

**AEC DISTRIBUTION FOR PART 50 DOCKET MATERIALS**  
(TEMPORARY FORM)

CONTROL NO: 2627

FILE

<b>FROM:</b> Niagara Mohawk Power Corporation Syracuse, N. Y. 13202 Philip D. Raymond	<b>DATE OF DOC:</b> 4-19-73	<b>DATE REC'D</b> 4-20-73	<b>LTR</b> X	<b>MEMO</b>	<b>RPT</b>	<b>OTHER</b>
<b>TO:</b> Mr. Skovholt	<b>ORIG</b> 3 signed	<b>CC</b>	<b>OTHER</b>	<b>SENT AEC PDR</b> X <b>SENT LOCAL PDR</b> X		
<b>CLASS:</b> <u>U</u> PROP INFO	<b>INPUT</b>	<b>NO CYS REC'D</b> 40	<b>DOCKET NO:</b> 50-220			
<b>DESCRIPTION:</b> Ltr notarized 4-19-73, furnishing addl info to their 1-31-73 ltr containing a description of a hydrogen "getter" located in the upper plenum of the fuel rods in Type 4 reload fuel.....			<b>ENCLOSURES:</b>			
<b>PLANT NAMES:</b> Nine Mile Point Unit 1			<b>Do Not Remove</b> <b>ACKNOWLEDGED</b>			

FOR ACTION/INFORMATION 4-23-73 AB

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✓ OGC, ROOM P-506A	SCHROEDER	✓ GAMMILL	NUSSBAUMER	G. WILLIAMS	E
✓ MUNTZING/STAFF	MACCARY	KASTNER		SHEPPARD	E
CASE	KNIGHT	BALLARD	<u>LIC ASST.</u>		
GIAMBUSSO	PAWLICKI	SPANGLER	SERVICE	L	A/T IND
BOYD	SHAO		WILSON	L	BRAITMAN
V. MOORE-L(BWR)	STELLO	<u>ENVIRO</u>	GOULBOURNE	L	SALTZMAN
DEYOUNG-L(PWR)	HOUSTON	MULLER	SMITH	L	
✓ SKOVHOLT-L	NOVAK	DICKER	GEARIN	L	PLANS
P. COLLINS	ROSS	KNIGHTON	DIGGS	L	MCDONALD
	IPPOLITO	YOUNGBLOOD	TEETS	L	✓ DUBE
REG OPR	TEDESCO	REGAN	LEE	L	
✓ FILE & REGION(2)	LONG	PROJ LEADER	MAIGRET	L	<u>INFO</u>
MORRIS	LAINAS		SHAFFER	F & M	C. MILES.
STEELE	BENAROYA	HARLESS			
	VOLLMER				

**EXTERNAL DISTRIBUTION**

✓ 1-LOCAL PDR Oswego, N. Y.	(1)(2)(9)-NATIONAL LAB'S	1-PDR-SAN/LA/NY
✓ 1-DTIE(ABERNATHY)	1-R. CARROLL-'C, GT-B227	1- GERALD LELLOUCHE
✓ 1-NSIC(BUCHANAN)	1- R. CATLIN, E-256-GT	BROOKHAVEN NAT. LAB
1-ASLB-YORE/SAYRE	1- CONSULTANT'S	1-AGMED(WALTER KOESTER,
WOODWARD/H ST.	NEWMARK/BLUME/AGABIAN	RM C-427, GT)
✓ 16-CYS ACRS <del>HOOPER</del> SENT TO LIC ASST.	1- GERLAD ULRIKSON....ORNL	1- RD...MULLER...F-309GT
R. DIGGS ON 4-23-73		

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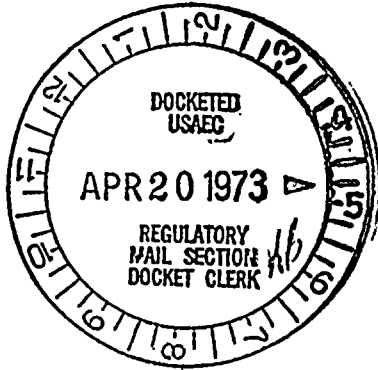
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## NIAGARA MOHAWK POWER CORPORATION

NIAGARA  MOHAWK300 ERIE BOULEVARD WEST  
SYRACUSE, N. Y. 13202

April 19, 1973



Mr. Donald J. Skovholt  
 Assistant Director for Operating Reactors  
 Directorate of Licensing  
 United States Atomic Energy Commission  
 Washington, D. C. 20545

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

Dear Mr. Skovholt:

Niagara Mohawk's letter of January 31, 1973, contained a description of a hydrogen "getter" located in the upper plenum of the fuel rods in Type 4 reload fuel. This communication documents information previously provided to the Commission Staff for its review of the Type 4 reload fuel.

A hydrogen getter is located in the upper plenum of each fuel rod in the Type 4 fuel. The hydrogen getter is an added precaution against clad hydriding that might result from incomplete removal of hydrogen impurities in the fuel rod during fabrication; extraneous hydrogen impurities will combine chemically with the getter in preference to zircaloy cladding. The getter is composed of chips of a zirconium alloy located in a stainless steel container in the upper plenum. Extensive testing has shown that the getter is effective for temperatures beyond the range anticipated for a BWR fuel rod plenum and will not release hydrogen during normal operation, or under transients or accident conditions. The getter material chip size has been selected such that the getter will not undergo a chemical reaction contributing to the severity of transients and accidents.

The getter operating conditions are defined by the coolant temperature at the plenum area of the rod. Under normal operation conditions the plenum temperature is between 550 F to 600 F. During abnormal transients or accident conditions the plenum region temperatures would range from 300 F to 600 F. The getter chips are inactive below 450 F and active in adsorbing and retaining hydrogen from 450 F to

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THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 311  
LECTURE 10  
MAY 19, 1983

1. Introduction

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Mr. Donald J. Skovholt

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April 19, 1973

beyond 600 F. The corrosion products of these reactions are confined within the stainless steel jacket containing the getter. The rate of reaction of the getter with air, steam or hydrogen is not pyrophoric in the temperature range experienced in a BWR fuel rod. Therefore, the getter will combine chemically with extraneous hydrogen during normal operation, and not release hydrogen or otherwise contribute to the severity of abnormal transients or postulated accidents.


Very truly yours,



Philip D. Raymond  
Vice President-Engineering

PDR/vk

Subscribed and sworn to  
before me this *19<sup>th</sup>* day  
of April 1973.

  
\_\_\_\_\_  
Notary Public

CAROLYN F. ROBERTSON  
Notary Public in the State of New York  
Qualified in Onon. Co. No. 34-8599123  
My Commission Expires March 30, 19*74*



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