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INCIDENT REPORT

TO:  
Mr. George Lear

FROM:  
Niagara Mohawk Power Corp.  
Syracuse, New York  
J. Bartlett

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4/13/77

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DESCRIPTION

Ltr. furnishing Licensee Event Report  
50-220/77-15 on 4/4/77 concerning Lowering  
of Reactor Water Level Below Authorized...

(2-P)

PLANT NAME:  
Nine Mile Point Unit No. 1

RJL

ENCLOSURE

**ACKNOWLEDGED**

**DO NOT REMOVE**

NOTE: IF PERSONNEL EXPOSURE IS INVOLVED  
SEND DIRECTLY TO KREGER/J. COLLINS

FOR ACTION/INFORMATION

BRANCH CHIEF:	<b>LEAR</b>
W/3 CYS FOR ACTION	
LIC. ASST.:	<b>PARRISH</b>
W/1 CYS	
ACRS <b>16</b> CYS <del>HOLDING</del> /SENT	<b>CAT B</b>

INTERNAL DISTRIBUTION

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EXTERNAL DISTRIBUTION

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LPDR: <b>oswego, N.Y.</b>	
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**771100303**

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## NIAGARA MOHAWK POWER CORPORATION

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

April 13, 1977



Mr. George Lear, Chief  
 Operating Reactors Branch #3  
 Division of Operating Reactors  
 United States Nuclear Regulatory Commission  
 Washington, D.C. 20555

Regulatory

Ella Cy

SUBJECT: Lowering of Reactor Water Level Below Authorized  
 Elevation - Nine Mile Point Nuclear Station #1  
 Docket No. 50-220 License DPR-63  
Licensee Event Report LER 77-15

Gentlemen:

The following event occurred at the Nine Mile Point Nuclear Station #1 at approximately 0455 on April 4, 1977. It was reported by telephone and confirmed by facsimile transmission on the same day.

THE EVENT

While an operator was lowering reactor water level for the purpose of performing major maintenance in the reactor vessel, a shutdown cooling pump tripped off causing rapid decrease in water level from about 294'9" to 293'6". Technical Specifications permit lowering the level to 293'9". Pump flow and water level were immediately restored, however, reactor water level momentarily fell approximately three inches below that permitted by Technical Specifications. This event has been reviewed by the Site Operations Review Committee and reported to the Safety Review and Audit Board.

CIRCUMSTANCES

Reactor water level had been lowered in the reactor to permit installation of a shield and work platform on the top of the reactor shroud flange. After placement of the shield platform, an operator was further lowering reactor water level in accordance with approved procedures by draining from a shutdown cooling loop. At the same time, a second operator was monitoring water level above the core. All primary systems and isolation valves which might affect vessel water level were closed off except the Shutdown Cooling System and the manually controlled drain. Level was decreasing very slowly.

A hose connection from the condensate transfer system into the reactor annulus area was provided as a means of water addition for adjusting reactor water level. Water can also be supplied using the Liquid Poison System and the Core Spray System.

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CIRCUMSTANCES (continued)

Continuous operation of the shutdown cooling system was required to maintain a desired low reactor water temperature. The shutdown cooling system, by connections to the reactor recirculation piping, takes suction from the reactor annulus area and discharges into the reactor inlet plenum. Water circulates upward through the fuel assemblies, flows through the passages in the shield platform on top of the shroud and into the annulus area.

Probable cause of the shutdown cooling pump trip was low pump suction pressure due to excessive lowering of water level in the reactor annulus area while the operator was draining water from the shutdown cooling system. When the pump tripped, the water above the reactor core drained into the annulus area until the water reached the level of the reactor shroud, 3" above the flange elevation.

As soon as the operator monitoring reactor water level noticed the inception of the rapid drop in level, draining was stopped, the shutdown cooling pump was restarted, and water addition through the hose from the condensate transfer system was initiated. Since these actions immediately restored reactor water level to well above the minimum specified, there was no need to initiate the standby water addition provisions available through use of the Liquid Poison System or the Core Spray System.

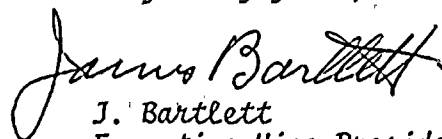
ANALYSIS

Just prior to the event, water level above the reactor core was 1'6" above the shroud flange. At the time of the pump trip, the core was covered by the 3'3 11/16" of water difference in elevation between the top of the core and the lip of the shroud. This is the lowest elevation to which the water above the core could have drained because the core and annular area are separated by the shroud below this elevation, all recirculation pumps are isolated, and check valves in the shutdown cooling system prevent back flowing from the core area to the annulus area. Hence, for this operation, loss of shutdown cooling system flow would not cause unwatering of the reactor core even if the level is drawn down in the annulus area.

CORRECTIVE ACTION

To preclude future rapid incremental changes in water level over the reactor core due to drawing water level down in the annulus area, an additional monitoring water column has been arranged so that operators may exercise continuous surveillance of reactor annulus water level as well as water level above the core. Procedures have been amended to include provisions for use of the reactor annulus water level monitor. Experience subsequent to this event has shown that operators may easily maintain sufficient shutdown cooling flow for the required cooling while holding water level in the annulus area above the top of the reactor shroud. Well regulated adjustments in reactor water level have also been successfully completed using additions from the condensate transfer or bleed from the shutdown cooling.

Very truly yours,



J. Bartlett  
Executive Vice President

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