UNITED STATES
NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF: **DOCKET NO:**

INTERVIEW OF DENNIS ZIEMANN

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

INTERVIEW

Nuclear Regulatory Commission
Room 205
4340 East-West Highway
Bethesda, Maryland

Friday, December 27, 1985

The interview convened at 3:25 p.m.

PRESENT:

DENNIS ZIEMANN, Interviewee

THOMAS T. MARTIN, Director
Division of Radiation Safety
& Safeguards
Region I
U. S. NRC

P R O C E E D I N G S

DENNIS ZIEMANN testified as follows:

EXAMINATION

BY MR. MARTIN:

Q This is 3:25 p.m. on the 27th of December, 1985. My name is Tim Martin. I am the team leader for the San Onofre IIT. We are here to interview Mr. Denny Ziemann for the purpose of determining his knowledge and involvement in the San Onofre water hammer correspondence and the in-service testing program, recognizing that this happened many years ago and he may not have any specific recall.

Denny, this is not a criminal investigation, but you have the opportunity, if you want, to have somebody here representing you. Do you need somebody?

A No. That's not necessary.

Q What I would like you to do is to state your full name as you would like to have it appear in the transcript, and your current employment and what your employment was in the 1980 time frame when most of this correspondence occurred.

A Okay. It's Dennis L. Ziemann, and I am currently the deputy director of the division of human factors technology.

At the time that I was actively involved in San Onofre, I was the branch chief of operating reactor branch

number 2, and San Onofre was one of the plants that was assigned to our branch.

Q Let me bring you up to speed and hopefully it will jog your memory. Mid-70s, NRC communicated to licensees our concern about water hammers and the possibility that they might affect safety systems. And by late '70, that discussion largely revolved around a phenomena that we called steam generator water hammer. It was that which originated as a result of steam condensation in or immediately next to the steam generators.

There was a Westinghouse report at that time on the street that said that one could minimize the probability of occurrence and the significance of the occurrence by sealing up the bottom of the feed rings so that you no longer had the holes in the bottom, putting J tubes on the top of the feed rings, having very short feedline, horizontal feedlines just outside the steam generator, and various methods of controlling the feedwater temperature and the rate of addition of feedwater after a loss of feedwater condition.

For San Onofre, the licensee maintained from the very start that no modification was necessary in their plant because they had not had any experiences of steam generator water hammer, although three water hammer events had occurred, and they maintained that they had a very

short horizontal line outside of their steam generator. In fact, they characterized it as less than 32 inches.

The recent event at San Onofre has reopened our concern about water hammers, because when we look at the correspondence what we find is that we concentrated on steam generator water hammer, the phenomena I previously described: the water hammer produced as a result of valve closures, feed reg valves specifically closing too fast, and pump starts into voided lines. Nowhere in this correspondence, though, can I find any basis for not being concerned with voiding of the feedwater lines.

The subsequent NUREG, 0927, that won't be issued until 1983-84, clearly indicates that voided lines can yield water hammer and that leaky check valves can lead to that condition.

Some of the earlier correspondence would not limit itself to the steam generator water hammer and the pump and valve water hammer that I've talked about. The questions could be interpreted as involving all water hammer events, in that we asked the licensee for all water hammer events.

So, my first question to you is, when we were sending the licensee questions, were we concerned about water hammer events that would result from voiding of the feedwater lines?

A Though I'm sure -- I suspect there was a general concern about any water hammers, but the emphasis obviously was being placed on those associated with the steam generator.

Q No question.

A And I can't recall specifically having identified as a problem or raised a question about the other kinds that you mentioned.

Q In fact, the only other place that that's even mentioned is licensee correspondence coming back which mentions discussions held about valve and pump water hammer. The document that you are looking at, which is the safety evaluation for San Onofre, basically focuses on steam generator water hammer.

A Yes.

Q Now, looking through that, the things that are counted on to prevent or mitigate the consequence of these water hammers are very short horizontal lines. That would not be an effective mitigating mechanism, though, if check valves were to leak, because that would give you the larger void and, as a result, the greater potential for a water hammer.

All the fixes for steam generator water hammer basically assume -- seem to assume that there's no leakage to those check valves. Do you ever remember any

conversation or any written document that shows how we were able to ignore check valve leakage?

A No, I don't. I don't. But that is based upon not having studied the files, obviously, as you have. No, I don't. I don't -- frankly, I don't recall that much about the whole issue.

Q I understand that.

A And, perhaps for the record it might be appropriate to indicate what my role in these technical evaluations are?

Q Please do.

A As a branch chief in the operating reactor branch, we would normally get our technical input from a technical review branch, and in their review process they very likely, in the process of reviewing submittals from a licensee, would raise questions which they needed to have answered prior to being able to complete their review as part of being able to complete their review. These questions, then, would be transmitted then to an operating reactor branch who, in turn, would pass them on to the licensee. The licensee would answer the question, they would come back to us, we in turn would pass them back to the technical review branch.

The responses, then, are evaluated by that technical review branch -- would have been in this time

frame. That technical review branch then ultimately writes an evaluation, a safety evaluation on the subject of the issue in question which, in turn, comes back to the operating branch who, in turn, publishes that safety evaluation report and transmit it to the licensee.

So our role in the technical evaluation of an issue such as this one, for example, in questions, is only reviewing those questions to make sure that they are legitimate questions to ask, but not to judge the technical need or the technical adequacy of it. The same is true with their evaluation. When that comes back to us for transmittal, it is normally not to determine the technical adequacy of that product, because if we did, we would in fact be redoing the work that our technical reviewers had done. It's more to make sure that it's a technical document that's supported within itself, that there is a technical basis to justify the conclusions that are presented in the report, and that it will stand on its own when it goes in the public docket room. So that's our general role in the process of these evaluations. And so you can see we are not involved in making those -- the technical calls for the most part.

Q In this correspondence file there is a letter from a licensee, a Mr. Haynes, and we have a date of 4/22/80. In it, it indicates limitations that were agreed

to by NRC Staff on what the licensee would analyze. Are you aware of this agreement and do you have any idea who might have participated in that agreement?

A No. I'm not personally aware of it. My pure guess would be that if there was such an agreement, it might have been with the people who did the technical review. Even though ideally, from an organizational point of view, we try to keep, in that time frame as well as today, the project manager closely involved with everything that goes on at his plant -- because in the 1980s the project manager had three or maybe four plants to try to keep abreast with; he couldn't follow all of them. And therefore it was necessary sometimes for the licensee to deal directly with the technical reviewers. I don't know that that happened. But it's quite possible that it did. I personally am not aware of any such discussions or agreements.

Q We plan to get back to the PM that existed in this period of time. We have not done that yet.

Let me go to a more generic question. I have one or two of them for you.

First, the in-service testing program. Are you aware of any consideration in the in-service testing program that would have transferred responsibility -- and I use that word loosely -- responsibility for preventing the

voiding of the feedwater line to the IST program because the water hammer people didn't seem to address it in their correspondence?

One of the things I can assume is that the water hammer people said: We are not going to have void in these lines because the check valves are going to be tight because they are going to be subject to testing; containment leak rate testing or in-service leak rate testing.

A Yes.

Q That's a possibility. Are you aware of any such assumption or even maybe guidance, that was provided back in this time frame?

A No. No. I am not aware of any at all. But there again I would note that my personal involvement in the in-service testing program, from an overview or from a technical point of view, is almost nonexistent because that was an effort that was the total responsibility of a technical review group. But I certainly do not recall any connection between the two.

Q At this point do you have anything else that you would like to state for the record before we complete?

A No. I think not. I'm sure that you have -- are talking to all the technical people that were involved in these things --

Q We are.

A -- because, as I indicated, even though I was personally involved in the information flow, I was not personally involved in the technical evaluation. The project managers in this time frame did technically follow some of the work more closely than they do today. But as I mentioned before, they had a lot of plants. So whether the project manager for San Onofre at this time had the time to follow this particular activity or not, I don't recall. As a matter of fact, I don't even recall who it was, although he obviously worked for me.

Q Understood.

A Project managers, as you well know, change. But, no, I can't think of anything else in particular.

MR. MARTIN: Thank you very much. Off record at 3:42.

(Whereupon, at 3:42 p.m., the interview was concluded.)

CERTIFICATE OF OFFICIAL REPORTER

This is to certify that the attached proceedings before the UNITED STATES NUCLEAR REGULATORY COMMISSION in the matter of:

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were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission.

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