NIAGARA MOHAWK

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

April 17, 1980

Mr. Boyce H. Grier
Director
United States Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Re: Docket No. 50-220
I.E. Bulletin 79-01B

Dear Mr. Grier:

Our letters of March 5 and March 28, 1980, transmitted partial responses to I.E. Bulletin 79-01B. That Bulletin addresses environmental qualification of electrical equipment.

The attached information responds to the remaining requests contained in the Bulletin. Discussion of previously outstanding items is also included.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

Thomas E. Lempges
Vice President - Nuclear Generation

DKG:jk
Attachment

STATE OF NEW YORK)
COUNTY OF ONONDAGA) ss:

THOMAS E. LEMPGES, being duly sworn, says:

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

Thomas E. Lempges
THOMAS E. LEMPGES

Sworn to before me on this
17th day of April, 1980

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

RESPONSE TO INSPECTION AND ENFORCEMENT

BULLETIN 79-01B

APRIL 17, 1980

Question 1

Provide a "master list" of all Engineered Safety Feature Systems (Plant Protection Systems) required to function under postulated accident conditions. Accident conditions are defined as the LOCA/HELB inside containment and HELB outside containment. For each system within (including cables, EPAs, terminal blocks, etc.) the master list identify each Class IE electrical equipment item that is required to function under accident conditions. Pages 1 and 2 of Attachment 2 are standard formats to be used for the "master list" with typical information included.

Electrical equipment items, which are components of systems listed in Appendix A of Attachment 4, which are assumed to operate in the FSAR safety analysis and are relied on to mitigate design basis events are considered in the scope of this Bulletin, regardless whether or not they are classified as part of the engineered safety features when the plant was originally licensed to operate. The necessity for further upgrading of non-safety related plant systems will be dependent on the outcome of the licensees and the NRC reviews subsequent to TMI/2.

Response

The following additions to our March 28, 1980 submittal have been identified:

A) The 115/4.16KV reserve transformer and Reactor Protection System (RPS) Buses 11 and 12 should be added to the list of electrical equipment common to all systems. Attached is a revised table (Table 1) of electrical equipment common to all systems which includes these items.

B) Additional instrumentation systems' electrical components, in areas exposed to harsh environmental conditions, are listed in Table 2. It should be noted that many components common to the Reactor Protection System are contained in the component list for reactor vessel instrumentation transmitted by Niagara Mohawk's March 5, 1980 response.

Question 2

For each Class IE electrical equipment item identified in Item 1, provide written evidence of its environmental qualification to support the capability of the item to function under postulated accident conditions. For those Class IE electrical equipment items not having adequate qualification data available, identify your plans for determining qualifications of these items and your schedule for completing this action. Provide this in the format of Attachment 3.

Response

Our March 5, 1980 response provided system component evaluation work sheets for components inside the primary containment required to mitigate a loss of coolant accident (LOCA). The worksheets for electrical penetration assemblies and General Electric Vulkene cable should indicate that no thermal aging had been simulated. Attached are revised worksheets for these two components.

In our March 28, 1980 response to this question it was stated that evaluation worksheets for components outside the primary containment would not be submitted unless it was determined that such components are subject to harsh environments during a LOCA or high energy line break (HELB).

An evaluation of possible harsh environments outside the primary containment has been completed. This evaluation indicates that certain general areas may be subject to harsh environmental conditions of temperature and relative humidity. The specific results of this evaluation are included in response to Question 3.

Niagara Mohawk is presently identifying equipment in the harsh environment areas outside the primary containment and will submit component qualification evaluation worksheets for such equipment by March 31, 1981.

Question 3

For equipment identified in Items 1 and 2, provide service condition profiles (i.e., temperature, pressure, etc. as a function of time). This data should be provided for design basis accident conditions and qualification tests performed. This data may be provided in profile or tabular form.

Response

Service conditions due to a LOCA inside the Nine Mile Point Unit 1 primary containment were provided in the March 5, 1980 Niagara Mohawk submittal.

Evaluation of harsh environmental conditions due to HELB outside of the primary containment indicates that generally the reactor building and turbine building may see temperatures of 150F for extended periods of time, building design pressure (less than 1 psig) and relative humidity of 100% on all elevations. Local areas may see direct steam or water impingement and higher temperatures.

Detailed radiation service conditions outside of the Nine Mile Point Unit 1 primary containment following a LOCA are being evaluated. Preliminarily, it has been determined that the containment spray piping outside of the primary containment is the main shine source. Integrated radiation doses in areas where radiation sensitive equipment may be located will be included in evaluation worksheets to be provided by March 31, 1981.

Question 4

Evaluate the qualification of your Class IE electrical equipment against the guidelines provided in Attachment 4. Attachment 5, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment", provides supplemental information to be used with these guidelines. For the equipment identified as having "Outstanding Items" by Attachment 3, provide a detailed "Equipment Qualification Plan." Include in this plan specific actions which will be taken to determine equipment qualification and a schedule for completing the actions.

Response

The March 5, 1980 Niagara Mohawk response to I.E. Bulletin 79-01B contained qualification evaluation worksheets for electrical components within the primary containment required to mitigate a LOCA. Outstanding items on these worksheets are being further investigated as described below.

A) D. G. O'Brien electrical penetration assemblies and General Electric Vulkene cable: Niagara Mohawk will test these components under LOCA service conditions including water spray and simulated thermal aging. Testing, to be performed by the Franklin Institute Research Laboratory will begin by November, 1980 and is expected to be completed by February, 1981.

B) Plans to address outstanding items for qualification of Limitorque valve operators, automatic depressurization system solenoids, and General Electric EB-5 terminal boards are to be reported by March 31, 1981. General Electric has been retained to evaluate this equipment and this date is the earliest we expect results to be available.

The March 28, 1980 Niagara Mohawk response to I.E. Bulletin 79-01B contained qualification evaluation worksheets for electrical components inside the primary containment which are not required for LOCA mitigation but may be useful to the operator (referenced in LOCA procedure). Recirculation pump isolation valve motor operators are being addressed as indicated in Item B above for Limitorque valve operators. Instrumentation components within the primary containment will not be evaluated further. Caution will be provided in operator procedures regarding the questionable qualification of operator aid type equipment by December 31, 1980.

Plans to address potential electrical equipment qualification deficiencies for equipment outside the primary containment will be reported by March 31, 1981. General Electric has been retained to perform the evaluation of this equipment and we have been informed that this is the best schedule we can expect due to similar work they are performing for other licensees.

Question 5

Identify the maximum expected flood level inside the primary containment resulting from postulated accidents. Specify this flood level by elevation such as 620 ft. elevation. Provide this information in the format of Attachment 3.

Response

Maximum expected flood level elevation inside the primary containment resulting from postulated accidents has been previously identified in the March 5 and March 28, 1980 Niagara Mohawk submittals. It has been determined that the maximum expected flood level will be within the suppression chamber.

TABLE 1

SYSTEM ELECTRICAL EQUIPMENT COMMON TO ALL SYSTEMS

COMPONENTS

Plant Identification Number*	Generic Name	Location	
		Inside Primary Containment	Outside Primary Containment
FLEXIBLE WATERTITE ELECTRICAL COND.	SEALTITE CONDUIT VARIOUS SIZES	X	X
FLEX. COND. FITTINGS	SEALTITE FITTINGS VARIOUS SIZES	X	X
J.B. #XXXXX-A THRU ZZZ	JUNCTION BOXES VARIOUS SIZES	X	X
COPE - TRAYMASTER CABLE TRAY	CABLE TRAYS VARIOUS SIZES	X	X
COPE - CABE TRAY FITTINGS	CABLE TRAY FITTINGS VARIUS SIZES		X
115/4.16 KV RESERVE TRANSFORMER	PREFERRED POWER FOR AUX. ELEC. EQUIP.		X
RPS BUS 11 & 12	120 V AC POWER		X

TABLE 2

SYSTEM ADDITIONAL INSTRUMENTATION

COMPONENTS

Plant Identification Number*	Generic Name	Location	
		Inside Primary Containment	Outside Primary Containment
36-03A	LEVEL TRANS.		X
36-03B	LEVEL TRANS.		X
36-03C	LEVEL TRANS.		X
36-03D	LEVEL TRANS.		X
36-04A	LEVEL TRANS.		X
36-04B	LEVEL TRANS.		X
36-04C	LEVEL TRANS.		X
36-04D	LEVEL TRANS.		X
36-05A	LEVEL TRANS.		X
36-05B	LEVEL TRANS.		X
36-05C	LEVEL TRANS.		X
36-05D	LEVEL TRANS.		X
36-06A	Δ PRESS. TRANS.		X
36-06B	Δ PRESS. TRANS.		X
36-06C	Δ PRESS. TRANS.		X
36-06D	Δ PRESS. TRNAS.		X
36-07A	PRESS. TRANS.		X
36-07B	PRESS. TRANS.		X
36-07C	PRESS. TRANS.		X
36-07D	PRESS. TRANS.		X
36-08A	PRESS. TRANS.		X
36-08B	PRESS. TRANS.		X
36-08C	PRESS. TRANS.		X
36-08D	PRESS. TRANS.		X

TABLE 2

SYSTEM ADDITIONAL INSTRUMENTATION

COMPONENTS

Plant Identification Number*	Generic Name	Location Inside Primary Containment	Location Outside Primary Containment
NR 108 A	PRESS. SWITCH		X
NR 108 B	PRESS. SWITCH		X
NR 108 E	PRESS. SWITCH		X
NR 108 C	PRESS. SWITCH		X
NR 108 D	PRESS. SWITCH		X
NR 108 F	PRESS. SWITCH		X
01-26A	Δ PRESS. TRANS.		X
01-26B	Δ PRESS. TRANS.		X
01-26C	Δ PRESS. TRANS.		X
01-26D	Δ PRESS. TRANS.		X
01-26E	Δ PRESS. TRANS.		X
01-26F	Δ PRESS. TRANS.		X
01-26G	Δ PRESS. TRANS.		X
01-26H	Δ PRESS. TRANS.		X
201.2-476A	PRESS. TRANS.		X
201.2-476B	PRESS. TRANS.		X
201.2-476C	PRESS. TRANS.		X
201.2-476D	PRESS. TRANS.		X
1B10A	TEMP. SWITCH		X
1B10B	TEMP. SWITCH		X
1B10C	TEMP. SWITCH		X
1B10D	TEMP. SWITCH		X
1B10E	TEMP. SWITCH		X
1B10F	TEMP. SWITCH		X

TABLE 2

SYSTEM ADDITIONAL INSTRUMENTATION

COMPONENTS

Plant Identification Number*	Generic Name	Location Inside Primary Containment	Location Outside Primary Containment
1B10G	TEMP. SWITCH		X
1B10H	TEMP. SWITCH		X
1B10J	TEMP. SWITCH		X
1B10K	TEMP. SWITCH		X
1B10L	TEMP. SWITCH		X
1B10M	TEMP. SWITCH		X
1B10N	TEMP. SWITCH		X
1B10P	TEMP. SWITCH		X
1B10Q	TEMP. SWITCH		X
1B10R	TEMP. SWITCH		X
RN05A	RADIATION ELEMENT		X
RN05B	RADIATION ELEMENT		X
RN05C	RADIATION ELEMENT		X
RN05D	RADIATION ELEMENT		X
RV45A	Δ PRESS. SWITCH		X
RV45B	Δ PRESS. SWITCH		X
RV45C	Δ PRESS. SWITCH		X
RV45D	Δ PRESS. SWITCH		X
RN07A	RADIATION ELEMENT		X
RN07B	RADIATION ELEMENT		X
RN 04	RADIATION ELEMENT		X
RN 04	RADIATION ELEMENT		X
RN 04	RADIATION ELEMENT		X

TABLE 2

SYSTEM ADDITIONAL INSTRUMENTATION

COMPONENTS

Plant Identification Number*	Generic Name	Location Inside Primary Containment	Location Outside Primary Containment
RN 04	RADIATION ELEMENT		X
1B06-13	TEMP. ELEMENT		X
1B06-14	TEMP. ELEMENT		X
1B06-23	TEMP. ELEMENT		X
1B06-24	TEMP. ELEMENT		X
201.2-476A-D (4)	TRIP UNIT (MASTER)		X
36-03A-D (4)	TRIP UNIT (MASTER)		X
36-03A-D (4)	TRIP UNIT (SLAVE)		X
36-04A-D (4)	TRIP UNIT (MASTER)		X
36-08A-D (4)	TRIP UNIT (MASTER)		X
36-08A-D (4)	TRIP UNIT (SLAVE)		X
36-05A-D (4)	TRIP UNIT (MASTER)		X
36-06A-D (4)	TRIP UNIT (MASTER)		X
01-26A-D (4)	TRIP UNIT (MASTER)		X
01-26A-H (8)	TRIP UNIT (MASTER)		X
36-07A-D (4)	TRIP UNIT (MASTER)		X
36-07A-D (4)	TRIP UNIT (SLAVE)		X
01-01 MSIV	POSITION SWITCH	X	
01-02 MSIV	POSITION SWITCH	X	
01-03 MSIV	POSITION SWITCH		X
01-04 MSIV	POSITION SWITCH		X
IJ12	FLOW TRANS.		X
IJ90	FLOW SWITCH		X

Facility: Nine Mile Point Unit 1
Docket: 50-220

SYSTEM COMPONENT EVALUATION

WORK SHEET

Equipment Description	ENVIRONMENT			DOCUMENTATION REF.*		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation Plant ID No.: N/A Component: Electrical Penetration Assemblies Manufacturer: D. G. O'Brien Model No.: 19 pin #16, 5 pin #16, 4 pin #8, 28 pin #16 Function: Electrical Penetrations Accuracy: Spec: N/A, Demon: N/A Service: Containment Isolation Location: Containment El. 259', 237'	Operating Time	60 Secs.**	28 hrs	5	2,3	Simultaneous	None
	Temperature (°F)	SEE ACCIDENT AND TEST PROFILES PROVIDED		1	2,3	Simultaneous	None
	Pressure (psia)			1	2,3	Simultaneous	None
	Relative Humidity	100%	100%	4	2,3	Simultaneous	None
	Spray	NA	NA	NA	NA	NA	Note 1
	Radiation	1.15 M rads	26 M rads	4	3	Simulation	None
	Aging	NA	NA	NA	NA	NA	Note 1
Containment Flood Level: within torus Yes X, Above Flood Level: No	Submergence	N/A	N/A	N/A	N/A	N/A	N/A

*Documentation References:

1. FSAR, Appendix E, Figures E-31 and E-33
2. FIRL Test Report F-C4879, dated December 1977
3. FIRL Report F-C4879-1, dated April 1978
4. Letter dated March 7, 1979, D.P. Dise (NMPC) to T. Ippolito (NRC)
5. FSAR Ch.VI, Table VI-3

** For accident profile below

Notes:

1. Evaluation to be performed to determine if qualification testing is required

Facility: Nine Mile Point Unit 1
Docket: 50-220

SYSTEM COMPONENT EVALUATION

WORK SHEET

Equipment Description	ENVIRONMENT			DOCUMENTATION REF.*		Qualification Method	Outstanding Items
	Parameter	Specification	Qualification	Specification	Qualification		
System: Containment Isolation Plant ID No.: N/A	Operating Time	60 Secs **	28 hrs	5	2,3	Simultaneous Note 1	None
Component: Electrical Cable	Temperature (^{o}F)	SEE ACCIDENT AND TEST PROFILES PROVIDED		1	2,3	Simultaneous Note 1	None
Manufacturer: General Electric	Pressure (psia)			1	2,3	Simultaneous Note 1	None
Model No.: Vulkene	Relative Humidity	100%	100%	4	2,3	Simultaneous Note 1	None
Function: Power & Contro Accuracy: Spec: N/A Demon: N/A	Spray	NA	NA	NA	NA	NA	Note 2
Service: Containment Isolation	Radiation	1.15 M rads	26 M rads	4	3	Simulation Note 1	None
Location: Containment	Aging	NA	NA	NA	NA	NA	Note 2
Containment Flood Level: within torus yes X Above Flood Level: No	Submergence	N/A	N/A	N/A	N/A	N/A	N/A

*Documentation References:

1. FSAR, Appendix E, Figures E-31 and E-33
2. FIRL Test Report F-C4879, dated December 1977
3. FIRL Test Report F-C4879-1, dated April 1978
4. Letter dated March 7, 1979, D.P. Dise (NMPC) to T. Ippolito (NRC)
5. FSAR Ch. VI, Table VI-3

** For accident profile below

Notes:

1. Qualified as part of the Electrical Penetration Assembly Tests
2. Evaluation of service conditions aging and spray is being performed.