

07-1-91 [REDACTED]

August 22, 1991

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE PNO-IIT-91-02A

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information presented is preliminary, requires further evaluation and is basically all that is known by the IIT on this date.

FACILITY:

Niagara Mohawk Power Corporation  
Nine Mile Point Unit 2  
Scriba, New York  
Docket No. 50-410

Licensee Emergency Classification:

- Notification of Unusual Event
- Alert
- Site Area Emergency
- General Emergency
- Not Applicable

REFERENCE: PNO-I-91-62

SUBJECT: SECOND STATUS REPORT FROM NRC INCIDENT INVESTIGATION TEAM (IIT)

The Incident Investigation Team (IIT) remains onsite gathering data, conducting interviews, inspecting equipment, meeting with the licensee, concurring in licensee action plans and analyzing facts. (See PNO-IIT-91-02 for the first status report from the IIT, including a basic description of the event of August 13, 1991 and the initiation of NRC investigation efforts.)

A preliminary sequence of events has been developed by the IIT and is given below.

It is expected that the IIT's onsite work will be completed by Tuesday, August 27, 1991.

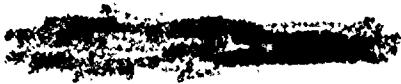
Further status reports will be issued as appropriate during the IIT's onsite work.

Sequence of Events

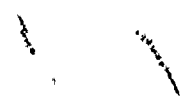
Initial Conditions--100% power, Source Range Monitor (SRM) "A" out of service, "B" and "C" residual heat removal tagged out, and were restored during the event.

<u>Time</u>	<u>Indications/Problems Actions</u>
0548	Main transformer phase "B" fault. Generator and excitor breaker trip. Main turbine trips, turbine stop and control valves close. Automatic reactor scram inserts all control rods into the reactor core. Alternate rod insertion actuates at 1050 psig. Two safety relief valves open and relieve reactor pressure by dumping steam to the suppression pool. Turbine bypass valves open and dump steam to the main condenser. Station loads fast transfer from normal station service transformer to reserve station transformer.

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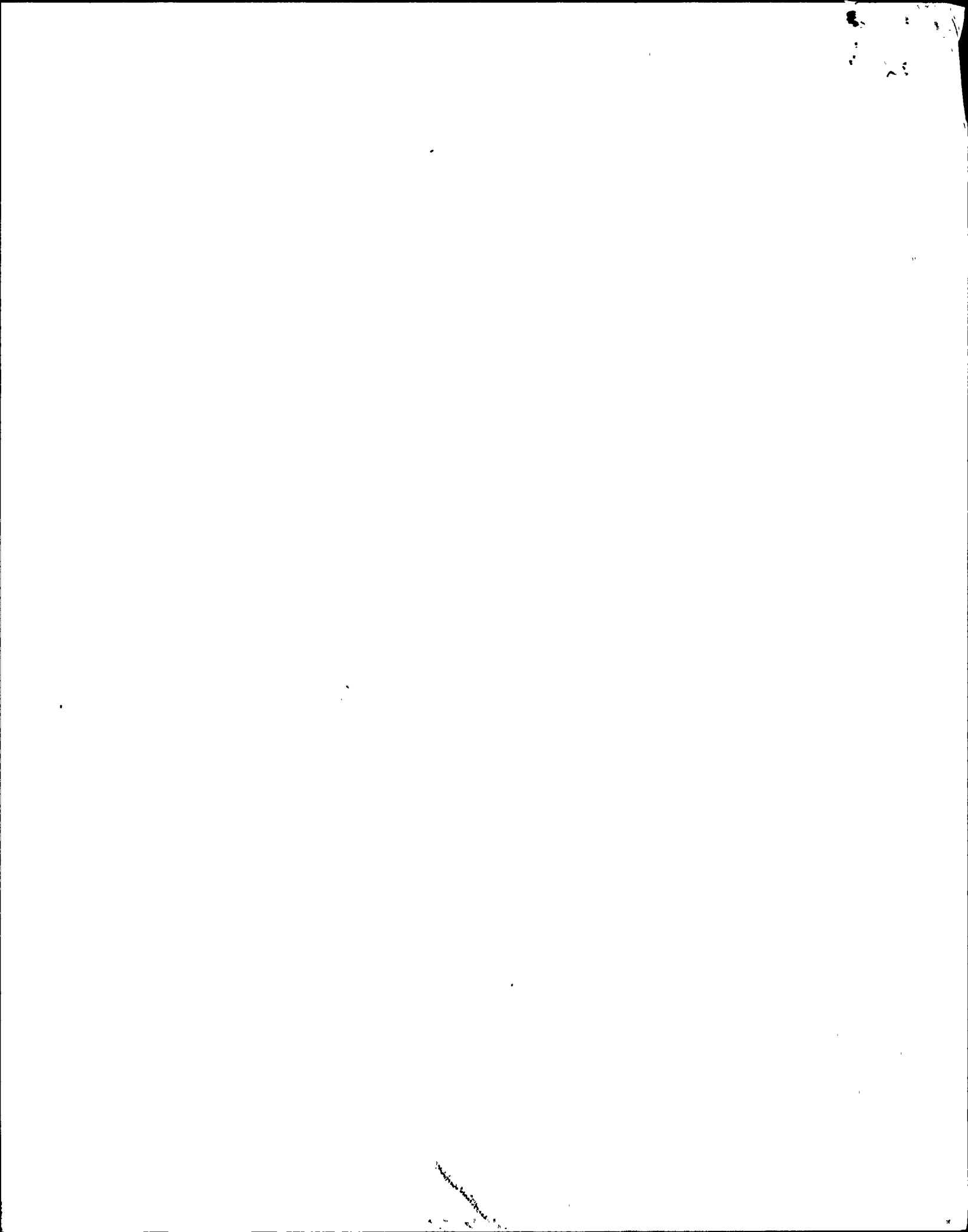


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Sequence of Events

<u>Time</u>	<u>Indications/Problems</u>	<u>Actions</u>
0548 (cont'd)	Uninterruptable power supplies (UPS) 1A, 1B, 1C, 1D and 1G are lost. Loss of these power supplies results in:	<ul style="list-style-type: none"> <li>- Loss of control rod position indication</li> <li>- Loss of feedwater control system</li> <li>- Loss of in-plant radio system and the plant page</li> <li>- Loss of most control room annunciators</li> <li>- Loss of computers (process, safety parameter display system/emergency response facility (SPDS/ERF), GETARS high speed data recorder, gas effluent monitoring system (GEMS), digital radiation monitor system (DRMS), and the 3D-Monicores computer for calculating thermal limits)</li> <li>- Loss of balance-of-plant instrumentation</li> <li>- Loss of some plant lighting</li> </ul>
	Condenser off gas system isolates.	
	Drywell cooling fans trip.	
	Safety-related post accident monitors (PAM) (strip charts) for reactor pressure and water level switch to fast speed at 1050 psig. PAM recorders are used for reactor level and pressure indication.	
	Maximum reactor system pressure, 1070 psig.	
	Operators observe scram pilot lights are out.	
	Operators observe on back panels that average power range monitor (APRM) meters read zero and local power range monitors (LPRM) lights indicate down scale. Scram logic lights are out, the scram discharge volume indicates full.	
	Operators observe that recirculation pumps had automatically switched to low speed.	
	Operators observe that reactor feedwater pumps are tripped.	
	Condensate booster pump 2A trips. Condensate booster pump 2C automatically starts.	
0549	Operators place the mode switch in shutdown inserting a backup manual scram.	



Sequence of Events

<u>Time</u>	<u>Indications/Problems</u>	<u>Actions</u>
0555	Operators initiate reactor core isolation cooling (RCIC) due to lowering reactor vessel level. RCIC flow, speed and pressure oscillations occur while in automatic control, operators take manual control of RCIC.	
	Operators observe reactor recirculation system flow control valves had run back to minimum.	
0556	Operators enter Emergency Operating Procedures (EOP) "Reactor Pressure Vessel (RPV) Control" and "Power/Level Control" and inhibit the automatic depressurization system.	
	Operators initiate suppression pool cooling using residual heat removal system pump 1A.	
0600	Site Area Emergency is declared.	
	Operators dispatched to "uninterruptable" power supplies.	
0607	Logging of cool down commenced.	
0608	State and local authorities notified.	
0612	Called NRC Operations Center.	
0614	RCIC injection secured. Condensate and condensate booster pumps used to inject water from the condenser hotwell.	
	Intermediate range monitors indicating low on range 1, source range monitors indicating approximately 10,000 counts per second.	
0615	High reactor vessel water level is reached. Condensate booster pumps are secured by operators.	
	Operator reports that "uninterruptable" power supplies 1A, 1B, 1C, 1D and 1G found tripped. (Five other "uninterruptable" power supplies at the plant, including the two safety-related supplies continue to provide power throughout the event.)	
0622	Loads normally supplied by UPS 1A, 1B, 1C, 1D, 1G are repowered from "maintenance" bus.	
0630	Following restoration of power to the rod position indicating instruments, operators verify that 179 of 185 control rods indicate full in.	



Sequence of Events

<u>Time</u>	<u>Indications/Problems Actions</u>
0640	Operators restart condensate booster pump 2A. Operators are unable to open main feedwater pump suction valves after the start of the condensate booster pump.  Operators re-entered RPV EOP on level.  Operators use feedwater low pressure/low flow control valve as injection path. Valve modulated to control reactor vessel water level. Note: this flow path is normally used during startup.
0645	The rod drive control system is reset.
0653	The reactor scram is reset per EOPs.
0700	Operators verify all control rods indicate full in. Reactor pressure is controlled using turbine bypass valves.
0711	Process computer restored.
0730	Drywell cooling restored.
0732	Operators experienced difficulty placing the main turbine on the turning gear.
0740	RCIC shutdown to standby.
0750	SPDS restored.
0805	Stack GEMS found inoperable and subsequently restored at 0847.
0937	RCIC outboard containment isolation air-operated check valve did not indicate shut, the in-line isolation valve is shut and de-energized as required by Technical Specifications. RCIC declared inoperable. (RCIC could have been restored if needed.)
0950	UPS 1C and 1D restored to normal power, normal power could not be restored to UPS 1A and 1B, UPS 1A and 1B remain on maintenance power.
1020	UPS 1G restored to normal lineup.
1055	Started reactor water cleanup (RWCU) pump 1B for full reject flow.
1056	RWCU pump 1B trips due to high differential flow and RWCU isolates. (Shift personnel decided to leave isolated.)
1508	Started residual heat removal pump 1B in shutdown cooling mode. Experienced difficulty in controlling reactor vessel water level.







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