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RECIP.NAME RECIPIENT AFFILIATION
EISENHUT,D.G. Division of Licensing

SUBJECT: Forwards response to 810225 Generic Ltr 81-04 re emergency procedures & training for station blackout events.Review indicates that adequate procedures & training exist to mitigate station blackout event.

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NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

June 2, 1981

Office of Nuclear Reactor Regulation
Attn: Mr. Darrell G. Eisenhut, Director
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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

Gentlemen:

Your February 25, 1981 letter requested information regarding Emergency Procedures and Training for Station Blackout Events at Nine Mile Point Unit 1. The attached information addresses your request. In summary our review indicates that adequate procedures and training are in place to mitigate a station blackout.

The information contained in the attachment of this letter demonstrates that continued operation of Nine Mile Point Unit 1 does not present an undue safety hazard to the public.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

D. P. Dise

D. P. Dise
Vice President - Engineering

MGM:bd

Attach.

A015
S 1/1

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[illegible]

[illegible]

State of New York)

County of Onondaga) ss:

DONALD P. DISE, being duly sworn, says:

I am Vice President, Engineering of Niagara Mohawk Power Corporation. I have read the foregoing letter and the fact contained in the letter and attachment are true to the best of my knowledge, information and belief.

Donald P. Dise

Donald P. Dise

Sworn to before me on this

5th day of June, 1981

Cynthia A. Petta

Notary Public

CYNTHIA A. PETTA
Notary Public in the State of New York
Qualified in Onondaga Co. No. 4682225
My Commission Expires March 30, 1982

NIAGARA MOHAWK POWER CORPORATION

RESPONSE TO

NRC GENERIC LETTER 81-04

EMERGENCY PROCEDURES AND TRAINING

FOR STATION BLACKOUT EVENTS

JUNE 1981

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[illegible]

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I. INTRODUCTION AND SUMMARY

A review of procedures at Nine Mile Point Unit 1 has been completed with respect to adequacy for coping with station blackout events. This review indicates that the present procedures are adequate to cope with station blackout events. Specific training to address station blackout is scheduled to begin following the Spring 1981 refueling outage. In addition, we are developing a station blackout scenario to be included as part of the 1981 Operator Requalification Simulator Program.

II. DISCUSSION

In order for a station blackout to occur at Nine Mile point Unit 1, two (2) 115 kV and two (2) redundant diesel generators would have to be lost.

However, the following equipment is available to maintain the reactor coolant inventory and heat removal with only DC power available for an indefinite time period.

- Emergency Condenser System
- Electromatic Relief Valves
- Feedwater System

The following is a description of the systems along with actions necessary to place them into operation.

A. Emergency Condenser System

The emergency condenser system consists of two emergency cooling loops each with two condensers that are designed to remove 190×10^6 BTU/hr per loop. This heat removal rate is equal to the decay heat production 100 seconds following reactor scram after extended operation from high power (See FSAR Section V-F).

The emergency condenser system operates by natural circulation without the need of electrical power to start or maintain the system in operation.

The condensers (4) consist of a tube bundle in a tank containing approximately 20,000 gallons of water. There are also two (2) 40,000 gallon makeup storage tanks which will gravity feed to the condensers when needed. This would provide approximately 8 hours of operations. An alternate supply of water to the makeup storage tanks is provided from the fire protection system (i.e. diesel driven fire pump) and would be available for use when AC power is unavailable.

Each emergency condenser loop is supplied with reactor steam from its own steam line. Each emergency condenser steam line has two isolation valves which are maintained in the open position during power operation. The inside isolation valve is AC motor operated and fails "as is" on loss of power. The outside isolation valve is DC motor operated and it also fails "as is" on loss of power. The outside DC motor operated valve would remain operable on loss of AC power and thereby provide a means of throttling steam, allowing for controlled cooldown of the reactor. Each emergency condenser loop is equipped with a condensate return line (return to recirculation loop) containing an air operated condensate return valve. This valve is maintained in the closed position during power operation. The air

operated condensate return valves are DC solenoid air operated and the valves fail open on either loss of DC power or loss of air. Emergency condenser system operation is initiated by opening the air operated condensate valves.

Therefore the emergency condenser system will initiate and operate without AC power.

The two emergency condenser loops will automatically initiate when reactor pressure exceeds 1080 psig for 10 seconds, or when reactor water level reaches low-low set point condition. The two emergency condensers will remain in service until the operational assessment of conditions indicates that their continued operation is no longer required. The operator can remove either one or both loops from service as required by closing the DC operated steam supply valve in the loop.

The two emergency condenser loops can be manually initiated at any time. The manual operation requires only that the operator open the air operated condensate return valve in the loop(s).

B. Electromatic Relief Valve

Six (6) electromatic relief valves are available for pressure control and/or pressure reduction. Each valve is capable of passing 600,000 #/hr of steam at full system pressure. These valves relieve to the suppression chamber through individual lines. Power for the relief valves is supplied by the 125 volt DC battery bus.

The relief valves operate in two modes.

Mode I - Pressure Actuation
Mode II - Manual

The six electromatic relief valves will function automatically on reactor pressure increases. The set points of the relief valves are staggered, two at 1090 psig, two at 1095 psig, and two at 1100 psig. The relief valves are set to reclose at ~ 20 psig below their lift pressures.

Any or all of the six relief valves may be opened manually from the control room by placing the control switch for the individual valve in the "Open" position. When operated in this mode, the relief valves remain in the open position until either the control switch is returned to the "Auto" position or reactor pressure decreases to ~50 psig.

C. Feedwater System

The feedwater pumps are normally driven by AC supplied motors. In the event of loss of AC power, water can be supplied through the feedwater system by the fire protection water system. This source of water would enable containment flooding, thus, keep the core covered, should a loss of coolant accident occur which depressurizes the reactor. This is accomplished by connecting the station fire protection water system directly to the feedwater system down stream of the reactor feedwater pumps and flow control valves. Water from the fire protection system then passes through any or all 5th stage extraction heaters and into the reactor vessel via the feedwater sparger. All valves except 2 parallel feedwater isolation valves in this stream are manually operated and maintained in the open position during power operation. The 2 feedwater isolation valves are AC motor operated and are also maintained in the open position during power operation. These valves fail "as is" on loss of power. Makeup water for this mode of operation is supplied from a diesel driven fire pump rated at 2500 GPM @ 125 psig. This pump takes suction directly from Lake Ontario via the normal intake tunnel.

To utilize the fire protection water system to supply water to the reactor vessel, a spool piece must be installed between the fire system line and the feedwater line. This system is set up and ready for easy installation. A manual, normally closed valve is located immediately adjacent to the spool piece installation location on each of the two lines, feed water and fire. The spool piece is located on a wall mounting immediately adjacent to its installation location. The spool piece is installed using quick connect vitaulic couplings which require no bolting or special tools. Once the spool piece is installed, the diesel engine fire pump is started either from the main control room or the local panel at the pump or automatically on low fire system pressure by opening the two manual valves mentioned.

Actions required for restoring off-site AC power in the event of a loss of grid are included in operating procedures N1-OP-33A, "115 kV System: and N1-OP-33B, "345 kV System". The procedures detail the required switching actions including those actions required to feed the 115 kV system from the 345 kV system.

All plant electrical systems are designed so that feeders and sections of busses and equipment powered by those busses can be isolated from service and AC power restored to those feeders and busses when isolation is complete. The possibilities involved are numerous and are dealt with individually using operating procedure N1-OP-30, "4.16 kV, 600 volt" and "480 volt house service systems".

Operating procedure N1-OP-45 "Emergency Diesel Generators" details the actions required to start up and synchronize the diesel generators to the emergency bus. Loading of the diesel generators would be based upon the prevailing conditions.

Emergency lighting is supplied throughout the plant. Sufficient full time emergency DC lighting is supplied automatically on loss of AC power to the vital switchboards and areas where operation and/or maintenance would be required. In addition, automatically initiated 1 1/2 hour battery pack emergency lights are located throughout the plant. These battery packs provide lighting in all vital areas, stairwells, entry and exit portals.

Included in all plant operating procedures, are directions and actions required to restore to service the various pieces of equipment and systems upon restoration of AC power. These procedures detail the requirements and actions to "Start-up" and/or "Shut-down" systems or equipment in systems as well as "Special" instructions for various "Off-Normal" conditions.

Nine Mile Point Operator training has not specifically addressed Station blackout as outlined. However, operator training has addressed areas such as operation of 4.16 KV, 600 V and, 480 V House Service Systems, (OP-30), 115 kV, 345 kV Systems (OP-33A and OP-33B), High Pressure Coolant Injection (OP-46), and Loss of Coolant and 115 kV Power Systems (SOP-1). These procedures describe methods of restoring offsite power to the Station due to component failures and source outages, as well as normal Station loading. Training has also been performed in Electromatic Relief Valve and the Emergency Condenser System Operation as an alternate decay heat removal mode when the main heat sink (main condenser) is not available for cooling down the reactor and controlling pressure, as would be the case during a Station Blackout.

In 1978, during annual requalification simulator training, our operators reviewed methods available to shutdown the reactor and restore station loads when normal reserve power was unavailable. In 1980 our operators performed, at the simulator, a degraded power source scenario as outlined in enclosure 4 of Mr. H.R. Denton's March 28, 1980 Letter.

Based on the current emphasis of our training program, station blackout is inherently addressed. However, to further improve operator training in this area, Niagara Mohawk plans to revise its training program to more directly address station blackout. In response to NUREG-0737, Para. II.B.4, Training for Mitigating Core Damage, Nine Mile Point has developed a program to meet the requirements of Mr. H.R. Denton's March 28, 1980 Letter, (Enclosure 3) and INPO's Guidelines for Training to Recognize and Mitigate the Consequences of Core Damage (Rev. 1, 1/15/81). Section 4.2.b of the INPO Guideline addresses Station Blackouts.

This revised training program is scheduled to be conducted following the Spring 1981 Refueling Outage. We also anticipate developing a Station Blackout Scenario to be included as part of our 1981 Operator Requalification Simulator Program.