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Inryco

June 15, 1979

Secretary of The Commission
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Docketing & Service Branch

Subject: Comments on Draft of
Regulat. Guide 1.35
Revision 3, Dated April 1979

Gentlemen:

After reviewing the Draft of Revision 3 of NRC Regulatory Guide 1.35 issed for Comments, we offer our comments as follow below.

As a means of introduction, Inryco, Inc. - Post Tersioning Division, has been a supplier firm for post-tensioning systems for the majority of post-tensioned containment structures built in the U.S. Our company has also been involved in several surveillance inspections of containment post-tensioning systems and we feel that we have first hand experience in the subject matter.

Comments

Page 3, lines 19 through 24.

This paragraph is not quite clear. It would appear that it implies that wedge-anchored tendons need not to be detensionable, by using words such as "could" and "would". Also, it is not clear how the use of a shim (or shims) under the anchorhead would ensure that the previously gripped portion of the prestressing steel will not form a part of the retensioned tendon. Since the wedge-anchor will remain in the same

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position relative to the strand, any notches or damage to the prestressing steel will remain in the same location as it was when the tendon was originally installed, and that is a part of the retensioned tendon.

Page 4, lines 14 through 24.

When removing the grease cap from an anchorage for surveillance purposes, a certain amount of grease will flow out of the trumpet and conduit. This amount will depend on the orientation of the tendon and the average temperature of the grease. Normal experience has been that the amount of outflow is rather limited (5 to 10 gallons), unless the containment is very warm.

The refilling of a tendon duct by pumping grease under pressure attempting to displace grease already in the duct is not possible, unless the "old" grease had been drained out almost completely.

On the other hand, it is expected that voids will form in the body of the grease as a result of temperature variations. These voids act as expansion reservoirs and should be at a minimum when the containment is at operating temperatures. The important issue is that when voids form, no prestressing steel is exposed to corrosive attack. Through tests it has been demonstrated that when the grease contracts at lower temperatures it will form voids in the body of the grease itself, leaving a heavy coating on the wires and tendon duct. Whether these voids form in the duct or in the trumpet is immaterial, as long as the corrosion protection designed for is being provided. In the practical world, past and present practice is to cool the grease in the vicinity of the cap down as much as possible prior to removing the grease cap, thus minimizing the outflow to a minimum. Prior to reinstalling the cap, as much as possible of the grease removed is replaced, realizing that it is usually not possible to replace grease inside the trumpet. Any void inside the trumpet that could be left unfilled is no different from voids inside the duct itself.

Based on the above, we recommend to delete the requirements of lines 17 through 24, since they cannot be accomplished.

Page 5, C. Regulatory Position C.1 General

Since it is not mentioned anywhere else in the Regulatory Guide, but is necessary to comply with the random selection of surveillance tendons, we recommend the addition of the following after 1.4.

"Anchor hardware must be so designed as to allow complet[illegible]-tensioning and retensioning of any one tendon in the structu[illegible]

Page 6, C.2 Sample Selection

Add Item 2.5 to read:

"2.5 Except as noted in C.2.4, the selection of surveillance tendons must be at random. Pre-selection of surveillance tendons at the time of initial installation is not permitted."

It is obvious that the purpose of random sampling is eliminated if it is known beforehand which tendons will be subjected to a surveillance inspection.

Page 7, C.4 Prestress Monitoring Tests

Item 4.1 Tendons should be totally detensioned to identify broken or damaged wires or strand. The wording "essentially completely detensioned" is very confusing.

Page 9, C.7 Evaluation of Inspection Results

Item 7.4, Line 9: As outlined above, the presence of voids in the grease filler material is expected and necessary to provide for thermal expansion of the grease. This is not a condition of degradation and, therefore, should not be a reportable condition.

Also, what is the definition of "significant void" for an Inspector to use when he has to decide whether to report or not? Should the level of significance not be temperature related?

We recommend that the condition "significant voids within the grease filler material" be deleted.

We appreciate the opportunity of providing our comments to you, and hope they are of benefit to the N. R. C.

Very truly yours,

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