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 DISE, D.P. Niagara Mohawk Power Corp.
 RECIPIENT NAME: RECIPIENT AFFILIATION
 EISENHUT, D.G. Division of Licensing

SUBJECT: Forwards response to NUREG-0737 items re relief valve & automatic depressurization sys. Reducing frequency of stuck open valves considered more meaningful measure of safety.

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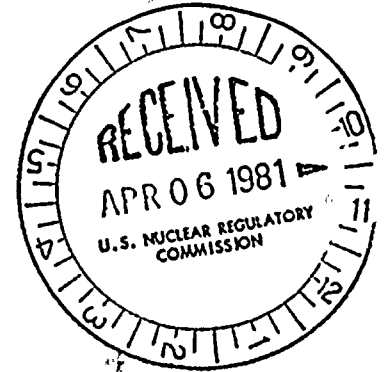
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**N M NIAGARA
M MOHAWK**

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

April 1, 1981

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555



Dear Mr. Eisenhut:

Re: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Enclosed is Niagara Mohawk's response to NUREG 0737 Items II.K.3.16 and II.K.3.18 for Nine Mile Point Unit 1.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

A handwritten signature in cursive script that reads "Donald P. Dise".

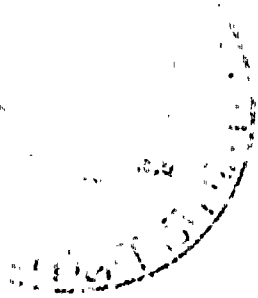
Donald P. Dise
Vice President Engineering

PEF/djm
Enclosure

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THE STATE OF TEXAS,
COUNTY OF [illegible]
I, [illegible], County Clerk,
do hereby certify that the
within and foregoing is a
true and correct copy of
the original on file in
my office.

WITNESSED my hand and the seal of my office
this [illegible] day of [illegible] 19[illegible].

ATTEST:
[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

TMI ACTION PLAN ITEMS
NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT UNIT 1

DOCKET NO. 50-220

DPR-63



10-10-57

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
5708 S. UNIVERSITY AVENUE
CHICAGO, ILLINOIS 60637

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REDUCTION OF CHALLENGES AND
FAILURES OF RELIEF VALVES -
FEASIBILITY STUDY AND
SYSTEM MODIFICATION

POSITION

The record of relief-valve failures to close for all boiling-water reactors (BWRs) in the past 3 years of plant operation is approximately 30 in 73 reactor-years (0.41 failures per reactor-year). This has demonstrated that the failure of a relief valve to close would be the most likely cause of a small-break loss-of-coolant accident (LOCA). The high failure rate is the result of a high relief-valve challenge rate and a relatively high failure rate per challenge (0.16 failures per challenge). Typically, five valves are challenged in each event. This results in an equivalent failure rate per challenge of 0.03. The challenge and failure rates can be reduced in the following ways:

- (1) Additional anticipatory scram on loss of feedwater,
- (2) Revised relief-valve actuation setpoints,
- (3) Increased emergency core cooling (ECC) flow,
- (4) Lower operating pressures,
- (5) Earlier initiation of ECC systems,
- (6) Heat removal through emergency condensers,
- (7) Offset valve setpoints to open fewer valves per challenge,
- (8) Installation of additional relief valves with a block- or isolation-valve feature to eliminate opening of the safety/relief valves (SRVs), consistent with the ASME Code,
- (9) Increasing the high steam line flow setpoint for main steam line isolation valve (MSIV) closure,
- (10) Lowering the pressure setpoint for MSIV closure,
- (11) Reducing the testing frequency of the MSIVs,
- (12) More-stringent valve leakage criteria, and
- (13) Early removal of leaking valves.

An investigation of the feasibility and contraindications of reducing challenges to the relief valves by use of the aforementioned methods should be conducted. Other methods should also be included in the feasibility study. Those changes which are shown to reduce relief-valve challenges without compromising the performance of the relief valves or other systems should be implemented. Challenges to the relief valves should be reduced substantially (by an order of magnitude).

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RESPONSE

This item was addressed through a generic evaluation by the BWR Owners Group. The results of this evaluation are contained in a report titled BWR Owners Group Evaluation of NUREG-0737 Item II.K.3.16 - Reduction of Challenges and Failures of Relief Valves. This report was transmitted to the Nuclear Regulatory Commission by a letter dated March 31, 1981 from Mr. D. B. Waters, Chairman TMI BWR Owners Group to Mr. D. G. Eisenhut.

Although the NUREG-0737 position deals primarily with a reduction of challenges to safety relief valves, we believe a more meaningful measure of safety is reducing the frequency of stuck open relief valves. The BWR Owner's Group Report compares the various BWR designs to the BWR/4 with three stage Target Rock Valves (the benchmark plant) in terms of this frequency. This report concludes that the BWR/2 (the Nine Mile Point Unit 1 design) has a stuck open relief valve frequency which is at least a factor of ten lower than this benchmark plant.



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MODIFICATION OF AUTOMATIC
DEPRESSURIZATION SYSTEM
LOGIC - FEASIBILITY FOR
INCREASED DIVERSITY FOR SOME
EVENT SEQUENCE

POSITION

The automatic depressurization system (ADS) actuation logic should be modified to eliminate the need for manual actuation to assure adequate core cooling. A feasibility and risk assessment study is required to determine the optimum approach. One possible scheme that should be considered is ADS actuation on low reactor-vessel water level provided no high-pressure coolant injection (HPCI) or high-pressure coolant system (HPCS) flow exists and a low-pressure emergency core cooling (ECC) system is running. This logic would complement, not replace, the existing ADS actuation logic.

RESPONSE

This item was addressed through a generic evaluation by the BWR Owners Group. The results of this evaluation are contained in a report entitled BWR Owners Group Evaluation of NUREG 0737 Item II.K.3.18 - Modification of Automatic Depressurization System Logic. This report was transmitted to the Nuclear Regulatory Commission by a letter dated March 31, 1981 from Mr. D. B. Waters, Chairman TMI BWR Owners Group to Mr. D. G. Eisenhut.

This report discusses several proposed options to extend the automatic initiation of the Automatic Depressurization System to include transient event which do not result in high drywell pressure. Niagara Mohawk is in the process of evaluating each of the options and will provide a description of the proposed modification for staff approval by April 1, 1982.



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