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Mr. Herbert Conrad
U.S. Nuclear Regulatory Commission
Mail Stop P-1000
Washington, D.C. 20555

Subject: Rinsing of the Dresden Unit 1 Primary System Following Decontamination

Dear Herb:

In my letter to J. Strosnider of May 5, 1980, I discussed the concerns about residual corrosion that might occur in crevices in Dresden Unit 1 following decontamination as a result of residual NS-1 acidic solvent there and stated as follows: "In view of the long period of shutdown anticipated, I recommend that an extremely thorough rinsing procedure be established and concurred to by the NRC, and that if technically feasible, the traces of residual solvent be decomposed in some manner during or subsequent to this rinsing process." On August 27, 1980, via conference call with Jerry White of Commonwealth Edison and William Walker of General Electric I discussed this concern. I was reminded by Walker and White that the following cleaning and rinsing and cleaning procedure is planned:

1. Decontamination with the NS-1 solvent at a pH of 3.5 followed by draining.

2. A copper rinse procedure which consists of refilling the vessel and piping with a dilute NS-1 solution neutralized with ammonia to a pH of 9.5, and with hydrogen peroxide added. The copper rinse is anticipated to run for about six hours, followed again by draining.

3. A demineralized water rinse for about two hours, during which approximately 99% of the residual material not removed by the copper would be removed.

4. A second demineralized water rinse also for a period of about two hours, followed by draining.

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5. A third demineralized water rinse, if needed, depending on the quantity of radioactivity and the pH and the conductivity of the rinse solution from the second demineralized water rinse.

This series of rinses and in particular the high pH during the six hour copper rinse, reduces substantially my concerns that acidic crevices might remain in the system. This is a long enough time and high enough pH to neutralize the vast majority of the solutions remaining in any of these crevices. Following the last demineralized water rinse, whether it be the second or third (and I personally think the third would be desirable but perhaps not necessary), the unit will be left in wet or dry layup. The procedure and condition for this have not yet been determined by the Commonwealth Edison Co. They feel that this comes rather in the vein of routine operation and is not necessarily subject to review by NRC, but they saw no problem in advising us of what they propose to do once they have made this decision. The alternatives include wet layup, simply draining and flooding with air, draining and attempting to dry the system, followed by either air or nitrogen blanketing. There are obviously numerous pros and cons in operating under each of these conditions. From the point of view of possible corrosion of the materials, I think the first option, that is draining but leaving wet and flooding with air is probably the least desirable. It should not, however, pose significant problems with stainless steels. In other Commonwealth plants where there is a significant amount of carbon steel in the system, i.e. in fossil plants, the drying and nitrogen layup procedure has been used by the utility.

Conclusions

The concern raised by me at earlier dates about corrosion continuing in residual acid crevices has been substantially reduced as a result of my current understanding of the full proposed cleaning and rinsing procedure. Should any significant (unexpected) problems develop they would be determined by the inservice inspection program to be performed before the unit is returned to service.

Sincerely,

John R. Weeks, Leader
Corrosion Science Group

JRW:ob
cc: W.Y. Kato
W.J. Walker
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