which were too small~~ protective relay setpoints were set too low.

DGV and UVR set points have been extensively reviewed before, beginning with each plant's initial EDS design. In August 1976, the NRC wrote generic letters to all LWR licensees concerning the need for licensee evaluation of potential generic implications of several Millstone events, involving sustained degraded grid voltage episodes. ~~Following issue of the letters, licensees, among other actions, reviewed their UVR set points, as did the NRC.~~ On June 2, 1977, the staff, as part of multiplant action (MPA) MPA-23, stated the staff's position that all licensees must have a second level of under voltage protection with a time delay. On August 8, 1979, the NRC by generic letter, as part of MPA-48, requested all licensees to determine the capability of the offsite power system to operate all required loads within their voltage ratings under all conditions within their design basis. UVR setpoints were necessarily reviewed on each of these occasions. In 1981, the NRC issued Branch Technical Position, Power System Branch-1, which required, among other things, the addition of a second UVR with an associated time delay. ~~To implement the changes, again EDS UVR setpoints were reviewed by licensees and the NRC.~~
Between 1981 and 1990, two INs, which discussed UVR setpoints among other concerns, were issued by the NRC:

1. IN 84-02, "Operating a Nuclear Power Plant at Voltage Levels Lower than Analyzed," Jan. 10, 1984.
2. IN 91-29, Supplement 1, "Deficiencies Identified During Electrical System Functional Inspections," Sept. 14, 1992.

In addition, because some of the DGV problems occurred as a result of inadequate control over the design process, the NRC issued Generic Letter 88-15 on Sept. 12, 1988, entitled, "Electric Power Systems-Inadequate Control Over Design Processes."

For many years, the NRC has reviewed and approved ~~Occasional~~ Technical Specification changes concerning UVR setpoints. ~~which~~ These have continued to be submitted and ~~have been submitted for many years to the NRC which has reviewed and approved them. Then, in 1990, as a result of the inspection findings and industry responses to them, a series of proposed revisions to UVR set points began which is continuing at present,~~ a partial list of these is attached. ~~below~~

DISCUSSION

NOTE: we only want supported statements in INs

~~While no licensees are known to have experienced losses of equipment attributable to degraded grid voltage stresses, on occasions safety loads have been exposed to sustained voltages below their ratings.~~ Many of the licensees analysing their UVR setpoints ~~are raising them after review~~ have raised them. ~~When doing so they~~ [illegible] inconsistent

5

The continuing need to raise UVR setpoints is of concern for two reasons

First, the NRC staff has given the issue substantial attention and yet the problem [illegible]. Second, The problem is perhaps indicative of inadequate design control.

should consider the increased risk of unnecessary trips with the attendant challenges to safety equipment. Licensees should also consider the reasons that the problems with inadequate EDS voltages and the associated UVR setpoint concerns have recurred at, and continue to recur for, so many licensees. This information notice requires no specific action or written response. Although it would be desirable to finally resolve these DGV and UVR set points concerns, licensees are reminded that nothing in this IN should be regarded as an NRC requirement; therefore, no specific action or written response is required. But licensees should be aware that if they have not reviewed their UVR setpoints, inadequacies may exist. If you have any questions about the information in this notice, please contact the technical contact listed below or the appropriate NRR project manager.

Brian K. Grimes, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical Contact: C. Morris, NRR
(301)-504-2778

Attachments: ~~As stated~~
1. Partial list of UVR setpoint revisions 1988-1993
2. List of Recently Issued NRC Information Notices

Note: The word "should" is not appropriate for an information notice

E. Weiss? Yes - all comments in ref - per EW

Block by C. Berlinger

6

ATTACHMENT 1

Partial List of UVR Set Point Revision Notification and Technical Specification Change Proposals for 1988-1993

Event Notification Number	Licensee	Event Notification Date
11374	Pilgrim 1	January 30, 1988
14043	Pilgrim 1	November 18, 1988
00000	Pilgrim 1	June 30, 1988
14780	Cooper 1	February 17, 1989
16540	Crystal River 3	September 8, 1989
17121	Robinson 2	November 16, 1989
18322	Oconee 1,2 and 3	April 24, 1990
18466	McGuire 1 and 2	May 14, 1990
18892	St. Lucie 2	July 14, 1990
19023	Haddam Neck 1	August 2, 1990
20021	Calvert Cliff 1 and 2	December 6, 1990
20435	Ft. Calhoun	February 12, 1991
20503	Kewaunee 1	February 20, 1991
20542	Salem 2	February 27, 1991
21691	Dresden 2 and 3	August 23, 1991
22281	Dresden 2	November 20, 1991
22498	Zion 1 and 2	December 19, 1991
22534	Haddam Neck 1	December 27, 1991
22580	Indian Point 3	January 9, 1992
22658	Dresden 3	January 22, 1992
22847 (TOL)	Washington Nuclear 2	February 19, 1992
22918	Washington Nuclear 2	March 1, 1992
23148	Vermont Yankee	April 1, 1992
23191	Quad Cities 1 and 2	April 7, 1992
23338	LaSalle 1 and 2	April 27, 1992
23365	LaSalle 2	April 29, 1992
23385	Crystal River 3	May 1, 1992
23439 (TOL)	Grand Gulf	May 11, 1992
23452	Comanche Peak 2	May 13, 1992
23576	Crystal River 3	June 4, 1992
23784	Zion 1 and 2	July 2, 1992
23932	Byron 1 and 2	July 24, 1992
00000	Callaway	July 23, 1992
24229	Crystal River 3	September 14, 1992
24384	Dresden 2 and 3	October 6, 1992

Attachment 1 (continued)

00000	Prairie Island 1 & 2	November 6, 1992
00000	St. Lucie 1	November 30, 1992
24757	Maine Yankee	December 15, 1992
00000	Diablo Canyon 1 and 2	December 22, 1992
24845	Point Beach 1 and 2	January 7, 1993
22658	Dresden 3	January 22, 1993
25248 (TOL)	Pilgrim	March 29, 1993
25362	South Texas	April 6, 1993

EEN numbered 00000 concern licensees whose UVR set point notifications to the NRC are carried by other files; e.g. LERS, licensee letter etc., and whose EN numbers, if any, are not known.

Comments by E Weiss
In fact, the ¶ is true

see pg 2

<u>DISCUSSION</u>

For many years the NRC has reviewed and approved Technical Specification changes concerning UVR setpoints. These have continued to be submitted and a partial list of these is attached. The continuing need to raise the UVR setpoints is of concern for two reasons. First, the NRC staff has given the issue substantial attention and yet the problem [redacted] persists. Second, the problem is perhaps indicative of inadequate control of the design process.

This information notice requires no specific action or written response. If you have questions about the information in this notice, please contact the technical contact listed below or the appropriate NRR project manager.

NOTES:

The statements using the word "should" are inappropriate for an information notice because the notice should not contain requirements.

Rot! See many other INs

The statement regarding "on occasions safety loads have been exposed to sustained voltages below their ratings" is unsupported conjecture.

If not true, IN is superfluous.

The main point of the conclusion is pervasiveness of the UVR setpoint problem and not how to find an acceptable UVR setpoint.

EW comments

No comment needed: licensee must find UVR setpoint solution in the conclusion or should find.

ATTACHMENT 4

IN-93 00R 51
21 Dec 93
Issued, finally, by ORS

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

December 21, 1993

NRC INFORMATION NOTICE 93-99: UNDERVOLTAGE RELAY AND THERMAL OVERLOAD SETPOINT PROBLEMS

Addressees

All holders of operating licenses or construction permits for nuclear power plants.

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice to alert addressees to continuing discoveries of undervoltage relay and thermal overload setpoints that are set too low. It is expected that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice are not NRC requirements; therefore, no specific action or written response is required.

Background

In August 1976, the NRC wrote generic letters to all LWR licensees regarding the need for licensees to evaluate any generic implications of several events at the Millstone site involving episodes of sustained degraded grid voltage. On June 2, 1977, as part of multiplant action MPA-23, the staff stated its position that all licensees must have a second level of undervoltage protection with a time delay. (During degraded grid voltage episodes, undervoltage relays and thermal overload protective relays protect the safety equipment.) In a generic letter dated August 8, 1979, the NRC requested all licensees to determine the capability of the offsite power system to operate all required loads within their voltage ratings under all conditions within their design basis. The licensees reviewed their undervoltage relay setpoints on each of these occasions. In 1981, the NRC issued Branch Technical Position, Power System Branch-1, "Adequacy of Station Electric Distribution System Voltages," which discussed, among other things, the addition of a second undervoltage relay with an associated time delay. Between 1981 and 1992, the NRC issued two information notices, in which it discussed undervoltage relay setpoints and other concerns:

1. IN 84-02, "Operating a Nuclear Power Plant at Voltage Levels Lower than Analyzed," issued January 10, 1984.

2. IN 91-29, "Deficiencies Identified During Electrical Distribution System Functional Inspections," issued April 15, 1991.

3. IN 91-29, Supplement 1, "Deficiencies Identified During Electrical Distribution System Functional Inspections," issued September 14, 1992.

In addition, recognizing that certain degraded grid voltage problems resulted from inadequate control over the design process, on September 12, 1988, the NRC issued Generic Letter 88-15, entitled, "Electric Power Systems - Inadequate Control Over Design Processes."

Description of Circumstances

Since 1989, the NRC has performed electrical distribution system functional inspections at nuclear power plants. The NRC has found design weaknesses in several electrical distribution system areas including undervoltage relay setpoints for degraded grid voltage. These are addressed in IN 91-29 and in IN 91-29, Supplement 1. From May 1990 to January 1993, over 30 licensees wrote to the NRC about inadequate setpoints. Licensees found that the undervoltage relay setpoints were set so low that safety equipment would not have been protected if degraded grid voltage had occurred. Three licensees discovered deficiencies in which the thermal overload protective relay setpoints were set too low.

Discussion

In the last few years, licensees began extensive efforts to improve the adequacy and completeness of the set of design bases, design analyses, and final design output documents that define the design of their facilities. The licensees began these initiatives primarily because, during inspections such as safety system functional inspections and safety system outage modification inspections, the NRC consistently found that some licensees have made plant modifications which have affected the functionality of safety systems without making the appropriate setpoint change. The NRC inspection findings prompted many licensees to review and reconstitute their design bases.

These reviews and the generic communication documents discussed above prompted licensees to submit technical specification changes for undervoltage relay setpoints that were discovered to be incorrect after the problem was created for one of several reasons shown (see Attachment 1). Attachment 1 was developed from 50.72 reports as a representative summary of the types and number of problems encountered. Subsequent LERs may provide additional information. Of the reports where the cause could be determined based on the event report, design error was the predominant cause of the problem. Licensees have generally found setpoint problems when the setpoints were examined as a result of a special inspection or design basis reconstitution.

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact the technical contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Brian K. Grimes, Director
Division of Operating Reactor Support
Office of Nuclear Reactor Regulation

Technical contact: C. Morris, NRR
(301) 504-2778

Attachments:
1. Representative List of Undervoltage Relay Setpoint Revisions 1988-1993
2. List of Recently Issued NRC Information Notices

Representative List of Undervoltage Relay Set Point Revision Notifications and Technical Specification Change Proposals for 1988-1993

Event Notification Number	Licensee	Event Notification Date	Class
11374	Pilgrim 1	January 30, 1988	1
14043	Pilgrim 1	November 18, 1988	5
00000	Pilgrim 1	June 30, 1988	1
14780	Cooper 1	February 17, 1989	5
16540	Crystal River 3	September 8, 1989	1
17121	Robinson 2	November 16, 1989	1
18322	Oconee 1, 2 and 3	April 24, 1990	5
18466	McGuire 1 and 2	May 14, 1990	1
18892	St. Lucie 2	July 14, 1990	2
19023	Haddam Neck 1	August 2, 1990	5
20021	Calvert Cliff 1 and 2	December 6, 1990	1
20435	Ft. Calhoun	February 12, 1991	1
20503	Kewaunee 1	February 20, 1991	5
20542	Salem 2	February 27, 1991	2
21691	Dresden 2 and 3	August 23, 1991	5
22281	Dresden 2	November 20, 1991	1
22498	Zion 1 and 2	December 19, 1991	5
22580	Indian Point 3	January 9, 1992	5
22658	Dresden 3	January 22, 1992	5
22847 (TOL)	Washington Nuclear 2	February 19, 1992	5
22918	Washington Nuclear 2	March 1, 1992	1
23148	Vermont Yankee	April 1, 1992	4
23191	Quad Cities 1 and 2	April 7, 1992	5
23338	LaSalle 1 and 2	April 27, 1992	1
23365	LaSalle 2	April 29, 1992	1
23385	Crystal River 3	May 1, 1992	5
23439 (TOL)	Grand Gulf	May 11, 1992	3
23452	Comanche Peak 2	May 13, 1992	1
23576	Crystal River 3	June 4, 1992	1
23784	Zion 1 and 2	July 2, 1992	5
23932	Byron 1 and 2	July 24, 1992	1
00000	Callaway	July 23, 1992	1
24229	Crystal River 3	September 14, 1992	1
24384	Dresden 2 and 3	October 6, 1992	5

*TOL = Thermal Overload

Event Notification Number	Licensee	Event Notification Date	Class
00000	Prairie Island 1 & 2	November 6, 1992	1
00000	St. Lucie 1	November 30, 1992	1
24757	Maine Yankee	December 15, 1992	5
00000	Diablo Canyon 1 and 2	December 22, 1992	1
24845	Point Beach 1 and 2	January 7, 1993	1
25248 (TOL)	Pilgrim	March 29, 1993	5
25362	South Texas	April 6, 1993	5
	Salem	Aug 20, 1993	1

Events Notification Number-00000 Licensees whose undervoltage relay setpoint notifications to the NRC were reported by LERs, licensee letter, etc., and event notification numbers if any, were not known.

Class Definitions:

1. Undervoltage Relay setpoints were found to be incorrect because of design errors.

2. Undervoltage Relay setpoints, as found, were not the same as required by the technical specification.

3. Safety load circuit breaker thermal overloads or other trip setpoints were too low because of design errors.

4. Safety load circuit breaker thermal overload, or other trip setpoints, as found, were not the same as required by the technical specification.

5. Membership in one of the preceding four classes could not be definitely established because of incomplete information in the event notification.

LIST OF RECENTLY ISSUED
NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
93-98	Motor Brakes on Valve Actuator Motors	12/20/93	All holders of OLs and CPs for nuclear power reactors.
93-97	Failures of Yokes Installed on Walworth Gate and Globe Valves	12/17/93	All holders of OLs or CPs for nuclear power reactors.
93-96	Improper Reset Causes Emergency Diesel Generator Failures	12/14/93	All holders of OLs or CPs for nuclear power reactors.
93-95	Storm-Related Loss of Offsite Power Events due to Salt Buildup on Switchyard Insulators	12/13/93	All holders of OLs or CPs for nuclear power reactors located close to a large body of salt water.
93-94	Unauthorized Forced Entry into the Protected Area at Three Mile Island Unit 1 on February 7, 1993	12/09/93	All holders of OLs or CPs for nuclear power reactors.
93-93	Inadequate Control of Reactor Coolant System Conditions During Shutdown	12/08/93	All holders of OLs or CPs for nuclear power reactors.
93-92	Plant Improvements to Mitigate Common Dependencies in Component Cooling Water Systems	12/07/93	All holders of OLs or CPs for nuclear power reactors.
91-21, Supp. 1	Inadequate Quality Assurance Program of Vendor Supplying Safety-Related Equipment	12/07/93	All holders of OLs or CPs for nuclear power reactors and all recipients of NUREG-0040, "License Contractor and Vendor Inspection Status Report" (White Book).

OL = Operating License
CP = Construction Permit

ATTACHMENT 5

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact the technical contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Brian K. Grimes, Director
Division of Operating Reactor Support
Office of Nuclear Reactor Regulation

Technical contact: C. Morris, NRR
(301) 504-2778

Attachments:
1. Representative List of Undervoltage Relay Setpoint Revisions 1988-1993
2. List of Recently Issued NRC Information Notices

Exception:

The stress laid by the initial reviewer on the degree of concern that licensees and the staff should feel for such a widespread and persistent problem, viz. low UVR set points, has been all but eliminated from the present IN.

CM
C.MORRIS
15 NOV. 93

Document Name: G:\SHARED\R3UNRELS.IN

*SEE PREVIOUS CONCURRENCES # Concurred in electronically by JMain.

		D/DORS:NRR	*C/OGCB:DORS:NRR	*OGCB:DORS:NRR
		BKGrimes	GHMarcus	NCampbell
		11/ /93	08/10/93	07/30/93
*EELB:DE:NRR	*SC/EELB:DE:NRR	*C/EELB:DE:NRR	*D/DE:NRR	*RPB:ADM
CMorris	EWWeiss	CHBerlinger	JTWiggins	Tech Ed
04/28/93	05/19/93	05/19/93	07/23/93	07/13/93

19 JAN 95 PRA LETT

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 14, 1996

OFFICE OF THE
GENERAL COUNSEL

MEMORANDUM TO: William T. Russell, Director
Office of Nuclear Reactor Regulation

FROM: Jack R. Goldberg
Deputy Assistant General Counsel
for Enforcement

SUBJECT: SECTION 2.206 PETITION OF C. MORRIS REGARDING ELECTRICAL DISTRIBUTION SYSTEM AND UNDERVOLTAGE RELAY SET POINT ERRORS

Attached is a copy of a Petition filed pursuant to 10 C.F.R. § 2.206 by Mr. C. Morris, requesting that the operating licenses of all nuclear power plants be suspended within 90 days, and remain suspended until such time as those plants have (1) discovered the reason for what Petitioner asserts are repeated errors in the plants' undervoltage relay (UVR) set points (SP) and electrical distribution system (EDS) designs, and (2) provided convincing evidence that these deficiencies have finally been corrected. Because Petitioner has requested action be taken within 90 days, his request should be treated as one for immediate relief. Petitioner also requests that the aforementioned evidence be reviewed by a competent third party in addition to the NRC staff, and that, if the NRC concludes that plants may safely operate with UVRs that cannot be properly set for long periods of time, the NRC should reach conclusions by way of holding a public meeting.

The Petition provides, as bases for the aforementioned requests, both additional information within the Petition itself as well as attached documentation. With regard to documentation, the Petition has an attached memorandum from Petitioner to "E. Weiss, S/C, EELB," dated April 19, 1993, wherein Petitioner discusses a draft proposed Information Notice (IN), in which among other things Petitioner (then an NRC employee) describes the need of a licensee to resolve the seemingly perpetual recurrence of UVR setpoint errors and undersized thermal overloads. Petitioner has stated that he was told twice, both with regard to this memorandum and another from himself to E. Weiss, dated November 3, 1993, (also included with this Petition), that he was not permitted to write of his concern that after repeated attempts, many if not most licensees could not achieve correct UVR SPs and EDS designs. Petitioner also states that he was told by two managers that his concerns in this regard could not be included in the memoranda because they could lead to fear and distress on the part of the general public, and because of the fear of FOIA requests. Petitioner noted his concern at another point on the concurrence page of another draft IN, dated November 1993, which he also included with his Petition.

Contact: Michael Rafky
415-1974

Petitioner also attached as documentation IN 93-99, which lists approximately forty licensees in an attachment as having had undervoltage relay set point connections. However, Petitioner's concern that the enduring and widespread nature of EDS and UVR SP errors was unrecognized by both licensees and the NRC staff was deleted from the final version of that Notice.
In terms of additional information contained within the Petition itself, the first reason Petitioner gives for repeated UVR and EDS deficiencies is that the BTP PSB-1 requirement for licensees to provide a degraded grid voltage relay with a long delay and a loss of power relay with a short relay is by itself inadequate. This is because, Petitioner states, the issue is more complex, as notwithstanding the arbitrary time constraints associated with the UVRs, there is no recognition of the dynamics of the voltages to which the relays are to respond.

Petitioner's second stated reason in support of his Petition is that the tolerances on the UVRs (which are the standard deviations on normal distributions) are statistical in nature and therefore are not, as he believes the staff mistakenly views them, limits on the errors in the UVR SPs. Petitioner believes this represents a significant problem which may not be resolvable using previously attempted approaches.

Next, Petitioner asserts that although all EDSs are required by GDC 17 to be testable, only portions of the EDSs and their logic are tested because, according to licensees, plants cannot be conveniently put into a state that would allow actual emergency loads to be placed on the EDS and measured.

Petitioner also believes that while load nameplate ratings are used to analyze EDS voltages, it is common knowledge that most loads are operated at only a fraction of their ratings. Furthermore, worst-case ambient temperatures are used in selecting time delays for motor protection, even though few if any loads are actually run under such conditions, notwithstanding the possibility of a LOCA when safety load protections are bypassed regardless.

Petitioner's fifth point of support is that raising the UVR SPs might have the result of reducing the safety advantage of providing UVRs on the EDS, as more frequent and unnecessary actuations of the UVRs will occur. That in turn would lead to the associated logic initiating unnecessary PS transfers.

The sixth reason Petitioner gives in support of his Petition is that in IN 95-05, the NRC staff found that peak reading voltmeters calibrated for RMS are affected by the proportions of harmonics in the AC voltages on the bus and in the calibrators used to set the UVRs. In addition, Petitioner states that harmonics also affect the response of the UVRs, in effect changing their SPs, when the harmonic content of the bus voltages changes.

Petitioner's final reason provided is that impedances and inrush currents to motors and other loads are not known to the level of precision with which the NRC staff and licensee engineers have been attempting to set UVRs. Petitioner believes that both groups must recognize that their task may be impossible and that their attempts to complete it have increased the risk of a nuclear accident.

Problems with the text of IN 95-05, Petitioner believes, suggest that some NRC staff may be unclear as to the function of UVRs, and that it may be expected that the long history of UVR concerns will continue if licensees continue to operate nuclear power plants with design deficiencies. In Petitioner's view, those licensees should not be allowed to do so.

I have attached drafts of a letter of acknowledgement to the Petitioner and a Notice of Receipt of the Petition for publication in the *Federal Register*. Since Petitioner's request for suspension of all nuclear power plant operating licenses is being treated as a request for immediate relief, a portion of the acknowledgement letter will require input from your staff regarding whether the immediate relief requested is warranted.

Please inform Michael Rafky of my staff of the technical contact who will be involved in preparing a response to the Petition. Also, please ensure that I am provided copies of all correspondence related to the Petition and that I am asked to concur on all staff correspondence.

Attachments: 1. Copy of Petition
2. Draft of Letter to Petitioners
3. Draft *Federal Register* Notice

cc w/atts: M. Malsch, OGC
S. Burns, OGC
W. Olmstead, OGC
L. Chandler, OGC
T. Martin, RI
S. Ebneter, RII
H. Miller, RIII
L. Callan, RIV

(10 C.F.R. § 2.206)

Mr. C. Morris
6516 Roy Shafer Road
Middletown, Maryland 21769

Dear Mr. Morris:

This is to acknowledge receipt of your letter dated March 5, 1996, requesting action with regard to all nuclear power plant licensees. Your request is being treated as a petition under 10 C.F.R. § 2.206 of the Commission's regulations.

Your Petition requests that the operating licenses of all nuclear power plants be suspended within 90 days, and remain suspended until such time as those plants have discovered the reason for what you assert are repeated errors in the plants' undervoltage relay (UVR) set points (SP) and electrical distribution system (EDS) designs, and provided convincing evidence that these deficiencies have finally been corrected. Because you have requested action within 90 days, your request is being treated as one for immediate relief. Your Petition also requests that the aforementioned evidence be reviewed by a competent third party in addition to the NRC staff, and that if the NRC concludes that plants may safely operate with UVRs that cannot be properly set for long periods of time, the NRC should reach conclusions by way of holding a public meeting.

You have provided, as bases for your requests, both additional information within your Petition itself as well as attached documentation. With regard to documentation, you have included a memorandum from you to "E. Weiss, S/C, EELB," dated April 19, 1993, wherein you discuss a draft proposed Information Notice (IN), in which among other things you discuss the need of a licensee to resolve the seemingly perpetual recurrence of UVR setpoint errors and undersized thermal overloads. You state that you were told twice, both with regard to this memorandum and another from yourself to E. Weiss, dated November 3, 1993, (also included with this Petition), that you were not permitted to write of your concern that after repeated attempts, many if not most licensees could not achieve correct UVR SPs and EDS designs. You state that you were told by two managers that your concerns in this regard could not be included in your memoranda because they could lead to fear and distress on the part of the general public, and because of the fear of FOIA requests. You noted your concern at another point on the concurrence page of another draft IN, dated November 1993, which you also included with your Petition.

You also attached as documentation IN 93-99, which lists approximately forty licensees in an attachment as having had undervoltage relay set point connections. However, your concern that the enduring and widespread nature of EDS and UVR SP errors was unrecognized by both licensees and the NRC staff was deleted from the final version of that Notice.

In terms of additional information contained within your Petition itself, the first reason you give for repeated UVR and EDS deficiencies is that the BTP PSB-1 requirement for licensees to provide a degraded grid voltage relay with a long delay and a loss of power relay with a short relay is by itself inadequate. This is because, you state, the issue is more complex, as notwithstanding the arbitrary time constraints associated with the UVRs, there is no recognition of the dynamics of the voltages to which the relays are to respond.

Your second stated reason in support of your Petition is that the tolerances on the UVRs (which are the standard deviations on normal distributions) are statistical in nature and therefore are not, as you believe the staff mistakenly views them, limits on the errors in the UVR SPs. You believe this represents a significant problem which may not be resolvable using previously attempted approaches.

Next, you assert that although all EDSs are required by GDC 17 to be testable, only portions of the EDSs and their logic are tested because, according to licensees, plants cannot be conveniently put into a state that would allow actual emergency loads to be placed on the EDS and measured.

You also believe that while load nameplate ratings are used to analyze EDS voltages, it is common knowledge that most loads are operated at only a fraction of their ratings. Furthermore, worst-case ambient temperatures are used in selecting time delays for motor protection, even though few if any loads are actually run under such conditions, notwithstanding the possibility of a LOCA when safety load protections are bypassed regardless.

Your fifth point of support is that raising the UVR SPs might have the result of reducing the safety advantage of providing UVRs on the EDS, as more frequent and unnecessary actuations of the UVRs will occur. That in turn would lead to the associated logic initiating unnecessary PS transfers.

The sixth reason you give in support of your Petition is that in IN 95-05, the NRC staff found that peak reading voltmeters calibrated for RMS are affected by the proportions of harmonics in the AC voltages on the bus and in the calibrators used to set the UVRs. In addition, you state that harmonics also affect the response of the UVRs, in effect changing their SPs, when the harmonic content of the bus voltages changes.

Your final reason provided is that impedances and inrush currents to motors and other loads are not known to the level of precision with which the NRC staff and licensee engineers have been attempting to set UVRs. You believe that both groups must recognize that their task may be impossible and that their attempts to complete it have increased the risk of a nuclear accident.

Problems with the text of IN 95-05, you believe, suggest that some NRC staff may be unclear as to the function of UVRs, and that it may be expected that the long history of UVR concerns will continue if licensees continue to operate nuclear power plants with design deficiencies. In your view, those licensees should not be allowed to do so.

Your request for the suspension of all nuclear power plant licenses within 90 days for the purposes of remedying repeated errors in those plants' UVR SPs and EDS designs is _____ because _____. [NRC to provide reasons for grant or denial of this request for immediate relief]

Your Petition has been referred to me pursuant to 10 C.F.R. § 2.206 of the Commission's regulations. As provided by section 2.206, action will be taken on your requests within a reasonable time. I have enclosed for your information a copy of the Notice that is being filed with the Office of the Federal Register for publication.

Sincerely,

William T. Russell, Director
Office of Nuclear Reactor Regulation

Enclosure: As stated

U.S. NUCLEAR REGULATORY COMMISSION

Docket No. _____

RECEIPT OF PETITION FOR DIRECTOR'S DECISION
UNDER 10 C.F.R. § 2.206

Notice is hereby given that by a letter dated March 5, 1996, Mr. C. Morris requested the U.S. Nuclear Regulatory Commission (NRC) to take action with regard to all nuclear power plants.

The Petition requests that, within 90 days, the operating licenses of all nuclear power plants be suspended until such time as those licensees have discovered the reasons for the repeated errors in their electrical distribution system designs and in their undervoltage relay (UVR) set points, and provided convincing evidence that these deficiencies have been corrected. Since the Petitioner asserts that the situation is urgent, the request is being treated as one for immediate relief. The Petition also requests that the aforementioned evidence be submitted for review by a competent third party, and that if the NRC finds that licensees may safely operate with UVRs that do not remain properly set, it do so in the context of a public meeting.

The Petition is being treated pursuant to 10 C.F.R. § 2.206 of the Commission's regulations. The Petition has been referred to the Director of Nuclear Reactor Regulation (NRR). As provided by Section 2.206, appropriate action will be taken on this Petition within a reasonable time. By letter dated _____, the Director [granted or denied] Petitioner's request for

immediate relief in the form of suspension of all nuclear power plant operating licenses. A copy of the Petition is available for inspection at the Commission's Public Document Room at 2120 L Street, NW, Washington, D.C. 20555.

FOR THE NUCLEAR REGULATORY COMMISSION

William T. Russell, Director
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland

this ____ day of _____ 1996.