

Title: WATTS BAR NUCLEAR PLANT

ALLEGED FALSIFICATION OF TEST DATA REGARDING ICE CONDENSER
SCREWS

Licensee:

Tennessee Valley Authority
400 West Summit Drive
Knoxville, Tennessee 37902-1499

Docket Nos.: 050-390; 050-391


Case No.: 2-1998-023S

Report Date: June 15, 2000

Control Office: OI:RII


Status: CLOSED

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SYNOPSIS

This investigation was initiated by the Nuclear Regulatory Commission, Office of Investigations (OI), Region II, on May 4, 2000, to determine whether information recently provided by the Tennessee Valley Authority (TVA) would affect the conclusions of a previous OI investigation.

Based on the information obtained during this supplemental investigation, there is sufficient evidence to rescind certain of the original conclusions of OI Case No. 2-1998-023. There is sufficient new evidence to conclude that [REDACTED] 7c

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LIST OF INTERVIEWEES

EXHIBIT(S)

FRAZIER, Delsa L., Central Laboratory and Field Testing Service (CLFTS) Metallurgical Engineer	10
OVERALL, Curtis C., Former System Engineer, WBN	8
SISSON, Vonda L., Metallurgical Engineer, WBN	12
SMITH, Daryl A., Metallurgical Engineer, CLFTS	6 & 9

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DETAILS OF INVESTIGATION

Applicable Regulations

Allegation: Alleged Falsification of Test Data Regarding Ice Condenser Screws

10 CFR 50.9: Completeness and accuracy of information

10 CFR 50.5: Deliberate misconduct

Purpose of Investigation

The U.S. Nuclear Regulatory Commission (NRC), Region II (RII), Office of Investigations (OI) initiated this supplemental investigation on May 4, 2000 (Exhibit 1), to determine whether information recently provided by the licensee, Tennessee Valley Authority (TVA), would affect the conclusions of the report of investigation for Case No. 2-1998-023.

Background

On November 19, 1999, OI issued a report of investigation (Exhibit 2) for Case No. 2-1998-023, entitled "Alleged Falsification of Test Data Regarding Ice Condenser Screws." That investigation revealed that the TVA Central Laboratory and Field Testing Service (CLFTS) performed metallurgical examinations on screws used for fabrication of the Watts Bar Nuclear Plant (WBN) ice condenser baskets. Pieces of broken screws, identified by the laboratory as "Set A," were found in the bottom of WBN's ice condenser and were examined in an attempt to determine the mode of failure. The laboratory was also requested to examine a sample of new, unused screws as well as in-service screws removed from the WBN ice condenser. CLFTS identified the 12 new screws as "Set B."

CLFTS issued a report authored by Daryl A. SMITH and approved by Delsa L. FRAZIER, both metallurgical engineers, dated June 2, 1995 (Exhibit 3), which itemized seven conclusions, including the statement that "...the screws probably failed due to a combination of several factors...(6) The presence of quench cracks in the screws upon receipt from the manufacturer." The June 2 report contained a photograph, identified as figure 7, of a crack in a screw identified as "Set B." The June 2 report was forwarded to James G. ADAIR, WBN Lead Civil Engineer, for disposition but he took exception to portions of the report. ADAIR contacted Terry R. WOODS, Chief Metallurgist, TVA-Nuclear, and asked WOODS to review the report. WOODS, like ADAIR, felt there were certain statements in the report that could not be supported by laboratory observation and were more on the order of conjecture. WOODS met with personnel at CLFTS and it was decided that a revised report would be issued.

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When the revised report was issued on June 19, 1995 (Exhibit 4), the reference to defective new screws (conclusion no. 6) as well as the figure 7 photograph of the cracked "Set B" screw was missing. There was significant evidence that the information had been removed from the second report to conceal the existence of a condition adverse to quality, i.e., defective screws.

An NRC enforcement conference scheduled for the matter was postponed when the licensee advised that SMITH had new information which may affect the previous OI conclusions. It was learned that the photograph of the "Set B" screw in figure 7 of the June 2 report may have been mislabeled and may have actually been a "Set A" screw. According to the licensee, such a finding meant that there were no cracked "Set B" screws and, therefore, no condition adverse to quality to conceal.

Interview of Alleger (Exhibit 8)

AGENT'S NOTE: This transcript covered several concerns which are not pertinent to this investigation. Due to the volume of the transcript only the portion dealing with this allegation will be attached as Exhibit 8. The below referenced page numbers are the actual page numbers of the transcript. The full transcript will be maintained with the permanent file at OI:HQ.

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On February 11, 1999, OVERALL was interviewed by OI:RII at Cleveland, Tennessee, regarding this and other matters which he had brought before the NRC. OVERALL had been employed by TVA since 1979 and was the system engineer for the WBN ice condenser system from 1984 until 1995.

OVERALL described a vacuum system and a melt tank which were employed for disposal of ice which fell to the ice condenser floor during the 1993-1994 ice loading process. OVERALL explained that the ice was vacuumed from the floor, transported via the vacuum hose to a tank where it was heated for melting purposes, and the water was then disposed of according to procedure.

OVERALL said that after the cleanup process was complete, he inspected the melt tank and discovered a number of screws which apparently had been vacuumed up with the ice. Recognizing the importance of the screws, OVERALL initiated problem evaluation report WBPEN 95-0246 (PER 246). He explained that ice condenser basket screws are used to attach the steel mesh basket material to a ring, or coupling, every 12 feet for a total length of 48 feet. OVERALL said that the screws are unique and would not have come from any source other than the ice baskets. He said that all of the screws and pieces of screws which he found in the melt tank were ice condenser basket screws (Exhibit 8, pp. 36-39).

OVERALL prepared an extent of condition report after completing the PER. He said this document sets forth a best guess estimate of what caused the condition noted on the PER. OVERALL suggested from his observation of the broken screws and reviewing the installation procedures, that over-torquing was a factor. He added that temperature variations would have caused expansion of the screws, possibly leading to fractures as a result of the added stress caused by lifting the baskets during weighing. As a result of these observations, OVERALL proposed a metallurgical evaluation of the screws (Exhibit 8, pp. 44-45 and 47).

OVERALL provided some of the broken screws which he had found to Vonda L. Sisson, WBN Site Metallurgist. At Sisson's request, OVERALL also removed a sample number of in-service screws from ice condenser baskets as well as several new, unused screws from the WBN warehouse. OVERALL said Sisson transported the screws to the TVA CLFTS with a request from OVERALL to determine the mode of failure. OVERALL said CLFTS returned a report with several modes of failure listed for the screws, including thermal cycling and over-torquing. OVERALL recalled that the CLFTS report also referred to corrosion, microfractures, quench cracks and stress overload. OVERALL said CLFTS provided the answers that "validated" his interest in the screws and the "possible cause of failure" (Exhibit 8, pp. 50-53).

OVERALL said the report, dated June 2, 1995, also had magnified photographs of the screws and that the different sets of screws (i.e., new, broken, or whole) were identified by alpha characters. He said that the June 19 analysis of the screws appeared to play down the severity of the June 2 report and that the photograph of the cracked new screw was removed. He added that both the June 2 and June 19 reports bore the same file number.

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OVERALL said SISSON requested he return the June 2 report which would be replaced with the report dated June 19. OVERALL testified that he returned his copy of the June 2 report to SISSON and later received a copy of the June 19 report (Exhibit 8, p. 54).

Upon receiving the June 19 report, OVERALL said he compared it, line-by-line to the June 2 report. He said it was apparent that the tone of the June 19 report was diluted, or downplayed, from that of the June 2 report. OVERALL believes the missing screws from the ice condenser baskets created an unsafe condition that would allow the baskets, or portions of the baskets to eject during an accident (Exhibit 8, pp. 59-60).

OVERALL said his concern was not so much that the screws were missing, as much as it was how they come about to be missing. He stressed that the fractures were the real issue, and whether or not it was an inherent defect that was causing screws to fall out or break. OVERALL contended that he was laid off at TVA in 1995 because he wrote PER 246. He added that the PER came at a bad time for TVA because they (TVA) didn't want the NRC to know about the possible defects in the screws just prior to WBN startup (Exhibit 8, pp. 83-84).

Coordination with Regional Staff

A conference was held with the cognizant staff and OI personnel on April 5, 2000, to determine a course of action in view of new information provided by TVA. The forthcoming enforcement hearing was postponed until appropriate interviews could be conducted and evaluated. On May 15, 2000, Regional representatives from the Division of Reactor Safety, Enforcement, and Regional Counsel were briefed on the preliminary findings of this supplemental investigation.

Coordination with Regional Counsel

Charles E. MULLINS, Acting Region II Counsel, concurred that [REDACTED] 5

Evidence

Interview of SMITH (Exhibit 6)

AGENT'S NOTE: This matter came to NRC's attention only a few days before a scheduled enforcement conference regarding the issue investigated under Case No. 2-1998-023. The OI case agent on that investigation was on a special assignment out of the Region and another agent was assigned to interview SMITH to determine whether the new information necessitated a supplementary investigation and a delay in the enforcement conference.

SMITH identified himself as the metallurgist who performed certain tests on screws from WBN and who produced two reports as a result of the tests. SMITH said a number of broken screws,

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along with one whole screw, were taken from the melt tank of the WBN ice condenser and were identified as "Set A" (Exhibit 6, pp. 4-5). SMITH said the first (June 2, 1995) report was produced with an enlarged photograph (figure 7) of a crack in a screw identified as being from "Set B." The subsequent (June 19, 1995) report was issued with no mention of a crack in a "Set B" screw.

AGENT'S NOTE: It was the missing information from the June 19 metallurgical report regarding defective new screws ("Set B") that became the basis for this allegation.

SMITH said he came to learn that the screw identified as a "Set B" screw in figure 7 of the June 2 report was actually the whole screw from "Set A." SMITH attributed the error to a labeling mistake. SMITH explained that he had forgotten about the mislabeling which took place in 1995. He said that he could not remember at the time of his 1999 OI interview why figure 7 was changed and that his best guess was that the change was made to improve the flow of the report and that the photograph of the "Set B" screw was inadvertently omitted. SMITH said there was a portion of text (conclusion no. 6) in the June 2 report describing the crack in the "Set B" screw but that the text did not appear in the June 19 report. SMITH said he did not have a good answer during his first OI interview as to why the text did not appear in the subsequent report.

SMITH stated that he provided information to OI in 1999 that he suspected the photograph of the "Set B" screw in the June 2 report was actually a photograph of the whole screw from "Set A." SMITH said he assumed that the information he provided to OI would be shared with the Office of General Counsel and others involved in the investigation; therefore, he said nothing else about the matter.

SMITH said he again brought up the hypothesis of a mislabeled photograph during TVA preparations for a scheduled NRC enforcement hearing. SMITH said he was surprised that none of the other individuals involved in the hearing was aware of the possible error and that he assumed the OI investigator would have made that clear for everyone (Exhibit 6, pp. 9-11).

SMITH said he was questioned about the possibility of mislabeling by the other TVA personnel during the preparation for the enforcement hearing. He obtained the photographs of the two screws which were stored on a compact disc (CD) ROM disc and overlaid one transparency on top of the other. He provided copies of the transparencies to other personnel and it was the consensus of those present that the two photographs were actually of the same crack. SMITH further explained that the slight difference in appearance of the crack in the two photographs was the result of a laboratory procedure to reveal the case depth of the screw (Exhibit 6, p. 12).

SMITH said there was also confusion after the June 2 report was issued as to which screw, "Set A" or "Set B," was actually new. He said the June 2 report was written in a way that the two sets were assumed to be from the same source (Exhibit 6, p. 15).

According to SMITH, an endorsement, or clarification, to the June 2 report was issued on June 12, 1995 (Exhibit 7). SMITH stated the endorsement was issued to re-examine the screws to see

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which set contained cracks and that "Set A" screws were still being referred to in the endorsement as "new." However, the endorsement states that a crack was observed in one "new" screw and of the remaining "Set B" screws, no additional cracks were found (Exhibit 6, p. 16).

SMITH said that after the June 12 endorsement, he "somehow" clarified the fact that the photograph in the June 2 report labeled as a "Set B" screw was mislabeled and that the screw was actually from "Set A." SMITH identified others who were involved in the clarification as FRAZIER and Phil GASS, an engineering technician at the laboratory. SMITH said that although others were involved in the identification of the mislabeling, it was primarily his discovery (Exhibit 6, p. 17). When SMITH correctly labeled the photograph in the June 19 report as a crack in the "Set A" screw, he also removed conclusion no. 6 which incorrectly described the defect in the new "Set B" screw (Exhibit 6, p. 21).

Reinterview of SMITH (Exhibit 9)

SMITH was reinterviewed on April 25, 2000, by the reporting agent. SMITH said the CLFTS laboratory received 11 screws initially and that he couldn't remember if the screws were in 2 separate bags or if they were all in 1 bag, but that there were 10 fractured screw heads and 1 whole screw. At the time they were received, the one whole screw was referred to as a new screw, not knowing that other screws were going to be submitted later which were actually new screws (Exhibit 9, p. 6). However, the screws which were received later as "Set B" new screws created some confusion because then SMITH had a screw in "Set A" referred to as a new screw. That confusion was carried through from the June 2 report to the June 12 endorsement (Exhibit 9, p. 7).

During the process of clarifying the first report, the labels A and B were re-examined and the photograph of the crack in the "Set B" screw in the first report was determined to be mislabeled. SMITH stated he was not sure exactly how the screw came to be mislabeled. He said his best guess was that on the back of the microstructural mount containing the sectioned screw from which the photograph was taken, the label "NEW" was placed on the back probably before the "Set B" screws were received and when the photographs were taken of that crack, the caption "NEW" was labeled on those photographs. Therefore, when the "Set B" screws were received and testing was performed on those screws, they were also new screws and it wasn't until the second report was issued that the clarification was made between the whole screw from in-service "Set A" and the new screws in "Set B" (Exhibit 9, p. 8).

SMITH believes the confusion regarding the labels on the back of a screw sample which was initially believed to be new stemmed, in part, from the fact that the first whole screw that was received in "Set A" was labeled "NEW" in order to differentiate it from the fractured screws. He said later the "Set B" screws came in, which were, in fact, new screws. SMITH explained that the use of the term "new" needed clarification, therefore, the June 19 report properly identified that crack as appearing in the "Set A" screw and not the "Set B" screw as shown in the June 2 report.

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SMITH said he corrected the error by changing the caption on the figure to reflect the proper screw identification. He said he was able to verify the proper label due to a notation on the June 12 endorsement which noted that there was only one "new" screw which exhibited a crack and that "none of the remaining Set B screws" exhibited cracks. SMITH further explained that since the one "Set A" screw was still being referred to as "new," it was logical that the cracked screw was the "Set A" screw and none of the "Set B" screws were cracked. Since the screws from "Set B" did not have cracks in them, the conclusion no. 6 which was listed in the June 2 report was deleted from the June 19 report (Exhibit 9, pp. 35-37).

SMITH believes the laboratory did not receive all of the screws at the same time. If all of the screws had been received at the same time, he believes there probably would have been a more clear labeling convention established. SMITH thinks that when the laboratory received the first 11 screws, the label "A" was not assigned. SMITH thinks that when the additional screws were received, it was decided to label the first group "A," the next ones "B," and so forth (Exhibit 9, p. 20).

Later when the "Set B" screws were received, it was realized that they ("Set B" screws) were new screws as well. He said the question arose as to whether the whole screw in the first batch was a new screw and that it was properly identified as a whole, not new, screw. He added that realization was probably made with the help of the customer, Sisson. SMITH said he believes that during the preparation for the enforcement hearing, he came to a more clear understanding as far as which was a "Set A" and which was a "Set B" screw. SMITH does not believe that he had a recollection of the confusion between the "Set A" and "Set B" screws at the time of his initial OI interview in March 1999 (Exhibit 9, pp. 21-22).

SMITH does not believe that he or FRAZIER or anyone else remembered the labeling problem, or labeling clarification that was made until years later when everyone started looking at the evidence and it "sort of logically flowed." SMITH said when he was initially interviewed by OI, it didn't make sense to him why the text (conclusion no. 6) was removed from the June 19 report. SMITH said he had no answer other than it just must have been a mistake. SMITH claims he still doesn't have a clear recollection of making these or any of the other changes. He claims he doesn't remember doing the various tests, but knows that he did them because the data sheets have his initials on them. SMITH repeated that "we made a mistake on the first report and forgot about it." While preparing for the enforcement conference, he said they went back, looked at the evidence, and realized there was a typographical mistake. He repeatedly said he doesn't have any clear recollection as far as making these or any of the other changes (Exhibit 9, pp. 24-25).

SMITH responded as to why he only brought up his information about the mislabeled photograph a year after being interviewed by OI. He said it (the mislabeled photograph) only began to come clear to him around May 13, 1999, after his third OI interview. SMITH alleged that he told OI that he believed that the photograph of the "Set B" crack in the June 2 report and the "Set A" crack in the June 19 report were of the same crack. SMITH further alleged that he exhibited the two

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photographs to the OI interviewer and explained his belief was that the two photographs were of the same screw.

AGENT'S NOTE: The interview referred to by SMITH was actually an opportunity for SMITH to review the transcript of an earlier OI interview. After SMITH completed his review, he was confronted with his possible culpability and was asked very directly whether he wanted to talk about possible wrongdoing on the part of other TVA employees. A tape-recording was not made of this confrontation in an effort to keep it spontaneous. SMITH stated that although TVA Senior Counsel Edward J. VIGLUICCI was present during the actual interview, he (SMITH) does not recall whether VIGLUICCI was present when he allegedly exhibited the two photographs to the OI interviewer along with proposing the hypothesis that the two were actually of the same crack. SMITH alleged that the OI investigator had turned off the tape-recorder and asked SMITH if there was anything else he would like to add. It is noted that such a practice of requesting additional information off the record is not usual or customary for OI investigators. It is also noted that SMITH never showed the two photographs or expressed his hypothesis to the TVA attorneys, or anyone else, from the time of the alleged interview on May 13, 1999, until he raised the issue among his coworkers in March 2000, while preparing for an enforcement conference. VIGLUICCI stated that his notes of the May 13, 1999, meeting do not reflect a discussion as described by SMITH.

During March 2000, when SMITH was questioning whether the two photographs were of the same crack, he retrieved the two photographs which had previously been scanned onto a CD ROM. SMITH took the two photographs and observed the areas where the cracks appeared. SMITH rotated the two images such that the plane of the crack was similarly oriented and then cropped the area leaving only the crack, enlarging it slightly. One CD image was colored red and one colored blue.

SMITH overlaid one image on top of the other and the purple areas which resulted showed that there was an overlap between the two. SMITH said the crack had a similar orientation and the fingers which branch from the crack were similar in both photographs, suggesting to SMITH that they were the same crack. He believes the slight difference in appearance is attributed to the fact that in order to etch the sample, it was repolished, which meant that some of the surface metal was removed. SMITH submitted the overlapping images to others involved in this matter and it was forwarded to the NRC as well as the senior metallurgist at TVA (Exhibit 9, pp. 43-45).

SMITH said when he was being asked by OI why he made the figure substitution the only thing that came to his mind was that it was just for flow purposes or it was a mistake of some sort. He said he honestly didn't remember, nor did anyone else, that the relabeling of the photograph had been done (Exhibit 9, pp. 48-49).

SMITH said there obviously was a conscientious relabeling of the whole screw from "Set A" and he believes that it was because the "Set A" screw was initially referred to as "new" rather than

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being referred to as a whole screw. SMITH said he did not know at the time that the laboratory was going to receive new screws and that there was going to be confusion between the two sets of screws. SMITH said the customer (SISSON) noted that the "Set A" screw was not a new screw, and requested clarification. SMITH indicated that "we" (CLFTS) went back and looked at the photographs and realized "we made a bad call here" (Exhibit 9, pp. 49-50).

SMITH suggested that in 1995 he didn't understand why the confusion between the Sets "A" and "B" screws was that big a deal. He surmised that at the time, he may have thought the whole screw (from "Set A") might have even belonged in the set of new screws received from "Set B." Instead of having 12 screws from "Set B," we may have thought the laboratory actually had 13 new screws (Exhibit 9, p. 54).

AGENT'S NOTE: During certain portions of this interview, as he did here, SMITH would explain in great detail how the photographs came to be mislabeled and subsequently corrected but he consistently insisted that he had forgotten about making the corrections until recently.

SMITH explained that the mislabeling was the result of a twofold error. The handwritten notation "NEW" on the back of the photograph is from the notation on the back of the microstructural mounting media for the "Set A" screw. This notation was initially made merely to differentiate it from the fractured screws. SMITH stated that later, when the laboratory received the new screws, he should have gone back and relabeled the photograph as whole screw from "Set A," and should have removed the word "new" from the back of this photograph. The caption under Figure 7 in the June 2 report then would, or should have read, "transverse view of crack present in a whole screw that was not in service from "Set A." SMITH believes the photograph was mislabeled because the laboratory didn't receive all the samples at the same time. He said referring to the whole screw from "Set A" as a new screw was the first mistake. The second mistake was assuming that because it was called a new screw, it was part of the "Set B" family when it actually was not.

Subsequently, the endorsement (Exhibit 7) identified a crack in one new screw from A and B. SMITH said the customer (SISSON) responded that no new screws were sent with "Set A" and requested clarification. The fact that we labeled it wrong to begin with is not necessarily as much of a mistake as it is that when it was labeled it was assumed to be part of "Set B." That incorrect assumption tied this crack to the screws that had not yet been in service (Exhibit 9, pp. 67-69).

Interview of FRAZIER (Exhibit 10)

FRAZIER said she has come to learn that the information originally attributed to a "Set B" screw actually was a "Set A" screw and that a photograph was incorrectly labeled. She said she did not learn of the mislabeling until a few weeks ago (March 2000). FRAZIER said she does not recall talking to SMITH in 1995 about whether or not a photograph had been mislabeled in the June 2 report. FRAZIER also does not recall SISSON raising a question about differentiating between the Sets "A" and "B" screws and which one exhibited a crack. FRAZIER said it was her

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understanding in 1995 that a photograph of a cracked "Set B" screw was taken out and replaced with a photograph of a similar crack in a screw from a different set (Exhibit 10, pp. 6-7).

FRAZIER said she documented the findings of a comparison between the June 2 and 19 reports to explain why the "Set B" information was missing from the June 19 report. FRAZIER recalled that in her memorandum to WOODS (Exhibit 11) dated September 3, 1998, she reported that the photograph of the "Set B" screw, identified as figure 7, which had appeared in the June 2 report, was replaced with a photograph of another screw. She said the replacement photograph which appeared as figure 7 in the June 19 report represented observations noted in the course of additional testing and was intended to avoid duplication of a similar fracture mode as well as improve the flow of the report (Exhibit 10, pp. 8-9).

FRAZIER identified the additional testing as metallography and hardness traverses which had been requested by the customer (WBN), although she does not recall specifically whether the request came from Sisson. FRAZIER also said she does not recall Sisson seeking clarification on which of the screws exhibited a crack. FRAZIER recalls a meeting at the laboratory with WOODS and others to discuss problems with the June 2 report, and recalls that Sisson was present. However, FRAZIER does not recall that she discussed a possible mislabeling of the screws with either SMITH or Sisson (Exhibit 10, pp. 10-12).

FRAZIER said she recently learned that a "Set B" screw shown in the June 2 report was actually a "Set A" screw. According to FRAZIER, SMITH told her while preparing for the enforcement conference, that he thought the photographs were of the same screw. FRAZIER pointed out to SMITH some minor differences in the appearance of the crack shown in the image, but then SMITH showed FRAZIER the two photographs superimposed one over the other. FRAZIER opined, after seeing the superimposed photographs, that she was "pretty well certain" that the two photographs were of the same crack. FRAZIER stated that SMITH told her that the small screws may not have been labeled and may have gotten mixed up at the time of the examination in 1995 (Exhibit 10, pp. 16-17).

Interview of Sisson (Exhibit 12)

In 1995, Sisson requested a metallurgical analysis by CLFTS of screws found in the melt tank of the WBN ice condenser. Sisson said before a written report was produced by CLFTS, she received certain preliminary data. As a result of the preliminary information, she decided that she should also submit a sample of new screws obtained from the WBN warehouse as well as some sample screws removed from in-service (Exhibit 12, pp.5-6).

Sisson recalled that the first laboratory metallurgical report (June 2) was recalled to the laboratory for revision since certain portions of it required some clarification. The subsequent report (June 19) was issued and Sisson said OVERALL questioned her about differences between the two reports. She said she sat down with OVERALL and went through the reports and the endorsement, line-by-line and paragraph-by-paragraph. She added that they contacted the

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laboratory as needed to clarify any questions. Although she does not recall specifically who she dealt with at the laboratory, she said it was probably SMITH. SISSON said that as a result of that review, she did not find any significant or major issues in the June 19 report.

SISSON said that during the meeting at the CLFTS laboratory to discuss the revision of the June 2 report, an area of confusion was identified regarding labeling of the screw samples. SISSON recalls that the laboratory was asked to verify that the screws were correctly labeled. SISSON said she was not involved in the resolution of the mislabeling but that the cracked screw was identified in the endorsement (Exhibit 7) to the June 2 report. SISSON said the endorsement contained a note that one screw received in the original batch of fractured screws ("Set A") had a fracture and that no additional cracks were found in the "Set B" screws (Exhibit 12, pp. 9-10).

AGENT'S NOTE: When SISSON was interviewed by OI on March 23, 1999, she was specifically asked why the information regarding the "Set B" screws was removed from the June 19 report and she stated that she didn't realize the information had been taken out. She also did not mention in her March 23 interview, as she does here, that she had requested clarification from the laboratory as to whether it was a "Set A" or "Set B" screw which exhibited a crack.

SISSON said she is convinced that the figure 7 photograph in the June 2 report is incorrectly identified as a "Set B" screw. She said she understood from the information in the endorsement that there were no cracks observed in new ("Set B") screws (Exhibit 12, pp. 17-18).

Agent's Analysis

The evidence obtained in this supplemental investigation suggests the following scenario:

1. [REDACTED] mislabeled a photograph (figure 7) of a screw in the June 2 report. The photograph was actually a whole screw ("Set A") obtained from the ice condenser melt tank rather than a new unused screw ("Set B") obtained from the WBN warehouse. 7c
2. When [REDACTED] removed the incorrect photograph, he also removed a textual reference (conclusion no. 6) which stated that a new, unused screw exhibited manufacturing defects.
3. [REDACTED] may or may not have been aware of [REDACTED] error and subsequent revisions. [REDACTED] explanation in 1997 to [REDACTED] management and again in 1998 to [REDACTED] makes no mention of misidentified photographs. [REDACTED] either did not know of [REDACTED] error, or (she) knew of it and attempted to explain it away to protect the reputation of [REDACTED] and the laboratory.
4. WOODS, did not appear to have a complete understanding of the facts when he wrote his reconciliation report dated October 20, 1998. WOODS correctly states in his report that the "Set A" screw which exhibited a manufacturing defect was not a new screw. However, he then

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goes on to admonish the CLFTS staff (SMITH, FRAZIER, etc.) for not including information regarding manufacturing defects in "Set B" screws in the June 19 report. In fact, it appears that there was only one cracked whole screw (from "Set A"), leaving none of the seven new screws examined from "Set B" with observed defects. 7C

5. Given the facts, documents, and testimony (or lack thereof) provided to OI in the original investigation of this matter, it was concluded that [REDACTED]
6. However, given the information obtained during this supplemental investigation, it is believed that SMITH withheld information from his employer either out of embarrassment or a concern for job security, that would have explained the missing information regarding "Set B" screws.
7. This analysis is based on the assumption that the photograph of the "Set B" screw in the June 2 report is, in fact, a misidentified "Set A" screw. The endorsement to the June 2 report, issued by the laboratory on June 12, tends to support this assumption.

Conclusions

Based on the information obtained during this supplemental investigation, there is sufficient evidence to rescind certain of the original conclusions of OI Case No. 2-1998-023. There is sufficient new evidence to conclude that [REDACTED]

[REDACTED] did not willfully conceal wrongful actions by [REDACTED] 7C

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SUPPLEMENTAL INFORMATION

Testimonial and documentary evidence obtained during this supplemental investigation revealed apparent weaknesses in the supervision and quality assurance aspects of the licensee's laboratory services. These weaknesses were discussed with various NRC staff members as this investigation progressed. Most notable was the inattention to detail regarding proper identification of items to be examined at CLFIS as well as poor recordkeeping. Such inattention to detail, and the employee's failure to admit the error, resulted in an extensive investigation using up considerable resources by both the NRC and the licensee.

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LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Description</u>
1	Investigation Status Report, dated May 4, 2000.
2	OI Report of Investigation for Case No. 2-1998-023, dated November 19, 1999, without exhibits.
3	CLFIS Technical Report 95-1021, dated June 2, 1995.
4	CLFIS Technical Report 95-1021, dated June 19, 1995.
5	Reconciliation Report, dated October 20, 1998.
6	Transcribed Interview of SMITH, dated April 10, 2000.
7	CLFIS Endorsement to Technical Report 95-1021, dated June 12, 1995.
8	Extracted Pages from the Transcribed Interview of OVERALL, dated February 11, 1999.
9	Transcribed Reinterview of SMITH, dated April 26, 2000.
10	Transcribed Interview of FRAZIER, dated April 26, 2000.
11	FRAZIER Memorandum to WOODS, dated September 3, 1998.
12	Transcribed Interview of SISSON, dated April 26, 2000.

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