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November 4, 1985

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Subject: Dresden Station Units 2 and 3  
Emergency Response Facility  
Regulatory Guide 1.97 Review  
NRC Docket Nos. 50-237 and 50-249

References (a): H. L. Massin letter to H. R. Denton  
dated October 30, 1985.

(b): D. M. Crutchfield letter to D. L. Farrar  
dated June 12, 1984.

Dear Mr. Denton:

The reference (a) transmittal provided a modification schedule resulting from a human factors review of our Emergency Response Facilities (ERF) as required by the reference (b) Confirmatory Order. The results of our review of the ERFs with respect to Regulatory Guide 1.97 was inadvertently omitted from this transmittal. Our report summarizing this review is enclosed herein.

The enclosed report summarizes our evaluation of whether any additional Regulatory Guide 1.97 variables should be added to the ERFs (most variables are already available). Since the results of our Human Factors Review of the Regulatory Guide 1.97 variables did not recommend the adding of variables to our ERFs, we do not intend to initiate any modifications.

If there are any further questions regarding this matter, please contact this office.

One signed original and seven (7) copies of this letter and its attachment are enclosed.

Very truly yours,

J. R. Wojnarowski  
Nuclear Licensing Administrator

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PDR ADOCK 05000237  
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Attachment

cc: R. Gilbert - NRR  
Dresden Resident Inspector

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EVALUATION OF THE NEED FOR ADDITIONAL REG. GUIDE 1.97  
INFORMATION AT THE DRESDEN AND QUAD CITIES ERFs

Although the general function of the personnel in the Emergency Response Facilities (ERF) is to support the control room operators in bringing the plant into a safe condition, it is recognized that the information needs in the ERF are somewhat different than those in the control room. The staff of the Technical Support Center (TSC) and Emergency Operations Facility (EOF) typically are concerned with information that provides an overview of plant status, rather than the values of specific parameters, and are usually under less time pressure in acquiring such specific information than their counterparts in the control room. A question arose, therefore, as to the need for additional Reg. Guide 1.97 information in the ERFs for the Dresden and Quad Cities stations. In particular, are the thirteen instruments from Reg. Guide 1.97 which are listed in Table 1 needed by staff members in the Dresden and Quad Cities TSC and/or EOF when performing their assigned functions and tasks? All of these indications are available in the control room or elsewhere on-site, but, with one exception at one station, these indications are not presently available on the displays in the ERFs.

Approach to the Review

Human factors specialists from ARD Corporation evaluated the need for this instrumentation as part of a broader review of the Commonwealth Edison ERFs at the Dresden and Quad Cities stations. Several task analytic techniques were used to determine the need for this instrumentation in the context of ERF staff members' duties and responsibilities. First, the human factors personnel attended several Generating Station Emergency Plan (GSEP) exercises and debriefings and noted information deficiencies in the TSC and EOF. Second, as part of a structured interview with key ERF personnel, open-ended

questions were asked regarding information needs. Third, a sample of these key personnel were queried directly as to their need for the Reg. Guide 1.97 instruments. Finally, a comprehensive review of the following GSEP procedures was conducted by a human factors specialist and subject matter expert from CECo to determine whether or not information from these Reg. Guide 1.97 instruments were needed in the ERFs in order to effectively perform these procedures:

GSEP Environmental Director Emergency Plan Implementing Procedure ED-1 to ED-31: Duties and Responsibilities of the GSEP Environmental Director, Document #8289A, August, 1985.

GSEP Environs Group Emergency Plan Implementing Procedures EG-1 to EG-19, Document #8389A, August, 1985.

Generating Stations Emergency Plan (GSEP), Revision 4, July, 1984.

Commonwealth Edison Company Offsite Dose Calculation Manual (ODCM), Revision 11, March, 1985.

#### Methods and Results

Human factors personnel attended the 1985 GSEP exercises at LaSalle, and Quad Cities. The LaSalle station uses the same EOF facility (Mazon) as does the Dresden station. Observers were stationed in both the TSC and EOF during the exercises and attended the debriefing session afterwards. In addition, human factors personnel reviewed CECo's files containing comments from the NRC and CECo GSEP controllers for other GSEP exercises in recent years. No deficiencies were noted during these GSEP exercises regarding the availability of Reg. Guide 1.97 instrumentation in the ERFs.

The structured interview that was administered to key ERF

personnel as part of the human factors review of the ERFs contained a number of open-ended questions addressing information needs and the extent to which these needs are met by the existing facilities. A job analysis was performed on the responses to this Personnel Survey. Staff members' responses were specifically examined for references to the Reg. Guide 1.97 instrumentation. In the responses to these open-ended questions there was no mention of deficiencies in this area.

To further investigate the adequacy of the ERF's access to this Reg. Guide 1.97 instrumentation, a telephone interview was conducted with a selected sample of ERF staff members, to ask them specifically about their need for this information, given the tasks they perform. Because these parameters are available in the control room or elsewhere on-site, readings can be obtained by ERF personnel with a phone call to the appropriate location. The question posed was whether or not the information was needed frequently enough or in a time-critical manner that would warrant making these parameters available on the ERF CRTs.

Ten individuals in Commonwealth Edison Company who have responsibilities in the ERFs at Dresden and Quad Cities -- seven in the TSC and three in the EOF -- were interviewed. The staff positions that these individuals filled during recent GSEP exercises are listed in Table 2. It is clear that the people queried were sufficiently well placed that if anyone in the ERFs needed the Reg. Guide 1.97 instrumentation, these people should have been aware of it. The individuals interviewed were assured that their responses were confidential, and they were all very cooperative.

Responses derived from the telephone interviews are summarized in Table 3 and associated comments are compiled in Table 4. There were only four responses in favor of including any of these parameters in the TSC and none for including them in the

EOF. There was one person who recommended having Suppression Pool Temperature available on the computer in the TSC; however, five others thought that having it available in the control room was sufficient. One TSC-assigned person indicated a need for information about Radioactivity Concentration or Level in the Circulating Primary Coolant in order to know what event the station is in; however, nine others felt that having the information available elsewhere in the plant was adequate. One individual indicated a need in the TSC for display of the Isolation Condenser System shell-side water level, but seven indicated no such need. One staff member of a TSC indicated a need for SLCS storage tank level, but nine others felt it was not needed since it is available elsewhere in the station.

Finally, the comprehensive review of the GSEP procedures produced no additional requirements for the Reg. Guide 1.97 instrumentation in the TSC or EOF.

#### Conclusions

The results of this evaluation provide evidence that there is no compelling need to make these Reg. Guide 1.97 variables more readily available in the Dresden and Quad Cities ERFs. No information deficiencies were found with respect to Reg. Guide 1.97 instrumentation as a result of observing GSEP exercises and in responses to an open-ended questionnaire. Interviews with key ERF personnel resulted in no significant need for Reg. Guide 1.97 type indications in the TSC that would warrant making the parameters available on the ERF computer, and no stated need for the indication in the EOF. For the four responses that indicated such a need in the TSC, in no case did more than one person express this need for a particular instrument. Finally, in the comprehensive review of the GSEP procedures, the human factors and subject matter expert found no requirements for additional Reg. Guide 1.97 instrumentation in the TSC or EOF.

Table 1

I have filled the following ERF positions during drills at Dresden or Quad Cities during 1984 or 1985:

<u>Position</u>	<u>TSC or EOF</u> (Check one)	
_____	_____	_____
_____	_____	_____
_____	_____	_____

<u>Reg. Guide 1.97 instrument</u>	<u>Plant</u>		<u>Needed?</u> (Yes or No)	<u>Comment</u>
	<u>Quad</u>	<u>Dresden</u> Available		
Suppression Pool Water Temp	X		_____	_____
Radioactivity Concentration or Level in Circulating Primary Coolant	X	X	_____	_____
Analysis of Primary Coolant (Gamma Spectrum)	X	X	_____	_____
Isolation Condenser System Shell-Side Water Level	N/A	X	_____	_____
Isolation Condenser System Valve Position	N/A	X	_____	_____
SLCS Storage Tank Level	X	X	_____	_____
Cooling Water Temperature to ESF System Components	X	X	_____	_____
Cooling Water Flow to ESF System Components	X	X	_____	_____
High Radioactivity Liquid Tank Level	X	X	_____	_____
Emergency Ventilation Damper Position	X	X	_____	_____
Status of Standby Power and Other Emergency Sources Important to Safety	X	X	_____	_____
All Other Identified Release Points	N/A	X	_____	_____
Particulates and Halogens--All Identified Plant Release Points --Sampling with On-Site Analysis Capability	X	X	_____	_____

Table 2

Staff Positions Occupied By Interviewees

TSC

EOF

Station Director  
Operations Director  
Technical Director  
Environs Director  
ODCS Operator

Recovery Manager  
Emergency Environmental  
Coordinator  
Assistant Emergency  
Environmental Coordinator  
Communicator

Table 3

Reg. Guide 1.97 Instrument

	<u>Responses</u>		
	<u>Yes</u>	<u>No</u>	<u>Blank</u>
Suppression Pool Water Temp	1	5*	
Radioactivity Concentration or Level in Circulating Primary Coolant	1	9	
Analysis of Primary Coolant (Gamma Spectrum)		10	
Isolation Condenser System Shell-Side Water Level	1	7	2
Isolation Condenser System Valve Position		9	1
SLCS Storage Tank Level	1	9	
Cooling Water Temperature to ESF System Components		10	
Cooling Water Flow to ESF System Components		10	
High Radioactivity Liquid Tank Level		9	1
Emergency Ventilation Damper Position		10	
Status of Standby Power and Other Emergency Sources Important to Safety		10	
All Other Identified Release Points		8	2
Particulates and Halogens-All Identified Plant Release Points --Sampling with On-Site Analysis Capability		8	2

\* In addition, 4 people stated that this indication is presently available in the Dresden TSC.

Table 4

Comments on Reg. Guide 1.97 Instrumentation by Ten Interviewees

Suppression Pool Water Temp

No; Available in CR.  
No; Available in CR.  
Already available.  
We have it.  
TSC has this.  
Would be useful, but can get from TSC.  
No; But not very familiar with this parameter.  
No; Available in CR.  
Yes; Critical T in accident. It is available in CR on back panel. However, easiest thing to do is to put it on computer where it would be available in CR and TSC  
No; No comment.

Radioactivity Concentration or Level in Circulating Primary Coolant

No; Available in high-radiation building.  
Yes; Need valve to determine what event we are in.  
No; We can get it from station.  
No; Not needed at EOF.  
No; Drywell radiation containment levels available. Do not need.  
No; Available elsewhere. We need to know condition of core.  
No; But not very familiar with this parameter.  
No; Radiation chemistry has it.  
No; Available through high-radiation sampling system.  
No; Radiation Chemistry might need it.

Analysis of Primary Coolant (Gamma Spectrum)

No; Available in high-radiation building.  
No; Defer to director of Radiation Chemistry.  
No; We can get it from graph.  
No; Station does this. It works with EOF on the problem.  
No; On-line instrument may not be available. Emergency action levels based on other factors are available.  
No; Available at station.  
No; Not very familiar with this.  
No; Radiation chemistry director has this.  
No; Available through high-radiation sampling system.  
No; Radiation chemistry might need it.

Table 4 (continued)

Isolation Condenser System Shell-Side Water Level

No; Available in control room.  
No; Nice to know, but can get it from control room.  
No; We can get it from graph.  
No; Do not need it at EOF.  
No; This is not a piece of safety equipment.  
No; This is part of cooling system. Ask station for it.  
Cannot answer.  
No; Do not have or need.  
Cannot answer.  
Yes; Important and might want to trend in TSC.

Isolation Condenser System Valve Position

No; Available in control room.  
No; Nice to know, but can get it from control room.  
No; We can get it from station.  
No; Do not need it at EOF.  
No; Not piece of safety equipment.  
No; Only need to know system is running. Control room has this.  
No; No comment.  
No; Do not have or need.  
Cannot answer.

SLCS Storage Tank Level

No; Available in the control room.  
No; Nice to know, but can get it from control room.  
No; We can get it from station.  
No; Do not need at EOF.  
No; Other parameters indirectly indicate performance of system.  
No; It gets injected into system or it is still there. Do not need this.  
No; No comment.  
No; Available in control room.  
No; Available in control room.  
Yes; Trend this in TSC for planning.

Cooling Water Temperature to ESF System Components

No; Not needed.  
No; Nice to know, but can get from control room.  
No; Available at EOF on computer now.  
No; Do not need at EOF.  
No; We have suppression pool temperature.

Table 4 (continued)

Cooling Water Temperature to ESF System Components (continued)

No; Somebody in EOF needs to know this. Engineering evaluation can get it.  
No; No comment.  
No; Available in control room.  
No; Available in control room.  
No; Control room has it.

Cooling Water Flow to ESF System Components

No; Available in the high-radiation sample building.  
No; Nice to know, but can get elsewhere.  
No; Not needed.  
No; Do not need at EOF.  
No; Available in CR.  
No; If I have temperature I know if I have flow.  
No; No comment.  
No; Do not need.  
No; No comment.  
No; If component's in control room, do not need.

High Radioactivity Liquid Tank Level

No; Readily available from radiation waste.  
No; Get this from Radiation Chemistry.  
No; No comment.  
No; Station has it.  
No; Not necessary for safe operation.  
No; Plant can get from radwaste system.  
Cannot answer.  
No; Available from Radiation Chemistry sample survey.  
No; Available from radiation waste.  
No; Radwaste tanks not needed.

Emergency Ventilation Damper Position

No; Available in control room.  
No; Nice to know, but can get elsewhere.  
No; Available at station.  
No; Station has it.  
No; Pick up from other data.  
No; Do not need information.  
No; If information is available fairly readily in plant, do not need displays in TSC.  
No; Available in control room.  
No; Available in control room.  
No; No comment.

Table 4 (continued)

Status of Standby Power and Other Emergency Sources Important to Safety

No; Available in control room.  
No; Nice to know, but can get from control room.  
No; Available on computer in EOF.  
No; Station has it.  
No; Pick up from other data. Not necessary to have displays.  
No; Do not need information. Can get from TSC.  
No; If information is available fairly readily in plant, do not need displays in TSC.  
No; Available in control room.  
No; Available in control room.  
No; No comment.

All Other Identified Release Points

Cannot answer.  
No; Nice to know, but can get elsewhere.  
No; Available on computer.  
No; EOF has stack release.  
No; Available in CR.  
No; Available from TSC.  
No; If information is available fairly readily in plant, do not need displays in TSC.  
No; Available in control room.  
Cannot answer.  
No; Radiation Chemistry might need this but I don't.

Particulates and Halogens--All Identified Plant Release Points--  
Sampling with On-Site Analysis Capability

Cannot answer.  
No; Defer to Radiation Chemistry director.  
No; Available at station.  
No; Site has this capability. Station's responsibility.  
No; Can get already.  
No; Available from on-site.  
No; If information is available fairly readily in plant, do not need displays in TSC.  
No; Radiation Chemistry.  
Cannot answer.  
No; Radiation Chemistry might need this but I don't.