

# EXHIBIT 16

Case No. 2-1998-023

Information in this record was disclosed  
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Act, exemptions 7C

EOIA- 2001-0012

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EXHIBIT 16

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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In the Matter of: :  
INTERVIEW OF :  
PAUL GUTHRIE : OI Case 2-1998-023  
(CLOSED) :  
-----X

Watts Bar Nuclear Plant  
1260 Nuclear Plant Road  
Spring City, Tennessee  
Wednesday, May 12, 1999

The above-entitled matter came on for interview,  
pursuant to notice.

BEFORE:

GARY H. CLAXTON, Special Agent

APPEARANCES:

On Behalf of the Interviewee:

ED BIGLUICCI, Esquire  
Senior Nuclear Licensing Counsel  
Office of General Counsel  
TVA Nuclear

ANN RILEY & ASSOCIATES, LTD.  
Court Reporters  
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C O N T E N T S

WITNESS	EXAMINATION
PAUL GUTHRIE	
BY MR. CLAXTON	4

E X H I B I T S

NUMBER	IDENTIFIED
[NONE.]	

## P R O C E E D I N G S

1  
2 MR. CLAXTON: For the record, today is Wednesday,  
3 May 12th, 1999. This is an interview of Paul Guthrie. This  
4 interview is being conducted at the Watts Bar Nuclear Plant  
5 at 1260 Nuclear Plant Road in Spring City, Tennessee.

6 My name is Gary Claxton, I am a Special Agent with  
7 the Office of Investigations of the Nuclear Regulatory  
8 Commission, Region II in Atlanta. Also present at the  
9 interview is Ed Bigluicci, who is attorney, counsel for TVA.

10 And prior to the beginning of the interview, Mr.  
11 Guthrie, I asked you whether you were aware of Mr.  
12 Bigluicci's role as attorney for TVA, and I believe you said  
13 you were aware of that role.

14 MR. GUTHRIE: Yes.

15 MR. CLAXTON: And that you had personally asked  
16 Mr. Bigluicci to represent you here today.

17 MR. GUTHRIE: That is correct.

18 MR. CLAXTON: Okay. And you are aware that you  
19 have the right to provide information to the NRC in  
20 confidence at any time.

21 MR. GUTHRIE: Yes, I do.

22 MR. CLAXTON: Do you have any objections to  
23 providing the information under oath?

24 MR. GUTHRIE: No, I don't.

25 MR. CLAXTON: Would you raise your right hand,

1 please?

2 Whereupon,

3 PAUL GUTHRIE,

4 the interviewee, was called for examination and, having been  
5 first duly sworn, was examined and testified as follows:

6 MR. CLAXTON: Thank you. You can put your hand  
7 down.

8 DIRECT EXAMINATION

9 BY MR. CLAXTON:

10 Q Mr. Guthrie, before we begin, if you, in the  
11 interview, if you provide a proper name or an acronym, if  
12 you would spell that, I would appreciate it for the person  
13 who will be transcribing this interview.

14 A Okay.

15 Q So, knowing that, could you provide me your full  
16 name?

17 A Okay. My full name is Paul Vincent Guthrie, Jr.

18 Q And Vincent is?

19 A V-i-n-c-e-n-t.

20 Q Okay. And Guthrie?

21 A Is G-u-t-h-r-i-e.

22 Q Now, where do you reside?

23 7C (A [REDACTED]  
24 [REDACTED]  
25 [REDACTED])

7C

1 Q Do you mind providing your home telephone number?

2 7C A [REDACTED]

3 [REDACTED]

4 Q Do you maintain an office or do you have a  
5 business phone?

6 A No, I don't. No, that is only phone.

7 Q All right. Are you occupied -- are you presently  
8 employed?

9 A No, I am presently retired from TVA.

10 Q And when did you retire?

11 A I retired September the 1st, 1995.

12 Q And what was your occupation when you retired?

13 A I was the manager in the materials and inspection  
14 department, working for Terry Woods, I was manager of  
15 materials and welding.

16 Q And what were your responsibilities? Who did you  
17 have -- when I say who, what operation did you have  
18 supervision over?

19 A I had supervision over the welding people who  
20 maintained the G-29 welding manual, and also on  
21 specifications that we had in the -- also in G-29, material  
22 specifications, and I had about four engineers working for  
23 me at the time.

24 Q How long had you held that position?

25 A I held that position about three years.

1 Q Okay. And prior to that, what did you do?

2 A Prior to that I was also a metallurgical engineer  
3 at a lower level working for Terry Woods. And when he came  
4 to Knoxville, I think it was about '90, '91 timeframe, and  
5 then from '88 to '91, and I also was downtown Knoxville  
6 working in the corporation materials for Jim Murdoch.

7 Q Are you a degreed -- do you have a degree?

8 A Yes, I have a bachelor's degree in engineering  
9 physics, a master's degree in metallurgical engineering and  
10 a Ph.D. in metallurgical engineering.

11 Q All right. Are you a professional -- are you a  
12 registered professional engineer?

13 A No, I am not. None of my degrees are from an  
14 accredited college so Tennessee will not register me.

15 Q We talked briefly before the interview regarding  
16 the purpose of your being here today, and that being the two  
17 reports that were issued by the Central Lab Services  
18 regarding some ice basket screws. And specifically what I  
19 would like to ask you about is a meeting that was held on  
20 June 14th, 1995. And I would like to show you a sign-in  
21 list or an attendance list at that meeting. And I would  
22 like to ask you, do you recognize that as your --

23 A I recognize that and I wrote it.

24 Q As your handwriting. Okay.

25 A That is my handwriting.

1 Q All right. Just a little chronology there. Do  
2 you recall that meeting?

3 A No, I have searched my memory, and I just  
4 specifically do not recall that meeting. At that timeframe,  
5 before startup at Watts Barr, there were a lot of meetings  
6 going on. So, you know, that is one of probably many. And  
7 many times, I accompanied Terry to the site for another  
8 issue and would sit through a meeting. And so I just do  
9 not, can not recall any of the details of that meeting.

10 Q Okay. You said you attended quite a few meetings,  
11 would you come to the site for meetings?

12 A Yes. Yes.

13 Q So that was not uncommon?

14 A That was not uncommon to come to a meeting at the  
15 site.

16 Q Do you recall discussing the ice basket screw  
17 issue with Mr. Woods?

18 A I vaguely remember knowing that there was a test  
19 done. I knew that there were screws that -- heads that they  
20 had found on the floor, I assume on the floor, and then sent  
21 them to the lab along with some other screws for evaluation.  
22 And I did know at the time that the site was, and also Terry  
23 was unhappy with the initial report because they felt like  
24 it missed the mark as far as doing what they were asked to  
25 do.

1 Q Do you know why he was unhappy, or did he -- and  
2 to the best of your knowledge, do you know whether he  
3 discovered some problems in the report or how he came to  
4 know about these problems?

5 A I would assume that Vonda Sissom, who the report  
6 was -- I essentially looked at the report, so I do know what  
7 the report was issued to Vonda here at the site. And Vonda  
8 then probably got Terry involved, or sent him a copy, or  
9 faxed him a copy. I am just speculating on that. But at  
10 that time the lab was -- Darrell Smith, who did the work was  
11 a fairly young engineer. And we had had -- oh, I wouldn't  
12 say problems, or I would say suggestions for the lab of  
13 doing work for us not to speculate, to make the reports deal  
14 in facts. And there had been several cases in which they  
15 were speculating beyond doing a failure mode, and trying to  
16 get to the root cause without sufficient knowledge of the  
17 operation of the component or part, and so they would  
18 speculate. You know, this could be the cause.

19 Well, anytime you put that in a report, even  
20 though it is a wild guess, somebody will take it as face  
21 value. And so it was my impression that this was the reason  
22 for asking for it, to take out the speculative parts and  
23 stick to the facts. This is what we saw, and if you have  
24 further information, you know, to take it further towards a  
25 failure analysis or root cause, fine. But, rarely, does the

1 lab have that insight on the operation of the plant.

2 I was also a test engineer for TVA for 18 years,  
3 the Singleton Lab, before they closed it, and I do know  
4 that, you know, sometimes when I was young, I would venture  
5 into those problems. And I learned that, you know, you send  
6 -- and frequently you would sent a preliminary report to  
7 someone and have them to look at it. Not that you wanted  
8 them to dictate the report, but, you know, have I been  
9 accurate when I have projected or tried to take information  
10 from the site and say this is the operational mode of a  
11 unit. Sometimes you are given false information from people  
12 -- well, inaccurate information I guess is a better term.  
13 And so when I tried to extend beyond just they broke because  
14 of the stress corrosion cracking, I tried to look for an  
15 environment that caused it. Sometimes I would send it by  
16 and ask for a review by the party I was going to issue to  
17 it, because I knew they had to live with it.

18 Q Now, are you saying that in the past, you  
19 personally have had instances where you had to go back and  
20 discuss conclusions with the metallurgical lab because of  
21 what you felt they had [inaudible]?

22 A Well, frequently, I would go to -- when it was a  
23 -- I would go to the lab and work with the lab, and develop  
24 -- not that I was telling them what to do, but I would work  
25 with the lab in trying to interpret the data, provide some

1 interpretation, because I assumed I was an expert in the  
2 area. And so I would work more with the lab, go out and  
3 actually spend time, sit [inaudible] down on a scanning  
4 microscope and go over the fracture surface. I wanted to  
5 visually see and know what caused the failure.

6 Q Okay. And the reason I am asking this is you  
7 discussed that you said in the past some conclusions had  
8 been made that maybe went a little too far. And I just want  
9 to make sure that this is coming from your personal  
10 experience.

11 A Yeah, yeah, it was from my personal experience.  
12 And I could add that there is 21 ways metals fail, and when  
13 you look at a fracture surface, you don't know why it  
14 failed. You know what the fracture surface looks like. You  
15 know that there are several things that can cause that type  
16 of fracture. However, to speculate, you need more  
17 information. And I think in this case, in looking at the  
18 first report, there was about seven, I believe there were  
19 seven possible causes. Well, these are -- you know, he  
20 might as well have included all 21, because there was no --  
21 he saw inter-granular fracture on the fracture surface and  
22 there are several reasons, only -- there is only a limited  
23 number of ways that a material can fail that way. And I  
24 felt, I thought it missed the boat because I would have  
25 looked very specifically for hydrogen embrittlement, that

1 would discount it.

2 Q Embrittlement?

3 A Embrittlement. It was an inter-granular fracture  
4 which can occur, stress corrosion cracking, it can occur,  
5 certain types of embrittlement. Hydrogen injected into a  
6 plated material can cause it. And so -- and I just, I agree  
7 that the report did not -- if they were asked not to do a  
8 failure, a complete failure analysis, they were asked to do  
9 a failure mode, I think that was stated in the initial. And  
10 so what mode did these screws fail? Then someone else can  
11 go back and look at the environment, the stress, the  
12 material itself and say, well, you know, this the root  
13 cause.

14 Q Okay. Now, taking it away from the technical  
15 aspect a little bit, as far as what caused, or what caused  
16 the failure, our concern is that did that condition occur  
17 during the manufacturing process and the fact that if that  
18 was indicated that it may have been -- may have been begun  
19 in the manufacturing process or in fact may have occurred in  
20 the manufacturing process, and that was stated in the first  
21 report but not the second report. So we are not so  
22 concerned as far as what caused it, but when it occurred.  
23 And I was wondering about this meeting on June 14th and what  
24 was talked about, what was said at that time. Of course,  
25 you --

1           A     I just simply do not recall any of the details of  
2 the discussion. You know, the -- well, it could have been a  
3 service, an environment. It could have been an application  
4 stress. It could have been a material defect. And, you  
5 know, all of those are plausible, but to -- you would have  
6 to go further in order to determine the root cause, and I  
7 don't think the work that was done was sufficient to draw  
8 that conclusion.

9           [Inaudible], in one of the comments that was made,  
10 they saw zinc in a crack. Well, I am not sure that zinc was  
11 plating the crack or whether it was a corrosion product that  
12 had entered the crack. You know, zinc is a sacrificial  
13 material which corrodes rather than the material corroding.  
14 And zinc oxide, in an aqueous environment, which in the ice  
15 condenser, you have got water present, may have introduced  
16 -- may have entered the crack just simply from corrosion  
17 product. Then when you do your scanning work, you might --  
18 you would probably see some presence of zinc in the crack.

19          Q     Okay. There, again, our concern was the new used  
20 screws that were tested, which apparently there were some  
21 defects noted.

22          A     Well, yes. There were defects noted I think in  
23 the report.

24          Q     In the first report.

25          A     And, so, obviously, the defects are not an

1 application. They were not -- they didn't see the  
2 environment of the ice condenser. So they had to be a  
3 fabrication.

4 Q In your experience, knowing that information  
5 appeared in the first report, what normally would have  
6 happened to that information regarding the manufacturing or  
7 possible manufacturing defects?

8 A Well, I think you would have documented what you  
9 saw. These -- these are present. I would try to document  
10 the nature of the cracks and the extent of the crack. These  
11 were -- these screws were self-tapping and so you want a  
12 hard case and a soft core. Now, the hard case is so that it  
13 will self-tap. And the hard case itself is subjective  
14 cracking, it is much more prone to cracking, but the soft  
15 core should in many cases inhibit or stop the crack from  
16 propagating. So having small surface cracks may not be that  
17 injurious to the material, although it is undesirable, very  
18 -- it is an undesirable feature or product.

19 And what really caused the cracks, you know, you  
20 could have quenching, you can have hydrogen embrittlement,  
21 hydrogen during the flooding process can build up inside the  
22 martin side -- I am being technical again, martin side is  
23 the form of the material, once you quench it, you form a  
24 different structure which is martin side. And it is  
25 susceptible to picking up hydrogen. And then later the

1 hydrogen will accumulate in various regions of the material,  
2 produce a high stress and cause cracking. But I am not  
3 saying that is the cause, because I didn't do the failure.  
4 I am just saying that that is a possibility.

5 Q Excuse me. And the new unused screws.

6 A Yes.

7 Q Okay. But that would have to be --

8 A That would have to --

9 Q -- investigated or --

10 A Yeah.

11 Q I mean what you are saying is a hypothesis?

12 A I am just saying that is one of the things that  
13 leads to this type of cracking, one of the mechanisms.

14 Q Would you consider it significant that you had  
15 that finding or that Darrell Smith had that finding, and it  
16 was included in the first report?

17 A I would say it was important. Any time you see a  
18 flaw in the material, I think it is important whether it is  
19 injurious or non-injurious to the application, I think it is  
20 an important find.

21 Q Did you have any input into the reconciliation  
22 report that Mr. Woods wrote regarding the June 2nd or the  
23 June 19th lab report?

24 A No, I did not.

25 Q Okay. Were you --

1           A     To my knowledge I did not have any. I was, at  
2 that time I was -- you knew I was leaving TVA. And I was  
3 very busy on several other issues. In fact, I had my plate  
4 full. The night I left TVA, I left at 2:00. Winding up  
5 things, leaving everything [inaudible].

6           Q     Like 2:00 a.m.?

7           A     2:00 a.m. in the morning, yeah, I hit the road,  
8 gone.

9           Q     Quite a [inaudible].

10          A     But I mean I felt like that was something I needed  
11 to do, but I have always been accused of works comes first.

12                 MR. CLAXTON: Why don't we take a short break. It  
13 is 10:24.

14                 [Recess.]

15                 MR. CLAXTON: We are back on the record at 10:32  
16 a.m. with Mr. Philips. The same parties are present.

17                 I would like to remind you that you are under oath  
18 with any information that you provide.

19                 MR. GUTHRIE: Let me correct that, it is Mr.  
20 Guthrie.

21                 MR. CLAXTON: I am sorry, Mr. Guthrie. I  
22 apologize. That comes with having too many people in one  
23 day to interview. The names run together. I apologize.

24                 BY MR. CLAXTON:

25           Q     We were talking while we were off the record

1 briefly about doing further investigation or further inquiry  
2 when a problem is found. I think those were approximately  
3 your words. When a metallurgist or a lab metallurgist  
4 detects an issue like the indications in the new unused  
5 screws, and I think you said maybe it should have been  
6 looked at further. At that point when you locate or when  
7 you identify a problem, you know, and I will -- we will use  
8 indications maybe, what would happen then? You document it.  
9 Whose responsibility is it to look at it further to make  
10 further determinations on those indications?

11 A Okay. Typically, what I would do, is in the  
12 report, I would document what I saw and I would not  
13 speculate on the significance, but I would put  
14 recommendations on how to resolve the issue. And,  
15 frequently, the reports would -- you know, this is my  
16 recommendation, to go further and maybe do some pencil  
17 testing. I am not so sure -- I would do -- try to stimulate  
18 the conditions under which -- the loading conditions and  
19 then -- that they were in, in place, and then go further  
20 with a pencil test or something. See how the flaw would --  
21 how the indications would affect the performance of the  
22 screws, and then the other thing I would try to do is  
23 determine the nature and extent of the flaw, or the  
24 indication.

25 And, you know, is it common in all the bolts, or

1 is it just a random number? Or has there been a heat  
2 treatment of a batch of bolts in which a certain limited  
3 number did not see the same heat environment. I have seen  
4 that happen where they throw them all in the basket and in  
5 the cold part of the furnace, they do not achieve the full  
6 heat treatment. So --

7 Q Now, has it been your experience that you would  
8 get a report back from the Central Lab where it would make  
9 such recommendations that further testing was required or  
10 suggested?

11 A That was -- I would say that was more -- they  
12 tended to more, to speculate rather than request -- make a  
13 recommendation for a further evaluation. And then, possibly  
14 because of this and then conclude the report with a  
15 possibility. And I have learned over the years, you do not  
16 say perhaps or possibility. You leave those out of your  
17 reports, because they are speculative issues.

18 Now, if you would add a potential somewhere off in  
19 another section and explain why you are recommending further  
20 testing, to look at maybe hydrogen embrittlement, maybe  
21 stress corrosion cracking, or maybe quench cracks, maybe all  
22 of the things that could possibly lead to that type of  
23 cracking mechanism. And that would be appropriate only when  
24 you were discussing say for recommended for further studies.  
25 And you would explain why you wanted to do those tests, what

1 those tests -- you usually have to say, well, what will the  
2 tests show me. Because the lab has been accused of, you  
3 know, trying to -- what, invent science again. And so you  
4 usually tell them why you want to run this test.

5 Q But that would normally come in the narrative of  
6 the laboratory report?

7 A Right. In the -- after the conclusions were  
8 drawn, and then this would be recommendations for further  
9 studies.

10 Q And then once those recommendations were made,  
11 typically, who would follow up on that?

12 A The lab would be requested to. It would be  
13 approved, because usually, at the time, we had to give a  
14 budget. We would say, you know, this is -- we anticipate  
15 that this is going to cost so much. And we exhausted that  
16 budget, we have to go back for further funding. So when we  
17 were budget restricted, then we would have to stop the  
18 testing, when we concluded the initial request, and then  
19 make those recommendations for further testing.

20 Q And then I think you used the word "client," the  
21 person who makes the request.

22 A Right.

23 Q It would be up to that person to make a subsequent  
24 request for additional testing?

25 A Yes. They would have to approve it. I mean there

1 is an approval process. They would have to say, you know,  
2 turn you on, we need a memo, phone call, or whatever they  
3 would have to be using.

4 Q Based on?

5 A Based on the input that you gave them.

6 Q Okay. I don't think I have anything else. Have  
7 you provided all this information freely and voluntarily?

8 A Yes, I have.

9 Q Okay. Have you received any threats or promises  
10 regarding the information you have provided?

11 A No, I have not.

12 Q Okay. Do you have any questions about what we  
13 have talked about?

14 A No. No, I don't.

15 Q Additional information?

16 A No. I think we have covered it.

17 MR. CLAXTON: All right. Well, if there are no  
18 additional questions, we will conclude the interview at  
19 10:38 a.m.

20 [Whereupon, at 10:38 a.m., the interview was  
21 concluded.]

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CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

Name of Proceeding: INTERVIEW OF  
PAUL GUTHRIE  
(CLOSED)

Docket Number: 2-1998-023

Place of Proceeding: Spring City, TN

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission transcribed by me from recorded tapes provided by the Nuclear Regulatory Commission, and that the transcript is a true and accurate record of the foregoing proceedings to the best of my belief and ability.



Martha Brazil

Transcriber

Ann Riley & Associates, Ltd.