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SAIC-85/1521-4

REVIEW OF LICENSEE AND APPLICANT RESPONSES TO NRC GENERIC LETTER 83-28 (Required Actions Based on Generic Implications of Salem ATWS Events), Item 1.2 "POST-TRIP REVIEW: DATA AND INFORMATION CAPABILITIES" FOR NINE MILE POINT NUCLEAR STATION, UNIT 2 (50-410)

Technical Evaluation Report

Prepared by

Science Applications International Corporation
1710 Goodridge Drive
McLean, Virginia 22102

Prepared for

U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Contract No. NRC-03-82-096

8510170187

FOREWORD

This report contains the technical evaluation of the Nine Mile Point Nuclear Station response to Generic Letter 83-28 (Required Actions Based on Generic Implications of Salem ATWS Events), Item 1.2 "Post Trip Review: Data and Information Capabilities."

For the purposes of this evaluation, the review criteria, presented in part 2 of this report, were divided into five separate categories. These are:

1. The parameters monitored by the sequence of events and the time history recorders,

2. The performance characteristics of the sequence of events recorders,

3. The performance characteristics of the time history recorders,

4. The data output format, and

5. The long-term data retention capability for post-trip review material.

For this plant no information was provided in response to item 1.2 of Generic Letter 83-28.

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INTRODUCTION

SAIC has reviewed the material prepared in response to Generic Letter 83-28. The response (see references) failed to provide any information regarding the post trip review data and information capabilities at this plant.

1. Background

On February 25, 1984, both of the scram circuit breakers at Unit 1 of the Salem Nuclear Power Plant failed to open upon an automatic reactor trip signal from the reactor protection system. This incident occurred during the plant startup and the reactor was tripped manually by the operator about 30 seconds after the initiation of the automatic trip signal. The failure of the circuit breakers has been determined to be related to the sticking of the under voltage trip attachment. Prior to this incident; on February 22, 1983; at Unit 1 of the Salem Nuclear Power Plant an automatic trip signal was generated based on steam generator low-low level during plant startup. In this case the reactor was tripped manually by the operator almost coincidentally with the automatic trip. At that time, because the utility did not have a requirement for the systematic evaluation of the reactor trip, no investigation was performed to determine whether the reactor was tripped automatically as expected or manually. The utilities' written procedures required only that the cause of the trip be determined and identified the responsible personnel that could authorize a restart if the cause of the trip is known. Following the second trip which clearly indicated the problem with the trip breakers, the question was raised on whether the circuit breakers had functioned properly during the earlier incident. The most useful source of information in this case, namely the sequence of events printout which would have indicated whether the reactor was tripped automatically or manually during the February 22 incident, was not retained after the incident. Thus, no judgment on the proper functioning of the trip system during the earlier incident could be made.

Following these incidents; on February 28, 1983; the NRC Executive Director for Operations (EDO), directed the staff to investigate and report on the generic implications of these occurrences at Unit 1 of the Salem Nuclear Power Plant. The results of the staff's inquiry into the generic implications of the Salem Unit incidents is reported in NUREG-1000, "Generic Implications of ATWS Events at the Salem Nuclear Power Plant." Based on the results of this study, a set of required actions were developed and included in Generic Letter 83-28 which was issued on July 8, 1983 and sent to all licensees of operating reactors, applicants for operating license, and construction permit holders. The required actions in this generic letter consist of four categories. These are: (1) Post-Trip Review, (2) Equipment

Classification and Vender Interface, (3) Post Maintenance Testing, and (4) Reactor Trip System Reliability Improvements.

The first required action of the generic letter, Post-Trip Review, is the subject of this TER and consists of action item 1.1 "Program Description and Procedure" and action item 1.2 "Data and Information Capability." In the next section the review criteria used to assess the adequacy of the utilities' responses to the requirements of action item 1.2 will be discussed.

2. Review Criteria

The intent of the Post Trip Review requirements of Generic Letter 83-28 is to ensure that the licensee has adequate procedures and data and information sources to understand the cause(s) and progression of a reactor trip. This understanding should go beyond a simple identification of the course of the event. It should include the capability to determine the root cause of the reactor trip and to determine whether safety limits have been exceeded and if so to what extent. Sufficient information about the reactor trip event should be available so that a decision on the acceptability of a reactor restart can be made.

The following are the review criteria developed for the requirements of Generic Letter 83-28, action item 1.2:

The equipment that provides the digital sequence of events (SOE) record and the analog time history records of an unscheduled shutdown should provide a reliable source of the necessary information to be used in the post trip review. Each plant variable which is necessary to determine the cause(s) and progression of the event(s) following a plant trip should be monitored by at least one recorder [such as a sequence-of-events recorder or a plant process computer for digital parameters; and strip charts, a plant process computer or analog recorder for analog (time history) variables]. Each device used to record an analog or digital plant variable should be described in sufficient detail so that a determination can be made as to whether the following performance characteristics are met:

- Each sequence-of-events recorder should be capable of detecting and recording the sequence of events with a sufficient time discrimination capability to ensure that the time responses associated with each monitored safety-related system can be ascertained, and that a determination can be made as to whether the time response is within acceptable limits based on FSAR Chapter 15 Accident Analyses. The recommended guideline for the SOE time discrimination is approximately 100 msec. If current SOE recorders do not have this time discrimination capability the licensee or applicant should show that the current time discrimination capability is sufficient for an adequate reconstruction of the course of the reactor trip. As a minimum this should include the ability to adequately reconstruct the accident scenarios presented in Chapter 15 of the plant FSAR.

- Each analog time history data recorder should have a sample interval small enough so that the incident can be accurately reconstructed following a reactor trip. As a minimum, the licensee or applicant should be able to reconstruct the course of the accident sequences evaluated in the accident analysis of the plant FSAR (Chapter 15). The recommended guideline for the sample interval is 10 sec. If the time history equipment does not meet this guideline, the licensee or applicant should show that the current time history capability is sufficient to accurately reconstruct the accident sequences presented in Chapter 15 of the FSAR.

- To support the post trip analysis of the cause of the trip and the proper functioning of involved safety related equipment, each analog time history data recorder should be capable of updating and retaining information from approximately five minutes prior to the trip until at least ten minutes after the trip.

- The information gathered by the sequence-of-events and time history data collectors should be stored in a manner that will allow for retrieval and analysis. The data may be retained in either hardcopy (computer printout, strip chart output, etc.) or in an accessible memory (magnetic disc or tape). This information should be presented in a readable and meaningful format, taking

into consideration good human factors practices (such as those outlined in NUREG-0700).

- All equipment used to record sequence of events and time history information should be powered from a reliable and non-interruptible power source. The power source used need not be safety related.

The sequence of events and time history recording equipment should monitor sufficient digital and analog parameters, respectively, to assure that the course of the reactor trip can be reconstructed. The parameters monitored should provide sufficient information to determine the root cause of the reactor trip, the progression of the reactor trip, and the response of the plant parameters and systems to the reactor trip. Specifically, all input parameters associated with reactor trips, safety injections and other safety-related systems as well as output parameters sufficient to record the proper functioning of these systems should be recorded for use in the post trip review. The parameters deemed necessary, as a minimum, to perform a post-trip review (one that would determine if the plant remained within its design envelope) are presented on Tables 1.2-1 and 1.2-2. If the applicants' or licensees' SOE recorders and time history recorders do not monitor all of the parameters suggested in these tables the applicant or licensee should show that the existing set of monitored parameters are sufficient to establish that the plant remained within the design envelope for the appropriate accident conditions; such as those analyzed in Chapter 15 of the plant Safety Analysis Report.

Information gathered during the post trip review is required input for future post trip reviews. Data from all unscheduled shutdowns provides a valuable reference source for the determination of the acceptability of the plant vital parameter and equipment response to future unscheduled shutdowns. It is therefore necessary that information gathered during all post trip reviews be maintained in an accessible manner for the life of the plant.

Table 1.2-1. PWR Parameter List

SOE Recorder	Time History Recorder	Parameter / Signal
x		Reactor Trip
(1) x		Safety Injection
x		Containment Isolation
(1) x		Turbine Trip
x		Control Rod Position
(1) x	x	Neutron Flux, Power
x	x	Containment Pressure
(2)		Containment Radiation
	x	Containment Sump Level
(1) x	x	Primary System Pressure
(1) x	x	Primary System Temperature
(1) x		Pressurizer Level
(1) x		Reactor Coolant Pump Status
(1) x	x	Primary System Flow
(3)		Safety Inj.; Flow, Pump/Valve Status
x		MSIV Position
x	x	Steam Generator Pressure
(1) x	x	Steam Generator Level
(1) x	x	Feedwater Flow
(1) x	x	Steam Flow
(3)		Auxiliary Feedwater System; Flow, Pump/Value Status
x		AC and DC System Status (Bus Voltage)
x		Diesel Generator Status (Start/Stop, On/Off)
x		PORV Position

(1): Trip parameters
(2): Parameter may be monitored by either an SOE or time history recorder.
(3): Acceptable recorder options are: (a) system flow recorded on an SOE recorder, (b) system flow recorded on a time history recorder, or (c) equipment status recorded on an SOE recorder.

Table 1.2-2. BWR Parameter List

SOE Recorder	Time History Recorder	Parameter / Signal
x		Reactor Trip
x		Safety Injection
x		Containment Isolation
x		Turbine Trip
x		Control Rod Position
x (1)	x	Neutron Flux, Power
x (1)		Main Steam Radiation
(2)		Containment (Dry Well) Radiation
x (1)	x	Drywell Pressure (Containment Pressure)
(2)		Suppression Pool Temperature
x (1)	x	Primary System Pressure
x (1)	x	Primary System Level
x		MSIV Position
x (1)		Turbine Stop Valve/Control Valve Position
x		Turbine Bypass Valve Position
	x	Feedwater Flow
	x	Steam Flow
(3)		Recirculation; Flow, Pump Status
x (1)		Scram Discharge Level
x (1)		Condenser Vacuum
x		AC and DC System Status (Bus Voltage)
(3)(4)		Safety Injection; Flow, Pump/Valve Status
x		Diesel Generator Status (On/Off, Start/Stop)

(1): Trip parameters.

(2): Parameter may be recorded by either an SOE or time history recorder.

(3): Acceptable recorder options are: (a) system flow recorded on an SOE recorder, (b) system flow recorded on a time history recorder, or (c) equipment status recorded on an SOE recorder.

(4): Includes recording of parameters for all applicable systems from the following: HPCI, LPCI, LPCS, IC, RCIC.

3. Evaluation

Additional information is needed before an adequate evaluation of the post-trip review data and information capabilities for the plant can be performed. To date, little or no information has been provided in response to action item 1.2 of Generic Letter 83-28.

Any information provided by the licensee should address the evaluation criteria set forth in part 2 of this report. The information should detail how the data and information capabilities at this nuclear power plant fulfill the intent of the evaluation criteria. If current capabilities do not meet the intent of the evaluation criteria, the licensee should either show that the data and information capabilities are sufficient to meet the intent of the evaluation criteria in part 2 of this report or detail future modifications that will enable the licensee to meet these criteria.

REFERENCES

NRC Generic Letter 83-28. "Letter to all licensees of operating reactors, applicants for operating license, and holders of construction permits regarding Required Actions Based on Generic Implications of Salem ATWS Events." July 8, 1983.

NUREG-1000, Generic Implications of ATWS Events at the Salem Nuclear Power Plant, April 1983.

Letter from C.V. Mangan, Niagara Mohawk Power Corporation, to D.G. Eisenhut, NRC, dated September 6, 1983, Accession Number 8309120389 requesting time extension for response to Generic Letter 83-28.

Letter from G.K. Rhode, Niagara Mohawk Power Corporation, to A. Schwencer, NRC, dated April 10, 1984, Accession Number 8404160070, submitting response to Generic Letter 83-28 for Nine Mile Point Unit 2, with attachment.

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LOG NO. L690

SUBJECT: Response to Generic Letter 83-28

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INTERNAL CORRESPONDENCE
FORM 112-2 R 02-80 55-01-013

COPY FOR YOUR INFORMATION

generic letter 83-28

NIAGARA MOHAWK

FROM A. F. Zallnick, Jr.

W. Drews

DISTRICT System

DATE September 27, 1985 FILE CODE

SUBJECT Review of Technical Specifications In Accordance with Generic Letter 83-28

Niagara Mohawk's NMP2 has been requested to perform several reviews of the NMP2 Technical Specifications via Generic Letter 83-28, which concerns the "Required Actions Based on Generic Implications of Salem ATWS Events" (see attached).

Licensing requests that in preparation of the Technical Specifications, you perform these reviews. Please make note that the review of the maintenance procedures will be performed by another group.

If you have any questions, please contact Mr. T. Loomis (X-6168) of my staff.

A. F. Zallnick, Jr.
A. F. Zallnick, Jr.
Manager-Nuclear Licensing

AFZ/rla
0983G
Attachment

xc: R. Randall
S. Nicolaous (NMP1 Site)
K. Korcz
Project File (2)

3.1 POST-MAINTENANCE TESTING (REACTOR TRIP SYSTEM COMPONENTS)

Position

The following actions are applicable to post-maintenance testing:

Tec spec action →

1. Licensees and applicants shall submit the results of their review of test and maintenance procedures and Technical Specifications to assure that post-maintenance operability testing of safety-related components in the reactor trip system is required to be conducted and that the testing demonstrates that the equipment is capable of performing its safety functions before being returned to service.

Tec Spec action →

2. Licensees and applicants shall submit the results of their check of vendor and engineering recommendations to ensure that any appropriate test guidance is included in the test and maintenance procedures or the Technical Specifications, where required.

Tec. Spec Action →

3. Licensees and applicants shall identify, if applicable, any post-maintenance test requirements in existing Technical Specifications which can be demonstrated to degrade rather than enhance safety. Appropriate changes to these test requirements, with supporting justification, shall be submitted for staff approval. (Note that action 4.5 discusses on-line system functional testing.)

Applicability

This action applies to all licensees and OL applicants.

Type of Review

For licensees, a post-implementation review will be conducted for actions 3.1.1 and 3.1.2 above. The Regions will perform these licensing reviews and issue Safety Evaluations. Proposed Technical Specification changes resulting from action 3.1.3 above will receive a pre-implementation review by NRR.

For OL applicants, the review will be performed consistent with the licensing schedule.

Documentation Required

Licensees and applicants should submit a statement confirming that actions 3.1.1 and 3.1.2 of the above position have been implemented.

Technical Specification Changes Required

Changes to Technical Specifications, as a result of action 3.1.3, are to be determined by the licensee or applicant and submitted for staff approval, as necessary.

Reference

Section 2.3.4 of NUREG-1000.

3.2 POST-MAINTENANCE TESTING (ALL OTHER SAFETY-RELATED COMPONENTS)

Position

The following actions are applicable to post-maintenance testing:

Tec Spec Action

1. Licensees and applicants shall submit a report documenting the extending of test and maintenance procedures and Technical Specifications review to assure that post-maintenance operability testing of all safety-related equipment is required to be conducted and that the testing demonstrates that the equipment is capable of performing its safety functions before being returned to service.

Tec Spec Action

2. Licensees and applicants shall submit the results of their check of vendor and engineering recommendations to ensure that any appropriate test guidance is included in the test and maintenance procedures or the Technical Specifications where required.

T. Spec Action

3. Licensees and applicants shall identify, if applicable, any post-maintenance test requirements in existing Technical Specifications which are perceived to degrade rather than enhance safety. Appropriate changes to these test requirements, with supporting justification, shall be submitted for staff approval.

Applicability

This action applies to all licensees and OL applicants.

Type of Review

For licensees, a post-implementation review will be conducted for actions 3.2.1 and 3.2.2 above. The Regions will perform these licensing reviews and issue Safety Evaluations. Proposed Technical Specification changes resulting from action 3.2.3 above will receive a pre-implementation review by NRR.

For OL applicants, the review will be performed consistent with the licensing schedule.

Documentation Required

Licensees and applicants should submit a statement confirming that actions 3.2.1 and 3.2.2 of the above position have been implemented.

Technical Specification Changes Required

Changes to Technical Specifications, as a result of action 3.2.3, are to be determined by the licensee or applicant for staff approval, as necessary.

Reference

Section [illegible] of NUREG-1000.

4.5 REACTOR TRIP SYSTEM RELIABILITY (SYSTEM FUNCTIONAL TESTING)

Position

No longer required

~~On-line functional testing of the reactor trip system, including independent testing of the diverse trip features, shall be performed on all plants.~~

No longer required

1. The diverse trip features to be tested include the breaker undervoltage and shunt trip features on Westinghouse, B&W (see Action 4.3 above) and CE plants; the circuitry used for power interruption with the silicon controlled rectifiers on B&W plants (see Action 4.4 above); and the scram pilot valve and backup scram valves (including all initiating circuitry) on GE plants.

No longer required

2. Plants not currently designed to permit periodic on-line testing shall justify not making modifications to permit such testing. Alternatives to on-line testing proposed by licensees will be considered where special circumstances exist and where the objective of high reliability can be met in another way.

Tech Spec Action Required

See additional note at the end

3. Existing intervals for on-line functional testing required by Technical Specifications shall be reviewed to determine that the intervals are consistent with achieving high reactor trip system availability when accounting for considerations such as:

   1. uncertainties in component failure rates
   2. uncertainty in common mode failure rates
   3. reduced redundancy during testing
   4. operator errors during testing
   5. component "wear-out" caused by the testing

   Licensees currently not performing periodic on-line testing shall determine appropriate test intervals as described above. Changes to existing required intervals for on-line testing as well as the intervals to be determined by licensees currently not performing on-line testing shall be justified by information on the sensitivity of reactor trip system availability to parameters such as the test intervals, component failure rates, and common mode failure rates.

Applicablity

This action applies to all licensees and OL applicants.

Type of Review

For licensees, a post-implementation review will be conducted for action 4.5.1. The Regions will perform these licensing reviews and issue Safety Evaluations. Actions 4.5.2 and 4.5.3 will require a pre-implementation review by NRR. Results will be issued in a Safety Evaluation.

For OL applicants, the NRR review should be performed consistent with the licensing schedule.

Documentation Required

For item 4.5.1, licensees and applicants should submit a statement confirming that this action has been implemented.

For item 4.5.2, licensees and applicants should submit a report describing the modifications for staff review.

For item 4.5.3, licensees and applicants should submit proposed Technical Specification changes for staff review.

Technical Specification Changes Required

For licensees, Technical Specification changes are required.

For OL applicants, Technical Specifications will be incorporated as part of the license.

Reference

Section 3 of NUREG-1000.

(The staff finds that modifications are not required to permit on-line testing of the backup scram valves. However, the staff concludes that testing of the backup scram valves (including initiating circuitry) at a refueling outage frequency, in lieu of on-line testing, is appropriate and should be included in the technical specification surveillance requirements. The licensee needs to address this conclusion.)

Additional note

INTERNAL CORRESPONDENCE
FORM 112-2 R 02-80 55-01-013

FILE COPY 0 7 7 4 9 0 7 9 4

Generic LB 83-28

NIAGARA MOHAWK

FROM A. F. Zallnick, Jr.

T H. Barrett

DISTRICT Syracuse

DATE May 16, 1985

FILE CODE

SUBJECT Generic Letter 83-28

Attached is a tentative list of actions and identified individuals responsible for closing the Generic Letter 83-28 concerns. Licensing requests that you review this list and provide comments and a schedule for closure of your items by May 24, 1985.

Due to a recent request by the NRC Project Manager for a schedule for completion of the 83-28 concerns, your immediate attention is requested.

A. F. Zallnick, Jr.
Manager - Nuclear Licensing

AFZ/TL:ja
Attachment

Project File (2)

REQUIRED ACTIONS BASED ON GENERIC IMPLICATIONS OF SALEM ATWS EVENTS

1.1 POST-TRIP REVIEW (PROGRAM DESCRIPTION AND PROCEDURE)

Position

Licensee and applicants shall describe their program for ensuring that unscheduled reactor shutdowns are analyzed and that a determination is made that the plant can be restarted safety.

Action

a. Describe administrative controls relating to post-trip review and revise as necessary to meet the intent of the requirement.

R. Randall

A report describing the program for review and analysis of such unscheduled reactor shutdowns should include, as a minimum:

1. The criteria for determining the acceptability of restart.

Action

Refer (again) to the above procedures and revise as necessary.

R Randal

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2. The responsibilities and authorities of personnel who will perform the review and analysis of these events.

R. Randal

Action

Refer to Administrative Procedures (NMP1 uses AP1.2, Conduct of Operations and Composition and Responsibilities of Station or Unit Organization and AP1.1, Composition and Responsibilities of Site Organization). Review and revise the procedures as necessary.

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3. The necessary qualifications and training for the responsible personnel.

Action

R. Randal

Refer to ANSI/ANS 3.1-1981 and describe the qualifications of the on-shift (responsible) personnel. Review and revise procedures as necessary.

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4. The sources of plant information necessary to conduct the review and analysis. The sources of information should include the measures and equipment that provide the necessary detail and type of information to reconstruct the event accurately and in sufficient detail for proper understanding. (See Action 1.2)

Action

Refer to plant procedures (Unit 1 action did not revise and procedures) R. Randal

5. The methods and criteria for comparing the event information with known or expected plant behavior (e.g., that safety-related equipment operates as required by the Technical Specifications or other performance specifications related to the safety function). R. Randal

Action

Refer to plant procedures which clarify the methods and criteria for comparing plant behavior (Unit 1 is revising Reactor Analyst Procedure N1-RAP-6). The procedures may need revision to meet the intent of this requirement.

6. The criteria for determining the need for independent assessment of an event (e.g., a case in which the cause of the event cannot be positively identified, a competent group such as the Plant Operations Review Committee, will be consulted prior to authorizing restart) and guidelines on the preservation of physical evidence (both hardaware and software) to support independent analysis of the event. R. Randal

Action

Refer to administrative procedures (NMP1 uses Reactor Analyst Procedure N1-RAP-6 and/or the scram report and/or startup checkoff sheets). NMP1 Administrative Procedure ANP-3 was revised to specifically address the conditions which would constitute an independent assessment.

1.2 POST-TRIP REVIEW - DATA AND INFORMATION CAPABILITY

Position

Licensees and applicants shall have or have planned a capability to record, recall and display data and information to permit diagnosing the causes of unscheduled reactor shutdowns prior to restart and for ascertaining the proper functioning of safety-related equipment.

Adequate data and information shall be provided to correctly diagnose the cause of unscheduled reactor shutdowns and the proper functioning of safety-related equipment during these events using systematic safety assessment procedures (Action 1.1). The data and information shall be displayed in a form that permits ease of assimilation and analysis by persons trained in the use of systematic safety assessment procedures.

A report shall be prepared which describes and justifies the adequacy of equipment for diagnosing an unscheduled reactor shutdown. The report shall describe, as a minimum:

1. Capability for assessing sequence of events (on-off indications)

   1) Brief description of equipment (e.g., plant computer, dedicated computer, strip chart)

   2) Parameters monitored

   3) Time discrimination between events

   4) Format for displaying data and information

   5) Capability for retention of data and information

   6) Power source(s) (e.g., Class 1E, non-Class 1E, noninterruptible)

2. Capability for assessing the time history of analog variables needed to determine the cause of unscheduled reactor shutdowns and the functioning of safety-related equipment.

   1) Brief description of equipment (e.g., plant computer, dedicated computer, strip charts)

   2) Parameters monitored, sampling rate and basis for selecting parameters and sampling rate

   3) Duration of time history (minutes before trip and minutes after trip)

   4) Format for displaying data including scale (readability) of time histories.

   5) Capability for retention of data, information and physical evidence (both hardware and software)

   6) Power source(s) (e.g., Class 1E, non-Class 1E, noninterruptible)

3. Other data and information provided to assess the cause of unscheduled reactor shutdowns.

4. Schedule for any planned changes to existing data and information capability.

<u>Action</u>

The response should be in a description format and relatively brief. The only item which could cause a problem would be item 1.2.4. See the NMP1 response.

J. Spadafore

2.1 EQUIPMENT CLASSIFICATION AND VENDOR INTERFACE (REACTOR TRIP SYSTEM COMPONENTS)

Position

Licensees and applicants shall confirm that all components whose functioning is required to trip the reactor are identified as safety-related on documents, procedures and information handling system used in the plant to control safety-related activities, including maintenance, work orders and parts replacement. In addition, for these components, licensees and applicants shall establish, implement and maintain a continuing program to ensure that vendor information is complete, current and controlled throughout the life of the plant, and appropriately referenced or incorporated in plant instructions and procedures. Vendors of these components should be contacted and an interface established. Where vendors cannot be identified, have gone out of business, or will not supply the information, the licensee or applicant shall assure that sufficient attention is paid to equipment maintenance, replacement and repair to compensate for the lack of vendor backup to assure reactor trip system reliability. The vendor interface program shall include periodic communication with vendors to assure that all applicable information has been received. The program should use a system of positive feedback with vendors for mailings containing technical information. This could be accomplished by licensee acknowledgement for receipt of technical mailings. The program shall also define the interface and division of responsibilities among the licensees and the nuclear and nonnuclear divisions of their vendors that provide service on reactor trip system components to assure that requisite control of and applicable instructions for maintenance work are provided.

Documentation Required

Licensees and applicants should submit a statement confirming that they have reviewed the Reactor Trip System components and conform to the position regarding equipment classification. In addition, a summary report describing the vendor interface program shall be submitted for staff review. Vendor lists of technical information, and the technical information itself, shall be available for inspection at each reactor site.

Actions

a. Review maintenance procedures to ensure that RTS components in various systems are identified as SR (Unit 1 action).	R. Randal
b. Review Q-List to ensure that all RTS components are identified as SR (Unit 1 action).	R. Randal
c. Ensure that work requests and other "work assigning" documents contain classification information. Identify other documents and parties that identify correct classification.	R. Randal
d. Review all SILs, SALs, TILs, PERs to ensure that they have been incorporated into the plant equipment. In addition, review Bulletins, Circulars, Notices, Significant Event Reports, Significant Operating Experience Reports to determine their effect on the RTS.	R. Randal

e. Ensure "technical manuals" are up to date and complete.	D. Sandwick
f. Review maintenance procedures to ensure that the "control copy" technical manual is referenced or incorporated in the maintenance procedures.	R. Randal
g. Evaluate General Electric's method of classifying equipment and revise engineering procedures, if appropriate.	R. Randal
h. Obtain information on General Electric's information programs. This information can be submitted to the NRC to demonstrate our review of the programs.	T Loomis
i. Evaluate BWR Owners Group options pertaining to the reactor trip system. (The Unit 1 conclusion can be duplicated in our response.)	R. Randal
2.2 EQUIPMENT CLASSIFICATION AND VENDOR INTERFACE (PROGRAMS FOR ALL SAFETY-RELATED COMPONENTS) <u>Position</u> Licensees and applicants shall submit, for staff review, a description of their programs for safety-related equipment classification and vendor interface as described below: 1. For equipment classification, licensees and applicants shall describe their program for ensuring that all components of safety-related systems necessary for accomplishing required safety functions are identified as safety-related on documents, procedures and information handling systems used in the plant to control safety-related activities, including maintenance, work orders and replacement parts. <u>Actions</u> Identify more administrative procedures for handling the Q-List. (This is in addition to our previous response.)	T. Loomis
1. The criteria for identifying components as safety-related within systems currently classified as safety-related. This shall <u>not</u> be interpreted to require changes in safety classification at the systems level. <u>Action</u> In addition to what was previously submitted, submit administrative procedure names.	T, Loomis
2. A description of the information handling system used to identify safety-related components (e.g., computerized equipment list) and the methods used for its development and validation.	T Loomis + R. Randal

Action

Again, submit procedure names.

3. A description of the process by which station personnel use this information handling system to determine that an activity is safety-related and what procedures for maintenance, surveillance, parts replacement and other activities defined in the introduction to 10 CFR 50, Appendix B, apply to safety-related components.

Action

Describe the process of determining if an activity is safety related. This description should include the role of the shift supervisor, QA department reviews and any administrative procedures governing this function (Unit 1 response).

T Loomis + R. Randal

4. A description of the management controls utilized to verify that the procedures for preparation, validation and routine utilization of the information handling system have been followed.

Action

Previous NMP2 response should suffice.

T Loomis + R. Randal

5. A demonstration that appropriate design verification and qualification testing is specified for procurement of safety-related components. The specifications shall include qualification testing for expected safety service conditions and provide support for the licensees' receipt of testing documentation to support the limits of life recommended by the supplier.

Action

Describe engineering procedures which govern design control and design verification. In addition, state the engineering procedure which controls procurement activities.

T Loomis + R. Randal

6. Licensees and applicants need only to submit for staff review the equipment classification program for safety-related components. Although not required to be submitted for staff review, your equipment classification program should also include the broader class of structures, systems and components important to safety required by GDC-1 (defined in 10 CFR Part 50, Appendix A, "General Design Criteria, Introduction").

Action

Response provided. No additional information is needed.

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2. For vendor interface, licensees and applicants shall establish, implement and maintain a continuing program to ensure that vendor information for safety-related components is complete, current and controlled throughout the life of their plants and appropriately referenced or incorporated in plant instructions and procedures. Vendors of safety-related equipment should be contacted and an interface established. Where vendors cannot be identified, have gone out of business, or will not supply information, the licensee or applicant shall assure that sufficient attention is paid to equipment maintenance, replacement and repair to compensate for the lack of vendor backup to assure reliability commensurate with its safety function (GDC-1). The program shall be closely coupled with action 2.2.1 above (equipment qualification). The program shall include periodic communication with vendors to assure that all applicable information has been received. The program should use a system of positive feedback with vendors for mailings containing technical information. This could be accomplished by licensee acknowledgment for receipt of technical mailings. It shall also define the interface and division of responsibilities among the licensee and the nuclear and nonnuclear divisions of their vendors that provide service on safety-related equipment to assure that requisite control of and applicable instructions for maintenance work on safety-related equipment are provided.

T Loomis

Action

The previous response submitted by NMP1 can be duplicated for NMP2; however, the response was rejected by the NRC. Additional industry action is warranted.

3.1 POST-MAINTENANCE TESTING (REACTOR TRIP SYSTEM COMPONENTS)

Position

The following actions are applicable to post-maintenance testing:

1. Licensees and applicants shall submit the results of their review of test and maintenance procedures and Technical Specifications to assure that post-maintenance operability testing of safety-related components in the reactor trip system is required to be conducted and that the testing demonstrates that the equipment is capable of performing its safety functions before being returned to service.

Action

a. Review the Tech. Specs. with respect to post-maintenance testing for reactor trip components. R. Randal

b. Review I&C Department Procedures (?) with respect to post-maintenance testing for reactor trip components. R. Randal

c. Review maintenance procedures with respect to post-maintenance testing for reactor trip components. R Randal

2. Licensees and applicants shall submit the results of their check of vendor and engineering recommendations to ensure that any appropriate test guidance is included in the test and maintenance procedures or the Technical Specifications, where required.

Action

Review all SILs and ensure that they are incorporated in procedures. R. Randal

3. Licensees and applicants shall identify, if applicable, any post-maintenance test requirements in existing Technical Specifications which can be demonstrated to degrade rather than enhance safety. Appropriate changes to these test requirements, with supporting justification, shall be submitted for staff approval. (Note that action 4.5 discusses on-line system functional testing.) R. Randal

Action

Review Tech. Specs. and state results.

3.2 POST-MAINTENANCE TESTING (ALL OTHER SAFETY-RELATED COMPONENTS)

Position

The following actions are applicable to post-maintenance testing:

1. Licensees and applicants shall submit a report documenting the extending of test and maintenance procedures and Technical Specifications review to assure that post-maintenance operability testing of all safety-related equipment is required to be conducted and that the testing demonstrates that the equipment is capable of performing its safety functions before being returned to service.

2. Licensees and applicants shall submit the results of their check of vendor and engineering recommendations to ensure that any appropriate test guidance is included in the test and maintenance procedures or the Technical Specifications, where required.

3. Licensees and applicants shall identify, if applicable, any post-maintenance test requirements in existing Technical Specifications which are perceived to degrade rather than enhance safety. Appropriate changes to these test requirements, with supporting justification, shall be submitted for staff approval.

Action

Perform the same reviews as those performed in item 3.1, except for safety-related components. R. Randal

4.5 REACTOR TRIP SYSTEM RELIABILITY (SYSTEM FUNCTIONAL TESTING

Position

On-line functional testing of the reactor trip system, including independent testing of the diverse trip features, shall be performed on all plants.

1. The diverse trip features to be tested include the breaker undervoltage and shunt trip features on Westinghouse, B&W (see Action 4.3 above) and CE plants; the circuitry used for power interruption with the silicon controlled rectifiers on B&W plants (see Action 4.4 above); and the scram pilot valve and backup and scram valves (including all initiating circuitry) on GE plants.

R. Randal

Action

State the NMP2 position for on-line functional testing of the scram pilot valve and backup scram valves.

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2. Plants not currently designed to permit periodic on-line testing shall justify not making modifications to permit such testing. Alternatives to on-line testing proposed by licensees will be considered where special circumstances exist and where the objective of high reliability can be met in another way.

R. Randal

Action

Refer to above action for 4.5.1.

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3. Existing intervals for on-line functional testing required by Technical Specifications shall be reviewed to determine that the intervals are consistent with achieving high reactor trip system availability when accounting for considerations such as:

   1) uncertainties in component failure rates
   2) uncertainty in common mode failure rates
   3) reduced redundancy during testing
   4) operator errors during testing
   5) component "wear-out" caused by the testing

   Licensees currently not performing periodic on-line testing shall determine appropriate test intervals as described above. Changes to existing required intervals for on-line testing as well as the intervals to be determined by licensees currently not performing on-line testing shall be justified by information on the sensitivity of reactor trip system availability to parameters such as the test intervals, component failure rates and common mode failure rates.

0 7 7 4 9 0 8 0 4

Action

a. The Tech. Specs. will be reviewed for the above concerns. The staff's new position is that backup scram valves should be tested during a refueling outage. R. Randall

b. A response similar to Unit 1's should be prepared.

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Generic LB 83-28

INTERNAL CORRESPONDENCE
FORM 112-2 R 02-80 55-01-013

NIAGARA MOHAWK

FROM A. F. Zallnick, Jr.
TO Mr. C. V. Mangan

DISTRICT Syracuse
DATE April 26, 1985 FILE CODE
SUBJECT NMP2 Response to Generic Letter 83-28

Attachment 1 is a March 19, 1985 letter to NMPC requesting additional information on our previous response to Generic Letter 83-28. A response is requested by May 19, 1985. In review of this letter, many of the NRC questions are not applicable to the previous NMP2 response (Attachment 2). In addition, information needed to respond to the questions that do pertain to NMP2 will not be gathered in time for the May date. After conferring with another utility, it appears that some of the questions are "boiler-plate" questions forwarded to many utilities. It is our recommendation that a short letter which states, in part, that a response to the concerns stated in Generic Letter 83-28 will be submitted prior to startup.

Regardless of the interim letter, it is obvious that a significant amount of work must be completed by startup to avoid a licensing condition attached to the NMP2 license. It is conceivable that failure to address many of the 83-28 concerns could be detrimental towards granting an operating license to NMP2. Licensing requests that an individual in the NMP2 Operations Department be assigned the responsibility of addressing the concerns of 83-28 on an expeditious basis.

A. F. Zallnick, Jr.

AFZ/TL:ja
xc: R. Randall
T. E. Lempges
R. B. Abbott
Project File (2)