



Commonwealth Edison

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March 13, 1986

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

Subject: Dresden Station Unit 3
Recirculation System Piping
Replacement Program-Cumulative
Radiation Exposure Estimate Revision
NRC Docket No. 50-237

- References (a): D. G. Eisenhut letter to All Licensees
of BWRs dated March 14, 1984 (GL-84-07).
- (b): B. Rybak letter to H. R. Denton dated
June 13, 1985.

Dear Mr. Denton:

The Reference (b) letter transmitted Commonwealth Edison's Radiation Protection Summary Report for the current Dresden Unit 3 Recirculation Pipe Replacement (RPR). This report described our ALARA program to be applied to the RPR and provided our estimate of the total cumulative radiation dose for the project. This letter provides a revised dose estimate and describes unique aspects of our RPR effort which have resulted in a modest increase in the total expected dose.

The attachment to this letter provides a summary of the revised man-rem estimate for the Dresden Station Unit 3 RPR program. This summary incorporates actual man-rem expended for tasks which are currently complete, projections for tasks presently in progress (based on data accrued to date), and adjustments to future tasks based on current conditions. The source for all radiation exposure data used to perform this estimate is self reading dosimeters (SRD). Commonwealth Edison's original submittal (Reference (b)) established the total cumulative dose estimate at 1906 man-rem. Our revised estimate establishes it at 2057 man-rem.

Our revised estimate indicates the potential for the total cumulative man-rem dose to exceed the recommended guidelines in Reference (a). The upward revision of the total cumulative man-rem estimate was precipitated by four project perturbations:

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- 1) Changes in the job scope in order to implement new weld guidelines and to grind weld crowns.

The new weld guidelines impacted the number of hours, and thus the man-rem, required for machining and preparing the pipe ends for the welds. The one-step counter bore machining requirement in the original procedure was replaced by a five-step polishing process. The decision to grind the weld crowns was made in the interest of the ALARA concept in that welds could be prepared for future ISI in a lower dose environment than would be possible later in plant life.

- 2) Unanticipated conditions encountered while working the penetrations.

The pipe removal at the penetrations progressed on target. However, when new pipe installation preparations began, unanticipated problems were encountered. Due to the differences in required tolerances for reinstallation, the penetrations required upgrading work, such as rounding of existing pipe machining and weld build-ups, prior to the connection of the new pipe. Similarly, the old guard pipe conditions resulted in extensive machining being required before welding could be considered.

- 3) Increase in the amount of work required to be performed pre-decontamination.

The increase in the amount of work to be performed prior to the recirculation piping and drywell decontamination was due to unforeseen schedule constraints and, although no additional or different work was performed, moving it to pre-decontamination resulted in a higher man-rem expenditure.

- 4) Unexpectedly high dose rates (10 times) on the core spray elevation and associated components, particularly in the area of the nozzles.

The higher than expected dose rates on core spray were mitigated by the ALARA staff and its associated resources, by designing a comprehensive program of health physics controls, shielding and decontamination. Mock-up training, use of experienced nozzle workers, stay timing, electronic dosimetry, containments and rigorous dress requirements were used to control doses and protect the workers from contamination. Supervisory personnel used the remote viewing capability provided by the sophisticated video system in place in the drywell. Decontamination and shielding attention centered on the core spray and control rod drive (CRD) return line nozzles, since the majority of the man-hours would be concentrated in those areas. Other methods employed included high pressure (35,000 PSI) hydrolazing of the internal surfaces of the nozzles after the piping was removed, and high and low pressure flushing of the safe end thermal sleeve crevice area through a drilled hole. Each evolution contributed to an overall reduction in general dose rates, however, localized hot spots remained and general area dose rates were never reduced to those used in the original estimate.

March 13, 1986

Since the Reference (a) Generic Letter specifies no corresponding project scope for the 2000 man-rem guideline, it should be noted that the Dresden Station Unit 3 RPR project encompasses a more extensive scope of activities than any other RPR project completed to date. The Project Radiation Protection Group (PRPG) ALARA staff has attempted to accomplish this larger scope within the same 2000 man-rem guideline. To attain this goal, at the outset of the project the PRPG ALARA staff established an aggressive, high profile presence while providing guidance and support to the project. Members of the ALARA staff routinely interface with Commonwealth Edison and Chicago Bridge and Iron planning and supervision staffs to provide up-front ALARA concept input. This level of involvement has created a successful vehicle for the integration of construction interests and prudent ALARA practices to control exposure.

In view of the controls described and our continuing dedication to the ALARA concept, Commonwealth Edison feels that the 2000 man-rem total cumulative dose may still be achievable, particularly with the present actual man-rem expended (SRD) at 1067.3 with an estimated 67.3% of the project complete.

Throughout the Recirculation Pipe Replacement Project, Commonwealth Edison will continue to strive to comply with the intent of the guidelines set out in the Generic Letter.

If you have any questions regarding this transmittal or our revised estimates, please contact this office.

One (1) signed original and forty (40) copies of this transmittal are provided for your use.

Very truly yours,



J. R. Wojnarowski
Nuclear Licensing Administrator

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Attachment

cc: R. Gilbert - NRR
NRC Resident Inspector - Dresden

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ATTACHMENT

Below is the summary of the Dresden station Recirculation Piping Replacement Project Man-Rem estimate, incorporating actual totals and dose rates through 3/3/86. It also includes changes to the scope of the work, such as welding guidelines and weld crown reduction. This exposure is based on SRD readings, and will not be adjusted for TLD results until the end of the project.

<u>Description</u>	<u>Man-Rem</u>
<u>INSTALLER</u>	
<u>General Tasks</u>	<u>605</u>
<u>Removal of pipe and interferences</u>	<u>184</u>
<u>Removal/Reinstallation of Safe Ends and Flued Heads</u>	<u>270</u>
<u>Pipe Installation</u>	<u>279</u>
<u>Non Drywell Activities</u>	<u>173</u>
<u>Restoration</u>	<u>172</u>
<u>Electrical</u>	<u>78</u>
<u>Sub-total</u>	<u>1761</u>
<u>OTHER ORGANIZATIONS</u>	
<u>CECo QA/QC/NDE</u>	<u>50</u>
<u>Impell (A/E)</u>	<u>12</u>
<u>Station Departments</u>	<u>23</u>
<u>PRPG (Radiation Protection)</u>	<u>130</u>
<u>Start-up and testing</u>	<u>21</u>
<u>Pipe decontamination</u>	<u>11</u>
<u>Sub-total</u>	<u>247</u>
<u>Confirmatory Walkdown (4/27-30/85)</u>	<u>49</u>
<u>TOTAL</u>	<u>2057</u>