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DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards info re radiation monitoring sys necessary to meet NUREG-0737,Item II.F.1 requirements,per 810108 commitment.

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July 10, 1981
AEP:NRC:00586

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
NUREG-0737, Item II.F.1, Attachments 1 and 3

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

Dear Mr. Denton:

Please find attached information on the Radiation Monitoring Systems that is necessary to meet the subject requirements of NUREG-0737. This information is being sent to you in fulfillment of a commitment made in our letter (AEP:NRC:00398) dated January 8, 1981.

Very truly yours,

R. S. Hunter
Vice President

cc: John E. Dolan - Columbus
R. C. Callen
G. Charnoff
R. W. Jurgensen
D. V. Shaller - Bridgman
Joe Williams, Jr.
Region III Resident Inspector - Bridgman

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1.0 INTRODUCTION

1.1 SCOPE

This report provides information on those portions of the D. C. Cook Nuclear Plant Radiation Monitoring System (RMS) necessary to meet the requirements of NUREG-0737, item II.F.1 Attachments 1 and 3.

2.0 RADIATION MONITORING SYSTEM GENERAL DESCRIPTION

2.1 POSITIONS OF NUREG 0737

As discussed in our submittal AEP:NRC:00398 dated January 8,1981 the noble gas monitoring portion of the RMS uses a combination of three detectors to meet the range requirement of NUREG-0737. This approach is consistent with NRC position No. 2 given in NUREG-0737. Attachment 1 to Section II.F.1.

The Steam Generator Safety Relief Valves monitor has a maximum range of 10R/Hr which would correspond to approximately 110 uCi/cc at the source (vendor supplied value). Preliminary estimates indicate that the concentrations in the Secondary Side Steam under accident conditions would be well below this limit. This is an exception to the range requirements of Table II.F.1-1.

The remainder of the positions and clarifications of NUREG 0737, Section II.F.1 Attachments 1 and 3 are being met.

2.2 GENERAL DESCRIPTION

D. C. Cook Plant Radiation Monitoring System will consist of a distributed system of detectors and local processor assemblies communicating to their respective RMS control terminals. One control terminal is located in each control room.

All noble gas radiation measurements, are made with a standard Eberline detector combination which is served by a local processor. The local processor performs background subtraction, applies conversion factors, and retains the data from each detector channel in history files. Each local processor is AC operated from a vital power source with 8 hours of battery backup.

Redundant, in-containment high range radiation measurements are made with a Victoreen High Range Containment Monitoring System. This system operates with a detector inside containment and a readout/controller located in each control room. This information may then be processed through an Eberline local processor in the same manner as described above, including the history file functions.

The two central control terminals are identical. The control terminal is the operator interface with the rest of the system. Each terminal has its own keyboard, printer and system status annunciator. The control terminal also logs history files automatically or upon request, performs calculations on data in the history files, annunciates status conditions, and communicates messages. The "display on demand" note in Table 1 means that information equivalent to a continuous display is available for printing or display when the operator requests it.

3.0 EQUIPMENT TABULATION

Equipment supplied to meet NRC requirements is tabulated in Table 1, "EQUIPMENT DESCRIPTION".

4.0 CONCLUSION

The system as described meets the requirements of NUREG 0737 item II.F.1 Attachments 1 and 3 except as stated by Section 2.1 above in relation to NUREG 0578, its clarification (NUREG 0660) and other related documents.

TABLE 1 EQUIPMENT DESCRIPTION

Item No.	Description	No. Per Unit #1	No. Per Unit #2	Safety Class	Control Action Trip/Alarm	Detector Type	Instr. Range	Re: Isotope	Notes and/or Comments
1	Post Accident High Range In Containment Area Monitor	2	2	IE	Alarm	Ion Chamber	1 to 10^7 R/HR	Photons above 60 KeV (Gross Radiation)	Mfg: VICTOREEN Model: 877-1 Detect 876A-1 Readout 879-1 Opt. Isolator Display: Continuous, Display on Demand & CRT Power: CLASS IE, Train Oriented
2	Lower Containment Radiation Monitor (Airborne) (Off Line)	2	2	NON-IE	Trip & Alarm	B Scint + G.M.	10^{-7} to 10^5 µc/cc	Noble Gas	Mfg: EBERLINE Model: SPING-4 Display: Display on Demand & CRT Power: Supplied by U.P.S.
						γ Scint	4% (4-pi) eff. @364keV	Iodine	
						B Scint	6% (4-pi eff SrY^{90})	Particulate	
3	Unit Vent Effluent Radiation Monitor (Airborne) (Off Line)	1	1	NON-IE	Trip & Alarm	----------same as #2 above ----------			

TABLE 1 EQUIPMENT DESCRIPTION

Item No.	Description	No. Per Unit #1	No. Per Unit #2	Safe Class	Control Action Trip/Alarm	Detector Type	Instr. Range	Re: Isotope	Notes and/or Comments
4	Steam Generator Safety Relief Valves Loops #1,2,3, & 4	4	4	NON-IE	Alarm	G.M.	10^{-4} to 10^{1} R/Hr Equivalent to approx. 110 µc/cc at the source	Noble Gas	Mfg: EBERLINE Model: SA-11 (Detector) Display: Display on Demand & CRT Power: Supplied by U.P.S.
5	Gland Steam Condenser Vent (Airborne) (Off Line)	1	1	NON-IE	Alarm	B Scint + G.M.	10^{-7} to 10^{+3} µc/cc	Noble Gas	Mfg: EBERLINE Model: SPING-3 (Modified for Noble Gas only) Display: Display on Demand & CRT Power: Supplied by U.P.S.,
6	Steam Jet Air Ejector (Airborne) (Off LIne)	1	1	NON-IE	Alarm	----------Same as #5 above----------			

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