REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8705010119 DOC. DATE: 87/04/28 NOTARIZED: NO DOCKET #
FACIL: 50-410 Nine Mile Point Nuclear Station, Unit 2, Niagara Moha 05000410
AUTH. NAME AUTHOR AFFILIATION
MANGAN, C. V. Niagara Mohawk Power Corp.
RECIP. NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Application for amend to License NPF-54, revising surveillance requirements re leakage detection capabilities of containment airborne gaseous & particulate radioactivity detection & reactor vessel head flange leak detection sys.

DISTRIBUTION CODE: B001D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5+36
TITLE: Licensing Submittal: PSAR/FSAR Amdts & Related Correspondence

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD1-1 LA	1	1	PD1-1 PD	1	1
	HAUGHEY, M	2	2	MINER, S	2	2
INTERNAL:	ACRS	6	6	AEOD/DOA/IRB	1	1
	ARM TECH ADV	1	0	ARM/DAF/LFMB	1	0
	NRR DEST/PSB	1	0	NRR/DEST/MEB	1	0
	NRR/DEST/RSB	1	0	NRR/DLPQ/QAB	1	1
	NRR/DREP/EPB	1	1	OGC/HDS1	1	0
	REG FILE 01	1	1			
EXTERNAL:	ARM/DCB (AMDTS)	1	1	BNL(AMDTS ONLY)	1	1
	LPDR	1	1	NRC PDR	1	1
	NSIC	1	1	PNL GRUEL, R	1	1

TOTAL NUMBER OF COPIES REQUIRED: LTTR 28 ENCL 22

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/301 PLAINFIELD ROAD, SYRACUSE, N.Y. 13212/TELEPHONE (315) 474-1511

April 28, 1987
(NMP2L 1028)

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Re: Nine Mile Point Unit 2
Docket No. 50-410

Gentlemen:

The purpose of this letter is to discuss a clarification to Surveillance Requirement 4.4.3.2.1 of the Nine Mile Point Unit 2 Technical Specifications and to request a change to the full power Technical Specifications. These items concern the leakage detection capabilities of the containment airborne gaseous and particulate radioactivity detection and the reactor vessel head flange leak detection systems. The Technical Specification change is needed to support operation of Nine Mile Point Unit 2 in excess of five percent of Rated Thermal Power. The requested change, a corresponding revision to the Final Safety Analysis Report, and justification are contained in separate attachments to this letter. Niagara Mohawk is requesting that the attached Technical Specification change be incorporated into the full power license when it is issued. The enclosed revision to the Final Safety Analysis Report will be incorporated into a future Amendment.

The Technical Specification clarification and proposed change were discussed with Ms. Mary F. Haughey and members of the Nuclear Regulatory Commission Staff on February 26, 1987.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

C. V. Mangan
Senior Vice President

TDF/pns
2746G
Attachment

xc: Regional Administrator, Region I
Mr. R. A. Capra, Director
Mr. W. A. Cook, Resident Inspector
Project File (2)

B001
1/1

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	]	
	]	
Niagara Mohawk Power Corporation	]	Docket No. 50-410
	]	
(Nine Mile Point Unit 2)	]	

AFFIDAVIT

C. V. Mangan, being duly sworn, states that he is Senior Vice President of Niagara Mohawk Power Corporation; that he is authorized on the part of said Corporation to sign and file with the Nuclear Regulatory Commission the documents attached hereto; and that all such documents are true and correct to the best of his knowledge, information and belief.

C V Mangan

Subscribed and sworn to before me, a Notary Public in and for the State of New York and County of Onondaga, this 28th day of April, 1987.

Mary Frateschi
Notary Public in and for
Onondaga County, New York

My Commission expires:

MARY FRATESCHI
Notary Public in the State of New York
Qualified in Onondaga County No. 4797550
My Commission Expires June 30, 19 89

ATTACHMENT 1

PROBLEM DESCRIPTION

The Reactor Coolant Pressure Boundary Leakage Detection System at Nine Mile Point Unit 2 was designed and built in accordance with Regulatory Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems." The primary methods used to comply with Regulatory Guide 1.45, drywell floor and equipment drain tank fill rates and airborne gaseous and particulate radioactivity monitoring, were designed to comply with position c.5 of Regulatory Guide 1.45, which requires a sensitivity sufficient to detect a change in leakage rate of one gpm in less than one hour. In addition, the floor drain tank monitoring system was designed with an accuracy of one gpm in accordance with position c.2 of the Regulatory Guide.

Recent experience at other nuclear plants has revealed that the current generation of radiation monitoring systems utilized in the nuclear industry does not have the capabilities necessary to accurately quantify radioactive leakage. Limerick, Susquehanna, and Clinton have all determined that their radiation monitoring systems are not capable of detecting a one gpm leak in less than one hour. Further, these monitoring systems are not capable of verifying an unidentified leakage rate of less than 5 gpm, as required by Technical Specification Surveillance 4.4.3.2.1. The factors limiting the performance of these systems are documented in Section 5.2.5.2.1 of the Limerick FSAR.

TECHNICAL SPECIFICATION CHANGE

Enclosed as Attachment 2 is a change to Technical Specification Surveillance 4.4.3.2.1, which reflects our revised assessment of the capabilities of the gaseous and particulate monitoring system. This change is similar to Technical Specifications approved for Fermi and Limerick. The reactor vessel head flange leak detection system, Item d under Surveillance 4.4.3.2.1, was also included since it also provides a qualitative assessment of flange seal leakage. This change is requested as part of the full power license.

JUSTIFICATION

The primary containment radiation monitoring system at Nine Mile Point Unit 2 is a Digital Radiation Monitoring System supplied by Kaman Instrumentation. The system converts the analog detector output to a digital signal which is fed to a microprocessor. The microprocessor output is fed to monitors and recorders in the Control Room, as well as one of two D.E.C. PDP 11/44 minicomputers. The minicomputers perform data processing such as logging and alarming.

The ability of the radiation monitors to detect 1 gpm of Reactor Coolant Pressure Boundary leakage in one hour is effected by many factors. The origin of leakage, coolant concentrations, and additional sources of leakage or

activity in the containment all result in unpredictable changes in the containment airborne concentrations. High drywell equilibrium activity levels, as well as pressure control, can mask activity increases from smaller leaks. Plateout effects will vary with the distance from the coolant release point to the detector. The uncertainties of the detector system result in count rate uncertainties of 20 to 40% of the equilibrium drywell activity. These factors are explained further in Section 5.2.5.2.1 of the attached FSAR revision. These factors all support the conclusion that their is no direct correlation or known relationship between the detector count rate and the leakage rate.

The enclosed FSAR revision (Attachment 3) incorporates the capabilities of the containment radiation monitoring system. Compliance with Regulatory Guide 1.45 is discussed in Section 5.2.5.9. Monitoring for leakage is still accomplished via 1) floor and equipment drain tank fillup and pumpout rates, 2) airborne particulates, and 3) airborne gaseous radiation rates. The airborne gaseous and particulate radiation monitors are secondary methods that provide a qualitative assessment of leakage. The floor drain tank, which collects unidentified leakage with an accuracy better than 1 gpm, meets position c.2 of the Regulatory Guide. In addition, containment atmosphere temperature and pressure monitors are tertiary methods to detect gross leakage. These methods meet position c.3 of the Regulatory Guide.

The floor drain tank monitoring system is designed to detect unidentified leakage rates of 1 gpm within 1 hour, thus meeting the intent of position c.5. However, due to the uncertainties now described in Section 5.2.5.2.1, the airborne particulate and gaseous radiation monitoring systems are not designed to detect unidentified leakage rates of 1 gpm within 1 hour.

To alert the operator to increasing leakage, the drywell floor drain tank level monitor alarms in the Control Room when leakage increases to 5 gpm. When the alarm actuates, the operator will review other parameters (e.g., noble gas, particulate, containment temperature and pressure) to determine if the leakage is from the primary coolant pressure boundary and not from the cooling water system, etc. Appropriate actions will then be taken in accordance with Technical Specifications. The review of other monitors will consist of a comparison of observed increases to normal operating limits, and abnormal increases will be investigated.

TECHNICAL SPECIFICATION CLARIFICATION

The Bases section of the Technical Specification, in B3/4.4.3.1, states that the Reactor Coolant System leakage detection systems are consistent with the recommendations of Regulatory Guide 1.45. In Section B, under Detector Sensitivity, the Regulatory Guide recognized that during initial reactor startup, the reactor coolant radioactivity would be too low for radioactivity monitoring to detect small leakage. The setpoints on the radiation monitors at Nine Mile are based on a reactor coolant activity level determined in accordance with Section 11.1 of the Final Safety Analysis Report. The activity levels used in the determination of the setpoints at Nine Mile are those that would be expected in an operational plant.

Given the basis of the radiation monitor setpoints, the Regulatory Guide (and by implication the Technical Specifications) recognize the inability of these systems to detect leakage prior to exceeding 5% Thermal Power, which would correspond to activity levels of less than one-twentieth of those present in a mature plant. Thus, operation of Nine Mile Point Unit 2 with the currently designed Leak Detection Systems, at up to 5% of Rated Thermal Power as allowed by the Low Power License, is permitted by the Technical Specifications.