

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

FILE NUMBER

TO:

Mr. George Lear

FROM:
Niagara Mohawk Power Corp.
Syracuse, New York
Mr. Gerald K. Rhode

DATE OF DOCUMENT
12/29/76

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1/3/77

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DESCRIPTION

Ltr. w/attached....re our 11/24/76 ltr.
....concerning fission gas releases.

(3-P)

PLANT NAME:
Nine Mile Point Unit No. 1

ENCLOSURE

ACKNOWLEDGED

DO NOT REMOVE

SAFETY		FOR ACTION/INFORMATION		ENVIRO	1/6/77	RJL
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			SITE TECH.
PROJECT MANAGEMENT	REACTOR SAFETY	OPERATING TECH.	GAMMILL
BOYD	ROSS	EISENHUT (L.M.)	STAPP
P. COLLINS	NOVAK	SHAO	HULMAN
HOUSTON	ROSZTOCZY	BAER	
PETERSON	CHECK	BUTLER	SITE ANALYSIS
MELTZ	R. Meyer	GRIMES	VOLLNER
HELTEMES	AT & I	F. COFFMAN	BUNCH
SKOVHOLT	SALTZMAN	J. GUBERT	J. COLLINS
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EXTERNAL DISTRIBUTION			CONTROL NUMBER
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NIAGARA MOHAWK POWER CORPORATION

NIAGARA  MOHAWK

300 ERIE BOULEVARD WEST
SYRACUSE, N.Y. 13202

Regulatory Docket File

December 29, 1976



Director of Nuclear Reactor Regulation
Attn: Mr. George Lear, Chief
Operating Reactors Branch #3
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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

Dear Mr. Lear:

Your letter of November 24, 1976 requested information regarding fission gas release rates from fuel pellets with high burnup. The attached information is in response to your request.

For Nine Mile Point Unit 1, the effects of the Nuclear Regulatory Commission fission gas release correction technique are bounded by results presented in a December 22, 1976 letter from G. E. Sherwood (General Electric) to D. F. Ross (NRC). For fuel exposures less than 20,000 megawatt-days per short ton, peak clad temperature changes are insignificant. For higher exposures, peak clad temperature increases are less than 85 F.

Sincerely,

NIAGARA MOHAWK POWER CORPORATION

GERALD K. RHODE
Vice President - Engineering



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Responses to November 24, 1976
Nuclear Regulatory Commission Questions

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

1. Question

Provide the estimated date on which any fuel rod in your facility will reach a local exposure (burnup) of 20,000 Megawatt-days per metric ton of Uranium (MWD/tU).

Response

The core at Nine Mile Point Unit 1 currently contains fuel with peak exposures in excess of 20,000 Megawatt-days per metric ton of Uranium.

2. Question

Using the correction technique described in the attached enclosure, modify the fission gas release model in the thermal performance code for the fuel in your facility and calculate the fission gas release, fuel rod pressure, fuel temperature, etc. for burnups to and including the target peak-rod burnup. Provide a comparison of the results of your calculations with those obtained using the uncorrected fission gas release model.

Response

Generic bounding analysis has been provided by General Electric in response b of Reference 1. Information corresponding to both 7x7 and 8x8 fuel shown for a BWR/2 is applicable to Nine Mile Point Unit 1. The NRC correction technique increases calculated fission gas release, fuel rod internal pressure and fuel temperatures for exposures greater than 20,000 MWD/tU.

3. Question

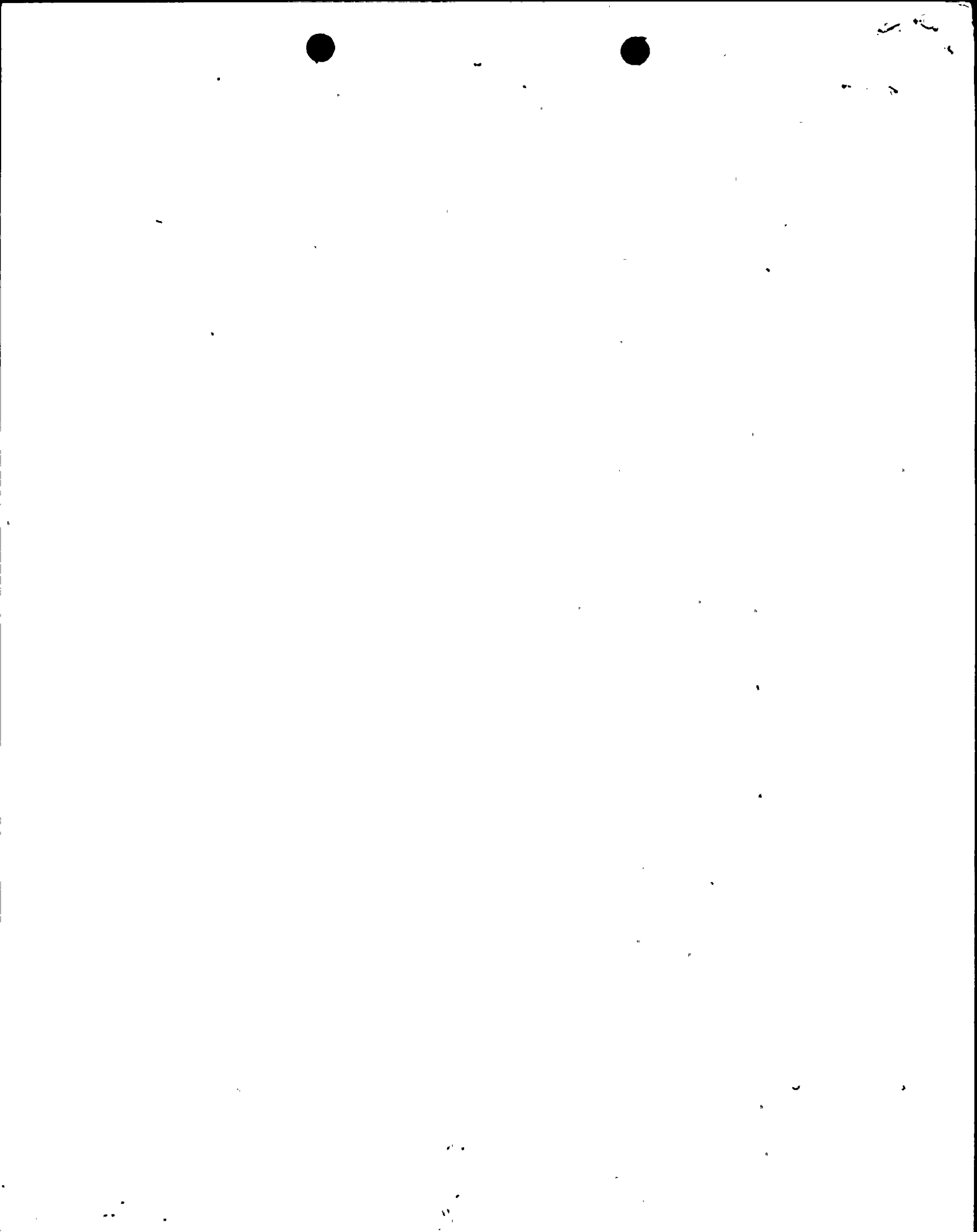
Describe the impact (if any) of larger fission gas releases on the LOCA analysis and other safety analyses for your facility.

Response

Impact of larger fission gas releases on Nine Mile Point Unit 1 safety analysis is provided in response c of Reference 1.

The LOCA analysis for fuel exposures below 20,000 MWD/Short Ton are unaffected. At fuel bundle exposures of 30,000 MWD/Short Ton, a conservative upper bound limit of 85 F peak clad temperature increase has been calculated. The temperature increases associated with Nine Mile Point Unit 1 are expected to be significantly lower.

Other safety analyses are relatively insensitive to increased fission gas release.



4. Question

If internal fuel rod pressures, as calculated using the above-mentioned fission gas release correction, are predicted to exceed the nominal system pressure for your facility, provide the date that this is anticipated to occur and discuss the implications of operating under both normal and accident conditions with fuel cladding tensile stresses.

Response

As stated in response d of Reference 1, the internal fuel rod pressures, as calculated using the NRC fission gas release correction, do not exceed the nominal Nine Mile Point Unit 1 system pressures.

REFERENCE

1. Letter dated December 22, 1976 from Mr. G. G. Sherwood (General Electric) to Mr. Denwood F. Ross (Nuclear Regulatory Commission).

