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RECIP. NAME RECIPIENT AFFILIATION
GALLO, R. M. Region 1, Office of Director

SUBJECT: Forwards response to 861016 request for info re individual concerns on control room heating, ventilating, & air conditioning sys, & whether sys met design limits.

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NIAGARA MOHAWK

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

October 24, 1986
(NMP2L 0927)

Mr. Robert M. Gallo, Chief
Projects Branch No. 2
Division of Reactor Projects
U.S. Nuclear Regulatory Commission
Region 1
631 Park Avenue
King of Prussia, PA 19405

Dear Mr. Gallo:

Re: Nine Mile Point Unit 2
Docket No. 50-410

Your October 16, 1986 letter requested information concerning the Nine Mile Point Unit 2 environmental envelope for the Control Room. Specifically, the letter requested information regarding an individual's concerns on the Control Room heating, ventilating and air conditioning system, and whether the system met design limits. Our response is provided in Attachment 1.

Further, information requested regarding why this matter was not resolved by our Quality First Program is discussed below.

Our Quality First Program is a voluntary program afforded to all personnel involved with Nine Mile Point activities. In indoctrination sessions regarding the Quality First Program, videotape sessions, handbill material, and more recently a memo from the Vice President of Quality Assurance of August 27, 1986, we specifically advise that if anyone has a quality or safety concern, the individual's Supervisor should first be contacted. Having discussed it with the Supervisor, if any individual is not satisfied with the handling or resolution of a matter, then Quality First should be contacted.

In the case of Mr. Richard Jones, he indicated that he bypassed the Quality First Program because he felt that the program would not provide an independent assessment of the issues he raised. To the contrary, had he come to Quality First, Mr. Jones' concerns would have been evaluated by personnel other than those who originally designed the system and provided the feedback on the concerns through his Supervisor. Following Quality First personnel's

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investigation of the facts, they would determine whether the stated concerns were or were not valid. If they were determined to be valid, then Quality First would have initiated appropriate action by the responsible Manager to get the condition corrected. Quality First would also have provided feedback to the individual as to the validity of the concern and verified the implementation of any needed corrective action.

We do not believe that Mr. Jones' misapprehension of the Quality First Program is shared by a significant number of individuals working on the Nine Mile Point Unit 2 project. Over 420 matters have been addressed by the Quality First Program. From our point of view, the program has been successful in achieving its goals.

Very truly yours,

cvmangan

C. V. Mangan
Senior Vice President

NLR/pns
2150G
Enclosure

xc: W. A. Cook, NRC Resident Inspector
Project File (2)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
Niagara Mohawk Power Corporation) Docket No. 50-410
(Nine Mile Point Unit 2))

AFFIDAVIT

C. V. Mangan, being duly sworn, states that he is Senior Vice President of Niagara Mohawk Power Corporation; that he is authorized on the part of said Corporation to sign and file with the Nuclear Regulatory Commission the documents attached hereto; and that all such documents are true and correct to the best of his knowledge, information and belief.

C V Mangan

Subscribed and sworn to before me, a Notary Public in and for the State of New York and County of Onondaga, this 24th day of October, 1986.

Christine Austin
Notary Public in and for
Onondaga County, New York

My Commission expires:

CHRISTINE AUSTIN
Notary Public in the State of New York
Qualified in Onondaga Co. No. 4787687
My Commission Expires March 30, 1987

CHRISTINE AUSTIN
Notary P
of New York
No. 47876B7
Qualified in
My Commission Expires March 30, 19__

ATTACHMENT 1

This report responds to a Nuclear Regulatory Commission letter dated October 16, 1986, concerning issues raised by Mr. Richard Jones regarding the Control Room environmental envelope.

Background

Mid-July — Mr. Jones (Startup Test Engineer) and Mr. McCracken (Mr. Jones' immediate Supervisor) raised questions to Mr. Conway (Startup Test Manager) regarding design and testing requirements for the Control Building ventilation system. Mr. Conway directed Mr. Jones to specific sections of the FSAR to check specific NMPC commitments to the appropriate Regulatory Guides and suggested that the Preoperational Test procedure and system engineer be consulted as well.

Late July — Mr. Jones indicated to Mr. Conway that he still had significant questions. Mr. Conway suggested that Problem Reports be initiated where applicable and the rest of the questions be provided in written form.

July 25 — Mr. Jones initiated a Problem Report.

Aug. 1 — Mr. Jones initiated a memo to Mr. Conway.

Aug. 5 — Mr. Conway distributed the memo to Messrs. Abbott (Station Superintendent), Jones (Superintendent Operations), Yaeger (Manager Project Engineering), and Rademacher (Nuclear Design Coordinator).

Aug. 8 — Messrs. Conway, Abbott and Rademacher discussed the questions raised by Mr. Jones and agreed Mr. Conway would contact Mr. Jones on the matter. Mr. Abbott also requested that the Yeager copy of the memo be retracted. It was Mr. Abbott's opinion that engineering resolution of these issues be accomplished by the Problem Report Procedure.

Approx. Aug. 10 — Mr. Conway met with Mr. Jones and Mr. McCracken and provided the following feedback:

- The two concerns regarding the instrumentation for the system should be addressed by the Problem Report process.
- The questions regarding the Hazardous Chemical Isolation Mode and the Positive Pressure Design Requirements had been thoroughly discussed with the NRC and were resolved as indicated by the SER (Section 9.4.1) written for the station.
- IE Information Notice 85-89 had been reviewed by the site technical staff and processed through the Operations Experience Assessment program on site. Mr. Jones was instructed to obtain additional information from General Electric.

After receiving this feedback, Mr. Jones did not indicate to Mr. Conway that he had further questions at that time. Mr. Conway then reminded Mr. Jones that any time he had similar type concerns and he did not receive adequate response from his supervision, he could utilize the Quality First Program (QIP) as a method for resolving his concerns. No further concerns were ever communicated by Mr. Jones until he notified the NRC. Shortly thereafter, the NRC identified the problem to Mr. Abbott.

Oct. 21 Mr. Jones told Mr. Conway that the reason he bypassed the QIP program was because he felt the QIP program could not provide an independent assessment of the issues since, in this case, the same people that originally designed the system and provided information for feedback on his concerns would be performing the QIP followup.

Responses to Mr. Jones' Comments

A. Comment: Regulatory Guide 1.52 Section C-2.g is not being met in that the current design of the Envelope pressure differential instrumentation does not alarm or record. These instruments are also not physically located such that an average internal pressure can be obtained. Several areas of the Envelope may experience pressures very different from those being indicated. A request for a Problem Report has been given to Start-up Instrumentation. Stone & Webster Cherry Hill has been contacted verbally concerning this and they are looking into the matter.

Response: Regulatory Guide 1.52 does not apply to the outside/inside differential pressure instrumentation, it applies to Post Accident Engineered-Safety Feature Atmosphere Cleanup System Air Filtration. The Control Building HVAC is designed as an Engineering Safety Feature (ESF) System as indicated in Final Safety Analysis Report (FSAR) Sections 6.4.2 and 7.3. As discussed in FSAR Section 9.4.1, the present design for the Control Room special filter trains incorporates flow and overall differential pressure recorders. Annunciators are also provided to verify operation of these filter trains. This design satisfies the requirements of Regulatory Guide 1.52 Section C-2.g. There is no requirement to obtain average internal pressure for the Control Building. Problem Report #05264 addressing this concern has been issued and resolved. As discussed in more detail below, the resolution was to delete 2HVC-PDI147 from FSAR Table 7.5-1 as this instrument was not required, nor designed, to be safety related. Sufficient CAT I instrumentation exists to provide desired information. Therefore, no further action is required.

B. Comment: No Hazardous Chemical Isolation Mode is currently designed. There are sufficient quantities of chemicals stored on site and in the vicinity that could cause a hazard to Control Room Operators if the Control Room Ventilation System is not isolated from other air sources during an uncontrolled release of these chemicals. The present design does not meet the intent of these Regulatory Guides.

Response: As discussed in Final Safety Analysis Report (FSAR) Section 2.2.3.1.3, the hazards of potential sources of toxic chemicals have been evaluated in accordance with Regulatory Guide 1.78 (The conditions of Regulatory Guide 1.95 are enveloped within Regulatory Guide 1.78). The results of this evaluation established that with the current design, none of the toxic chemicals evaluated have the potential to incapacitate the control room operators; therefore, no further action is required.

C. Comment: FSAR Section 6.4.1 requires that a positive pressure be "maintained." With the current design of instrumentation, no proof will be available as to the maintenance of the required pressure. Also, the present design only provides for "air tight" doors. Experience has shown that the Envelope pressure will be lost upon ingress and egress of personnel if air locks are not installed. This is a high traffic area and the system may have trouble recovering the lost air. This will also tax the capability of the system filters to maintain a clean environment.

Response: Part of the design basis discussed in Final Safety Analysis Report (FSAR) Section 9.4.1 is to maintain a positive space pressure in the control room. FSAR Section 6.4.1 discusses this as a method to limit infiltration during accident conditions. The ability to maintain a positive pressure of 0.125 inch wg in the control room has been verified by Preoperational Testing and will be verified at least once per 18 months per Technical Specification 3/4 7.3.

The present Control Building design provides for an air lock effect by providing double door isolation around the main control room area. As discussed in FSAR Section 6.4.2.3, the Control Room envelope is constructed in a leak-tight manner to minimize infiltration of air into the Control Room. Also, in compliance with NUREG 0737, as discussed in FSAR Section 1.10, access to the Control Room is limited to those individuals responsible for direct operation of the plant, technical advisors, and NRC personnel. Therefore, this is not a high traffic area during operation. Furthermore, in accordance with Regulatory Guide 1.78, an additional allowance of 10 CFM per door has been included in the control room HVAC design to compensate for ingress and egress.

Based on the above information, no further action is required.

D. Comment: The FSAR Table 7.5-1 lists the area pressure monitor (2HVC-PDI147) as being Safety Class 1. Presently, this monitor is installed as Non-Safety. Also, the Relay Room monitor should have been included in this table as Safety-Related. It is not and is installed as Non-Safety.

Response: Final Safety Analysis Report (FSAR) Table 7.5-1, addressing safety related display instrumentation, was revised in our letter dated August 22, 1986 (NMP2L 0851) to delete the area differential pressure monitor 2HVC-PDI147. This instrumentation was not designed as safety-related because Regulatory Guide 1.97 (Post Accident Monitoring Instrumentation) does not require the differential pressure monitor to be included as part of Post Accident Monitoring. Furthermore, Niagara Mohawk's commitment to Regulatory Guide 1.97, Table 421.36-1 of the FSAR does not require the differential pressure monitor to meet Regulatory Guide 1.97. Based on Regulatory Guide 1.97 and Niagara Mohawk's commitment to Regulatory Guide 1.97, the instrument was deleted from FSAR Section 7.5

Problem Report #05264 addressing this concern has been issued and resolved. The resolution was to delete 2HVC-PDI147 from FSAR Table 7.5-1 as described above.

Based on the above, no action is required.

E. Comment: FSAR Table 9.4-1 lists the temperatures and pressures required in all areas within the Control Room Envelope. The following problems exist: 1) The pressures, where required, are shown as >.125" wg. with no upper limit. Numerous problems can be experienced if the pressure is allowed to increase or stabilize at some level above .125" wg. Damage to structures, equipment or even personnel hazards may result. 2) The temperature for the Control Room is shown as 75°F with no tolerance. A tolerance must be allowed here for obvious instrument and human errors.

Response: The parameters listed in Final Safety Analysis Report (FSAR) Table 9.4-1 are design parameters for the various HVAC systems. These are not necessarily operational limitations as implied in the comment above. The control room pressure identified is also not >.125" wg., but +.125" wg. to indicate that a positive control room pressure is required. The control room pressure is a function of supplied outside air versus leakage out of the room. The maximum allowed outside air flow by the technical specifications is 1500 CFM. A surveillance test has been performed which verifies that a minimum of +0.125" wg. was reached and that the maximum pressure reached at 1485 CFM outside air was 0.25" wg., which is well within the design limits of the room. Temperature is controlled in accordance with the control room HVAC control logic as shown in FSAR Figure 9.4-4. The current design is more than adequate to maintain the design parameters of FSAR Table 9.4-1. Therefore, no action is required.

F. Comment: The Technical Specifications allow the Control Room temperature to reach 104°F before any operator action is required. This temperature is apparently based on the upper internal operating limit of the General Electric supplied control and instrumentation cabinets. General Electric was contacted to confirm this and answer the following questions, but no response could be obtained from General Electric San Jose: a) What is the maximum ambient operating temperature for PGCC cabinets? b) What is the desired operating ambient for PGCC cabinets? c) At what ambient temperature will component damage begin to occur? d) Will stratification of temperature exist within the PGCC cabinets? e) What is the total heat generation from PGCC?

Experience at the McQuire Nuclear Station (IE Information Notice 85-89) has shown that operator action is required at temperatures much lower than 104°F. Because the temperature will rise very fast should ventilation (cooling) be lost to the area, problems in bringing the Reactor to a Safe Shutdown can be experienced.

Response: Control Room temperature has been addressed in our letter dated October 15, 1986 (NMP2L 0907). In addition, the following information is provided:

a) Maximum ambient operating temperature for the PGCC cabinets.

Control Room ambient temperature is maintained at less than 104°F. The PGCC components are designed to at least 120°F.

b) Desired operating ambient temperature for the PGCC cabinets.

Control Room temperature is maintained, by design, at approximately 75°F with only one of the redundant units operating.

c) Ambient temperature that component damage begins to occur.

Component damage is possible above the design temperature of 120°F.

d) Stratification of temperature within the PGCC cabinets.

A field study performed showed that the maximum difference between cabinet temperature (measured near the top of the cabinet) and ambient Control Room temperature was 23°F. This temperature difference was only found in one cabinet while the remaining PGCC cabinets in the study recorded lower temperature differences.

e) Total heat generation from PGCC.

A calculation for PGCC heat load has been performed on a loss of all AC where all air conditioning would also be lost. Attached (Table 1) is a listing of DC loads per PGCC panel with wattage produced. This heat load listing allows approximately one hour to initiate operator action (such as initiation of service water in accordance with Operating Procedure 53A) to prevent exceeding the Technical Specification limit. Niagara Mohawk is currently requesting a change to the Technical Specification limit from 104°F to 90°F.

Based on the above information, no action is required.

TABLE 1
DC LOADS BY PANEL & BATTERY

CONTROL ROOM	PANEL	BATTERY APPROX LOAD (WATTS) 2A	2B	2C	1A	1B
CCBB	P601	230	105	90		
RWCU/RECIRC	P602				50	90
RX CONTR	P603	50			3800	2000
PRM/SRM/IRM	P606				100	
PRM	P608				1800	1800
PWR RNG MON	P609	25			211	
CRD TEST	P610				100	
RPS B	P611		25			211
FW & RECIRC	P612				175	200
PROC INST	P613				200	1075
NSSS TEMP	P614				40	265
CRD INFO	P615				1440	
CRD RELAYS	P616				6600	
RHR B,C	P618		306			
RCIC	P621	100				250
IB ISOL	P622					100
OB ISOL	P623				100	
HPCS	P625			236.5		
ADS A	P628	150				
LPCS/RHR A	P629	180				
ADS B	P631		100			
LDS A	P632	640			532	
PRM/SRM/IRM	P633					100
LDS B	P642		230			436
RSCS	P659				2400	
D1 CT PG/DW CL	P873	102				
D2 CONT PURGE	P875		102			
PAM PANEL	P898		272			
CR TOTAL (W)		1477	1140	326.5	17548	6527

CR HEAT LOAD 27.01 KW

NOT ENERGIZED

TIP CONTROL	P607	BOP BB	P851
JET PMP INST	P619	ELECTR BB	P852
RX FLOW	P634	D1 HVAC	P870
MSR/TBD PANEL	P824	D2 HVAC	P871
TURB SUPV	P841	RAD MONIT	P880

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