

DEC 21 1977

Robert M. Lazo, Esq., Chairman
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. Richard F. Cole
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. Walter H. Jordan
881 West Outer Drive
Oak Ridge, Tennessee 37830

In the Matter of
Northern States Power Company
MONTICELLO NUCLEAR GENERATING PLANT, Unit No. 1
Docket No. 50-263

Gentlemen:

Enclosed for your information is a copy of a letter from Mr. Robert Pollard to the Honorable Griffin Bell, dated October 13, 1977, which raises two specific technical issues. The NRC Staff is furnishing this letter to all hearing boards.

The first issue deals with the adequacy of the off-site electrical power system reliability for the Turkey Point Units 3 and 4 and St. Lucie Units 1 and 2 nuclear power facilities. Although this issue raised by Mr. Pollard is not directly relevant to this proceeding, the generic aspects of the issue of off-site electrical power have been discussed in Staff reports issued in November and December 1976 (copies enclosed). */ Information related to this particular issue is contained in issues 9, 10, and 24 of these documents, and in Section 3.6.3 of the SER for the issuance of the provisional operating license (POL) (Exh. 3 in this proceeding). The Staff is of the opinion that its analyses of these generic issues are not changed by the allegations contained in Mr. Pollard's letter and these allegations should not affect the conversion of Monticello's POL.

*/ These documents are NUREG-0138, "Staff Discussion of Fifteen Technical Issues Listed in Attachment to November 3, 1976 Memorandum from Director, NRR to NRR Staff," and NUREG-0153, "Staff Discussion of Twelve Additional Technical Issues Raised by Responses to November 3, 1976 Memorandum from Director, NRR to NRR Staff."

The second technical issue raised in Mr. Pollard's letter deals with an occurrence at the Zion facility of the Commonwealth Edison Company in July 1977 and the related question of the adequacy of separation criteria for reactor protection and control systems. Mr. Pollard included copies of several NRC documents on this issue, but specifically discusses in his letter only the August 18, 1977 memorandum from Dr. Hanauer, Technical Advisor to the Executive Director for Operations, to Mr. Case, Acting Director, Office of Nuclear Reaction Regulation. As discussed in the memorandum dated September 23, 1977 from Mr. Case to Dr. Hanauer, it is the Staff's view that the existing NRC regulations and related licensing criteria for the design, testing and operation of protection and control systems are adequate to assure continued safe operation of operating reactors and that there is no immediate need to modify our current criteria. As that memorandum notes, the issue of separation of control and protection systems is a longstanding one which has had considerable discussion within the nuclear industry over the years. Subsequently, Dr. Hanauer wrote to Mr. Case on September 28, 1977 and indicated that the NRC actions with regard to these matters which were described in an attachment to Mr. Case's September 23, 1977 memo ". . . are appropriate as to scope and timing." Dr. Hanauer also wrote to Mr. Pollard on September 23, 1977. A copy of this material as well as some additional material is contained in the attachment to Mr. Pollard's letter to Mr. Bell.

The Staff is continuing to evaluate systems interactions, including those between protection and control systems, in conjunction with the Staff's technical activities program. The Staff is presently in the process of developing a task action plan to deal with this issue. However, as indicated in Mr. Case's response of September 23, 1977 to Dr. Hanauer, the Staff believes that existing licensing criteria for protection and control systems assure adequate protection against undesirable systems interaction, and that protection and control systems designed to meet these criteria assure the continued safe operation of operating facilities. For the foregoing reasons, the Staff does not believe that this matter should affect the conversion of the Monticello POL.

Sincerely,

Stephen H. Lewis
Counsel for NRC Staff

cc w/enclosure

Edward Luton, Esq.
Gerald Charnoff, Esq.
Arthur Renquist, Esq.
Mr. Russell H. Hatling
Mr. Steve J. Gadler
Jocelyn F. Olson, Esq.
Mr. Ken Dzugan

cc w/o enclosure

Atomic Safety and Licensing
Board Panel
Atomic Safety and Licensing
Appeal Board
Docketing and Service Section

NRC Central File
OELD FF (2)
Shapar/Engelhardt/Grossman
Scinto
BHSmith
SHLewis
Browne
MKarman
Chron
LPDR
HSmith, 110 Phil. Bldg.
SBajwa, P-522
RSnaider, 314 Phil. Bldg.

OFFICE	OELD	DOR	OELD		
SURNAME	SHLewis: jcl	DSnaider	RCBrowne		
DATE	12/15/77	12/20/77	12/20/77		



UNION OF CONCERNED SCIENTISTS

The Honorable Griffin Bell
Attorney General of the United States
Department of Justice
Washington, D.C. 20530

October 13, 1977

Dear Mr. Bell:

The Department of Justice recently released a memorandum concerning its investigation of the federal licensing process in the case of the North Anna nuclear power plants under construction in Virginia. The decision that Virginia Electric Power Company could not be successfully prosecuted was based largely on the conduct of the Atomic Energy Commission (AEC). It is our belief that AEC actions with respect to North Anna were part of a more widespread pattern of misconduct and that such abuses continue today under the Nuclear Regulatory Commission (NRC). We recommend that you extend your investigation to include AEC and NRC conduct in licensing other plants now operating and under construction.

In a memorandum dated May 11, 1977, Mr. Bradford F. Whitman of your department indicated that the actions of the Commission in the North Anna case "...in their best light can be characterized as ill-considered and inept, and perhaps more realistically, as demonstrating a pervasive bias against the public scrutiny which a project of this importance deserves and is entitled to under federal law". Mr. Peter Taft, also of your office, reached a similar conclusion in his memorandum of November 14, 1975: "...I find the AEC supervision in an area affecting potentially millions of lives as bordering on criminal negligence". These conclusions might equally well apply to other actions taken by the AEC and NRC. We have included for your perusal two other instances where it appears the agency acted to suppress information concerning safety hazards at nuclear power plants.

The first example concerns AEC actions with respect to nuclear plants in Florida. In 1973 and 1974, the Turkey Point nuclear plants experienced a loss of off-site electric power as a result of a number of system disturbances on the Florida power grid. (Although reactors are equipped with emergency generating equipment, off-site electrical power is the preferred source of energy to operate a nuclear plant's safety systems following an accident. AEC/NRC regulations specify that a reliable off-site power system is necessary to adequately protect the public.) Initial AEC investigations determined that the instability in the power network may have been experienced further north and could very well involve the St. Lucie site, where other nuclear plants were being built. The AEC staff and Dr. Robert Uhrig, Vice President of Florida Power and Light Company were concerned that the investigation could affect the upcoming contested hearings on the St. Lucie plants.

The AEC staff therefore sought to restrict the investigation to the Turkey Point plants. They appear to have been successful because the St. Lucie safety evaluation report made public in November, 1974, made no mention of the grid stability problems. On May 12, 1977, the St. Lucie Unit I plant experienced a loss of off-site power caused by a grid disturbance.

The second example involves recent actions of the NRC staff. An incident which occurred at the Zion nuclear plant near Chicago on July 12, 1977, provided the latest evidence of a design defect in Westinghouse-designed nuclear power plants. Plant personnel disabled a control system which resulted in water being drained from the reactor cooling system. The same action also disabled all the automatic protection systems capable of detecting this loss of water. If the rate of water loss had been higher or the operator reaction time slower, an accident of serious dimensions could have resulted. This event prompted Dr. Stephen Hanauer, technical advisor to the Executive Director of Operations, to write a memorandum expressing his belief that Westinghouse-designed plants are unsafe. Although Dr. Hanauer apparently held this belief for years, it seems that these views were not expressed to licensing boards or the public before I obtained a copy of Dr. Hanauer's internal memorandum. Even though the public is now informed, the enclosed documents suggest that NRC plans no substantive action to eliminate this safety hazard in the near future.

The foregoing are but two examples of a multitude of instances where the agency's conduct appears to be contrary to the public interest. We therefore recommend that the Department of Justice conduct a wide-ranging investigation to identify and correct deficiencies in the NRC's licensing process. Over the last several years the Union of Concerned Scientists has conducted extensive investigations of AEC/NRC actions. I resigned my position with the NRC because I could no longer participate in an agency that is so effective in evading its sole responsibility - to protect the health and safety of the public. Since my resignation I have worked with UCS in efforts to correct deficiencies in the current licensing process. We are able and willing to assist your department in the investigation we recommend.

Sincerely,



Robert D. Pollard

Enclosures:

- 1) Documents relating to St. Lucie.
- 2) Documents relating to Zion.

Enclosure I

DOCUMENTS RELATED TO ST. LUCIE



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

AUG 14 1974

Docket Nos. 50-535
and 50-389

J. Ippolito

Tombi

Handwritten notes and signatures, including "copy to..." and "copy to..."

A. Giambusso, Deputy Director for Reactor Projects, L
THRU: R. C. DeYoung, Assistant Director for Light Water Reactors Group 1, L

ELECTRICAL GRID STABILITY IN STATE OF FLORIDA

I understand that Mr. Muntzing has requested the staff to investigate electrical grid problems that have been experienced by Florida Power and Light Company (FP&L), including those affecting Turkey Point 3 and 4. The EI&CS Branch will be conducting the investigation under the direction of Vic Stello and has made initial contacts with FP&L. It is not clear as to the extent of the instability; however, there is reason to believe that it may have been experienced further north. The investigation could very well involve the St. Lucie site. This concerns us as our St. Lucie 1 (OL) and St. Lucie 2 (CP) reviews are nearing completion and we have a contested LWA-1 and LWA-2 hearing scheduled to begin on October 15, 1974. OGC suggests and we concur that if the St. Lucie site becomes involved, the St. Lucie 2 intervenor should be notified of subsequent meetings and that the establishment of the ongoing investigation should be noted in the St. Lucie 1/2 SERs. We would like to restrict the investigation to Turkey Point 3 and 4 if at all possible.

Dr. Robert Uhrig, Vice President of FP&L, has expressed concern as to the scope and direction of the investigation as he is also concerned with the St. Lucie hearing. He noted that even though only FP&L will be involved initially, other Florida utilities could become involved and possibly other regions. The Florida Power Corporation is of particular interest due to its interties with FP&L and Georgia Power. An interface with the Federal Power Commission interests could also evolve. Dr. Uhrig suggested that there are published reports which discuss the FP&L grid stability and that perhaps the staff might wish to become familiar with this information before meeting with FP&L.

AUG 14 1974

Based on the above, I would like to suggest the following two steps:

1. That Mr. Muntzing be made aware of our concern with regard to the St. Lucie hearing and of our desire to restrict the EI&CS investigation to Turkey Point 3 and 4.
2. That the EI&CS Branch review the available information with regard to FP&L grid instability before meeting with FP&L.

Olan D. Parr
Olan D. Parr, Chief
Light Water Reactors
Project Branch 1-3
Directorate of Licensing

cc: E. G. Case
R. S. Boyd
F. Schroeder
V. Stello
V. Moore
K. Goller
T. Ippolito
C. Miller
P. Seiffert

From AEC Safety Evaluation Report for
St. Lucie Nuclear Plant - November 1974

8-1

8.0 ELECTRIC POWER

8.1 General

The Commission's General Design Criteria 17 and 18, Regulatory Guides 1.5, 1.9, 1.32 and IEEE Standards including IEEE Std 303-1970, "Criteria for Nuclear Power Generating Stations," were utilized for evaluating the acceptability of the electric power system.

8.2 Offsite Power System

St. Lucie Unit 1 connects into the existing Florida Power and Light Company 240 kV grid at the St. Lucie Switching Station which is located five miles from the plant. Three parallel 240 kV circuits connect the switching station to the station switchyard. Any two of the three 240 kV circuits are adequate to transmit the total output of approximately 1600 MWe from St. Lucie Unit 1 and the proposed St. Lucie Unit 2. The switchyard will be common to St. Lucie Unit 1 and Unit 2.

The applicant states that the three single 240 kV lines from the plant to the far side of Indian River were designed to withstand hurricane winds of 150 mph. Spacing between the transmission towers is such that the failure or collapse of one structure cannot affect any other line. The plant switchyard will be protected from flooding during the Probable Maximum Hurricane. Protective relaying is provided for the switchyard and the transmission lines. The results of the system stability analysis demonstrate that the loss of St. Lucie Unit 1 or the largest generating

unit on the system including St. Lucie Unit 1 will not negate the ability to provide offsite power to the Unit 1 Engineered Safety Features (ESF) loads.

Two circuits connect the plant a-c distribution system to the station switchyard through separate start-up transformers. The start-up transformers transform the 240 kV to 4.16 kV to feed the 4.16 kV ESF system. Each transformer is rated to provide one-half the plant start-up loads which well exceeds the safe shutdown and accident requirements. For normal plant operation power is taken from the station generator through auxiliary transformers. On unit trip the station loads are automatically transferred to the start-up transformers for power feed from the offsite source.

The system design provides the capability for testing the offsite power system components including the transfer of power between the nuclear power units, the offsite power system and the onsite power system.

We conclude that the offsite power system design, with the satisfactory implementation of the physical separation requirements between the control circuits for the switchyard breakers discussed in Section 7.9, satisfy the requirements of AEC General Design Criterion 17 and 18 and Regulatory Guide 1.32 and is acceptable.

8.3 Onsite Power System

8.3.1 A-C Power System

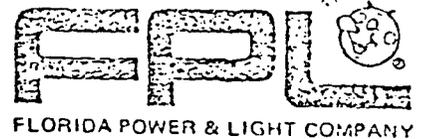
The a-c emergency onsite power system for St. Lucie Unit 1 is

RECEIVED

1977 JUL 21 AM 9:05

OFFICE OF THE SECRETARY
D.C.

P. O. BOX 013100, MIAMI, FL 33101



June 16, 1977

PRN-LI-77-188

*Washington PDR
50-335*

Mr. Norman C. Moseley, Director, Region II
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
230 Peachtree Street, N. W., Suite 1217
Atlanta, Georgia 30303

Dear Mr. Moseley:

REPORTABLE OCCURRENCE 335-77-26
ST. LUCIE UNIT 1
DATE OF OCCURRENCE: MAY 16, 1977

OFF-SITE POWER

The attached Licensee Event Report is being submitted in accordance with Technical Specification 6.9 to provide 30-day notification of the subject occurrence.

Very truly yours,


A. D. Schmidt
Vice President
Power Resources

MAS/cpc

Attachment

cc: Robert Lowenstein, Esquire
Director, Office of Inspection and Enforcement (30)
Director, Office of Management Information and
Program Control (3)

NAME					LICENSE NUMBER					LICENSE TYPE					EVENT TYPE										
1	F	I	S	L	S	1	0	0	-	0	0	0	0	0	-	0	0	4	1	1	1	1	1	0	3
8	9				14	15											25	26				30	31	32	

CATEGORY		REPORT TYPE	REPORT SOURCE	DOCKET NUMBER					EVENT DATE					REPORT DATE										
1	CONT		L	L	0	5	0	-	0	3	3	5	0	5	1	6	7	7	0	6	1	6	7	7
8		57	58	59	60	61				68	69							74	75					80

EVENT DESCRIPTION

Approximately 15 minutes following a manual reactor trip due to grid disturbances, a system undervoltage condition occurred with the subsequent loss of all four reactor coolant pumps (RCP's). Both diesel-generators automatically started and loaded and a natural circulation cooldown was commenced. After approximately 20 minutes, voltage was restored and the RCP's were returned to service. One hour later, off-site power was

SYSTEM CODE		CAUSE CODE		COMPONENT CODE					PRIME COMPONENT SUPPLIER	COMPONENT MANUFACTURER				VIOLATION		
7	Z	Z	C	Z	Z	Z	Z	Z	Z	Z	Z	9	9	9	9	N
8	9	10	11	12	13	14	15	16	17	43	44	45	46	47	48	

CAUSE DESCRIPTION

Loss of normal RCS flow was caused by a loss of off-site power; loss of off-site power was associated with a FP&L grid disturbance.

FACILITY STATUS		% POWER			OTHER STATUS			METHOD OF DISCOVERY		DISCOVERY DESCRIPTION					
1	G	0	0	0	NA			A		NA					
8	9	10	11	12	13	14	15	44	45	46					80
FORM OF ACTIVITY RELEASED		CONTENT OF RELEASE		AMOUNT OF ACTIVITY					LOCATION OF RELEASE						
2	Z	Z		NA					NA						
8	9	10	11	12	13	14	15	44	45	46					80

PERSONNEL EXPOSURES

NUMBER		TYPE		DESCRIPTION										
3	0	0	0	Z	NA									
8	9	11	12	13										80

PERSONNEL INJURIES

NUMBER		DESCRIPTION												
4	0	0	0	NA										
8	9	11	12											80

PROBABLE CONSEQUENCES

NA

LOSS OR DAMAGE TO FACILITY

TYPE		DESCRIPTION												
5	L	Generation capacity interrupted during loss of off-site power.												
8	9	10												80

PUBLICITY

Media coverage and FPL press release on May 16, 1977.

ADDITIONAL FACTORS

See page two for continuation of Event Description.

REPORTABLE OCCURRENCE 335-77-26
LICENSEE EVENT REPORT
PAGE TWO

Event Description (Continued)

lost, and a natural circulation RCS cooldown re-commenced. Approximately 1 to 1-1/2 hours later, off-site power was restored, the RCP's were re-started, and a reactor heatup commenced. The plant was restored to a normal configuration within the time limits specified by the PSL Technical Specifications.

This was the first occurrence of this type associated with a grid disturbance, and is being reported under PSL Technical Specifications 3.4.1 and 3.8.1.1.

(335-77-26)

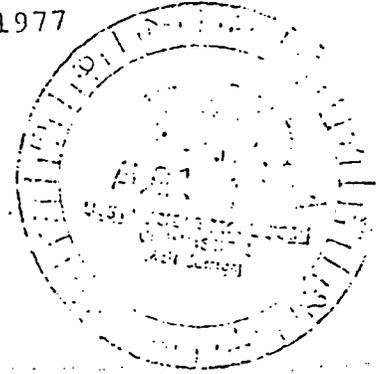
Enclosure 2

DOCUMENTS RELATED TO ZION



Shiloh Blvd. Lake Michigan
 Zion, Illinois 60090
 Telephone 312/746-2084

July 25, 1977



Mr. James G. Keppler
 Regional Director
 Directorate of Regulatory Operations
 Region III
 U.S. Nuclear Regulatory Commission
 Glen Ellyn, Illinois 60137

Reference: Zion Generating Station
 Docket No. 50-304 DPR-48
 Technical Specification, Section 6.6.2

Dear Mr. J. Keppler

Enclosed please find Reportable Occurrence Report No. 50-304-77-44 for Zion Generating Station. This occurrence was reported to Region III, Directorate of Regulatory Operations by telephone on 7-12-77 and by telegram/mailgram on 7-13-77.

This report is submitted to you in accordance with the requirements of the Technical Specifications, Section 6.6.2

Very truly yours,

Jack S. Bitel

Jack S. Bitel
 Superintendent
 Zion Station

JSB/ki

ENCLOSURE

177 AUG 10 AM 1977

OFFICE OF THE SECRETARY
 D.C.

Enclosure: Reportable Occurrence Report No. 50-304 77-44

772140842

JUL 29 1977

RECEIVED

CONTROL BLOCK: [] [] [] [] [] []

[PLEASE PRINT ALL REQUIRED INFORMATION]

LICENSEE NAME: [01] I L R I S [2] LICENSE NUMBER: [00-000000-00] LICENSE TYPE: [1111] EVENT TYPE: [01]

CATEGORY: [01] CONT REPORT TYPE: [] REPORT SOURCE: [1] DOCKET NUMBER: [050-0304] EVENT DATE: [071277] REPORT DATE: [072577]

EVENT DESCRIPTION

[02] While attempting to perform the periodic test of Reactor Protection Logic with the unit in hot shutdown, dummy loads were installed on all pressurizer level, pressurizer pressure, reactor coolant loop flow and steam generator level instrumentation. This left the operator with no real indication of these parameters and negated all (Cont'd)

SYSTEM CODE: [07] CR CAUSE CODE: [A] COMPONENT CODE: [T N S T R U] FRAME COMPONENT SUPPLIER: [2] COMPONENT MANUFACTURER: [2000] VIOLATION: [V]

CAUSE DESCRIPTION

[08] The cause of the event was the improper placement of dummy signals in place of parameters important to plant control. The instructions in the Reactor Protection Logic periodic test concerning the placement (Cont'd)

FACILITY STATUS: [11] G % POWER: [000] OTHER STATUS: [hot Shutdown] METHOD OF DISCOVERY: [A] DISCOVERY DESCRIPTION: [Control board alarm]

FORM OF ACTIVITY RELEASED: [12] E CONTENT OF RELEASE: [] AMOUNT OF ACTIVITY RELEASED: [N.A.] LOCATION OF RELEASE: [N.A.]

PERSONNEL EXPOSURES

[13] NUMBER: [000] TYPE: [] DESCRIPTION: [N.A.]

PERSONNEL INJURIES

[14] NUMBER: [000] DESCRIPTION: [N.A.]

OFFSITE CONSEQUENCES

[15] [N.A.]

LOSS OR DAMAGE TO FACILITY

[16] TYPE: [] DESCRIPTION: [N.A.]

PUBLICITY

[17] [N.A.]

ADDITIONAL FACTORS

[18] [N.A.]

[19] [N.A.]

NAME: F. Lentine / C.K. Richardson PHONE: 746-2094 ext. 347

Description of Event (Cont'd)

automatic control functions associated with the instrumentation. The dummy signal for pressurizer level, installed at 1034 hours, simulated a level of 24% above the actual level at that time of 22%. This caused the charging flow to back down, and the pressurizer level began to decrease.

Soon afterwards, the unit operator noticed a reactor coolant pump labyrinth seal ΔP alarm, caused by the decrease in charging flow. He attempted to restore the proper ΔP by adjusting the charging flow to seal injection flow ratio. At 1055 two additional reactor operators assigned to the logic test joined the unit operator to offer their assistance. At 1106 the unit operator requested that the dummy loads be removed from the steam generator level and pressurizer pressure instruments. All remaining dummy loads were removed at 1113-1114.

With the restoration of the actual indication, the pressurizer level showed zero. This signal immediately isolated letdown and tripped the pressurizer heaters. An additional charging pump was started, and the level began to rise. At 1121 the level rose above the zero point on the control board instrumentation and the pressure returned to its pretransient value of 2250 psig. At 1143 the pressurizer level returned to normal.

Based on recorder charts, computer outputs, and observations by the operators, it was concluded that steam was never admitted to the reactor coolant loops or the reactor vessel head. This conclusion is substantiated by the following facts:

1. Pressurizer pressure indication was restored while level was still decreasing. At the low level point, pressurizer pressure was approximately 2235 psig. At no time was there a pressure drop indicative of steam being admitted to the loops. (Saturation pressure at loop temperatures is 900 psig).
2. There was no evidence of reactor coolant pump cavitation. Pump flows, seal leak-off flows, bearing temperatures, and motor currents remained constant throughout the event.

This conclusion was subsequently confirmed by calculation. The inventory of water left in the pressurizer at the low level point was calculated by two different methods. In the first method, a net letdown rate was calculated from the recorded increase in volume control tank level. This was then used to determine the net loss of water over the period of the level decrease. In the second method, the period after the restoration of the proper level signal was examined. A mass flow rate into the system was calculated from the recorded rate of pressurizer level increase. By calculating the amount of water added to bring the level back up to a known value, the low level point was determined. The first method, with uncertainties included, indicated that there were at least 17 ft. of water left in the pressurizer. This was in addition to the 47 ft. of water left in the pressurizer surge line. The second method indicated that there were at least 40 ft. of water left in the pressurizer surge line.

Description of Event (Cont'd)

To evaluate any possible damage to the pressurizer heaters, the heating elements were meggered and the currents measured. All indications were normal. Observations of other equipment during the subsequent unit start-up revealed no abnormalities.

During the event the reactor was subcritical and did not require the reactor protection logic signals. However, the only safety injection signals remaining were those associated with a steam line break and the high containment pressure signal. Two indications that were valid, VCT level and RCP labyrinth ΔP , did point to a problem with pressurizer level. However, no automatic actions were available to maintain the water inventory of the reactor coolant system.

Cause Description (Cont'd)

of dummy signals were misinterpreted. The dummy signals were to have been installed only as needed to simulate plant conditions at hot shutdown. Instead, all dummy signals were installed, when in fact none were needed.

The procedure has been changed to eliminate the need for dummy signals in the Reactor Protection Logic test. Other protection and safeguards periodic tests are being reviewed in order to minimize and further control the use of dummy signals.



NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

August 18, 1977

MEMORANDUM FOR: E. G. Case, Acting Director
Office of Nuclear Reactor Regulation

FROM: Stephen H. Hanauer, Technical Advisor to
Executive Director for Operations

SUBJECT: INTERACTION BETWEEN CONTROL SYSTEM AND PROTECTION
SYSTEM

The Zion incident of July 12, 1977, apparently shows a design defect as well as the obvious gross management deficiency. The 31 dummy signals disabled the primary system level control, which initiated a transient involving decreasing level. Concurrently, the same sequence of events disabled portions of the protection functions associated with the same level. Thus a single sequence of events caused the transient and paralyzed the safety provided for that very transient.

Westinghouse designs are characterized by the large number and types of interactions between control systems and related safety systems. They think this is great. I think it is unsafe. This feud has been going on for years.

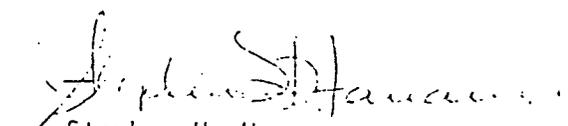
I have not so far been able to find out whether a single signal or group of signals went to both control and safety, or whether the interaction was more obscure. It almost doesn't matter. I also don't know (and don't much care) whether the interaction, whatever its nature, is allowed by the various meticulously crafted clauses in IEEE-279.

For existing plants, I believe the lesson of the Zion incident should be taken to heart and acted on constructively. The fact that, this time, nothing bad happened is a tribute to good operator action and defense in depth, and should not keep us from learning the lesson. All interactions between control functions and safety function should be reviewed in the light of this experience. A statement that no such dummy signals are allowed is not to the point; next time, some different and not now foreseen sequence of events may start the ball rolling. What is needed is adequate independence of control functions from safety functions that provide against control malfunctions.

August 18, 1977

For future plants, we have RESAR-414, with a new "Integrated Protection System," which includes interactions between safety channels and between safety and "non-safety systems for monitoring and control" (PSAR, p. 7.1-27). Such interactions seem to be on a scale far beyond present practice and involve a complexity (multiplexing, data links between computers) not previously encountered. The philosophy (old and new) is, "Westinghouse considers it advantageous to use certain information derived from protection channels to control the plant" (PSAR, p. 7.1-62).

The acceptability of all systems, Westinghouse and non-Westinghouse, old and new, needs to be reviewed in the light of the Zion event and any unacceptable interactions removed.


Stephen H. Hanauer
Technical Advisor to
Executive Director for Operations

cc: L. V. Gossick
S. Levine
E. Volgenau
R. Minogue



NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20585

AUG 24 1977

NOTE TO: J. Guibert
FROM: D. Eisenhut

Attached is a memo written by Steve Hanauer which is primarily based on the Zion event that we have recently discussed in connection with Section 208. As you will recall, we have had several meetings on this subject and even an appeal meeting with Stello, Hanauer, et al. This appears to be Steve's way of appealing again and he has used the Zion event as an opportunity to question our generic problem with interaction between control systems and protection systems.

Note particularly that Hanauer states that he thinks that certain present practices are unsafe. We must answer this concern ASAP. Therefore, please draft up a response to Steve's memorandum and please closely work with Butler and Baer's people as well as the ORPM on the Zion plant. I believe the ORPM is Gary Zech so keep him closely glued in just in case this activity turns into an item requiring review of all operating plants at this time. In addition, you'll need to include a generic paragraph or two stating NRR's past approach and the status of RESAR 414. You should work with Tedesco's people to get a short input. Lastly, recognizing that systems interaction is a generic Category A you may wish to involve the Task Manager after we have given this matter some thought and have prepared an initial draft.

By copy of this note, I am requesting Walt Butler and Bob Baer to designate an individual in their shop who can work with you on this matter on an expedited basis. Please work directly with Tedesco for DSS input. Please note that Stello would like to see a rough outline of an answer at an early time and also note that the due date on the response for Case's signature is September 5.


D. Eisenhut

cc: ✓ H. Butler
✓ R. Baer
✓ K. Goller
✓ R. Tedesco
✓ V. Stello
✓ F. Schroeder



UNION OF CONCERNED SCIENTISTS
1025 15th Street, N.W.
Washington, D.C. 20005

September 16, 1977

Dr. Stephen H. Hanauer
Technical Advisor to
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Dr. Hanauer:

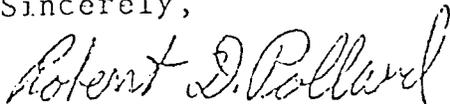
I read with interest your memorandum to E.G. Case dated August 18, 1977 concerning the Zion incident of July 12, 1977. After reviewing the licensee's Reportable Occurrence Report dated July 25, 1977, I agree with your conclusions that the design is unsafe and that the acceptability of all systems in all plants needs to be reviewed in the light of the Zion event. In addition to expressing agreement with your basic conclusions, I am writing to inquire about Mr. Case's response to your memorandum and to relay some other observations related to this event.

Regarding a response to your memorandum, Darrell Eisenhut's note to John Guibert dated August 24, 1977, outlines the method for developing a response for Mr. Case's signature by September 5, 1977. It is disturbing, from a public safety viewpoint, to observe that Eisenhut's note reveals some annoyance with your using "the Zion event as an opportunity to question our generic problem with interaction between control systems and protection systems." If experience at an operating nuclear plant is not a valid basis for questioning prior decisions, one wonders if there is any basis acceptable to Mr. Eisenhut to question the safety adequacy of operating plants. The note, in both tone and content, appears to direct a response that resolution of a Category A generic safety problem can continue to be postponed indefinitely and that no review of operating plants is required at this time. I hope that this assessment is incorrect. Please send me a copy of the response from Mr. Case which I assume you have received. I am also interested in learning of any further action you have taken to resolve this generic problem before an accident occurs and we are then unable to say, as you put it, nothing bad happened.

The Zion incident provides empirical evidence that a design with extensive interactions between control systems and related safety systems is unsafe. There are other lessons to be learned and acted on constructively. The time elapsed between installation of the dummy signals and the initiation of corrective action by the reactor operator was more than 29 minutes. For 18 minutes of this interval three reactor operators were involved; two of them apparently caused the problem in the first place. This should lead to questioning an assumption on which NRC based, in part, its decisions to license plants now in operation. The so-called "10 minute rule" allows safety analyses to be based on the unwarranted assumption that manual action by the reactor operator can be relied on beginning 10 minutes after an accident. In addition, this incident provides the latest evidence of a deficiency in the licensing review process ---- neglecting the question of whether a shutdown plant is "operated" in a manner that provides adequate protection to the public. The over-pressurization incidents that caused the NRC so much difficulty occurred in shutdown plants. In the Zion incident, testing of the reactor protection system in a shutdown plant resulted in disabling both the control system used to maintain primary coolant inventory and the safety system needed for protection against loss-of-coolant accidents. In general, neither the Standard Review Plan nor the Standard Technical Specifications evidences much concern with the design and operation of plant systems during shutdown. It seems that this deficiency should be corrected. I am interested in your views on the validity of the 10 minute rule and the general neglect by NRC of the safety of shutdown plants.

Some of my efforts to have deficiencies in the NRC safety review process corrected involve informing the public about internal NRC procedures. I would appreciate your assistance in assuring that information concerning NRC action on your recommendations is available to the public.

Sincerely,



Robert D. Pollard

RDP/lm



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

SEP 23 1977

MEMORANDUM FOR: S. H. Hanauer, Technical Advisor to the Executive Director for Operations

FROM: E. G. Case, Acting Director, Office of Nuclear Reactor Regulation

SUBJECT: INTERACTION BETWEEN CONTROL SYSTEMS AND PROTECTION SYSTEMS

In your memorandum of August 18, 1977, you expressed concerns related to the appropriateness of the current NRC regulations and related NRR positions regarding the separation of protection and control systems in nuclear power plants. Enclosed is a discussion paper which presents: (1) background information related to the current NRC regulations and NRR positions on protection system/control system interaction; (2) a synopsis of operating experience to date with instrumentation systems which conform to the NRC acceptance criteria for such systems; and (3) a description of ongoing NRR activities related to the investigation of potential systems interaction in protection and control systems.

As the enclosed discussion indicates, it is our view that operating experience to date with instrumentation systems which conform to current NRC criteria does not indicate that operating reactors are unsafe nor does it indicate that there is an immediate need to modify our current acceptance criteria for such systems. However, the NRC (1) is taking action to assure that an event such as occurred at Zion will not recur; (2) is actively reviewing the subject of potential systems interactions in protection and control systems; and (3) is continuing to closely monitor operating experience to assure the safe operation of nuclear facilities.

In addition, attached is a recent IE Circular on this subject that was issued to all operating facilities. It generally alerts operating facilities to this problem and asks for their review of this type of potential interaction.


E. G. Case, Acting Director
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc: See Page 2



UNION OF CONCERNED SCIENTISTS
1025 15th Street, N.W.
Washington, D.C. 20005

September 16, 1977

Darrell G. Eisenhut
Division of Operating Reactors
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Eisenhut:

I am writing in regard to your note to John Guibert dated August 24, 1977, on the subject of responding to Dr. Hanauer's memorandum concerning the Zion incident of July 12, 1977.

Based on the tone and content of your note and my experiences working with you, I conclude that you are attempting to direct that the response to Dr. Hanauer be of the following nature:

1. Resolution of a Category A generic safety problem can continue to be postponed indefinitely; and
2. A review of all operating plants is not required at this time.

A comparison of your and Dr. Hanauer's qualifications to address the complex issue of control and protection system interactions suggests that his recommendations deserve more thoughtful consideration. Furthermore, the Zion incident provides empirical evidence that a serious safety problem exists in operating plants. If this is not a sufficient basis to question the safety adequacy of operating plants, one wonders whether there is any basis, short of an accident that affects the public, that would move you to recommend a review of all operating plants.

I hope that this assessment of your views is incorrect. I intend to follow the action taken on Dr. Hanauer's recommendations and assess whether the NRC is fulfilling its responsibility to protect the health and safety of the public. Therefore, please inform me whether all documents (including IE memoranda to NRR, J. Guibert's work, and minutes of meetings and summaries of telephone conversations with licensees and/or Westinghouse) related to the Zion incident and the response to Dr. Hanauer's memorandum have been placed in the public document room. If so, please state where they are filed, e.g., in the Zion docket file, other docket files, or a generic Westinghouse file.

Sincerely,

Robert D. Pollard

S. H. Hanauer

-2-

cc: L. V. Gossick
S. Levine
E. Volgenau
R. Minogue
V. Stello
R. Mattson
D. Eisenhut
R. Tedesco

DISCUSSION PAPER

INTERACTION BETWEEN CONTROL SYSTEMS AND PROTECTION SYSTEMS

Background

The subject of protection system/control system interaction has been one of some controversy among technical experts for several years. The NRC staff and the ACRS, on several prior occasions, as far back as 1969, considered the safety implications of such interactions. NRC 10 CFR Part 50, General Design Criterion 24, "Separation of Protection and Control Systems," which was published in 1971, established the minimum requirements for the independence of such protection and control systems:

"The protection system shall be separated from control systems to the extent that failure of any single control system component or channel, or failure or removal from service of any single protection system component or channel which is common to the control and protection systems leaves intact a system satisfying all reliability, redundancy, and independence requirements of the protection system. Interconnection of the protection and control systems shall be limited so as to assure that safety is not significantly impaired."

During the past nine years, there have been numerous discussions related to potentially undesirable systems interactions, and it has been the opinion of some (particularly the designers and regulators of foreign reactors) that protection systems should be designed to be totally independent of control systems. However, the related work in the United States has neither trended significantly toward nor away from utilization of certain portions of protection systems for the generation of control system signals. The NRC has, in its regulations, adopted the view that total independence between control and protection systems is preferable but not necessarily required provided that, as a minimum, compliance with GDC-24 and IEEE Standard 279 is demonstrated.

During the past several years, the IEEE has been working on improvements to IEEE Std. 279-1971, which is incorporated in the Federal Regulations. However, it has not been proposed by either the NRC or by industry that Section 4.7 of IEEE Std. 279, which addresses protection system/control system interaction, be significantly changed. Section 4.7 of IEEE Std. 279 permits utilization of protection system signals for control system functions but requires that it be accomplished in such a way that the protection system design must meet a double failure requirement. Further, that portion of the system which isolates the control system from the protection system must be designed to satisfy the requirements for protection systems. The NRC staff believes that these conservative requirements provide adequate safety margins thereby assuring that current designs are safe.

Operating Experience

Operating experience to date with instrumentation systems which conform to these criteria for independence between protection and control systems does not indicate that such designs are unsafe nor does it indicate that there is an immediate need to modify the NRC acceptance criteria for such systems. For example, more than 100 reactor-years of operation with the Westinghouse design has accrued without an incident affecting public health and safety.

Although the recent event at Zion Unit No. 2 did uncover an undesirable protection system/control system interaction, the root cause of this event was lax management control which resulted in the violation of existing operating procedures. Furthermore, it should be noted that utilization of separate sensors for protection and control functions would not necessarily have provided additional protection from such procedural violations. In this specific case, proper operator action and defense-in-depth design features assured the safety of the facility.

NRC Activities Related to Protection System/Control System Interactions

The evaluation of systems interaction in nuclear power facilities, which will include consideration of interactions in instrumentation systems, has been designated as an NRR Category A Technical Activity. On the basis of the results of these studies, we will give further consideration to any modification of our licensing requirements and for any upgrading of the designs of operating facilities. As part of this activity, NRR has an ongoing Technical Assistance Program with ORNL to evaluate systems interaction in instrumentation and control systems. In addition, NRR is continuing to closely monitor operating experience to assure the continued safe operation of nuclear facilities.

With respect to the lessons learned from the Zion Unit No. 2 event, NRR and OI&E have taken action to ensure that similar violation of procedural requirements associated with the testing of safety-related instrumentation systems will not recur. This action is in the form of an OI&E Bulletin to licensees of operating facilities.

With respect to RESAR-414, our review of the new "Integrated Protection System" (IPS) is still in progress and is currently in the "First Round of Question" preparation phase. Therefore, any judgements regarding acceptability or unacceptability of this design at this time are premature. However, in recognition of the uniqueness and scope of the IPS design and the experience with the Core Protection Calculator System review, the staff has developed an extensive plan for accomplishing a

timely and thorough review of the IPS. This includes the establishment of an R&D program to review, evaluate and ensure that an acceptable verification program will be established for verifying the IPS design.

An important aspect of the review will be an evaluation of the conformance of the proposed design of the IPS and its interconnection to the plant control system to GDC 24 and IEEE 279-1971 Section 4.7. The review of this part of the design will, as a minimum, focus on the following:

- a. The potential for single random failures causing a need for protective action and, at the same time, disabling the protective function designed to protect against the condition.
- b. The imposition of design constraints and additional design complexity for the IPS to perform non-safety functions (i.e., transmit information to the control system) and their potential for decreasing the reliability of the safety system.
- c. The role of the plant computer system in maintaining the plant within the limits of certain key parameters upon which the safety analyses are based and the impact of failures or misoperation of the plant computer system on the IPS safety functions.

This review effort, combined with the technical assistance program, will ensure that the potential for adverse interactions between the IPS and the plant control systems will be reduced to an acceptable degree consistent with the current Westinghouse solid state protection system.

Summary

In summary, it is our view that the existing licensing criteria for protection and control systems assure adequate protection against undesirable systems interactions and that protection and control systems designed to meet these criteria assure the continued safe operation of operating facilities. Furthermore, we have, in progress, programs designed to confirm or improve our licensing criteria related to systems interactions.

OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D. C. 20555

IE Circular 77-13
Date: September 23, 1977
Page 1 of 3

REACTOR SAFETY SIGNALS NEGATED DURING TESTING

On July 12, 1977, the Commonwealth Edison Company reported that while conducting a surveillance test at Zion Unit 2, test signals were simultaneously injected into several sensors which affected both protection and control systems. Injection of these test signals resulted in: (1) the loss of instrument indications for the affected protection and control systems, (2) the loss of automatic control capability for the affected control systems, and (3) the loss of automatic protection capability for the affected protection systems.

At the time of the event, the unit was in a hot shutdown condition and preparations for start-up were underway. Station management decided to perform a surveillance test of the reactor protection logic circuitry. A combination of test procedure inadequacies and the failure to follow prescribed administrative controls related to instrumentation testing led to the insertion of test signals which replaced the actual signals from three pressurizer water level sensors, three water level sensors in each of the four steam generators, four pressurizer pressure sensors and three flow sensors in each of the primary coolant loops. The test signals had been inserted for approximately 40 minutes when, due to unexpected indications of the main coolant pump seal flow rate and other anomalous indications, the operator requested that the test signals be removed. When the test signals were removed, it was observed that the pressurizer water level had dropped below the range of indication.

The drop in pressurizer water level resulted from the pressurizer water level test signal being slightly higher than the automatic pressurizer level control set point. In response to this condition the charging pump flow was automatically reduced to the minimum pump flow rate, which was maintained until the test signals were removed. During this 40 minute period the letdown flow remained constant. Consequently, the rate at which coolant was being removed from the primary coolant system was approximately 75 gpm greater than the rate at which coolant was being returned to the system. Approximately 5300 gallons of water were required to bring the pressurizer water level back to its original level of 22 percent.

As mentioned above, operator action in response to other available instrumentation indications terminated the event. Subsequent investigation by the licensee revealed that no damage to plant equipment was sustained during or after the event.

This incident represents an example of an event which resulted from a series of errors involving lax management control and improper attention of plant personnel to established procedures.

All holders of operating licenses should be aware of the potential for adverse operational events which can occur during performance of particular surveillance tests. For example, if an excessive number of safety sensors are disabled simultaneously as was the case in this event, automatic action may not occur as intended. Care must be taken to assure that test signals do not negate automatic initiation of protection systems. It is recommended that the following considerations be incorporated in your reviews of this matter.

1. Facility procedures should specifically identify the limitations and restrictions which are required for each mode of operation during which testing or surveillance activities may be conducted such that required safety protection systems will remain operable in accordance with the facility Technical Specifications.
2. In order to provide additional assurance that required safety related capabilities of plant systems are not defeated during testing or surveillance activities, training programs for operations and craft personnel should include sufficient information to assure an indepth understanding of system functions, system interactions, and Technical Specification requirements.
3. Management controls should be strengthened as necessary to assure adherence to administrative procedures involving reviews, approvals, and communication between plant supervision, operators and craft personnel performing testing and surveillance activities. Such controls should consider the "man-machine" interfaces, and should assure that the human component of this pair is not overburdened.

IE Circular 77-13
Date: September 23, 1977
Page 3 of 3

No written response to this Circular is required. If you require additional information regarding this matter, contact the Director of the appropriate NRC Regional Office. IE inspectors will review this matter with licensees during future inspections.

Enclosure: List of IE Circulars Issued in 1977

LISTING OF IE CIRCULARS ISSUED IN 1977

CIRCULAR NO.	SUBJECT	FIRST DATE OF ISSUE	ISSUED TO
77-01	Malfunctions of Limitorque Valve Operators	1-4-77	All holders of Operating License (OL) or Construction permit (CP)
77-02	Potential Heavy Spring Flooding	2-15-77	All affected holders of OLs
77-02A	Potential Heavy Spring Flooding	2-16-77	All affected holders of CPs
77-03	Fire Inside a Motor Control Center	2-28-77	All holders of OLs and CPs
77-04	Inadequate Lock Assemblies	3-17-77	Safeguard Group I, II, IV, V, Licensees
77-05	Liquid Entrapment in Valve Bonnets	3-24-77	All holders of OLs and CPs
77-06	Effects of Hydraulic Fluid on Electrical Cable	4-1-77	All holders of OL's and CPs
77-07	Short Period During Reactor Startup	4-12-77	Holders of BWR OLs
77-08	Failure of Feedwater Sample Probe	4-13-77	All holders of OLs
77-09	Improper Fuse Coordination In BWR Standby Liquid Control System Control Circuits	5-25-77	All holders of BWR OLs or CPs
77-10	Vacuum Conditions Resulting in Damage to Liquid Process Tanks	7-15-77	All holders of OLs

77-11	Leakage of Containment Isolation Valves with Resilient Seats	9-6-77	All holders of OLs and CPs
77-12	Dropped Fuel Assemblies at BWR Facilities	9-20-77	All holders of BWR OLs and CPs



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

September 28, 1977

MEMORANDUM FOR: E. Case, Acting Director, NRR

FROM: Stephen H. Hanauer, TA EDO

SUBJECT: INTERACTION BETWEEN CONTROL SYSTEMS AND PROTECTION SYSTEMS

REFERENCES: 1. My memo of 8/18/77
2. Your memo of 9/23/77

Thank you for your referenced reply to my concerns on control-protection system interaction. As your discussion paper correctly states, this important and difficult subject has indeed been one of controversy among technical experts for a long time. A principal purpose of my referenced memorandum was to point out that the Zion incident provided information which I believe is relevant to systems interaction, as well as the more obvious administrative shortcomings revealed in that incident. I would expect to bring to your attention future incidents that seem to me to bear upon this subject.

It seems to me that NRC actions described in the discussion paper with regard to Zion and with regard to the forthcoming Category A Technical Activity on interactions in instrumentations systems are appropriate as to scope and timing. I look forward to receiving information from this program when it becomes available.


Stephen H. Hanauer
Technical Advisor to
Executive Director for Operations

cc: L. V. Gossick
S. Levine
E. Volgenau
R. Minogue



NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SEP 29 1977

Mr. Robert D. Pollard
Union of Concerned Scientists
1025 15th Street, N.W.
Washington, D. C. 20005

Dear Mr. Pollard:

This is in response to your letter of September 16, 1977, on the subject of responding to Dr. S. Hanauer's memorandum concerning the Zion incident of July 12, 1977.

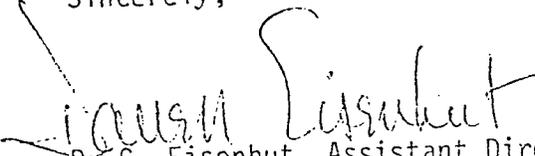
As suggested in your letter, your assessment of my views as contained in my note to J. Guibert are indeed incorrect. My note was simply meant to serve as a management directive to get a prompt response prepared to Dr. Hanauer's August 18 memorandum. It requested various groups to designate individuals to assist in the preparation of such a response. That note, which requested that a response be prepared as soon as practicable, did not address the substance or character of the response.

You are also incorrect in stating that my note suggested postponing a Category A Technical Activity indefinitely. The Task Action Plan for this Technical Activity is presently in preparation and will soon be published. Such an Action Plan will contain a clearly defined schedule.

Since the action identified in my note of August 24 is now completed, the various related documents are being placed in the Public Document Room in the Zion docket. For your convenience a set of those documents is enclosed.

I trust that this clarifies your misunderstanding of my note of August 24, 1977. If you have any further questions concerning my note, please do not hesitate to call.

Sincerely,


D. G. Eisenhut, Assistant Director
for Operational Technology
Division of Operating Reactors

Enclosures:
See Page 2



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

September 29, 1977

Mr. Robert D. Pollard
Union of Concerned Scientists
1025 15th Street, N.W.
Washington, D.C. 20005

Dear Mr. Pollard:

This is in response to your letter of September 16, requesting a copy of Mr. Case's response to my memorandum of August 18, 1977. A copy of it is enclosed together with a copy of my reply to it. I think Mr. Case's reply, and the discussion paper enclosed, review very nicely the status and history of this problem, and the differences of opinion which prevail in this area by the various technical experts. As I said in my reply, it seems to me that the actions described in the discussion paper are appropriate in scope and timing.

I understand that Mr. Eisenhut is writing to you directly regarding your interpretation of his note, and I will not comment on it.

In your letter, you also ask my opinion about the so-called "10-minute rule" regarding operator action. I believe that the human operator is an important part of our defense-in-depth approach to reactor safety. I would not get rid of him, but neither would I suggest that his performance is perfect or could be made perfect. A more balanced view in my opinion is to assign safety tasks requiring prompt action to highly reliable equipment and to assign safety tasks requiring slower action and resolution of many different event sequence possibilities to a highly reliable operator or group of operators. The 10-minute rule is an effort to devise a simple criterion for distinguishing which actions should be assigned initially to the machine and which to the operator. This rule is not a rule, really, nor is it the final word on the assignment. Both the machine and the operator require information on which to make their decisions and both the machine and the operator require means to carry out their decisions. In the ideal situation, not always obtainable, the machine does the work and the operator supervises its work. Some things are too complicated for practical machines and so are assigned to the operator. For this to be adequate, the operator has to have time, information, and means to effectuate the safety result. Neither the machine nor the operator is perfect. For reasonably reliable machinery, the problem usually arises from unforeseen events and combinations. Mistakes of human

September 29, 1977

operators have a wider range and a wider list of causes which are only just now being studied in a systematic way. Presumably, a 20-minute rule or a 30-minute rule would provide some additional assurance over a 10-minute rule. I don't think we know enough today to know what the quantitative increase might be. I think we do know that specifying quite a long time will not make operators anything like perfect.

In your letter to me, you use the phrase "the general neglect by NRC of the safety of shutdown plants." I do not agree with you that the safety of shutdown plants is neglected by the NRC. However, since shutdown plants are not generating a significant amount of power or energy, their safety requirements are not as broad or as immediate as those of reactors operating at high power. Response by the NRC to incidents occurring at shutdown, such as the one we are discussing and, for example, the criticality incidents has been prompt and vigorous.

In your last paragraph, you request my assistance "in assuring that information concerning NRC action on your recommendations is available to the public." Except for predecisional recommendations, just about everything I do is routinely made publicly available. You must know this, since you frequently quote it. I don't know what else I could do.

Sincerely,



Stephen H. Hanauer
Technical Advisor to
Executive Director for Operations

Enclosures:

1. cc S. Hanauer memo to
E. Case dtd 8/18/77
2. cc E. Case memo to
S. Hanauer dtd 9/23/77
3. cc S. Hanauer memo to
E. Case dtd 9/28/77

cc: L. V. Gossick
J. Felton
E. Case
V. Stello
D. Eisenhut
J. Fouchard

Mr. Robert D. Pollard

-2-

Enclosures:

1. 8/18/77 memo, S. Hanauer to E. Case
2. 8/24/77 note, D. Eisenhut to J. Guibert
3. 9/16/77 letter, R. Pollard to S. Hanauer
4. 9/16/77 letter, R. Pollard to D. Eisenhut
5. 9/23/77 memo, E. Case to S. Hanauer
6. 9/28/77 memo, S. Hanauer to E. Case
7. 9/29/77 letter, S. Hanauer to R. Pollard

cc: E. Case
V. Stello
S. Hanauer
J. Guibert



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

OFFICE OF THE
SECRETARY

REQUEST FOR REPORTING SERVICE
Work Order No. AF-367

CASE: NORTHERN STATES POWER COMPANY (Monticello)

Docket No.: 50-263

ADDRESS OF: PREHEARING Courtroom No. 2 (7th floor), Federal Building and /
316 North Robert Street
St. Paul, Minnesota 55101
(Contact: Mrs. LaVonne Gavelek, 612/725-5944)
United States Courthouse

HEARING _____

DURATION: Prehearing One day Hearing _____

DATE OF: Prehearing 10:00 a.m. Hearing _____

TIME OF: Prehearing 1-31-78 Hearing _____

SERVICE REQUIRED: Prehearing Schedule D

Hearing _____

TYPE OF HEARING: Re license amendment

BOARD: Chairman Lazo; Members Cole, Jordan

COPIES OF THE TRANSCRIPT MAY BE SOLD.

DATE OF ORAL REQUEST: 12-12-77

DATE OF CONFIRMATION: 12-13-77

BY: _____
C. R. Stephens
DOCKETING AND SERVICE BRANCH.

SPECIAL INSTRUCTIONS:

bcc: Dr. Lazo
ELD
ASLBP
ASLAP
Mrs. Diggs
Mrs. Duncan
Mrs. Hargett
Rec. Fac. Br.
Controller