Official Transcript of Proceedings

NUCLEAR REGULATORY COMMISSION

Title: In the matter of:
Georgia Power Company, et al.
(Vogtle Units 1 & 2)

Docket Number: 50-424-OLA-3
50-425-OLA-3

Location: Augusta, Georgia

Date: August 23, 1995

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NUCLEAR REGULATORY COMMISSION

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ATOMIC SAFETY AND LICENSING BOARD

HEARING

In the matter of:	:	50-424-OLA-3
GEORGIA POWER COMPANY, et al.	:	50-425-OLA-3
	:	Re: License Amendment
(Vogtle Electric Generating	:	(transfer to
Plant, Unit 1 and Unit 2)	:	Southern Nuclear)
	:	ASLBP No.
		93-671-01-OLA-3

Wednesday, August 23, 1995

Plantation Room West

Telfair Inn

326 Greene Street

Augusta, Georgia

The above-entitled matter came on for hearing, pursuant to notice, at 8:30 a.m.

BEFORE:

PETER B. BLOCH	Chairman
JAMES H. CARPENTER	Administrative Judge
THOMAS D. MURPHY	Administrative Judge

APPEARANCES:

On behalf of the NRC:

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ALSO PRESENT:

Allen Mosbaugh

I N D E X

WITNESSES:	DIRECT	CROSS	REDIRECT	RECROSS
Mark Briney				
By Ms. Young	--	12278	--	12360
By Mr. M. Kohn	--	12322	--	12347
By Mr. Blake	--	--	12336	--
By Mr. Kohn	--	--	--	12362
By Ms. Young	--	--	--	12385
Sheldon Owyoung Robert A. Johnston				
By Mr. Blake	12408	--	--	--
By Mr. M. Kohn	--	12433	--	--

E X H I B I T S

EXHIBIT NO.	DESCRIPTION	IDENT	REC'D
GPC:			
II-160	4 DCs and 2 Calibration History sheets	12396	12397
II-161 thru II-166	Owyoung/Johnston Exhibits A thru F	12429	12429
Intervenor:			
II-218	5/11/90 Johnston memo	12446	--
II-219	3/20/90 Memorandum	12446	--
II-220	DG Trip Control Hist. Summary	12446	--
II-221	MWO 1-90-01684	12446	--
II-222	Cooper Outage Logbook Copy	12446	--
II-223	Johnston Personal Outage Log	12446	--
II-224	Johnston Outage Expense Rpts.	12446	--
II-225	Corres. re 7/90 air valve prblm	12446	--
II-226	Johnston Notes re air valve	12446	--
II-227	Corres re pneumatic control	12446	--
II-228	Two newspapers	12447	--

PROCEEDINGS

CHAIRMAN BLOCH: The hearing will come to order.

Mr. Briney, welcome back to today's proceedings.

Ms. Young.

Whereupon,

MARK BRINEY

RESUMED his status as a witness herein, and was examined and testified further as follows:

FURTHER CROSS EXAMINATION

BY MS. YOUNG:

Q Good morning, Mr. Briney.

A Good morning.

Q You were asked a lot of questions about trending of defective sensors or either problems of dew point instruments. Do you recall those, yesterday?

A Yes.

Q And you mentioned that you expected when problems were discovered with the dryers or either the sensors, that there would be trending done, possibly by the M&TE program.

A No, I don't believe the trending would have been done by the M&TE programs. The programs that would have done any kind of trending of failures on site that I

recall would have been associated with the deficiency card program and/or the MWO program.

Q I'm looking at your testimony on page 12.

A Okay.

Q And efforts to determine whether prior dew point measures taken with the dryers were reliable.

A I'm sorry, what line are you on?

Q The question that starts at line 3.

A Okay. What I'm referring to there is -- the question was basically did we undertake an effort to review or re-evaluate prior dew point measurements. The investigation that would have been performed there would have been underneath the guise of the M&TE program, based on the failure of an instrument.

Q Right. That's what I was trying to ask you about.

A I'm sorry, I misunderstood what you were asking then.

Q Whose responsibility was it to carry out the M&TE program?

A It was under the I&C Department's program responsibility. I was acting I&C superintendent, so it was my responsibility and that responsibility was delegated through a supervisor and a foreman. The supervisor, as I recall, was Mr. Duncan. The foreman, I'm not sure who was

the foreman at that time. I believe it was either Mr. Wimburn or Mr. Noblett.

Q Could you spell both those names?

A Wimburn is W-i-m-b-u-r-n and Noblett is N-o-b-l-e-t-t.

Q And you say each of those gentlemen were foremen at the time?

A Yes.

Q I know you've been asked a lot of questions before because you had the deposition, but if you could explain again the difference between the responsibilities of an I&C superintendent, an I&C supervisor and an I&C foreman.

A The I&C superintendent was responsible for all of the programs underneath the umbrella of the Instrumentation Department there, including the M&TE programs, procedural programs, corrective maintenance, preventive maintenance.

The I&C supervisors were delegated into positions where they oversaw individual programs or crews of technicians. I believe at the time that I was acting I&C superintendent, we had several supervisors and they were divided up into areas of responsibility that included the M&TE program, I think we had one assigned to looking at outage scheduling and preparation. We had another one

whose sole responsibility was to administer the shift crews of technicians. They all had separate realms of responsibility.

The I&C foremen were typically assigned groups of technicians to supervise, be they M&TE technicians or field technicians or procedure writer type technicians. If they weren't actually supervising specific groups of technicians, they were usually assigned to special projects by their respective supervisor. One that comes to mind is like outage preparation activities.

Q Now if either Mr. Duncan, Mr. Wimburn or Mr. Noblett had not investigated the reliability of previous dew point measurements, it would be your responsibility to follow up on that?

A I would have expected the M&TE program to be administered by Mr. Duncan. My involvement would have been exceptions to that, as they saw fit to report back to me. We did have some mechanisms in place that allowed me to keep up with the status of the program, reports that were generated as far as M&TE inventory and failures and that type of thing, but I wouldn't have necessarily had personal knowledge of whether or not they actually performed an investigation on any given piece of M&TE. That was -- that kind of detail wasn't necessary at the time to give to me.

Q Do you recall whether back in 1990, Mr. Duncan

shared any information with you about what efforts he took with respect to defective test instruments?

A No, I'm sorry, I don't.

Q So you don't have any recollection of there being an investigation on the reliability of prior readings taken with those instruments?

A No.

Q Now as an I&C superintendent, your immediate supervisor was who?

A The maintenance manager, Mr. Harvey Handfinger.

Q And he worked for who -- whom?

A I believe he reported to Skip Kitchens, who was the assistant plant manager at that time.

Q So Mr. Kitchens was head of Operations staff?

A I believe he had Operations and Maintenance under his realm at that time.

Q And his counterpart in terms of a similar level of management responsibility was Mr. Mosbaugh for the Engineering side, Technical Support?

A I don't recall if that was the case during that period of time or not, to tell you the truth.

Q But did Mr. Skip Kitchens report directly to George Bockhold?

A Yes, I believe he did.

Q But when Georgia Power was gathering

information for the IIT, there were facts that were not transmitted through those various managers up to Mr. Bockhold, is that correct?

A Yes, the information that I gathered, for the most part, was given to either Mr. Bockhold or to Mr. Bockhold through Herb Beecher.

Q And who was Mr. Beecher?

A He was acting as a liaison, I believe he was attached to the Nuclear Safety and Compliance Department at the time. And he was a point of contact for me to provide information to, and I believe his responsibilities were to accumulate that information and basically tabulate it, get it typewritten, that kind of thing. And provide it to Mr. Bockhold, that was my understanding.

Q Do you know if Mr. Beecher also provided information to the IIT directly?

A I'm not sure.

Q Now what specific categories of information did you have this kind of unique role in providing either to Mr. Bockhold or the IIT? Did it always concern air quality only?

A The two issues that I recall the most are the air quality issues and the Calcon sensor issues.

Q And trending of Calcon sensor problems was done under the -- either the maintenance work orders or

deficiency cards, depending on which was used in 1990?

A Yes.

Q So Mr. Bockhold would rely on those closer to equipment problems to provide him information on the status at Plant Vogtle?

A In this particular instance he did. He had pretty much direct communication with me during that time of the information that he required. I got most of my marching orders, so to speak, either from George or from George through Herb Beecher, and also some from the critique team during that time.

Q And was the information you collected for the critique team similar to that that Mr. Beecher requested for the IIT?

A As I recall from my review, yes.

Q And do you feel that during this period, Georgia Power provided complete and accurate information to the IIT?

A As far as I know, they did.

Q Were you involved at all in the preparation, or did you provide any input to the April 9, 1990 letter to the NRC?

A I'm sorry, I'd have to see the letter. I'm not sure.

Q I'd like you to take a look at McCoy Exhibit K,

which is GPC Exhibit II-13.

Will you just take a moment to read that letter while I locate it.

A Okay.

MR. BLAKE: Ms. Young, I can provide you another copy for you to utilize.

(Pause.)

CHAIRMAN BLOCH: Mr. Briney, this is Judge Bloch. Do you remember ever having read that letter before?

THE WITNESS: No, I believe this is the first time that I've seen the letter.

MS. YOUNG: Let me know when you get to page 3.

(The witness reviews the document.)

THE WITNESS: I'm on page 3 now.

BY MS. YOUNG:

Q Did you provide input to any of the information in this letter, to your recollection?

A Yes, I believe I did.

Q Could you identify for me which paragraphs or pages?

A I believe on page 2, the paragraphs under A and B. I'm sure that some of that information came through me.

Q Okay, anything else?

A And the other thing that comes to mind is on

page 3, next to the number 4, the statement about "Initial reports of higher than expected dew points were later attributed to faulty instrumentation." I believe that information came from me also.

Q Now do you know what was meant by "initial" in that statement, based on the information that you provided Mr. Bockhold, either directly or through Mr. Beecher?

A I don't recall for sure, but I would say that it was probably the first set of tabulated dew point results that we had.

Q Do you remember the date of those or whether you're referring to Bockhold F or Bockhold K, one of the documents you've been shown?

A If Bockhold F is my handwritten tabulation of those dew points, I believe that was what I was referring to.

CHAIRMAN BLOCH: Let the record show that the Board is showing the witness Bockhold F. Is that it?

THE WITNESS: Yes, I believe that's it.

BY MS. YOUNG:

Q So "initial" only refers to the April 6 readings, according to this note?

A That tabulation says April 6, but I believe the actual readings were taken over a period of time.

Q Do you know what time period?

A I know that it encompassed 4/6 and 4/7, but beyond that I'm not sure. I'd have to re-review the documentation.

Q To your recollection, were these high readings for any reasons other than faulty instruments?

A Not in my opinion, they weren't.

Q Were any of these high readings due to unfamiliarity with how to use the test equipment?

A As far as the EG&G readings?

Q No, I'm talking about the readings you have listed on Bockhold F.

A The readings that we have on Bockhold Exhibit F do include EG&G readings, so some of those readings were inherently suspect because of the unfamiliarity that we had with the equipment.

Q What about the GE rental Alnor?

A We were much more familiar with that equipment, but because they actually showed readings that were outside the norman range, we still were trying to troubleshoot to determine whether or not we had good indications. We weren't going to settle for just what the GE rental unit told us.

Q So based on that information, do you have any opinion on whether the statement in the letter, which is the second sentence in paragraph 4, whether that is a

complete statement of the facts known with respect to initial reports? And if you need to look at another document, you might want to look at Intervenor II-169, which has a more complete table of dew point readings.

(The witness reviews certain materials.)

A I guess the statement directly reflects that we said it was all faulty instrumentation, but these initial readings, in our mind, were still suspect also due to unfamiliarity with some of the equipment we were using, including the EG&G unit.

Q Do you think that information was known as of April 9th?

A I don't know that I expressed that particular opinion to management. I recall expressing that I felt that it was due to faulty instrumentation. I don't know if I went into the detail of suspecting some of this information was due to unfamiliarity with the equipment.

Q Do you know if any of these high readings that are listed on Bockhold F were due to dryers being out of service?

A At the time, I didn't think that they were, no. And I still don't think that these readings reflected any dryer that was out of service.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Look carefully, because I thought you said yesterday that one of the dryers was out of service.

A Yeah, I understand one of the dryers on the 2-A diesel, I believe we said was out of service, but again, these particular numbers aren't an accurate reflection of that. I believe the numbers that we had gotten after that were lower than this. So at the time my thought process was that the numbers were due to either unfamiliarity with the equipment or a faulty instrument.

Q So you don't believe as of April 9th, you would have either known or have informed Mr. Bockhold that the high readings were because the dryers were out of service?

A No.

Q Do you know whether the paragraph in this letter pertains to more than -- well, let me ask you more open-ended. Do you know which unit this paragraph is providing information about?

A No, I'm not sure if it's specific to one particular unit or if it's to both units on all diesels.

Q So you don't know whether it's only to the 1-A, for example, or whether it's --

A No, I didn't prepare the letter, I just provided some of the technical information to the people that did prepare the letter, so I'm not sure what they were trying to show here.

Q But you remembered at the time the concern was the performance of the 1-A, as a result of the failures during the site area emergency?

A That was our initial concern, yes.

Q Now you have testified previously about problems with the Alnor or your conclusion that the Alnor was defective.

A Yes.

Q Do you know whether any readings of the calibration of the Alnor would have been taken before it was sent to the manufacturer for recalibration?

A Not to my knowledge, they weren't. I don't -- our M&TE facility, as I recall, weren't set up to perform calibrations to that piece of equipment. So I don't know how we would have been able to take any readings that would have confirmed that the Alnor was faulty -- at least not through the M&TE program.

Q But when a piece of equipment is sent back to a manufacturer, is it handled in any special manner?

A Not that I can recall.

Q So you don't know if there's any special packaging or whether it's just dropped in a --

A I wasn't involved with that level of detail with the program.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Mr. Briney, do you know whether at the end of a calibration period, plant procedures required that a calibration laboratory check the as-found calibration?

A I don't recall if the plant procedures required them to take as-found data.

Q Was it a general practice to obtain as-found data at the end of a calibration period?

A It was general practice to require as-found data to be taken -- if we were sending it off to a vendor, is that what you're saying? It was general practice to ask for as-found data.

Q When you were sending instruments off, not necessarily -- well, if it was vendor recalibration, yes. If you're sending it to the vendor for recalibration, you would ordinarily get as-found data?

A I would say ordinarily, yes.

Q And did you suspect that the Alnor was permanently disabled or just that it was out of calibration?

A Not being extremely familiar with the internal workings of the Alnor, I really couldn't guess. I just, in my mind, felt as though it was providing us with erroneous information. Whether it was a permanent disability or something that could be easily rectified through a

calibration process, I couldn't even guess.

Q Do you know whether or not the Alnor was sent to the vendor for recalibration at the end of its calibration period?

A I don't recall if it was or not.

Q Do you recall learning whether or not the as-found condition was satisfactory for that Alnor?

A I've learned that information since being here in town in the last two or three days. I believe one of the questions that was asked to me before was would it surprise me to find out if the Alnor was found to be -- was found not to be defective.

Q For us, counsel's questions are not data, so --

A I'm sorry. They asked me that question and I guess I supposed that somewhere down the line, they had found that it wasn't --

Q If the Alnor was not sent back to the lab at the end of the calibration period, would that surprise you?

A Yes, I would have expected it to be sent back.

FURTHER CROSS EXAMINATION (Continued)

BY MS. YOUNG:

Q Let me follow up on Judge Bloch's questioning of you for a moment. If, in your opinion or the opinion of the I&C staff, the Alnor -- if you had concluded that the Alnor was defective, would you have put it on the shelf and

not used it again?

A I would have expected it to be taken out of service so that it couldn't be used until either the situation was rectified or it was permanently removed from the program.

Q Would you be surprised if there was any delay in sending that piece of equipment back to the manufacturer -- if the instrument was defective or believed to be defective?

A I don't know what happened to the instrument after that time, so if we had decided to remove it from the program altogether, then I doubt if we would have gone to the expense of sending it back to be calibrated or checked out.

Q Do you know who would have made that decision?

A I would believe that decision would have been between the I&C supervisor over the program and the I&C foreman over the program.

Q And those individuals would have been Mr. Duncan or --

A Mr. Wimburn or Mr. Noblett, whoever the foreman was at the time.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Mr. Briney, to clarify, you don't know any

basis for permanently removing it from the program, do you?

A I know that at the time, we felt as though the Alnor instrument was not as easily used or as reliable as the EG&G instrument, and I felt a lot more comfortable with the readings that we were getting on the EG&G. So if it would have been removed permanently from the program, it wouldn't have bothered me a bit.

Q Which readings are you referring to, the ones by the Summer borrowed instrument?

A And the ones that we ultimately used from the VP-1114, the -- the Georgia Power Alnor -- excuse me -- EG&G.

Q Did you communicate anything about not wanting to use that Alnor any more?

A I don't recall if I clearly communicated that to anyone at that time. I don't recall a specific conversation where I directed people not to use that any more or directed them to take it out of the process.

ADMINISTRATIVE JUDGE CARPENTER: Let me ask one quick follow up question, please.

BY ADMINISTRATIVE JUDGE CARPENTER:

Q Yesterday, you were telling us that when the instrument came from Summer you observed that it had a flow meter and you hadn't been using a flow meter. Do I recall correctly?

A Yes.

Q What effect on the readings would the absence of a flow meter have?

A The last time I used that instrument was five years ago, and I don't recall exactly what effect it had, other than the desired effect was that we got readings that we felt were accurate. What effect the flow meter would have on the instrument or establishing a known flow across the instrument, I can't give you a technical reason why that changes it in one direction or the other. I just don't recall the operation of the instrument that well.

ADMINISTRATIVE JUDGE CARPENTER: Thank you. We'll find out another way.

BY CHAIRMAN BLOCH:

Q I take it you also don't know the magnitude of the effect of not using the flow meter.

A No, I don't recall.

FURTHER CROSS EXAMINATION (Continued)

BY MS. YOUNG:

Q Mr. Briney, have you observed dew point readings being taken with the test instruments?

A Yes.

Q And did you yourself observe any irregularities in the way those readings were taken during the April 1990 time frame?

A Are we talking about the use of the EG&G instrument or the use of the Alnor?

Q Any irregularities.

A As far as I know, we were using the Alnor properly. The initial readings that we used with our own EG&G instrument were suspect to us because we didn't have a lot of experience with that particular piece of equipment. I don't believe that I&C technicians had ever used it prior to that. So we were struggling with not having enough information about the unit itself and we weren't going to confirm any kind of a condition or a faulty instrument until we felt comfortable with the readings that we were getting.

Q Have you personally observed or performed work associated with the calibration of the Calcon sensors?

A Yes.

Q And did you notice any irregularities associated with those calibration activities?

A With the performance of the calibration by the instrument technicians?

Q Well who would have done it?

A The instrument technicians were the ones that I observed. We calibrated switches many, many times during that period of time, switches that were actually on the diesel, brand new switches from the vendor. We calibrated

them ourselves, we calibrated them with I believe engineering folks there, we calibrated them with the Calcon vendor there.

Q Do you know whether there was any variations the way individuals performed the calibrations?

A I know that we calibrated them several different ways based on the direction we were getting from -- from the Calcon people and from -- from our own engineering staff, as I recall.

Q And when you say "several different ways," could you be a little more specific?

A They asked us to raise and lower temperature at specific rates, as I recall; they asked us to tap on the switch; and at one point in time they actually asked us to set the entire calibration setup on a shaker table to simulate the normal vibration of the diesel while we were calibrating the switch. We tried it in a thermal well, outside of a thermal well. Those -- those are the methods that I recall.

Q Was any variation in the types of baths that were used, whether oil or water?

A I don't specifically recall. There may have been. I don't recall if there was for sure or not.

Q Did you observe all calibration activities?

A No.

Q And you didn't perform any yourself, just the technicians did them?

A I can't really say that I performed the entire calibration, but I did have my hands on the equipment at that particular time, at times, just so that I could see for myself how the equipment was -- was responding to our calibrations.

Q Which vendor representatives would have been present during calibration activities?

A The one that I remember was from Falcon, and it was Gary Haslett I believe his name is.

Q And do you recall any names of the technicians who did those activities?

A I remember one of the contract foremen that we had at the time. His name was Billy McSweeney. But as far as the actual technicians that were involved, I'm not sure that I remember who we used. We probably used several over that period of time.

Q Were these people contract employees?

A I believe some were contract; I also believe some were Georgia Power employees.

Q Yesterday you were shown a copy of Intervenor II-216, which is a May 11th, 1990 memorandum from Mr. Johnston.

A Yes, I recall that. I think I still have that

memorandum in my possession.

Q If you turn to Page 3 there's an entry at 3/26/90.

A Yes.

Q And there's a statement in the second sentence that, "Technicians are not working to the procedures established for the Calcon sensors."

A Yes, I see that statement.

Q Do you have any recollection of this happening?

A My recollection is at the time that we were performing the calibrations we were getting a lot of information from a lot of different people on how we should or should not be calibrating them. And it doesn't surprise me that these particular individuals thought that we were calibrating them not by the procedures that were established. At the time that he may have observed this, we may have been going through one of the many, many experiments that we were doing on the switches. So I'm not sure how much relevance I actually put in that statement, myself.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Is it your testimony that you were actually varying the procedures without changing them?

A We were asked to perform many, many different

experiments on these switches. These were not official calibrations on switches that were to be installed on the diesel in order to call the diesel operable, they were experimentations that were asked for by either the vendor, or our engineering staff, or -- or whoever was asking us.

Q Okay. But the official calibrations were always done according to procedure, in your opinion?

A Yes, sir.

ADMINISTRATIVE JUDGE MURPHY: Can I follow-up on that for a second?

MS. YOUNG: Certainly.

BOARD EXAMINATION

BY ADMINISTRATIVE JUDGE MURPHY:

Q Mr. Briney, in your testimony on Page 4, starting on Line 17 through 22, you discuss the use of a procedure, Number 22332-C, Rev 2, which you included as Exhibit B.

A Yes.

Q Is -- do I understand you to say that's the procedure you were using to calibrate the Calcon sensors?

A Yes, I believe that was the procedure that we were using at the time.

Q Judge Carpenter and I are having a lot of heartburn with that procedure because, as we look at it, it appears to be a procedure for electrical switches. Can you

straighten us out on that?

A Well, the procedure was intended to be a generic procedure that would allow us to perform calibrations to all different types of temperature switches. In most cases temperature switches are electrical in nature, and my recollection is that I -- I can't recall any other pneumatic type temperature switches, other than these Calcon sensors that we've been talking about.

Q But this procedure does seem to be specific to electrical switches. I'm having difficulty trying to figure out how you translated it from an electrical switch to a pneumatic sensor. Do you -- maybe you ought to look at Exhibit B in your testimony for a minute.

(The witness reviews certain material.)

A Okay, I've read through the procedure.

Q Do you see anyplace where it would give any guidance at all as to how to calibrate a pneumatic sensor?

A I believe the references to opening isolation valves may refer to calibrating a -- a pneumatic sensor.

Q Where's that?

A That's the only thing that I can see.

Q Where is that?

A I see it in Step 444 on Page 5 of 10.

Q Do you know whether or not you had any other

guidance to your technicians on how to calibrate the Calcon sensors, other than this procedure?

A Not as far as I know.

Q Did you have any vendor manuals that discuss calibration?

A Yes, I believe we did. I also recall an RER, request for engineering review, that was written sometime during the performance of these calibrations that gave us further direction on how to perform the calibrations. And I want to say that during my review of data sheets in the past few months that I've seen that RER referred to, but I can't tell you a specific document that says that we used it. But I believe that that RER was part of our calibration technique at the time that went over and above this generic procedure that we used.

Q And how would you have -- how would you have imparted that information to the technician to use it? Would it have been verbally, would it have been part of some kind of a procedure or what?

A I would have expected to see that reference on the job orders that asked us to perform the calibration, as part of that -- that MWO process.

Q In any of your review of any of the MWOs for -- for your testimony did you see any of that?

A I recall seeing it referenced on the data

sheets for the Calcon sensors, but I'm not sure seeing it on an MWO. I was just telling you what I would normally expect, that I would see that referred to somewhere in the MWO package.

BOARD EXAMINATION

BY ADMINISTRATIVE JUDGE CARPENTER:

Q Mr. Briney, at no point did you feel, as a supervisor, that this generic temperature switch calibration procedure was inappropriate for an pneumatic transducer, just didn't apply?

A No.

Q Why not?

A This procedure is a generic procedure on this particular type of instrument and...

Q What -- we're not communicating. It says "temperature switch calibration."

A That's what these are.

Q This is a temperature switch?

A Yes.

Q Why does the manual...?

CHAIRMAN BLOCH: Let's let the record show that Dr. Carpenter was holding a Calcon sensor in his hand.

BY ADMINISTRATIVE JUDGE CARPENTER:

Q Why does the manufacturer call it a temperature sensor and describes its use as a transducer?

A I don't know.

Q Do you know the difference between a switch and a transducer?

A A switch, in my mind, is something that has two different states.

Q Is bi-stable.

A It's either -- it's either tripped or its reset.

Q Bi-stable. When you...

A And that's what that does.

Q ...when you took this apart did you see bi-stable properties in -- in the movement of the disk against the valve?

A Yes.

Q It jumps from one position to another?

A It doesn't jump, but it does change. It changed from either leaking off or not leaking off.

Q Well, at any rate, in your mind today you still think this generic document that doesn't tell the technician many of the things a technician needs to know in order to calibrate these Calcon sensors, is still appropriate?

A No, sir, that's not what I said. What I -- what I said was that that procedure, in conjunction with the information contained in the RER, was satisfactory

enough for us to perform the calibration of those switches.

Q Well, why not a procedure specific for pneumatic sensors, temperature sensors?

A As I recall, sometime after this event there was a specific procedure written for these. But at the time we felt like it wasn't necessary for this type of instrument.

Q Have you ever thought that if you had developed such a document before the event, that there wouldn't have been an event?

A As part of Monday morning quarterbacking, so to speak, I think it probably would have been something that we could have done to prevent errors that may have been caused by these switches, yes.

Q These are Q-class components, aren't they?

A I believe they are.

Q I'm just mystified that you would use a generic electrical temperature switch document as guidance to technicians for a different -- very different kind of device.

A Again, I believe we used that procedure along with the RER, and I believe if you -- if we find the RER information it will give us more specific guidance as to how that calibration was supposed to be performed. Those questions were asked sometime in 1988 by technicians and/or

a foreman, and they initiated the RER. And our inquiry into how to calibrate those switches should be documented in that -- in that RER.

CHAIRMAN BLOCH: Mr. Blake, it would seem that we would need that RER.

MS. YOUNG: And for the record, could you just spell out the acronym.

THE WITNESS: I believe that RER stands for "request for engineering review."

BY ADMINISTRATIVE JUDGE CARPENTER:

Q I find your testimony very important because it's the first we've heard that anybody said, "Let's do something about the problem."

A I believe that first came up in 1988 during the first refueling and the first overhaul of the diesels as far as how to calibrate these switches properly.

Q Well, all I'm saying is your testimony today is the first testimony we've had...

A It's the first...

Q ...that says somebody did it.

A ...it's the first I think that I've been asked about that specifically, it.

Q Thank you.

CROSS EXAMINATION (Continued)

BY MS. YOUNG:

Q So, Mr. Briney, do I understand your testimony correctly to say that the procedure that's appended to your testimony as Attachment B was sufficient when utilized with this RER information?

A I believe it was, yes.

Q Now, was the RER information one document or a series of documents?

A As far as I know, it's one document, as fa_ as I recall.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Mr. Briney, when you said you believe it's sufficient when used with the RER, you studied the RER?

A I haven't studied the RER recently, but I was familiar with the RER back during this period of time.

Q And it had received an engineering approval for use with the Calcon sensors, is that right?

A I believe so. That would have been the only way that we could have been able to use the RER in conjunction with any kind of calibration.

Q And you didn't notice anything in the RER that was in error?

A Not that I recall, no.

CROSS EXAMINATION (Continued)

BY MS. YOUNG:

Q Do you know who would have been responsible for preparing the RER, or approving it?

A I can only guess. If I were to hazard a guess, I would have said it would have been the diesel systems' engineer, which at the time I believe was Mr. Stokes. But I don't know whether he was actually the one that prepared the RER, or whether or not it might have been given to someone that was more specifically oriented towards instrumentation.

Q Do you recall whether Mr. Stokes gave any guidance during calibrations of Calcon sensors?

A I don't recall any specific guidance during calibrations from Mr. Stokes.

Q Do you remember him being present during calibration activities?

A No, ma'am, I'm sorry, I don't.

Q Is it the responsibility of the I&C to check all the air filters and strainers on the diesel generators or associated with the diesel generators?

A I don't recall if it's an I&C responsibility or not.

Q If it's not an I&C responsibility, who -- whose responsibility would it be?

A I would guess the only other alternative would be the mechanical department.

Q Intervenor showed you an Exhibit 82. Do you still have that on the table?

A I don't believe so. What's the -- what's the title of the document?

Q It's the "Unit 1-A Train Diesel Generator Air Receiver Dew Point Measurements," the typed listing.

A I don't have it here in front of me.

(The witness was handed certain material.)

A Okay, I have the document.

Q Okay. Did you testify previously that you were involved in preparing that document?

A I believe I was involved in the accumulation of the data that led to -- to this document, yes.

Q And Mr. Beecher would have had it finalized?

A That was the normal course of events. I don't specifically if Mr. Beecher had to do this, but that would have been the typical course.

Q And this information was provided to the IIT?

A As far as I know it was. I can't sit here and say specifically that it was or it wasn't, but I believe it was.

Q Now, when you prepared information that went into this listing, is it your expectation that only reliable readings would be included in the list?

A We would have given the best readings that we

had at the time, the ones that we were -- that we were the most confident in.

Q To your knowledge, were the communications with the IIT or the NRC regarding air quality complete and accurate?

A To my knowledge they were.

Q And you would have been one of the focal points for the transmission of that information?

A Again, my -- my position was just to provide technical information to other people so that they could tabulate it and "wordsmith" it and put it on the appropriate format. I wasn't really part of actually handing it to the IIT and then explaining it to them; that was taken care of by management higher than myself.

Q Did you attend any morning meetings in Mr. Bockhold's office where problems with sensors were discussed or problems with dew point instruments?

A Any morning meetings or...?

Q Yes.

A I recall attending meetings with Mr. Bockhold where sensor problems were discussed and diesel problems were discussed.

Q And in those meetings did you feel that you were able to raise concerns...

A Yes.

Q ...for Mr. Bockhold?

A Yes.

Q And what was his reaction?

A He was always interested in -- in my perspective and in my opinion, and made a lot of his decisions based on the input that I provided to him.

Q Did you tell Mr. Bockhold that you thought the Calcon sensors were junk?

A I don't know that I used that specific terminology, but I'm sure that I told Mr. Bockhold that I was not satisfied with those sensors.

Q And do you think Mr. Bockhold would have understood, through you, that the problem was with the component and not with the personnel in terms of...?

A Yes, ma'am, I recall that conversation very clearly.

Q Now, do you believe the sensors were junk because of the materials they were made of?

A No, not necessarily the materials.

Q So you have no problem with the aluminum seating?

A I had no problem with the materials at all on the switch. My problem was with the -- the design of the switch.

Q Design with respect to the consistency of

performance?

A Yes, ma'am.

Q One last area I'd like to ask you is this general issue of trending programs.

A Yes.

Q Did Plant Vogtle have a trending program for every piece of equipment on site or every component?

A I'm -- I'm not -- I'm not an expert on the entire trending programs that we had. The trending programs that I was familiar with were ones that were associated with the DC program and the MWO program. Now, whether that covered every particular component on site or not, I -- I couldn't tell you.

Q Do you think it would have been practical to do it for every single component on site?

A Practical?

Q Yes.

A In my opinion, no, that's not practical.

Q But in your view, the problems with the Calcon sensors would have been something that would be appropriate for trending?

A Yes, especially since it's Q-class equipment used on an emergency diesel generator, I would expect that to be appropriate.

Q Now, what about problems with dew point test

instruments for the air receivers?

A I don't know. That's -- that's a judgment call, I would suppose, and in my judgment it would depend on the severity of the problem, whether or not, you know, we had a -- had established that there was a problem in the system that was causing something that would cause a malfunction of the equipment on a regular basis.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Mr. Briney, do you know if there were any dew point test equipment -- if there was any dew point test equipment which is restricted solely to the air receivers?

A As I recall, there was a change in the -- in the -- the PM checklist for the diesel air receivers sometime after the event that required us to use the EG&G instruments rather than the Alnor instruments.

Q That was not the question.

A I'm sorry.

Q The question was: Were there ever -- was there ever a time that an instrument that was used for checking dew points on the air receivers was not also used elsewhere in the plant? The diesel air receivers, yes.

A Not that I recall.

CROSS EXAMINATION (Continued)

BY MS. YOUNG:

Q And when you -- when you speak of a trending program, what ingredients are -- do you have in mind?

A The only parts of the program that I was really involved with were reports that were generated by the people that did the trending that would have let us know the general adverse trends that they -- that they would have discovered through the review of documentation.

Q And the people responsible for trending would have been Mr. Duncan?

A No, he was responsible for the M&TE program. The trending programs I'm talking about are associated with the DC card program and the MWO program. And as far as specifically knowing who those individuals were that did that trending, I -- I can't recall who was in charge of those programs.

Q Do you know whether it would have been system engineers?

A I believe that they were involved in the program; I don't think it was just limited to system engineers.

Q Do you know whether Mr. Kenny Stokes would have reviewed any results of trending data gathered?

A I would have expected Mr. Stokes to review data associated with trending on systems that he was responsible for.

BOARD EXAMINATION

BY ADMINISTRATIVE JUDGE CARPENTER:

Q Do you happen to recall whether you ever went over to have a chat with Mr. Stokes and -- and talked to him about the problems with the Calcon sensors?

A I don't recall having a specific conversation with Mr. Stokes about the Calcon sensors.

Q Sort of like, "We got to do something about this," conversation?

A I recall having that conversation with I believe the man that was his boss at the time in relation to the critique team.

CHAIRMAN BLOCH: You're referring to Mr. Kitchens?

THE WITNESS: No, I believe his boss at the time was Mr. Kochery.

CHAIRMAN BLOCH: Thank you.

ADMINISTRATIVE JUDGE CARPENTER: Thank you.

CROSS EXAMINATION (Continued)

BY MS. YOUNG:

Q Did Mr. Kochery observe calibrations of Calcon sensors in the I&C lab?

A I'm not sure.

Q The whole issue we've had here is -- that your testimony is related to is the dew point readings in the

time period of April 1990. In general terms, how important or how significant was a finding of a high dew point reading? Was that the type of information that you'd run to Mr. Bockhold right away to let him know?

A Yes, I believe he was informed relatively quickly after we found those readings. I believe also, though, he was informed, as far as the initial readings, that they were still suspect and that we didn't have a lot of confidence in the -- in that information at the time, and that we still wanted to do further troubleshooting to either confirm the -- the problem was with the systems or with the instrumentation we were using or how we were using it.

Q And you would have thought that significant information to report to him, even after the site area emergency?

A Yes.

Q Now, would you censor the information based on whether you thought the readings were reliable?

A No, I wouldn't have censored the information at all. My position was to try to give him the best possible information that I could at the time based on our judgment.

Q And if you were doing follow-up activities to confirm the validity of readings, you'd let him know that, too?

A Yes, ma'am, I believe I did.

MS. YOUNG: I have no further questions.

CHAIRMAN BLOCH: Let's take a ten minute recess.

(Discussion off the record.)

CHAIRMAN BLOCH: We're going to try to skip our break right now, to see if we can accommodate you. I don't know if we can for sure, but we'll try.

THE WITNESS: Thank you.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Does the phrase "rent a technician" mean anything to you?

A Yes, it's a common phrase referring to contract technicians.

Q And were contract technicians at all related to the problems with dew point instruments?

A Not in my opinion, no.

Q And were they at all related to the problems with the Calcon sensors?

A Not in my opinion, no.

Q On page 4 of your testimony, lines 17 through 22, you refer to Exhibit B as the maintenance procedure at the time used for calibrating the temperature sensors. Would you like to amend that testimony?

A Well, the reference to that procedure was in reference to the precaution about minimizing foreign entry into the switches -- entry of foreign material.

Q The statement in the procedure is unqualified. It says "The maintenance procedure at the time used for calibrating the temperature sensors."

A Yes. And it goes on to say, "...included a precaution to minimize the entry of foreign materials or dirt into the working parts of the instrument." That was what I was using that procedure number as a reference to.

Q If I understood your testimony before, we can't even figure out what the procedure was for the sensors, without looking at an engineering report that you were referring to earlier, isn't that correct?

A As I was stating before, the actual calibration of the switches was done in conjunction with procedure 22332-C, along with the RER.

Q Okay. So should it say "The maintenance procedure at the time used for calibrating temperature sensors, procedure number br-r-r-r, used together with the RER."

A Well the RER didn't include the precaution. I guess that was the only reason why I was making this particular statement.

Q Did it override the precaution?

A No. The RER was a supplementary documentation that provided us further instructions on how to perform the calibrations correctly.

Q Part of the procedure you're mentioning has to do with connecting leads from one place to another, doesn't it?

A Yes.

Q Were those overridden in some way by the RER?

A They were deemed non-applicable since there are no electrical leads attached to the device.

Q Now how can he be confident that the RER, which is not reference in the procedure, was part of the training of the individuals performing these tasks?

A I don't believe it was part of the training. I believe it should have been part of the MWO packages that were given to the technicians to perform the calibration. Those packages should include some information about using this calibration procedure in conjunction with the RER information.

Q So in your opinion, all of the MWOs dealing with recalibration should reference the RER?

A Any calibrations that were performed, official calibrations, for sensors to be placed on the diesel, should have been performed using this procedure that we're discussing and the RER.

MR. BLAKE: Judge Bloch, I wasn't focused on this before, but I believe now I'll be able to put a document in front of him which will show what you're trying to elicit -- I think it'll shorten it.

CHAIRMAN BLOCH: Okay.

BY CHAIRMAN BLOCH:

Q Do you know if there's an NRC Reg. Guide covering allowable dew points for diesel pneumatic air control systems?

A No, sir.

Q You don't know?

A No, I don't know.

Q Do you know the nature of the commitment that was made at Vogtle as to dew points?

A No.

Q On page 9, line 13 of your testimony, would it be accurate to change that testimony slightly so that it would now say -- please listen carefully to the change I'm going to make --

MR. MICHAEL KOHN: Excuse me, Judge, what page?

CHAIRMAN BLOCH: Page 9, line 13, beginning on line 13.

BY CHAIRMAN BLOCH:

Q I'm going to read you an amended sentence to ask you if this amended sentence also would be correct. So

notice the differences between what I'm going to say and what it says there.

"Thus, our own EG&G instrument independently confirmed that seven of the eight air systems had not been out of specification in early April of 1990."

A I'm sorry, I just don't see the significant difference between the two.

Q Okay, change it from "were in specification" and "had not been out of specification" and I'll explain that the reason I'm asking the question is that I understand from the documentation I've seen that there was work being done to reduce the moisture content of the diesels between the time of the initial readings and the time of the final readings. So I'm asking if you think that the final readings confirmed that seven of the eight air systems had not been out of specification on around April 4th.

A In my mind, they were not out of specification due to system problems, they were out of specification due to instrument problems. So yes, I guess I would agree with that.

Q When you say "in my mind," what does that add to your answer?

A I made those judgment based on my own technical judgment.

Q But I'm asking you for a present judgment, not your past judgment. I want to know if in light of the fact that the moisture content was being reduced --

MR. BLAKE: Judge Bloch, I don't think that there is evidence that it was being reduced on all of the systems. So be a little careful if you want to keep this precise.

BY CHAIRMAN BLOCH:

Q In light of the fact that efforts were being made to reduce the moisture content.

MR. BLAKE: On at least some of the systems.

CHAIRMAN BLOCH: Okay.

BY CHAIRMAN BLOCH:

Q Of some of the systems, did you confirm that the initial readings on those systems were in error?

A Yes, I believe we did.

CHAIRMAN BLOCH: Okay, the record should reflect that the sentence I was working with started on line 12.

I have no further questions.

Mr. Kohn.

FURTHER CROSS EXAMINATION

BY MR. MICHAEL KOHN:

Q I'd like to call the witness' attention to Bockhold Exhibit I-1, GPC Exhibit 55(a), which is also

Staff Exhibit II-15. Now --

ADMINISTRATIVE JUDGE MURPHY: Mr. Kohn, is this a follow up of something?

MR. MICHAEL KOHN: Yes.

BY MR. MICHAEL KOHN:

Q You were shown the April 9 corrective action response letter by NRC counsel. Do you recall looking at that?

A I'm sorry, what document was that?

MR. BLAKE: Let's assume he remembers looking at the April 9 letter for the first time this morning, which was his testimony. Go right ahead, counsel.

BY MS. YOUNG:

Q And you were asked about a particular sentence concerning dew point measurements and it refers to "initial readings"?

A Yes.

Q And you read that to refer to readings taken in April, correct, April 6 and 7?

A I don't know exactly when those initial readings were taken. I think they were prior to that.

Q You referred to the readings as the ones identified in Bockhold Exhibit F, correct?

A Yeah, I think that's correct.

Q And you -- I think you indicated that you got

that information from Mr. Bockhold, is that correct?

MR. BLAKE: What information?

Q Excuse me, let me rephrase that -- that you gave that information to Mr. Bockhold.

A The information contained on Bockhold Exhibit F?

Q Yes, and that's why you were now assuming what the initial readings were referring to in the letter.

MR. BLAKE: I have an objection, here, Judge Bloch. We're trying to talk this witness into a line -- the witness has already testified in response to Ms. Young he'd never seen this letter before, he played no role in the preparation of this letter. Now trying to talk him into what does the language mean and how precise is it, is I think wholly inappropriate.

CHAIRMAN BLOCH: I would sustain that objection, but I don't know where this line is going yet.

Mr. Kohn, could you just continue and -- I don't think it would be appropriate to find this witness' opinion of this language, which he didn't help draft.

MR. MICHAEL KOHN: Well, Your Honor, the witness was asked whether he provided the data to support the language and he said he did. And that's what this line of questioning is. It is a set of information and I'm asking him what data he -- as I understand his testimony,

it goes to --

CHAIRMAN BLOCH: Continue.

MS. YOUNG: That's the Staff's recollection too, Judge Bloch.

BY MR. MICHAEL KOHN:

Q So that if I understand, the data you would have provided to Mr. Bockhold with respect to the initial reports of high dew points would have been Bockhold F, correct?

A I don't know that that was the only document or information that I provided to Mr. Bockhold when it comes to the preparation of this letter, no.

Q Well then, do you believe that the reference to initial reports refers to a March -- the March 29 high out-of-specification dew points?

A It could possibly.

Q Do you know if that's what Mr. Bockhold would be referring to?

A I don't know what Mr. Bockhold did or didn't refer to.

Q I'd now like to call your attention to Intervenor Exhibit 82. Did you testify that the readings on this page would not have been given to the NRC unless they were believed to be reliable?

A No, I testified that the information that we

gave to the NRC was the most reliable information that we had at the time.

Q So then the readings with respect to the MWO 1-90-01513, you would expect to indicate were valid high readings? Do you recall if your testimony was the readings that they had the most confidence in -- is that the wording you used?

A What we tried to do is give the NRC the most accurate information that we had at the time.

Q So then, based on your review of Exhibit 82, was it believed that the 80 and 60 degree readings were valid high?

A It was believed that those were the most accurate readings that we had at the time.

Q Were they valid high readings?

A I don't know.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Did you have any reason at the time to question the accuracy of those readings?

MR. BLAKE: Judge Bloch, with all due respect, he has now been asked several times about this document. He believes he pulled together the information to provide for it, didn't even type it, didn't even pull it together. I don't know how probative this line is at this juncture.

CHAIRMAN BLOCH: We're talking about Exhibit 82, right?

MR. BLAKE: Yes.

MR. MICHAEL KOHN: Correct.

CHAIRMAN BLOCH: The question is allowed.

BY CHAIRMAN BLOCH:

Q And the question I asked was did you have any reason at the time to believe that the data you provided was inaccurate?

A No.

Q Do you have any reason now to believe it was inaccurate?

A Those were the most accurate readings that we had at the time. That was the best information that we could provide at the time.

Q That's not the question I asked. I asked, is there any reason at this time that you have to believe that the data for that time was inaccurate?

A I don't recall whether or not this particular information was taken with instrumentation that we still suspected, or not.

FURTHER CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q I'm going to show the witness demonstrative aid 4.

CHAIRMAN BLOCH: Mr. Kohn, I'm not sure that -- oh, I have it, thank you. No, I don't have -- oh, demonstrative aid 4, thank you.

MS. YOUNG: It's Intervenor II-169.

BY MR. MICHAEL KOHN:

Q And I'd like the witness to look at the first page I have in front of you diesel 1-A, and the last entry on the page 3/29/90. Do you see that?

A Yes.

Q And the work order, you will notice is the work order referenced in Exhibit 82, under the date 3/31/90.

A I don't have Exhibit 82 here -- yes.

Q And the readings are the same, 80 and 60 degrees, correct?

A Yes.

Q Now I'm going to ask you and you can also look on the third column and determine that that was an Alnor that took those readings, correct?

CHAIRMAN BLOCH: Fourth column.

MR. MICHAEL KOHN: Excuse me, third column on page -- excuse me, the fourth column on the diesel 1-A.

A It appears to be taken with VP-2466, which is an Alnor instrument.

BY MR. MICHAEL KOHN:

Q Now I'd like to ask you to turn to the third

page of the document, which should be the diesel 1-B and look at the 3/29/90 entry on that page, third from the bottom, and do you see the readings on -- do you see the work order number, 1-90-01514?

A Yes.

Q And those readings were 37 and 34 degrees taken with the Alnor, correct?

A That's what this document appears to show.

Q And so -- are those valid readings?

A I'd have to look at the job order, at the MWO. I would assume that this demonstrative aid would have given accurate information, but I don't recall reviewing that MWO 1-90-01514.

MR. MICHAEL KOHN: Well, the parties have stipulated that this demonstrative aid is accurate.

BY MR. MICHAEL KOHN:

Q So based on the information contained -- that you're looking at -- would those readings be valid?

A They were probably the most accurate readings we had available at the time.

Q On the same day, taken with the same instrument.

A That's what it appears to show.

Q Now you mentioned a Mr. Beecher, correct?

A Yes.

Q And you mentioned his name with respect to preparing Exhibit 82.

A I believe that the information that I provided was given to Mr. Beecher in preparation of this. It could also have been directly given to Mr. Bockhold. Those were the two main ways that I provided information at that time.

Q Wasn't Mr. Beecher's role clerical in nature?

A He was a liaison, I wouldn't say that all his role was strictly clerical at that time.

Q Was that the predominant role he was providing?

A I don't know all the roles that he was providing at that time.

Q Was he providing analysis, technical analysis?

A Not to my knowledge.

Q Do you recall -- do you actually have a recollection or know whether or not you told Mr. Bockhold about the dryers being out of service?

A I don't have a specific recollection that I told him that.

Q Do you -- my question is do you know whether you did in fact tell him that or not?

A I don't have a specific recollection as to whether I told him or not.

Q You mentioned a flow meter and that you -- on the instrument you obtained from Summer, did VP-1114 have a

flow meter?

A At one point in time.

Q What do you mean by "at one point in time?"

A I believe that when we took initial readings with the VP-1114, that it did not have a flow meter on it. At that point in time, I don't believe that we had the technical knowledge that it required a specific flow meter on it to measure flow through the instrument.

Q Are you referring to in April of 1990?

A I don't recall the exact date. It was the initial readings that we took with the EG&G instrument that Vogtle had.

Q After the site area emergency?

A Yes.

Q And where did you get the flow meter from for the EGG VP-1114?

A I don't recall.

BOARD EXAMINATION

BY ADMINISTRATIVE JUDGE CARPENTER:

Q Was a flow meter furnished with the instrument as purchased?

A No, I don't think it was.

Q So you had to provide your own flow meter?

A As I recall, yes.

BY CHAIRMAN BLOCH:

Q Do you recall whether one was in stock?

A I don't recall whether we had one in stock or we had to go out specifically and buy one from another vendor.

Q Do you remember whether you actually used the flow meter when you were taking the VP-1114 measurements in April 1990?

A At one point in time, yes, we did. If you're talking about a specific date, I can't answer that. But when we finally resolved ourselves to the fact that we were getting good information from the EG&G instrumentation, yes, we did have a flow meter on VP-1114.

Q And do you know if that was a site M&TE approved flow meter?

A I don't recall where we got the flow meter from or whether it was site M&TE approved. But it was the type of flow meter that doesn't really have a calibration associated with it. It's a rotameter, there is no calibration adjustments, there is no -- it's basically a natural physical constant rather than a calibratable instrument.

Q But you don't remember what date it was actually first used?

A I don't recall the exact date that we started using the rotameter, no.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Mr. Briney, do you know whether you can get readings at all with the VP-1114 without a flow meter?

A I don't recall -- I'm sure that you can get a reading on the device, the device will give you a number. Whether or not that number is accurate or not, I don't believe it is as long as that flow meter is not being used. That's what I recall about the use of that instrument.

FURTHER CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q Did you determine whether not using the flow meter could increase or decrease the dew point readings?

A No, I did not.

Q Now you said that Mr. Bockhold was always interested in your opinions, is that correct?

A Yes.

Q Now when you were having these discussions about dew point readings with Mr. Calcon -- with Mr. Bockhold, do you recall expressing them as opinions?

A I don't recall how I expressed that information to Mr. Bockhold.

Q Well, did Mr. Bockhold question you as to the basis of your conclusions, or did he just accept the conclusions you were telling him?

A I don't recall for sure.

Q Well, in your interactions with Mr. Bockhold, would you say he had a questioning personality, for lack of a better word -- that he would engage you in questions, to make sure the information was complete and accurate in all respects that you were giving him?

A That was his general demeanor, and yes.

Q So he would get into the details with you?

A Yes.

Q And those details would include how many instruments you had on site, what your belief was about certain instruments, why not that instrument would be defective or not?

A I don't recall the exact detail, since I don't recall the entire conversation.

Q Now you also testified that during -- the only discussion you recall about the Calcon sensors and their suitability occurred during -- let me rephrase the question. I think the questioning started off by Judge Carpenter asking you about discussions you had with Mr. Stokes about Calcon sensor problems or reliability, or you had a problem with the Calcon sensors?

A I believe my testimony was that I didn't recall any specific conversations that I had with Mr. Stokes.

Q And I think you said that the first

conversation that you had on this occurred during the critique team discussion with Mr. Kochery, is that correct?

A I don't believe I said that was the first conversation I'd ever had about that topic, but that was one conversation that I had.

Q And the specific conversation you're referring to in your response was -- occurred after the site area emergency, correct?

A That particular conversation, yes, I believe was after the site area emergency.

Q Do you know if deficiency cards were written when M&TE equipment was found out of calibration?

A I don't recall if the program required deficiency cards to be written.

Q Would there have to be some form of work order or some documentation, written documentation, on the site, confirming that the M&TE equipment was out of calibration?

CHAIRMAN BLOCH: No, I don't think you mean out of calibration.

BY MR. MICHAEL KOHN:

Q Was determined to be out of calibration before its due date expired.

A I believe the M&TE program required such documentation on equipment that they suspected to be, or had actually found to be out of calibration. There was an

investigation process, as I recall. But as far as actual documentation and what all that entailed, I don't recall the exact nature of that program.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q But if one of your technicians found something wrong with equipment, wouldn't you expect there was a plant procedure that required a record that would get back to MT&E?

A I would have expected the technician to forward that information to M&TE checkout personnel specifically, and that those personnel would be responsible for initiating any investigations based on the M&TE program. I don't recall whether or not there's a specific document that the technicians would have filled out, saying this particular instrument is suspected. It may have been a verbal exchange vice the written exchange.

MR. MICHAEL KOHN: No further questions.

CHAIRMAN BLOCH: Staff.

MS. YOUNG: No.

CHAIRMAN BLOCH: Mr. Blake.

MR. BLAKE: Thank you.

REDIRECT EXAMINATION

BY MR. BLAKE:

Q Mr. Briney, I have a couple of questions and

I'm going to go as quickly as I can.

I would ask the parties to take a look at Intervenor Exhibit 206.

Mr. Briney, I'm showing you a copy of Intervenor Exhibit 206. Do you recognize this to be a maintenance work order numbered 1629 from March 29th, 1990?

A Yes.

Q Now, I'm going to the very back of this entire exhibit and looking at the last four pages in the exhibit. Looking at the next to the last page in the exhibit, does this indicate instructions to a worker on -- on how to calibrate switches?

A Yes, that's what it indicates.

Q And -- and do you think that, as you now read that, that's possibly the RER that you were referring to in the earlier...?

A I believe that's correct. I'd have to see the RER to be sure.

Q Now, the instructions also say, "Per Attachment 1 in the RER." Would you look at the two pages that precede this page, and determine whether or not that's an Attachment 1 or instructions that were used also to calibrate the instrument.

(The witness reviews certain material.)

Q Actually in the exhibit, Mr. Briney, I believe

these two attachment pages are out of order, at least in our copy. What appears -- Attachment 1 says, "Page 2," and the next page in order is Attachment 1, Page 1. But if you would just look at the two in whatever order makes it easiest for you.

(The witness continues to review certain material.)

A Well, this attachment appears to be supplemental information to the RER itself for this particular type of calibration that we were performing.

CHAIRMAN BLOCH: Mr. Briney, can you find a reference to the RER in the MWO showing that you should use it in addition to the supplementary directions?

MR. BLAKE: On the next to the last page, Judge, in the exhibit.

THE WITNESS: That's -- that was the instructions that we just looked at.

MR. BLAKE: And all I really wanted to...

CHAIRMAN BLOCH: Well, I misunderstood the answer. I thought what you said was that these directions were supplementary to the RER, is that correct?

THE WITNESS: No, I said that about the attachment.

MR. BLAKE: Attachment 1

THE WITNESS: The instructions in the back

specifically refer to using the calibration procedure in conjunction with the RER. And I believe that's the RER that gave us more specific direction on how to calibrate these switches, and that RER was initiated back in 1988 when we did...

CHAIRMAN BLOCH: Excuse me, my copy was incomplete. I didn't have that reference. Thank you.

MR. BLAKE: Okay. All I really wanted to do was establish with him while he's here that this is the RER; now we'll go try to find it.

CHAIRMAN BLOCH: I just didn't have the reference.

BY MR. BLAKE:

Q Mr. Briney, when you were asked some questions at the beginning of your testimony by Judge Bloch with regard to use of the EG&G, your initial use of -- of the EG&G instrument, were you involved in the use of that instrument, yourself?

A Yes.

Q And what led you to use that instrument or pull it out?

A We had no other instruments available at the time.

Q So you had -- you got some indications with the Alnor, and then what did you do?

A We suspected that we had erroneous indications and we went and got the -- the next best instrumentation that we had to measure them and to try to confirm those readings.

Q And you actually yourself was involved in these attempts?

A At some point, yes, I was.

Q And was this the point in time when you were using or not using a flow instrument?

A That was the point in time that we were not using the flow instrument. We had no idea that the flow instrument was required.

Q And subsequently you obtained another EG&G instrument from Summer Plant?

A Yes.

Q And when you got that instrument it had the flow meter attached?

A Yes.

Q And is it that point in time that you knew that you needed to use a...

MR. MICHAEL KOHN: Excuse me, Your Honor.

Q ...flow instrument with your own?

MR. MICHAEL KOHN: I understand we want to rush the witness, but I don't think it's -- it gives leeway for excessively leading questions.

MR. BLAKE: And I understand them to be leading, and I am trying to do it as quickly as I can, frankly.

CHAIRMAN BLOCH: I think, given the fact that the testimony has already been given, all you're doing is having him repeat himself, I find it permissible.

BY MR. BLAKE:

Q And was it that point in time that you realized that for your own EG&G instrument you would need to use a flow meter, as well?

A Yes.

Q And thereafter you used one, at some point thereafter?

A Yes.

Q With it? Now, in your earlier questioning with Judge Bloch you were asked to -- what were the measurements that led you to believe the two E&G (sic) instruments were giving similar readings? I'm going to point you at some documents and ask you whether or not it's any of these measurements. First I want you to look at your own Exhibit E, "echo." It's our GPC Exhibit 157. I think it's on the fourth page in there, if I could focus you.

On the fourth page into that, which has a numbered 1 at the top, about two-thirds of the way down there are lists for 5352 and 1114. Are those comparisons

of the kind you were talking about?

A Yes.

Q Is that a comparison of the two EG&G instruments?

A Yes.

Q And is that a comparison that would have been done on April 8th, 1990?

A Yes.

CHAIRMAN BLOCH: Do you recall at the time whether flow meters were being used on both?

THE WITNESS: Yes, I believe they were.

BY MR. BLAKE:

Q Now, I want you to take a look at Intervenor Exhibit 143. It's in the books to your left, unless a separate copy was pulled out.

MR. BLAKE: You don't have a copy?

THE WITNESS: No.

MR. BLAKE: Do you have a copy of 146?

(The witness was handed certain material.)

BY MR. BLAKE:

Q Mr. Briney, I'm going to ask you to take a look at what's been previously identified as Intervenor Exhibit II-143, and I ask you to look at the third to the last page which has a number 4 circled at the top of it. And I'm going to ask you the same question about does this

indicate any -- the comparison of the two EG&G instruments also on April 8th on a different -- different readings on a different set of receivers?

A Yes.

Q Now I'm going to ask you the same question with regard to Intervenor Exhibit II-146. I'll ask you to look on this exhibit, at the fourth page into it, which in the upper right-hand corner has a number 1 circled, and ask you the same question. Does that also indicate on April 8th a comparison of the EG&G -- two EG&G instruments?

A Yes.

Q And now I'd ask you, overall, is it the collection of the comparison of these EG&G measurements which led you to believe that the EG&G was giving valid readings?

A Yes.

Q Now, I want you to compare that with Bockhold F. Bockhold F is the collection of your -- your readings.

A Yes.

Q Bockhold F was a collection of readings which -- which you recorded at least as of April the 6th. You've indicated that you don't know whether you took them on that date or before, but in any event they were collected that date. And Bockhold F also, you've indicated to -- to Judge Bloch in response to questions...I believe to other

parties, as well...led you to believe that -- that the Alnor was giving inappropriate readings. You had certain -- you formed certain opinions when you looked at this collection of data on April the 6th?

A Yes.

Q Now, what was that opinion, very briefly?

A The opinion was that we weren't sure whether or not we had a system condition out there or whether or not we had a defective instrument.

Q Okay. Now, subsequently on April the 8th -- we've just looked at EG&G comparisons which led you to believe what?

A It led me to believe that we were getting correct information from the EG&G instrumentation.

Q On April the 8th did you go back and look at the data that you had collected on the 6th, Bockhold Exhibit F, and try to make comparisons and -- and analyze between the two?

A No, I don't recall that I did.

Q Do you know when Mr. Hunt discovered the high dew point reading on -- that had been taken on March 29th?

A No, sir, I don't recall specifically.

Q Do you know when he brought it to Georgia Power's attention?

A I don't recall the specific time frame.

Q If you were to look at your Exhibit C, which is Maintenance Work Order 1513.

A Yes.

Q Would you focus on Block 27, please.

A Yes.

Q Are you able to -- are you able to determine, from looking at that block, whether or not Georgia Power was taking steps in response to having found a high dew point reading, whether or not Mr. Hunt subsequently pointed it out to them?

A Not by this document, no.

Q Can you tell what prompted this maintenance work order?

A It appears to be a preventive maintenance work order. That's all I can tell.

Q And when you look at Block 27 what is it that it tells you?

A It tells me that the technicians went out and obtained dew point readings on two particular dryers, and that they had found readings out of specification, attempted to initiate a DC, and instead were directed to initiate an MWO.

Q And what would that MWO have been for?

A To investigate the high dew point readings that were found underneath this job order, this MWO.

Q You were asked whether or not you -- you remembered whether, following the identification of the high dew points that were reflected in your listing of high dew point readings, which is Bockhold F, you were asked whether, following that, you knew whether or not there were steps taken to reduce high dew point readings, assuming that those were -- were valid readings, was there a bleed and feed undertaken on the receivers, and you've indicated that you didn't remember. Might you have known that in 1990?

A Yes.

Q So the -- if several days later you obtained low dew point readings on those same receivers, would you then have known whether or not they were valid readings or -- or simply corrected readings from what the prior readings had been?

A No.

Q If you had known that there had been no bleed and feed take place, what would you have been able to discern about the difference in the readings?

A That they were due to instrument error.

Q And if in fact there had been bleed and feed, what would you have known?

A That it could possibly have been due to the bleed and feed.

Q Do you -- and do you believe now that you would have known whether or not they were bleeding and feeding those receivers in that time frame?

A Yes, I believe I would have known that.

MR. BLAKE: No more questions.

CHAIRMAN BLOCH: Mr. Kohn, do you have more?

MR. MICHAEL KOHN: Yes, Your Honor.

CHAIRMAN BLOCH: Can you estimate the amount?

MR. MICHAEL KOHN: I'd say we're at ten minutes.

CHAIRMAN BLOCH: I think we may as well take a break, if we're going to have ten minutes, Mr. Kohn.

MR. BLAKE: If it were -- if it were just five, I think he'd still make it.

CHAIRMAN BLOCH: Well, let's see. Try it and let's see what happens.

MR. BLAKE: Thanks, Judge, for trying.

RE-CROSS EXAMINATION

BY MR. MICHAEL KOHN:

Q Are you aware that the EG&G has an internal pressure regulator that establishes sample flow?

A No.

Q And do you know if the instrument is sensitive to flow?

A I know that in my use of the instrument that

the -- the amount of flow flowing through the instrument is -- is a direct reflection on the accuracy of the instrument readings. That's all that I can recall about how to use it and...

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Could you explain what you just said? What does that mean?

A Well, the question was whether or not I knew whether flow was a sensitive part of the instruments workings, and I -- all I'm saying is that I know that it has a bearing on the accuracy of the indications that you get from the instrument.

Q It sounded like you kind of played with that and you figured out the relationship. Had you done that?

A We had seen large differences between the readings that we had taken with the flow meter and without the flow meter. That's what led me to that conclusion.

RE-CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q Can you now describe what this flow meter looked like, the type of tubing, the diameter of tubing, things of that nature?

MR. BLAKE: I have an objection to that question at this point. I cannot imagine what the

probative worth is of that description, assuming he can or he can't.

MR. MICHAEL KOHN: It's very...

ADMINISTRATIVE JUDGE MURPHY: Mr. Kohn, he already told us it was a rotameter. It is a well-known technical term.

BY MR. MICHAEL KOHN:

Q Well, based on your understanding of how the -- are you -- do you know what the flow rate sensitivity is of the EG&G?

A No.

Q Do you know what the allowable flow rate level is of the EG&G?

A No.

CHAIRMAN BLOCH: I think what we'd like to do, Mr. Blake, is when we go to the site we'd like to have a demonstration of a reading with the EG&G instrument with and without the flow meter on the same receiver.

MR. BLAKE: You can also ask -- Mr. Hill will be prepared to describe with some precision what the impact is of the flow.

CHAIRMAN BLOCH: Okay, Mr. Hill's the expert on this, too.

BY MR. MICHAEL KOHN:

Q All right, Mr. Blake went over and asked you a

series of questions summarizing what your knowledge was of the EG&G instrument with respect to the flow meter. And I -- I, at this point, need you to explain your full understanding from -- I need a date line, if you can tell me based on information that you currently know, the date the flow meter arrived, whether -- do you know that?

A No.

Q Do you know whether, while -- I assume you only work an eight hour shift, is that correct?

A No, that's not correct.

Q How many hours were you at the site over the weekend?

A Could have been 12, could have been 14. It was very long days at that period of time.

Q So you were not there at least half of the day, correct?

A As I recall, it was 12 or 14 hour shifts, which would have meant I would have been there for more than half of the day. I don't recall how many hours I was working at the time.

Q All right. So do you know whether, during these other substantial portions of time, readings were taken that you weren't present for?

A I'm sorry, repeat the question.

Q Do you know whether readings were taken by the

EG&G instrument while you were not at the site?

A Yes.

Q And do you know whether or not a flow meter was used on any of those readings?

A I can only speak about the readings that I was involved with, and the readings that I was involved with the flow meter was used at one point, and at the initial readings that we took it was not used because we didn't know that it was supposed to be used.

Q I think you previously testified that you do not recall being present when readings were being taken by Mr. Stokes, correct?

Let me rephrase it. When Mr. Stokes was present when readings were being taken?

A I think my testimony...

MR. BLAKE: I'm sorry, I cannot understand the question. Can you repeat it, please.

MR. MICHAEL KOHN: Yes.

BY MR. MICHAEL KOHN:

Q You do not -- as I understand it, you do not recall being involved in readings...

CHAIRMAN BLOCH: Okay, let's stop. As I recall, you testified that there were readings taken -- that if Mr. Stokes was present for readings on air receivers, dew point readings on air receivers, that you

don't recall him being there.

THE WITNESS: That's correct.

BY MR. MICHAEL KOHN:

Q And you don't know if Mr. Stokes would have used...

CHAIRMAN BLOCH: He wasn't doing it, himself, Mr. Kohn.

Q So you don't know what the -- what the setup of the EG&G device was with respect to those readings?

MR. BLAKE: With respect to what readings, the ones that he wasn't present for?

MR. MICHAEL KOHN: The readings in which Mr. Stokes was present.

MR. BLAKE: He has no indication that Mr. Stokes was present.

CHAIRMAN BLOCH: Well, there was testimony that he was present during some of the readings. Not from this witness.

MR. BLAKE: I'm sorry, then I misunderstood.

CHAIRMAN BLOCH: Some of the eight readings in the one day.

MR. BLAKE: Okay, I don't remember. Fine.

BY MR. MICHAEL KOHN:

Q Are you aware of the fact that there's no mention of a flow meter being -- being added or being used

in any of the MWOs associated with the dew point readings?

A No, I'm not aware of that.

Q And isn't that the type of factual information that would be necessary to adequately assess the plant documentation and the adequacy of the readings?

A Not necessarily.

Q Well, if someone was going to do a deficiency card review and they had to rely on plant documentation, wouldn't they need to know about this flow meter?

A Yes.

Q And are you aware that the deficiency cards reviewed does not mention anything about a flow meter?

A No, I'm not aware of that.

CHAIRMAN BLOCH: Aren't most of these things on MWOs, Mr. Kohn? Did you mean MWOs or deficiency cards?

BY MR. MICHAEL KOHN:

Q There was a -- when they dispositioned -- there was one DC dispositioned, correct? Associated with the high dew point readings on April 6th?

A I don't recall.

Q I believe your prefiled testimony references it. Do you actually have an independent recollection of it at this time?

A Of whether or not it was actually dispositioned?

Q Yeah.

A I believe the one that's in my prefiled testimony was in fact dispositioned.

Q Okay.

A I believe it was closed out.

Q And there was a root cause determination looked at. And do you now understand that that root cause makes no mention of a flow meter?

A I'd have to look at the DC to determine whether or not it mentions a flow meter.

CHAIRMAN BLOCH: We can do that, Mr. Kohn.

MR. BLAKE: Mr. Briney, I'm checking to see if someone -- they're checking to see whether or not the plane is late. I apologize to you. At this juncture it seems to me you will not make it unless it is late, but we're checking on that.

BY MR. MICHAEL KOHN:

Q Now, you were looking at Exhibit 206, Intervenor's Exhibit II-206. And I'm going to show you the page that Mr. Blake showed you, which is the second to last page. And you were asked to indicate whether the RER reference on that last page was the RER procedure that you had been referring to in your testimony,correct?

A Yes.

Q And this particular document was prepared on --

at some point after March 29, 1990, correct?

A Yes.

Q And at that point in time there was already a big issue underway as to what were the correct procedures to use when calibrating the Calcon sensors?

ADMINISTRATIVE JUDGE MURPHY: Mr. Kohn, I -- what do you mean by "this particular document was prepared after March 29"? What document are you talking about?

MR. MICHAEL KOHN: Intervenor's Exhibit 206.

ADMINISTRATIVE JUDGE MURPHY: Okay.

BY THE WITNESS:

A This appears to be a document that was prepared for us to go perform calibrations on temperature switches.

Q And if I said "after," I -- I should have said on or after 3/29. I guess it appears to have been on 3/29.

And you're looking -- the last page is a -- or the second to the last page is a computer generated document, is that correct?

A Well, it's computer, and there is some handwriting on it, as well.

Q The original was a computer generated document, correct?

A Yes.

Q And the corrections, the handwritten corrections occurred on 3/29/90, correct?

A Yes.

Q And so based on this document, wouldn't it stand to reason that the actual written procedures had not been -- had not been changed to reference the RER until 3/29/90?

A I don't believe the procedures were ever changed.

Q So do you -- so if I understand what...

A The MWOs would have changed.

Q My question...

A That would be my expectation.

Q My question is: The document you see here, do you think every one has this handwritten change on it, or do you think they came out just the way they would have been from the computer?

A Could have been done either way.

Q And so if it didn't have the handwritten changes then it wouldn't have reference to the RER, would it?

A The MWO may not have had the reference to the RER, but I believe the data sheets associated with those switches do reference the RER.

CHAIRMAN BLOCH: Can you find that in one of the data sheets on this MWO?

THE WITNESS: I don't believe I have the data

sheets for that MWO in front of me.

CHAIRMAN BLOCH: The whole MWO is there; the data sheets are in the middle of it.

(The witness reviews certain material.)

THE WITNESS: Yes, sir. I'm trying to find a way to give you an indication as to which page I'm looking at, but if you look at the pages where the actual data was taken for expected trip and reset and the actual data taken, there's a comment section on those data sheets and they refer to RER Number 88-0707, which I believe is the -- the RER that we were discussing.

CHAIRMAN BLOCH: I find that on the ninth page in, and I find it also on about the 13th or 14th page in. It seems to have them in both cases.

MR. MICHAEL KOHN: Are you referring to handwritten RER information?

CHAIRMAN BLOCH: Yes, it's handwritten on both those pages. We'll take notice of that. He doesn't have to say it's handwritten.

BY MR. MICHAEL KOHN:

Q You also were asked questions about blow downs. Your organization isn't responsible for taking blow downs, are they?

A Is your question was the I&C Department responsible for blowing down diesel air receivers?

Q Yes, sir.

A No, they were not.

Q And did you have any responsibility to blow down the air receivers?

A No.

CHAIRMAN BLOCH: What was the difference in the question?

MR. MICHAEL KOHN: Not much, Your Honor.

BY MR. MICHAEL KOHN:

Q But were you aware -- so you have no knowledge of whether or not blow downs occurred while you were not at the plant, correct?

CHAIRMAN BLOCH: Let's ask him a relevant question.

BY MR. MICHAEL KOHN:

Q Are you aware that the general procedure in the plant was that when high dew point readings were obtained, a blow down of the air receiver was initiated, a feed and bleed I think it's referred to?

A No.

Q Did you inquire whether there was such a procedure?

A No.

Q Did you inquire whether blow downs had occurred during this time period?

A I had personal knowledge of the blow down and feed and bleed of the air receivers associated with 1-A diesel generator. I don't recall whether the other receivers were blown down or not.

Q And is there any reason in your mind that one would be blown down and -- and others wouldn't?

A I guess that would relate back to the dew point readings that were taken on the -- on the equipment.

Q So if you got equivalent dew point readings taken on the other equipment, the blow downs would, in your mind, be logical to follow?

A That wasn't my call to make. Whether or not they were actually blown down or what the decision-making process was there, I wasn't part of it. I was responsible for taking those readings and reporting those readings.

Q Did you discuss blow downs with Mr. Bockhold?

A I believe blow downs were discussed in a meeting with Mr. Bockhold. Now, whether or not I actually took up the subject with him or not I don't recall.

Q What meeting are you referring to?

A I just recall having a conversation with him. I can't give you exact dates and times.

Q A conversation is different than a meeting.

A It could have been either/or.

Q Well, do you recall face-to-face meetings with

Mr. Bockhold over the weekend of April 7, 8?

A Specifically recall the meetings, no.

Q Do you recall any conference calls with Mr. Bockhold to determine the dew point readings, the accuracy of the dew point readings?

A At any specific time?

Q Prior to April 9.

A I had numerous conference calls and meetings and conversations with Mr. Bockhold during that period of time. I can't give you an exact time line of when I discussed any particular issue with him face-to-face or on the telephone.

MR. MICHAEL KOHN: I have no further questions.

CHAIRMAN BLOCH: Ms. Young?

FURTHER RECROSS EXAMINATION

BY MS. YOUNG:

Q Mr. Briney, Mr. Blake asked you about the impact of a feed and bleed on air receiver dew point readings. Do you recall those questions?

A Yes.

Q In your mind, is there any difference between a feed and bleed, and a blow down of an air receiver?

A No, I don't think there is.

Q So you don't know whether a blow down only occurs for a matter of seconds, and a feed and bleed would

be done for a longer period of time?

A We didn't perform those operations so I really couldn't tell you that there's a distinguishable difference between those two terms. I don't know the duration and the length, I don't know the actual manipulations that they put them through, other than I know that it tries to put fresh air into the systems.

Q So you really don't know whether a feed and bleed would have any effect on the dew point of an air receiver, do you?

A I would expect that it would, in that you're -- you're developing fresh air going through the dryer system, and as you replace air that's suspected to be of high dew point you would expect it to be replaced with air of a lower dew point so eventually that dew point could possibly be lowered. But I'm -- I'm not an expert in the system. That's my -- my own, I guess, personal judgment on how those systems work.

Q So you wouldn't have had any basis for making judgments on whether dew points were high or valid high readings if there had been a feed and bleed, would you?

A The feedback that I got at the time was that there was -- there was no moisture content found in any of the receiver systems, and I was personally involved in inspecting some of the receiver systems I think

specifically to the 1-A diesel. At the time the information I was being given was that they suspected that they -- that it was not an actual system problem, that they felt as though we had an instrument error. And since we were not sure whether or not those instruments were giving us the correct information, we continued to troubleshoot until we found out which one of the problems we actually had.

Q But do you have any opinion for whether a blow down for a matter of seconds would have changed the dew point in an air receiver?

A In my opinion, just a few seconds of a blow down wouldn't -- wouldn't dramatically change the dew point of the system. That's a very large system and I don't think you could replace a lot of air in just a few seconds.

Q Thank you.

MS. YOUNG: No further questions.

FURTHER RECROSS EXAMINATION

BY MR. MICHAEL KOHN:

Q You are aware that these blow downs lasted continually all night?

A No. I -- again, I don't have a recollection of how long the blow down actually was performed.

Q I'm going to show you the log marked...

CHAIRMAN BLOCH: We already went over that one

with the witness.

ADMINISTRATIVE JUDGE MURPHY: Mr. Kohn, are you referring to a blow down or a feed and bleed?

CHAIRMAN BLOCH: It's called a blow down in the document. I'll note that Intervenor's Exhibit II-217 says, "Operations has blown down continually since last night."

BY MR. MICHAEL KOHN:

Q And if it had been blown down all night would it be logical that the pressures would have to go on to make up the air volume inside the receiver?

A That makes sense to me, but again I don't have integral knowledge of that particular system to that degree.

MR. MICHAEL KOHN: No further questions.

CHAIRMAN BLOCH: Mr. Blake?

MR. BLAKE: His having missed his -- his flight... and we checked and unfortunately it went on time and I apologize again...I'm going to take a couple more minutes now, since he's -- he's missed it.

MR. MICHAEL KOHN: Your Honor, I think the questions have to be related to my last questions. That's how this process works.

MR. BLAKE: Well, I'll -- let me explain, then what it is I want to do.

MR. MICHAEL KOHN: Well, Your Honor, I object

because...

MR. BLAKE: I can't make a proffer?

MR. MICHAEL KOHN: No, I -- I think I have the right to make an objection to the line of...

MR. BLAKE: Well, wait 'til you hear the proffer.

CHAIRMAN BLOCH: Object after Mr. Blake describes what he's going to do.

MR. BLAKE: There was a line of questioning of the witness to the effect that...

MR. MICHAEL KOHN: My question, does the witness -- will this affect the witness being present...

MR. BLAKE: Would you...

CHAIRMAN BLOCH: Please let Mr. Blake continue to state what he wants to do.

MS. YOUNG: Judge Bloch,...

CHAIRMAN BLOCH: I take it your concern is whether or not this will -- will prompt the witness, that's the -- that's his concern.

MR. BLAKE: I can't imagine it will, but I'm happy to have him go and -- he probably wants to go to the bathroom, in any event.

MS. YOUNG: Yeah, Judge Bloch, could we have a break since...

MR. BLAKE: Can I make my little proffer and

ask him to go to the bathroom for -- give my little proffer then...

CHAIRMAN BLOCH: You might begin your break now. We'll probably be taking a 15 minute break before we contention.

(The witness leaves the hearing room.)

MR. BLAKE: In the course of the questioning, the cross examination by Mr. Kohn, it was to the effect that were there any deficiency cards generated at all prior to the site area emergency. We have uncovered a number of deficiency cards that were -- they were -- and we've pulled these out. I provided them to Mr. Kohn last night, copies of them; provided them to Ms. Young. I didn't provide them to the Board or -- or to the witness, for that matter.

What we did was pull them out of the packages of IIT documents which we knew this witness had compiled in that -- in that time frame, right after the SAE. And in -- in the middle of these IIT packages of -- of sensor calibration histories were deficiency cards. And the only point of all this was just to show and be able to put on the record that there had in fact been deficiency cards generated on some of these sensors.

I've been talking to Mr. Kohn about being able to do it even without the witness, in order to save time of him, hopeful that he'd make his plane. But now that he's

missed it, I want to insure that there's no problem before he leaves, and so I would take a couple of minutes to carry him through these, if there's any necessity. Now, if there's -- if there's no objection to putting these on the record, not for whether or not they're good or bad or anything, but just the deficiency cards were generated prior to the SAE on Calcon sensors, that's its only purpose.

Now, we've -- we located six in the -- in the course of our quick look-see yesterday afternoon, and I told Mr. Kohn I would want to put these six on. And I don't know whether there were any others, but I also told him I was willing to commit to take a more careful look through the IIT documents and determine whether or not there are anymore, and agree to supplement the record with anymore that we find. That allows him to say, "Well, there were only six," is what I understood to have been the point of his position.

So that all -- that's my proffer, that's what I'd like to do. I thought I could do it without the witness, but since we already -- he already missed his flight, I wanted to insure that before he got away we'd be able to do this.

CHAIRMAN BLOCH: Mr. Kohn, what's your problem?

MR. MICHAEL KOHN: Well, Your Honor, I guess

the -- the problem is to accommodate Georgia Power the proceeding started early. Intervenor's preparation time on -- it was cut into, maybe not for this particular witness, but generally. We went -- we rushed through it. I felt hurried in asking my rebuttal questions. I didn't -- I wasn't thorough, I didn't have a break with Mr. Mosbaugh to go over everything. And now, all of a sudden, the witness missed flight which was I think in everyone's mind a foregone conclusion before he even begin today. That now let's take the time to add additional documentation in support of Georgia Power's case.

The problem is, previously when we have requested or gone over questioning that was beyond the scope of redirect, there's been objections sustained on a lot of occasions. And I think that's the problem here. In this particular case I don't think, first, necessarily this witness is even -- has to -- I mean, we haven't -- last night we did not have the opportunity to review this documentation, see if there's follow-up questions on these deficiency cards. This is the first time they've ever been provided to us. We -- you know,...

MR. BLAKE: These are the IIT documentation packages. You've had these for months.

MR. MICHAEL KOHN: I -- no, not to my knowledge.

MR. BLAKE: They were produced in discovery and they were available for years, I guess at this junction, not months.

MR. MICHAEL KOHN: Well, but none of them have project numbers on them, to begin with. And if they are part of 70,000 pages in Atlanta it doesn't help me to prepare last night.

CHAIRMAN BLOCH: All right, let -- let me ask the staff's comment on this.

MS. YOUNG: Staff has no objection to the introduction of these. I'm not sure whether we need the witness to do it, but there's no problem. I mean, these -- these are questions that have come up during the course of the proceeding.

CHAIRMAN BLOCH: I am confident that, given that this subject was raised, that having these is necessary for an adequate record. So despite the fact that it may or may not have been within the scope of previous cross, I would allow them anyway, and I have ruled that way in the past.

Mr. Kohn, I am concerned that you felt rushed. We're about to take a 15 minute break. If you feel that there's something that you should cover that's important, let us know at the end of the break.

MR. MICHAEL KOHN: Thank you, Your Honor, I

appreciate that.

MR. BLAKE: And let me say, I appreciate everyone's attempts to try to get this witness. It's obvious that the Board was trying hard to do it. Thank you.

(A short recess was taken.)

CHAIRMAN BLOCH: The hearing will come to order. It has been ascertained off the record that Mr. Kohn has discovered other important cross.

FURTHER RECROSS EXAMINATION

BY MR. MICHAEL KOHN:

Q Mr. Briney, did you discuss your testimony last night with anyone?

A No.

Q During the break I gave you some work orders to review to see if there was any mention to a flow meter. Were you able to accomplish that task?

A I'm still in the process of reviewing some of the documentation.

CHAIRMAN BLOCH: Okay, how much more time...

MR. BLAKE: I'm sorry, what documentation did you give to him?

MR. MICHAEL KOHN: It was four work orders associated with the high dew point readings in April of 1990.

CHAIRMAN BLOCH: Are they -- are there exhibit numbers for them?

MR. MICHAEL KOHN: It's my understanding that two are -- my records indicate that two are in evidence; I'm not sure whether the other two are in evidence right now or not.

CHAIRMAN BLOCH: No, but for the record if you've shown the witness things that he's going over we have to know what he's going over. So if there are exhibits that are marked, you have to know those and the others have to be marked.

MR. BLAKE: And there's a courtesy about other counsel or some of the other people even knowing before you provide that.

CHAIRMAN BLOCH: Usually you allow counsel for the other party to know before you present something to the witness. So right now let's make up at least for the deficiency in the record as to what these documents are.

MR. MICHAEL KOHN: Okay, Mitzi Young was present when I did that, it was just...

MR. BLAKE: Two out of three.

MR. MICHAEL KOHN: Two out of three ain't bad, right?

MR. BLAKE: That's an interesting irony compared with, "Who did you discuss your testimony with

last night, if anybody?" but...

MR. MICHAEL KOHN: The first document is identified as Intervenor 146, which is -- it's a work order, 90-290 -- 00964. The second...

CHAIRMAN BLOCH: Okay, one second. Was that exhibit previously marked?

MR. MICHAEL KOHN: Yes, and I believe that is in evidence.

CHAIRMAN BLOCH: Okay.

MR. MICHAEL KOHN: The second document is Intervenor Exhibit 143, which is MWO 19001651, which was also previously marked and put into the record. The third document is MWO 29001021 dated 4 -- on Line 2, dated -- of the MWO, dated 4/6/90. And I haven't been able to ascertain whether this is in the record yet or not.

MR. BLAKE: This is Briney Exhibit Echo, "E."

MR. MICHAEL KOHN: And the fourth document is MWO 19001770, dated 4/5/90.

MR. BLAKE: That's Briney Delta.

CHAIRMAN BLOCH: So let's also identify for the record that Briney Delta is GPC II-156 and Briney Echo is GPC II-157.

MR. MICHAEL KOHN: And...

CHAIRMAN BLOCH: Now, the question you've asked the witness is...?

MR. MICHAEL KOHN: Is to determine whether there's any mention of a flow meter within this plant documentation.

CHAIRMAN BLOCH: All right, Mr. Briney, how much more time do you think you'd like to have?

THE WITNESS: I think just a couple of minutes ought to be sufficient.

CHAIRMAN BLOCH: Okay, we'll wait with you. Please make sure that you've done an adequate review before you answer the question.

(The witness reviews certain material.)

CHAIRMAN BLOCH: On issues like this, having the parties state for the record what they believe it shows and then we accept it unless the other party contradicts it.

MR. BLAKE: Be a good try. Be worth a try.

CHAIRMAN BLOCH: Would that be acceptable, Mr. Kohn?

MR. MICHAEL KOHN: If the parties state what...

CHAIRMAN BLOCH: All right, it's stated for the record as a stipulation, subject to challenge, these documents do not refer to the -- a flow meter. That's what you'd like to state, isn't that correct?

MR. MICHAEL KOHN: Yes.

CHAIRMAN BLOCH: All right. And if Georgia

Power finds that they refer to a flow meter they'll let us know, and then they'll show us exactly where it shows...

MR. BLAKE: Or just for these purposes, Judge Bloch, it's simply the -- we want -- we want to put the parties on notice that we plan to use these documents for this topic, whether or not a flow meter was used or wasn't. Then that alerts all the other parties to what the purpose would be in the exhibits; we don't have to now search them instantaneously to determine whether or not there's something. I'm on notice as to that purpose to be used.

CHAIRMAN BLOCH: Well, I think it might be helpful if it was done in the next few days, at least, so that they know whether it's an open item or a resolved item.

MR. BLAKE: All right.

MR. MICHAEL KOHN: Well, I think it's also important to question the witness on the entry, if he -- if he can locate one.

CHAIRMAN BLOCH: All right, if you have follow-up questions then we can't do it by stipulation.

ADMINISTRATIVE JUDGE MURPHY: Well, if you know it's there, why don't you point him to it.

MR. MICHAEL KOHN: No, I don't believe it's there, and...

MR. BLAKE: We're either going to find them in

there or we're not when we search these documents, that's my only purpose. The documents are going to say it or not.

CHAIRMAN BLOCH: Well, but Mr. Kohn says he has follow-up questions, so...

MR. MICHAEL KOHN: You know, I guess the experience I now have is when we were doing Mr. Ajluni a big effort was made to say, "Just tell us what paragraphs," and Georgia Power's response, "Let's cut the questioning short." And now there's a big formal motion written. It's a lot more complicated, from Intervenor's perspective, waiting towards the end to do things. If we had questioned Mr. Ajluni about all those things on the record at that time I don't know -- you know, I would think that from Intervenor's perspective we would have been less prejudiced. And the same thing has occurred on -- on other matters. So I guess it also makes it easier for the record to point out that the witness has testified to this; it alleviates all the parties and the Board later from re-verifying it when they're -- when they're doing their findings, we do have a finding within the record, so... You know, I'm always hopeful that we can come to some way to shorten things, but I've been "flustrated" by the process.

BY MR. MICHAEL KOHN:

Q Have you completed your review?

A Yes.

Q And could you find any reference to a flow meter?

A I couldn't find any, no.

Q Or a flow...

MR. BLAKE: Well, I could find some. Should we -- should we start that process now or just go on?

MR. MICHAEL KOHN: Excuse me?

MR. BLAKE: I said I can -- I can find a reference to a flow meter in the documents. You said you found none in the -- in these documents, correct, Counsel? You say you found none?

MR. MICHAEL KOHN: That's correct.

MR. BLAKE: And the witness hasn't in the couple of minutes he's looked, and we have just located, thumbing thrcugh the same documents, the same time frame, at least one reference. Let's find out what he says about it. Is that the point?

MR. MICHAEL KOHN: Yes.

MR. BLAKE: Okay, I would refer him, in -- in his Exhibit Delta, "D," to the next to the last page in that exhibit. And on there, there is at least handwritten the words "flow meter." I think this is a Summer data sheet.

THE WITNESS: Yeah, I believe that's correct,

this looks like the Summer calibration data sheet for FS-3529, and that's the instrument that we borrowed from V. C. Summer.

MR. BLAKE: It's the only reference we've been able to find in any of these pages to flow meter.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Could you tell us what you think that reference means?

A It appears that they installed a flow meter and a filter on the instrument once they were completed with the calibration or once they had replaced the temperature sensor.

MR. MICHAEL KOHN: All right. And with respect to...

CHAIRMAN BLOCH: I'm sorry.

BY CHAIRMAN BLOCH:

Q They -- when do you think they installed this flow meter?

A I would have assumed that after they had performed the temperature sensor replacement. Because they say they replaced the temperature sensor, installed flow meter and filter.

Q Is the temperature sensor a part of the dew point instrument?

A Yes, I believe it is.

Q And did the dew point instrument have a flow meter and filter when it arrived from Summer?

A I recall it having a flow meter. Now, whether or not it had a filter or not, that I don't recall.

Q And so it was attached when it was received from Summer?

A Yes, sir.

Q Then why does this indication here that they installed it (sic)?

A I would expect that they would have had to remove the flow meter when they were in the process of replacing the temperature sensor. Maybe it was physically in the way.

BY ADMINISTRATIVE JUDGE MURPHY:

Q Could you clarify for Judge Bloch who filled out this data sheet?

A This was filled out by personnel at the V. C. Summer station, I would think.

CHAIRMAN BLOCH: Oh, okay, thank you.

MR. BLAKE: You'll note, Judge Bloch, that the same data sheet would appear in other packages where this instrument was used, with this same nomenclature, which would indicate that it was done to this instrument at some time in the past.

MR. MICHAEL KOHN: I -- I thought my original question was -- and maybe I misspoke.

FURTHER RECROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q But with respect to the -- with respect to the dew point instrumentation used at plant -- VP-1114, whether there was any reference to a flow meter being used or added.

A I didn't see any.

MR. BLAKE: Nor have we in -- in our quick review here. And if we find anything different, we'll -- we'll raise it with Mr. Kohn.

BY MR. MICHAEL KOHN:

Q And don't you think that that information should have been logged in the work order?

A Not necessarily, no.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q May I ask, was the EG&G instrument in calibration at the time it was used?

A Which instrument are we referring to?

Q The one that was on the shelf at Vogtle.

A Yes, I believe we had a calibration due date associated with it that's referenced in these job orders, also, that showed it was within calibration. Otherwise it

wouldn't have been issued.

CHAIRMAN BLOCH: So if I'm correct, then, the date on which it was calibrated there should be a similar sheet to this one, and if it was properly calibrated it also should have had an installed flow meter and filter. So I'd like to have the -- I'd like to have the last calibration sheet from the EG&G instrument that was used on the site.

MR. BLAKE: We can attempt, and I suspect we'll be able to locate whatever that was. Now, whether or not your inference that you draw is correct, I can't -- I can't say at this juncture, but I understand why you're inquiring. I mean, this is the Summer data sheet, what they use for their calibration. I don't know whether Vogtle's were the same, but we can certainly locate the sheet then we can start our inquiry.

CHAIRMAN BLOCH: Okay, did Summer do this or did they send it to EG&G for calibration? They did it at Summer?

MR. BLAKE: Correct. My understanding is this is a Summer calibration sheet.

BY CHAIRMAN BLOCH:

Q Do you know, Mr. Briney, whether the calibration of that EG&G instrument was done on site or whether it was sent to the vendor?

A The calibration of the Summer station instrument or the calibration of the Vogtle instrument?

Q No, the Vogtle instrument.

A I don't know for sure.

FURTHER RECROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q Now, is it your understanding that as soon as a piece of test equipment is suspected of being defective it is no longer to be used to take additional readings?

A Yeah, I believe a program is set up to take that piece of test equipment out of circulation until the point in time in which an investigation is performed that resolves whether or not the piece of instrumentation is defective or whether it can just merely be recalibrated, and -- and the investigation would also include what that instrument was used for. I mean, as I recall the program, that's -- that's what would have been done.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q So in this instance you don't know of any investigation like that, do you?

A I haven't seen any documentation associated with any investigation into a dew point instrument being found out.

Q I take it, based on what you think the program

is, that's somewhat surprising to you, isn't it?

A Surprising that I haven't seen the documentation or surprising to learn that there is no documentation? I -- I don't...

Q Well, if it wasn't done it would be surprising to you?

A Yes, it would. That's not according to the normal procedures that we had established at the time.

FURTHER RECROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q And if Alnor was being used, then the last date it was used would be the date, according to the M&TE program, in which it was believed to be in calibration, correct? Are you following my question? I can rephrase it.

A No, I'm not sure that I'm following your question.

Q Let's say you pulled a traveler -- you know what I'm referring to with a traveler associated with one of these dew point instruments?

A As I recall, it's a document that shows basically the traffic of that particular instrumentation, what it was -- when it was signed out, what it was signed out for, that type of thing.

Q And each time the M&TE Department is signing

out this traveler it means that the M&TE Department believes that -- does not suspect that the instrument is defective, correct?

A Yeah, I would expect that to be correct.

Q And so as long as the Alnor is being signed out by the M&TE Department and being used in the field to take measurements, it is -- that would, by definition, indicate that the Alnor went suspected of being defective, correct?

A Not suspected by the M&TE Department.

Q Well, isn't the M&TE Department the department that must make the determination whether it was defective?

A At the time we were trying to determine whether or not that particular instrument was defective. We may have asked M&TE to sign that instrument out to us in an attempt to determine whether or not the instrument was giving us appropriate readings.

Q But wouldn't the M&TE have to tag it out as defective and then sign it out to you?

A No.

Q So you believe that you could have signed out from the M&TE program an instrument suspected of being defective without it being tagged?

A No, that's not what I said. I don't believe that the M&TE program or the M&TE personnel believe the instrument to be defective at that point in time. We were

trying to determine that ourselves.

CHAIRMAN BLOCH: Mr. Kohn, it is possible for an instrument to be checked out and for the people using it then to develop information that would lead them to think it was defective.

MR. MICHAEL KOHN: I understand.

BY MR. MICHAEL KOHN:

Q And once the personnel checking it out developed a suspicion that the Alnor was defective, at that point...

CHAIRMAN BLOCH: We've gone into that extensively.

Q Now Intervenor's Exhibit -- I believe 164 is a copy of the VP-1114 manual, the EGG manual -- EGG Dew-All manual. And on page 1-12, there is a statement that the sample flow rate .25 to 2.5 liters per minute. Do you know that the sample flow rate at any time that the EGG was used in the field was outside this range prior to April 9?

A Well the initial readings that we took with the EG&G, it could very well have been out of that range since we didn't have a flow meter attached to the instrument to determine what the flow was.

Q So you have no way of knowing whether the sample flow rate was or was not met, in the initial readings.

A Without the flow meter being attached to the meter, no, I don't.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Do you know, Mr. Briney, if the manual says anything about the use of the flow meter, or not?

A I believe that it does. I haven't reviewed that manual since the 1990 time frame. I've done a thumbnail, you know, overview, but I didn't review it in any kind of detail in preparation for this testimony, but at that point in time, I recall the flow meter being attached to the V.C. Summer instrument led us to wonder whether or not that we needed to have one on ours, and investigation probably prompted us to take a look at the tech manual that we had available and from there, we logically deduced that we should have a flow meter on this instrument.

CHAIRMAN BLOCH: Mr. Kohn.

MR. MICHAEL KOHN: No further questions.

CHAIRMAN BLOCH: Mr. Blake. You don't want to handle the deficiency paper with the witness?

MR. BLAKE: Unless we have an agreement to be able to do it without --

CHAIRMAN BLOCH: Does the Staff have further questions before we get to Mr. Blake?

MS. YOUNG: Yes, Your Honor.

FURTHER RECROSS EXAMINATION

BY MS. YOUNG:

Q Mr. Briney, you were asked a lot of questions about the installation of a flow meter on the EG&G instrument. Do you recall those?

A Yes.

Q Do you know if that installation was done, whether it would have been documented in any records maintained by the I&C personnel?

A Not that I'm aware of.

Q And if there were no other records, would you expect it to be documented in a maintenance work order?

A Not necessarily.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q I'm sorry, but your testimony is that the flow meter is necessary to the accurate use of this instrument, but there'd be no plant records showing whether or not the flow meter was installed on the instrument, is that right?

A As far as I know, there are no plant records that show the flow meter was installed on the instrument. The only thing that I could think of that would be a document was a flow meter that we may have bought from the warehouse at that particular time to be used. But again,

I'm not sure whether or not we bought it from our own storeroom or we bought it from an outside vendor. Maybe that documentation could give you some information, but my recollection sure can't.

FURTHER RECROSS EXAMINATION (Continued)

BY MS. YOUNG:

Q Now you were shown a copy previously of a log maintained by I&C personnel, an excerpt was Intervenor II-217.

A Yeah, I believe I have that in front of me.

Q Would you expect modification installing a flow meter to be recorded in this type of document?

A Not necessarily, no.

Q Is this document controlled by any procedures at the plant?

A No, ma'am, it's strictly an informal log kept for supervisory information from one shift to another. It was strictly informal, there is no procedural guidance on the use of this log.

Q And what use would the supervisors have made of it?

A The supervisors kept this log in an attempt to prevent phone calls to them while they were off shift. They tried to put information into this that they thought the day shift or the night shift or their counterparts

needed, so that if there were questions that came up while they were off shift, the log could answer the questions. And if the log couldn't, then of course a phone call would have had to have been made. That's what this thing was used for.

Q If you turn to the last page of 217, you see an indication there that Mr. Bockhold had asked for a 24-hour feed and bleed?

A That's what that log entry says, yes.

Q Do you recall that being done on April 8, 1990?

A The feed and bleed itself?

Q Yes.

A I don't recall if it was done or not, no.

MS. YOUNG: No further questions.

CHAIRMAN BLOCH: Mr. Briney, just one question. Do you recall the date on which the Summer instrument was received? I guess you said you don't recall that, is that right?

THE WITNESS: No, I don't recall the exact time.

CHAIRMAN BLOCH: Do you know whether it would have been before April 8th?

THE WITNESS: I would have expected it to be on or before April 8th, since I believe there are documentation in the MWOs that refer to that instrument,

and those entries on that documentation are made on April the 8th. So it would have been sometime on or before April the 8th, in my opinion.

CHAIRMAN BLOCH: I note that on the entry in the log, on the third page of the log, there appears to be readings from the GE rental Alnor, is that the Summer instrument?

THE WITNESS: No, sir.

CHAIRMAN BLOCH: No, it's not. So I guess that the Summer instrument must have been received after that point, or you'd think they would have put the numbers in, huh?

THE WITNESS: Yes, I would have expected them to put those numbers in.

CHAIRMAN BLOCH: Wouldn't you expect someone who's making a log of -- that included readings, to make an entry when they learned that the readings were inaccurate?

THE WITNESS: Again, if they felt that that information was necessary to be provided the day shift, if there was a question in their mind that that day shift -- or the other shift -- didn't have that information, then I would have expected a log entry. If the supervisors had a face-to-face conversation during shift turnover and that information was conveyed, I would expect that information to stick with a supervisor and it really wouldn't

necessitate a written response in this log.

MR. BLAKE: Judge Bloch, if you're just looking for some indication of when it was used, I think that Intervenors would agree with us that Mr. Mosbaugh's demonstrative aid 4 could be as good an indicator as any of when -- of his compilation of looking at maintenance work orders, when it starts showing up, and I'm informed that there's one on April 6th, which may indicate, although I haven't looked at that to see whether there's a time indicated, that it came in late on the 6th. And then it shows up with some amount of regularity on the 7th. So that's the time frame it appears for Summer and if I'm wrong about that, then --

MR. MICHAEL KOHN: Yeah, can you point out the 6th entry or the 7th entry?

MR. BLAKE: I'm informed that Mr. Lewis has mixed up his numbers, which kind of delights me because he doesn't do that very often. Let the record reflect his red face.

(Laughter.)

CHAIRMAN BLOCH: So we now think it was the 8th.

MR. BLAKE: I will double check. Or maybe if you already know, Michael.

MR. MICHAEL KOHN: It was not used before the

8th.

MR. BLAKE: Okay.

CHAIRMAN BLOCH: Let's continue. Does this log continue on the 8th?

THE WITNESS: Yes.

CHAIRMAN BLOCH: And -- well I mean, it seems to me that this stops here on the 8th. Do we know if the log here is the whole entry for the 8th? Who presented this in evidence?

MR. MICHAEL KOHN: This was -- this document was shown to Mr. Briney in preparation for his testimony and was produced by Georgia Power at the point in time he was deposed. It as a project number on it, but Intervenor does not recollect during its review of all the documentation, their ever seeing this particular document.

CHAIRMAN BLOCH: It looks like it's complete through the 8th. If it's not, I think we should have a supplement to see whether there was a note made when the summer instrument was received.

MR. BLAKE: We can check it.

CHAIRMAN BLOCH: Mr. Blake.

MR. BLAKE: Judge Bloch, Mr. Kohn pointed out to me over the break that one of the deficiency cards, the documents that we had plucked out of the IIT stacks, was actually after the SAE and so that would not have been

appropriate for what I was trying to demonstrate, and I appreciate that.

So we're left with six documents. If the other parties are agreeable to this and I don't need the witness -- I'm seeing a waving hand, maybe I'm not gong to get very far.

MR. MICHAEL KOHN: The last conversation we had was that there were four, but if it turns out to be six, that's fine. That was my last understanding, that there were four.

MR. BLAKE: In this stack, what we were able to determine from the IIT documents Mr. Briney had earlier put together were that there are four deficiency cards and then two sensor calibration history documents that were also provided to IIT, that refer to two other DCs whose numbers don't match with the DCs that we happen to have copies of here, which indicate to us that there were at least six in that time fame. So that's -- those are included in the documents that I gave you and so there are six.

If we are able to do this without the witness, so be it. If I need to carry the witness through this, then I will.

CHAIRMAN BLOCH: Well, why don't we at least ascertain what it is you want to do. Do you want to make a motion for a requested stipulation? How do you want to do

it?

MR. BLAKE: If the other parties will agree, what I'd like to do is put into evidence these just six documents for the sole purpose of showing that there were deficiency cards generated prior to the site area emergency on Calcon sensors and where they came from is from the stacks of IIT documents; that is, documents that were compiled and provided to the IIT in 1990.

MR. MICHAEL KOHN: Intervenor would need to know the exact number of deficiency cards.

MR. BLAKE: Okay, and what I'm indicating is this exhibit has four deficiency cards and two other history -- sensor calibration histories, which refer on their face to deficiency card numbers which are not the four, indicating that there ere at least two others. And I'll read you one of the entries, Judge, so you'll understand.

MR. MICHAEL KOHN: I understand that. What I'm saying is Intervenor needs the exact number of deficiency cards issued prior to the site area emergency.

MR. BLAKE: Well, I don't know whether you need that or not, but what I already am willing to commit to is going through the IIT documents again to determine whether there were any more than these six that we uncovered yesterday. And if there are any more, then we'll

supplement. And if not, then the record will reflect that there were only six in all those documents that were provided to the IIT.

MR. MICHAEL KOHN: Then at this point, we'd like the record to indicate there are four deficiency cards and you will supplement them with the other two that are identified in the other documents, because we'd like to see all of the deficiency cards.

MS. YOUNG: Mr. Blake, are you going to mark these today, because one of them is dated after the SAE.

MR. BLAKE: Yeah, that's the one that he pointed out to me during the break, which I've already spoken and pulled out, so we're now talking only about six rather than seven.

MS. YOUNG: Okay, because my package may or may not be complete, so if we could just mark these and you could make your proffer.

MR. BLAKE: I'm happy to --

CHAIRMAN BLOCH: As I understand, the only thing the Intervenor wants is after you've made the proffer, he would like to have you attempt to find the other two that are referenced, so that he can see those.

MR. BLAKE: Okay, and we'll undertake to do that.

MR. MICHAEL KOHN: And Intervenor's right to

argue that there were only six issued. I mean, that's the point.

CHAIRMAN BLOCH: He is also undertaking to do a further search and to report to you on the outcome of that search.

So what we want to do now is I delegate the authority to mark these documents --

MR. BLAKE: You're not ducking this, Judge Bloch.

CHAIRMAN BLOCH: -- to Mr. Blake. He may mark them.

MR. BLAKE: We'll provide three copies to the court reporter of what will be identified and marked as GPC II-160. It's a collection of six documents.

The first is comprised of two pages, deficiency card 1-88-3083.

The second --

MS. YOUNG: Ernie, please slow down because that's not the order the documents were given to me.

MR. BLAKE: Fair enough. 1-88-3083.

MR. MICHAEL KOHN: That's 160?

CHAIRMAN BLOCH: They're all 160.

MR. BLAKE: They're all 160, it's a compilation of six documents.

MR. MICHAEL KOHN: Okay.

MR. BLAKE: Okay, Mitzi?

ADMINISTRATIVE JUDGE MURPHY: Should we --

MR. BLAKE: I don't think they need to be identified as A, B, C and D because there's going to be no use other than to say that there were six deficiency cards, Judge Murphy.

The second document in here is also comprised of two pages, it's also a deficiency card and its number is 1-88-3016.

The third is a one page deficiency card, it's 1-88-3453.

The fourth is a three-page document, it too is a deficiency card, 1-88-3155.

And the last two documents are each one page, they at the top indicate -- have the legend "Sensor Calibration History" and each of these is for I believe a specific instrument. The next to the last page in this document would be for instrument tag number ITSH-19119. And the DC is referred to in the first entry on that form, the DC number is 1-88-3083, which we will go and look for.

CHAIRMAN BLOCH: For an accurate record, Mr. Blake stated that the one after 3453, I think he said was 3455 and my says 3155.

MR. BLAKE: It is 3155, and whatever I said, that's what I should have said.

The last document, the second of the Sensor Calibration History pages is for instrument tag number IPSL-4902 and the second entry on that page is the one that refers to the DC 1-88-3379. Again, we'll do find that DC, if we can, and provide it to Mr. Kohn.

And that's the complete identification of this document, GPC II-160.

THE WITNESS: Mr. Blake, I believe there's -- the tag numbers that you're discussing, I don't believe they're IP or IT, I think that's a 1, I think it designates the unit associated.

MR. BLAKE: Thank you very much and now that I look at it with that clarification, I agree with you, it does appear to be a 1. Thank you, Mr. Briney.

CHAIRMAN BLOCH: These have been marked.

(The document referred to was marked for identification as GPC Exhibit Number II-160.)

MR. BLAKE: And I would ask that they be admitted into evidence for just the prior reason that was given the purpose, given that there were DCs written prior to the site area emergency.

MR. MICHAEL KOHN: And Intervenor requests that their admission be subject to providing the final information to Intervenor.

MS. YOUNG: No objection.

CHAIRMAN BLOCH: Granted.

(The documents, heretofore marked as GPC II-160, were received in evidence.)

CHAIRMAN BLOCH: I would point out that the first page of 1-88-3453 is illegible on my copy with respect to the compensatory action.

MR. BLAKE: I believe there's no more questions for Mr. Briney. Can the witness be excused now?

CHAIRMAN BLOCH: Mr. Briney, thank you for your assistance and you may be excused.

THE WITNESS: Thank you.

(Witness excused.)

MR. BLAKE: I suggest that we break now, Judge Bloch and then come back after lunch with Mr. Owyoung and Mr. Johnston.

MR. MICHAEL KOHN: Okay, what we --

CHAIRMAN BLOCH: Yes?

MR. MICHAEL KOHN: Maybe a few preliminary matters that I'd like to resolve.

First, Intervenor objects to calling Mr. Owyoung and Mr. Johnston as a panel. They are individual witnesses and to the extent that their testimony could be influenced by what one says and what the other one says,

one would be I assume in a supervisory role over the other, and I think that Intervenor would request that Mr. Johnston be produced first.

CHAIRMAN BLOCH: Mr. Blake.

MR. BLAKE: I'm surprised -- disappointed frankly that it comes at this juncture, working as hard as we have at trying to get these individuals on and off. It seems to me that Mr. Kohn's basis could well have been presented earlier and decided earlier. I don't think it's likely to be as quick for them to get on and off if they're taken up separately as if they're here together, and finally, I think the Board is well equipped to determine from its personal observation of the witnesses and the questions and their answers, whether or not there's some undue influence being made on one witness or the other by his fellow witness at the time.

CHAIRMAN BLOCH: Staff, do you have a comment on calling these two witnesses as a panel?

MS. YOUNG: Staff has no objection to them testifying as a panel.

MR. MICHAEL KOHN: Your Honor, they were not identified as testifying as a panel prior -- any time prior to receiving the prefiled testimony, which I did not get until late Friday, and did not even cognate that they were being called as a panel until -- I wasn't thinking about

that over the weekend. And this is the first opportunity, we've really had to discuss that.

I should also note that there is a lot of technical -- Intervenor has already stated on the record that it was not given sufficient time to review the testimony with respect to the expertise of -- with respect to technical issues. Documents of Mr. Owyoung and Johnston were produced for the first time on Monday, a large stack, and obviously you can see the relevance to some of these documents. There is a rush to present two witnesses when Intervenor has the necessity to call each witness individually to understand what the scope of their real knowledge is and testimony, and to allow one witness to say well let me, you know, interject here, I know a little something more, is an unfair advantage.

These witnesses are providing technical information. I'm not a technical expert and my ability to cross examine them effectively is stymied by calling them together. Had this been discussed before and had anyone been put on notice before, we would have crossed that bridge at that time. Georgia Power did not do it, they never indicated they were calling them as a panel, to my knowledge, prior to submitting their prefiled testimony.

CHAIRMAN BLOCH: And had you requested -- have you requested discovery prior to testimony?

MR. MICHAEL KOHN: The discovery with respect -- that's another problem with respect to the witnesses. There was a quasi-deposition taken of -- I guess it testimony taken of Mr. Johnston, which we have not had an opportunity to review before he's testifying, the exact scope of his testimony, as I understand it at this point would not cover that area.

And I think that with respect to the documents, Georgia Power received those documents and they produced them, I assume, pursuant to what they believe to be their obligations in this proceeding. And I do not know when they received the documents, I only know when I got them. And they directly relate to their testimony. We called Mr. Johnston, Mr. Johnston refused to accept our call and talk to us. Intervenor called Mr. Johnston directly. He accepted the call, but he would not talk with us, so we have not had an opportunity to even discuss factual information with Mr. Johnston beforehand, and a lot of their testimony is essential expert testimony and there is no expert reports provided, there's a lot of deficiencies in Intervenor's ability to adequately examine these witnesses. And to call them -- at a bare minimum, calling them as a panel just compounds that problem.

MR. BLAKE: Judge Bloch, this is sort of a shotgun argument and I don't know that I'll hit every one

of the points, but it's gone a long way from whether or not they ought to appear as a panel. And I think I addressed that earlier.

These are our witnesses. I am willing to run the risk that somehow their credibility or the weight of their testimony will be hurt in the Judges' eyes, by having them appear as a panel, and I think we are able to make that determination.

If that's what Mr. Kohn believes and that's what thinks he'll show and that's what he'll be able to convince you of in findings, so be it. I think this is a productive way to get these two experts from another vendor, not from GPC's evidence, on the record, and efficiently so.

With respect to the whole range of other issues, Mr. Johnston's, Mr. Owyoung's appearance here is prompted in part by the Board's and the Staff's and in fact everybody's desires to try to hear from a vendor on these topics. These topics have grown through the course of the hearing and that's why we opted to make these gentlemen available. I would hope that their schedules again could be at least taken into consideration and given whatever cordia the Board can and has tried to for other witnesses in deciding what to do now.

The idea that we haven't provided an expert

report gets me every time I hear it, because what they get is even better than an expert report, they get prefiled testimony of precisely what these gentlemen's evidence is going to be in the proceeding. And that's even better. I don't understand the grip about a non-expert report. We have endeavored, we have followed the request the Board made of us to file prefiled testimony even on rebuttal people in advance, and we've done it in this instance as well as in the others. And I just see no element of unfairness.

The idea that Mr. Mosbaugh attempted to reach Mr. Johnston, which Mr. Johnston informed us of, on Friday, they're free to ask him about and whether or not he should have taken the call or shouldn't -- ask him if there's something wrong about it, ask him if he had some intrigue, ask him whatever. And let's get on and find out what the worth and the weight of this testimony is for these people.

CHAIRMAN BLOCH: My ruling has three parts.

First, I will give a special instruction to Messrs. Owyoung and Johnston about their responsibility to give their own full truth, despite the fact that they're appearing as a panel. It is traditional in NRC cases to permit panels and to use them to make the proceeding more efficient.

I would also note for the record that Judge

Murphy's notes show that it was on August 11th that we were told that they would be called as a panel.

The second part of the ruling is that if during the appearance of these witnesses, something happens that gives Intervenor cause to require them to be separated, we would entertain a motion to separate the panel.

The third part of the ruling is that based on the timing of the notification, we expect Intervenor to conduct as thorough a cross as he can manage now, but if there is cause for recalling the witnesses or for asking specific questions in writing, we would entertain that motion subsequently. But you have to show cause for that.

MR. MICHAEL KOHN: Your Honor, I'd just like to note that it's my understanding that Mr. Johnston is going to have to reappear with respect to his testimony on the finding of water. I think that's -- unless -- it's my understanding that that is outside the scope of his rebuttal testimony so it's not something we were covering here today. Am I correct in that, Your Honor?

CHAIRMAN BLOCH: I invite Licensee to comment first.

MR. BLAKE: I've read the conference call that took place last Friday and the involvement of Mr. Johnston and the ability of not only the Board but the parties as well to ask him what it was he knew and what had occurred

about it. My understanding is the same as Mr. Kohn's with respect to today, that we'd be talking about their putting on their testimony and being questioned about it. But I had not taken as a given that Mr. Johnston would have to appear ever again to talk about that other topic, and if there is -- I had also understood that there'd be a prospect of additional questions at least for Mr. Stokes and probably for Mr. Burr as well, and if that all leads to the need for Mr. Johnston to reappear and if there's some good cause shown for it, I think we need to take that on at the point, but I don't take it at this juncture as a given and I agree with Mr. Kohn it wasn't for today's business in any event.

CHAIRMAN BLOCH: No, it wasn't. On the other hand, I can't think of any reasons to exclude questions on it either since it has been taken up with the witness as part of the record already.

MR. MICHAEL KOHN: Your Honor, that is the problem. My technical expert was excluded from the conference call. Mr. Mosbaugh was not a participant and our --

CHAIRMAN BLOCH: Could you please state the truth about what happened instead of saying he was excluded?

MR. MICHAEL KOHN: He was not on the call. All

the lines were tied up and there was no way of putting him on the call. He was identified as someone Intervenor wanted on the call --

CHAIRMAN BLOCH: We have the transcript of the call.

MR. MICHAEL KOHN: That's right.

CHAIRMAN BLOCH: He can examine that and you may ask questions related to the call.

MR. MICHAEL KOHN: What I'm saying is that as we stand here today, we cannot examine, you know, the conference call. I mean, he can --

CHAIRMAN BLOCH: I have the disks for the conference call in my hand and they're available to the Intervenor.

MR. MICHAEL KOHN: Thank you, Your Honor.

And the only other point I'd like to raise is that to the extent the witnesses are providing their opinions in an expert capacity, the rules require a substantial amount of lead time, 20 days, and filing prefiled testimony that contains conclusions, but does not set out the calculations used --

CHAIRMAN BLOCH: I've already ruled on how you'll handle that.

MR. MICHAEL KOHN: Thank you.

CHAIRMAN BLOCH: If you have a problem with not

being able to cover something adequately, you'll approach the Board with a motion about that.

So we will adjourn until half past one.

(Whereupon, a luncheon recess was taken at 12:00 noon, the hearing to resume at 1:30 p.m., the same day.)

AFTERNOON SESSION

CHAIRMAN BLOCH: Good afternoon.

We'd like to welcome Mr. Johnston and Mr. Owyoung to our proceeding.

My name is Peter Bloch and I'm Chairman of the Atomic Safety and Licensing Board panel -- Board rather. On my right, Judge Murphy, and on my left, Judge Carpenter.

I'd like to advise you that the testimony that you're about to give should be the truth, the whole truth and nothing but the truth, and that it is subject to possible penalties for perjury. Do both of you understand?

MR. JOHNSTON: Yes.

MR. OWYOUNG: Yes.

CHAIRMAN BLOCH: The practice of having two experts testify together is something that's regular at the NRC, but isn't too widely known outside of our practice. I'd like to urge either of you if in any way you disagree with the other person or if you have something to add, please do that, because the testimony must be true and complete to each of your opinions, and the fact that two experts might disagree with each other is no shame for experts.

You may have some special rights that you don't have in court. Anyone who wants to have a break, please let me know you need a break. If there's material that you

need to look at that you don't have in front of you, just indicate that. You're certainly free to say I have no opinion about that or I have -- I don't remember. We just want the complete truth, and whatever is needed to help you, including additional documents, just indicate what you might need to see.

Thank you and we look forward to hearing from you.

MR. MICHAEL KOHN: Your Honor, before we broke, I indicated that there was a motion to strike portions of the testimony. Should we proceed with that first?

CHAIRMAN BLOCH: I think usually the way we do that is Mr. Blake speaks to the witnesses and he proffers the testimony and then you move to strike.

Whereupon,

SHELDON OWYOUNG

ROBERT A. JOHNSTON

appeared as witnesses herein, and having been first duly sworn, were examined and testified as follows:

DIRECT EXAMINATION

BY MR. BLAKE:

Q Mr. Owyoung, Mr. Johnston, do you have before you a document dated August 18, 1995, entitled "Rebuttal Testimony of Sheldon Owyoung and Robert A. Johnston on Diesel Generator Air Quality Statements?"

A (Witness Owyoung) Yes.

A (Witness Johnston) Yes.

Q And can you tell me how this document was generated and your roles in it?

A (Witness Owyoung) Mr. Ken Stokes -- excuse me -- Ken Burr called me to ask me to -- if I'd be willing to testify.

CHAIRMAN BLOCH: We may have a problem with the mic. Each of you when you use it, just direct it to you and get real close to it even if you have to pick up the space. That'll help. Thank you. It may not be on.

A (Witness Owyoung) Can you hear me now? Okay, great.

Mr. Ken Burr called me and asked me if I would be willing to testify on behalf of Georgia Power pertaining to testimony given to the events that are happening today.

Q And subsequent to that call, what steps did you take in order to produce this testimony that we all have before us today?

CHAIRMAN BLOCH: Mr. Owyoung, it actually was better before you pushed it away.

WITNESS OWYOUNG: Oh, okay.

A (Witness Owyoung) What was the question again?

BY MR. BLAKE:

Q After the initial call to ask whether or not

you'd be willing to testify, what steps did you and Mr. Johnston take in order to produce this testimony?

A (Witness Owyoung) Mr. Lamberski has talked with us on occasion and I have read documentations that was sent to me from Mr. Lamberski.

Q And Mr. Johnston, what about your role?

A (Witness Johnston) I was initially contacted by Mr. Lamberski, who indicated that my testimony relative to the performance of air start valves in July of '90 may be relevant to this. That phone call was followed by a telecon with Mr. Tom Penland who asked me various questions and I responded, forming the initial draft of my testimony. I was then given a copy of that draft and I was able to comment to it and make adjustments as required.

Q So with the input from both of you into this 16-page document, are you satisfied today that it's true and accurate, or are there any corrections that you want to make to it?

A (Witness Johnston) I'm satisfied with my portion?

A (Witness Owyoung) I have just some minor corrections.

Q Please just tell us what they are, but go slowly so that we can follow and make the corrections.

A (Witness Owyoung) On page 3, line 12, before

the start of my answer "No," I'd like to place in front of that "Other than the incident in 1991, Board Exhibit 8, the answer is."

CHAIRMAN BLOCH: Now, sir, which answer is this, what line on --

WITNESS OWYOUNG: Line 12.

BY MR. BLAKE:

Q So line 12 would now read, with a capital "O" on other, "Other than the incident in 1991" -- and I'm going to add a parenthesis, correct me if you don't want one -- "(Board Exhibit 8), the answer is no, not in any land-based applications, including...."

A (Witness Owyoung) Yes, that's correct.

CHAIRMAN BLOCH: And the incident you're talking about involved the bubble testing and the subsequent corrosion of the aluminum portion?

WITNESS OWYOUNG: Yes.

BY MR. BLAKE:

Q Mr. Owyoung, any other corrections that you want to make?

A (Witness Owyoung) Yes. Page 7 -- and basically it's the same statement on line 5, that before the start of the answer, "Other than the incident in 1991 (Board Exhibit 8), the answer is" and then "no."

And then one other is on page 15, which is the

same statement, on line 22, again before the answer, same statement, "Other than the incident in 1991 (Board Exhibit 8), the answer is."

CHAIRMAN BLOCH: I need to ask about how you've considered the questions that are answered by the other person. In other words, some of the answers are indicated for Mr. Owyoung alone and I'd like to make sure that there's no essential information that you might have for the Board with respect to an answer given by the other person. Have you reviewed the testimony -- have each of you reviewed the testimony in that way, so for example, if Mr. Owyoung says "I don't know of any instances of degradation" -- "there's no sign of corrosion" and his answer on page 3, line 21 is "Mr. Owyoung: Yes." Now if Mr. Johnston knows of something, we wouldn't want to let that go unmentioned.

WITNESS JOHNSTON: I've reviewed the testimony to that effect. In any case -- in any instance where I disagree with a statement by Mr. Owyoung, I've noted that.

CHAIRMAN BLOCH: And it therefore appears as testimony, is that right?

WITNESS JOHNSTON: That's correct.

BY MR. BLAKE:

Q With those corrections to your testimony, do you believe it to be true and accurate to the best of your

knowledge and belief, both of you?

A (Witness Owyoung) Yes, I do.

A (Witness Johnston) Yes, I do.

Q And do you adopt it as your testimony in this proceeding?

A (Witness Owyoung) Yes, I do.

MR. BLAKE: Judge Bloch, I would ask --

CHAIRMAN BLOCH: Well wait a second, Mr. Johnston has to answer too.

A (Witness Johnston) Yes, I do.

MR. BLAKE: I'm sorry, thanks a lot.

I would ask that this document, the rebuttal testimony of these two gentlemen, be accepted into evidence and be physically bound into the record just as though read.

CHAIRMAN BLOCH: Do both witnesses understand that when it is bound into the transcript, it's the same as if you'd said it aloud in this hearing?

WITNESS OWYOUNG:

MR. MICHAEL KOHN: Your Honor.

CHAIRMAN BLOCH: Wait a second. Mr. Johnston also indicates yes.

WITNESS JOHNSTON: Yes, I do.

MR. MICHAEL KOHN: Before it's technically bound in, there's three things I want to bring to the

attention that maybe we could correct at this point. On three places it doesn't indicate who was providing the answer. I wanted to know whether that should be included. The first would be on page 5, line 14.

CHAIRMAN BLOCH: Is that answer for both people since it says "we?"

WITNESS JOHNSTON: Yes, it is.

CHAIRMAN BLOCH: What's the next one?

MR. MICHAEL KOHN: The next one is on page 9, line 19.

CHAIRMAN BLOCH: Whose answer is that?

WITNESS OWYOUNG: Basically it'd be both of ours, we both agree to it.

WITNESS JOHNSTON: I think yours.

WITNESS OWYOUNG: Okay, so say mine. It's my answer.

CHAIRMAN BLOCH: Okay, Mr. Owyoung.

MR. MICHAEL KOHN: And the last one I noted was on page 14, line 19.

WITNESS JOHNSTON: That is my answer.

CHAIRMAN BLOCH: Mr. Johnston.

CHAIRMAN BLOCH: Any further clarification or motions?

MR. MICHAEL KOHN: Other than the motion to strike that we'll take later, no.

CHAIRMAN BLOCH: This is the time for the motion to strike.

MR. MICHAEL KOHN: Motion to strike, Your Honor, on page 2, lines 23 -- 22 -- to page 4, line 7.

MR. BLAKE: What was that?

ADMINISTRATIVE JUDGE MURPHY: Say that again.

MR. MICHAEL KOHN: Page 2, line 22 to page 4, line 7.

CHAIRMAN BLOCH: And the grounds?

MR. MICHAEL KOHN: This testimony concerns the -- first, I do not believe it rebuts any specific testimony of Intervenors. I'd like to be pointed out to exactly what it is rebutting.

Second, the issue of the actual root cause of the trips and the problems that resulted in the site area emergency is not in issue. The only relevant information these witnesses would have with respect to their opinions on that matter would be what they told Georgia Power prior to April 9 or prior to restart, that would affect either the accuracy -- or prior to corrective actions following the issuance of the April 9 letter all the way up to the August 30 letter -- what was told and what was the basis of Georgia Power's actions is what is relevant. Their communications and their observations about systems other than Vogtle have no bearing on this proceeding and the

record is already clear on what Georgia Power was told by Cooper, they have testified to it. So therefore, it would be cumulative.

Second, the content of this testimony is totally irrelevant and frankly has no place in an Atomic Safety and Licensing Board proceeding. There is a specific plant criteria for -- that the plant must be built to that is not part of any marine operation. There is no knowledge whether these marine engines have to come up to --

CHAIRMAN BLOCH: Counsel, have you just misspoken yourself? Are you talking about a design criterion or an operating criterion?

MR. MICHAEL KOHN: It's my understanding the design criterion of Plant Vogtle is such that the engines must come up to full voltage in 11.3 seconds and there's no criteria that I'm aware of on non-nuclear applications where that would be relevant. And there's also no documentation that I can think of, for instance, in a marine application where they're really concerned whether the diesel came up to run in 20 seconds or 10 seconds or how many valid successful starts they had in the last 100. It's totally in opposite to what the issues are here. And also in normal application --

CHAIRMAN BLOCH: Your argument is that the marine uses that are non-atomic are simply irrelevant.

MR. MICHAEL KOHN: That is correct.

CHAIRMAN BLOCH: Non-nuclear, excuse me.

MR. MICHAEL KOHN: That's right. And I'd also like to point to the Board's prior rulings; for example, in Mr. Mosbaugh's prefiled testimony, he testified about the May 23 trips of the diesel generator and said obviously they didn't correct the problems and went on for some analysis. all that was struck because it wasn't relevant to the decision on April 9 and the communications on April 19. Same as here, this is information in that same realm and should likewise be struck.

CHAIRMAN BLOCH: Mr. Blake.

MR. BLAKE: Well, I look forward to the same degree of precision with regard to what's to be included as we talk later on about the 1995 event and a whole bunch of topics about what the scope is in the proceeding.

But once I get beyond his initial observations about we're only talking about a fixed period of time and that's the only input from these gentlemen that would be of any help, I have to observe that if in fact this is of no interest to the Board, that really ought to be the criterion, if you don't think it's helpful to the record. But I think there have been a lot of questions from the Board with regard to trying to get a feel for the setting of this controlled system, its sensitivity to moisture, its

uses in this and other settings. And while I haven't taken, in these couple of seconds, an opportunity to go back or ask for time to go back and find them, you really ought to be the determinants here in whether or not you think this would be helpful. Now how probative it is in the end, how material it winds up being, I can't say. I think each of us will use it to some length just to really satisfy the Board. But the purpose of this, I must say, while it's styled solely as rebuttal, has in its mind trying to satisfy a record with a number of questions that have been raised.

Mr. Mosbaugh's testimony is not so pure either with regard to its statements. It's been pointed out to me, for example, at the bottom of page 16 of this recast and prefiled testimony, that in talking about the ISA standard, he refers to applications -- standards are adopted by engineers for many application and because nuclear are even more demanding than other industrial, et cetera -- having at least introduced the idea that there are different applications and maybe we get some learning from these others to apply here.

I just don't see -- I don't think it's the end of the world frankly whether or not this is included, but I find it responsive to inquiries that have been made previously in this proceeding and I think the Board really

needs to decide whether or not they think too it would be helpful.

CHAIRMAN BLOCH: Thank you.

Staff.

MS. YOUNG: Judge Bloch, I think this information has been shared by other witnesses in this proceeding before, so frankly, I'm not sure that a motion to strike its appearance here is appropriate. These people are experts on the machinery and it would seem to be within the scope of both their knowledge and also responsive to some of the issues that have been raised on the record.

So the Staff has no objection to this portion of the testimony.

CHAIRMAN BLOCH: We consider the section that's been identified to be relevant, both because it relates to the seriousness of whatever misstatements may have been made about dew points and also because we do have a lot of information in the record already related to the seriousness of moisture in the diesels. You can, however, of course, pursue the line you've suggested as a matter of the weight of the testimony, and we'd encourage you to do that. We deny the motion to strike.

Your next motion?

MR. MICHAEL KOHN: Page 6, lines 3 through 17. The testimony concerns their conclusions of the actual root

cause of the site area emergency. I do not see how that is relevant to this proceeding. It's beyond the scope -- only what Cooper communicated to Georgia Power would be relevant and this does not address any communications to Georgia Power.

CHAIRMAN BLOCH: Mr. Blake, do you want to clarify that or ask questions that would form a basis?

MR. BLAKE: Well, I was going to encourage cross to inquire whether -- into the clarification. I could do it on voir dire, but I can't think of anything frankly more relevant than what these people thought was going on in the time frame when Georgia Power was communicating with the NRC as to what, collectively, they thought was going on with the diesels. That's really at the base of this whole case. And although we may not have been as careful as we might have been in phrasing the questions to these witnesses, or these witnesses in developing this may not have been careful enough to say, and lo and behold we communicated the same thing to Georgia Power that we were thinking.

I understand Mr. Kohn's point, I can do it on voir dire now or I can encourage Mr. Kohn to do it on cross. But I think this -- what they were thinking in this time frame was terribly important.

CHAIRMAN BLOCH: Would you prefer to have it

clarified by yourself or by Mr. Blake or by the Board?

MR. MICHAEL KOHN: I --

CHAIRMAN BLOCH: I would consider it relevant, incidentally, partly because they had the same information as Georgia Power had, and so whether it was a misstatement to the NRC to state what these people believed could be relevant.

MR. MICHAEL KOHN: Your Honor, they left the site on April 3rd, so they didn't have the same information as of April 9.

CHAIRMAN BLOCH: That's correct.

MR. MICHAEL KOHN: Your Honor, I have not prepared a line of questioning with respect to this, but I suggest given the hour we're not going to be done, so it's something that we could -- that Intervenor could just question them on tomorrow.

CHAIRMAN BLOCH: Well, why don't we try, because the questions are fairly simple.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q I'd like to know from the panel -- each of you may have to tell me -- the extent to which the views expressed in this paragraph on page 6 were communicated to one or more of the people working at the site.

A (Witness Johnston) With regards to my --

MS. YOUNG: Excuse me, Mr. Johnston -- Judge Bloch, does your question go to both GPC and NRC employees?

CHAIRMAN BLOCH: We were primarily interested -- no, it goes only to GPC employees.

A (Witness Johnston) I remember discussions on this subject where I presented these views with as a minimum Mr. Stokes, Mr. Burr, Mr. Bockhold, I believe that I discussed this with Mr. Chaffee, if I'm pronouncing that correctly.

BY CHAIRMAN BLOCH:

Q And he's not GPC, but that's okay.

A (Witness Johnston) Okay, I'm sorry. We discussed it with supervision of the I&C Department. I believe Mr. Stokes' supervisor, Mr. Kochery, and a number of other individuals who I don't recall specifically at this time.

A (Witness Owyoung) That's my recollection also, that both Mr. Johnston and myself expressed our concerns and our findings, that what we -- our opinion of what was the failure.

Q Were those conversations always joint conversations where both of you were present?

A (Witness Owyoung) I don't remember, it's been so long. We were together quite a bit, but there could have been separate occasions also.

Q That's reassuring.

CHAIRMAN BLOCH: Mr. Kohn, further motions?

MR. MICHAEL KOHN: Yes, Your Honor. Page 7, line 12, page 8, line 2. This testimony concerns uncorroborated hearsay statements being attested to by Mr. Owyoung about his communications with the Calcon vendor and it is simply just unreliable based on the type of factual information that this Board has been allowing into the record.

CHAIRMAN BLOCH: This seems to me to be within the scope of their employment and be the kind of information that people would routinely rely on in making technical and professional judgments, isn't it, Mr. Kohn?

MR. MICHAEL KOHN: Well, if I may inquire of the witnesses when they had this communication.

WITNESS OWYOUNG: I had this communication -- let's see -- it was about six weeks ago.

MR. MICHAEL KOHN: Your Honor, I suggest it was in preparation of the testimony and therefore, it should not be sponsored by this witness.

MR. BLAKE: Judge Bloch, a confession. In an attempt to try to limit to some albeit huge number, try to eliminate one, we encouraged these experts to talk with their peer, with whom they work on an off. And certainly Mr. Kohn can explore the degree of involvement they have

with Calcon, familiarity with Calcon sensors and the number of discussions they had with Calcon representatives to again add whatever weight he ought to. But we thought if they were comfortable doing it, that they ought to be able to do this, and I think it ought to go to the weight after the cross examination it's to be accorded, not whether or not it's allowed it.

MR. MICHAEL KOHN: It denies Intervenor adequate opportunity for cross examination. We can't make are cord, Calcon isn't here to defend their switches or tell us what their opinion is and translations in communication -- they didn't receive it in writing. If they really felt they wanted to be accurate, it could have been submitted as an exhibit, it was not. This is -- I cannot adequate cross examine the facts in this without someone from Calcon being present, and I think it was be prejudicial.

CHAIRMAN BLOCH: Would staff like to comment?

MS. YOUNG: Judge Bloch, it's the Staff's understanding that vendors of equipment that includes components made by other companies or controlled by other companies, would routinely communicate with them to get information about that equipment. And so the Staff doesn't believe that the communication or the ability of these witnesses to testify on that subject would be improper. The

Staff would have no objection to Mr. Kohn pursuing additional discovery on this matter should it turn out that the responses from these witnesses on what they were told by the Amot Corporation turns out to leave -- to indicate a need for such information. But we don't have any objection to this testimony.

MR. MICHAEL KOHN: Your Honor, I'd like to state that that puts the burden on Intervenor. The witnesses are supposed to be brought here, so I have the opportunity to cross examine and not require me to fly across the country and take depositions and do discovery. And that is what I'm being denied. They didn't produce them, they could have added a third person to their panel -- they didn't. They didn't get it in writing, they want to sneak it in under the wire by saying oh, this is what we heard six weeks ago. And it's just prejudicial, it's not fair.

CHAIRMAN BLOCH: I have some voir dire questions to ask.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Mr. Owyoung, do you know who you spoke to at Calcon?

A (Witness Owyoung) Yes, I spoke to Gary Hazelitt.

Q And do you know Mr. Hazlett?

A (Witness Owyoung) I've known Mr. Hazelitt for over 20 years.

Q And is he an expert in the characteristics of the Calcon sensor?

A (Witness Owyoung) He's one of the principal parties that actually started Calcon, so I would say yes.

CHAIRMAN BLOCH: I'm going to rule that the testimony may be received. If you have questions -- because we are not bound by ordinary rules of hearsay in this proceeding. If you have questions about the veracity of this statement, you may make a motion to us to address that in some way, but we're going to receive this testimony.

MR. MICHAEL KOHN: Your Honor, the issue is not necessarily on the veracity of this statement. The issue is being able to cross examine Gary Hazelitt to find out the basis of the statement for his 20 years of experience to see where this fits, what's really going on. I cannot cross examine Mr. Gary Hazelitt. That's who's sponsoring this testimony, not these witnesses.

And at a bare minimum, we're going to have to depose Mr. Hazelitt to find out the history of these Calcon sensors, what his knowledge is, in order to adequately cross examine these witnesses on the statement.

MR. BLAKE: Is there a motion for reconsideration or what are we --

CHAIRMAN BLOCH: The motion is that you have permission to conduct a deposition of Mr. Hazelitt?

MR. MICHAEL KOHN: Yes, and that Georgia Power bear the expense of bringing the witness to Intervenor.

MR. BLAKE: Baloney. I oppose it.

ADMINISTRATIVE JUDGE MURPHY: What kind of a legal point is that?

(Laughter.)

CHAIRMAN BLOCH: Let me further ask the witnesses whether there's any vendor material that can be submitted for our record that indicates that Mr. Hazelitt's view is the view of Calcon?

WITNESS OWYOUNG: As far as I'm aware of, no. He has some system designs where he went back to his archives to look at and it showed that they installed a 10 micron filter, and that's where he came up with the 10 micron filter size. Other than that, no, he does not have any written data.

CHAIRMAN BLOCH: Obviously, Mr. Kohn, it's going to be very important to pursue whether this recommendation is relevant to the nuclear setting, and I urge you to do that. But this is credible evidence that we're going to receive.

So if there's a remedy you need of some kind, I suggest you move for that at a later time. I am not willing to require the Licensee to bring Mr. Hazelitt to the east coast. I would be willing to authorize a telephone deposition of Mr. Hazelitt.

MR. MICHAEL KOHN: I suspect that we will probably utilize that and also a subpoena for documents.

MS. YOUNG: Could we have Mr. Hazelitt's name spelled for the record, please?

WITNESS JOHNSTON: I know that in some of the documents that pertain to the investigation after the March 20th incident, Mr. Hazelitt was at Georgia Power providing his expertise in troubleshooting this effort and I know his name appears in the record in many places there. I don't know how to spell it.

MR. BLAKE: We will locate it.

CHAIRMAN BLOCH: Mr. Kohn, further motions?

MR. MICHAEL KOHN: No further motions.

CHAIRMAN BLOCH: The motion to admit the prefiled testimony into evidence is granted, and it may be bound into the transcript as if read.

BY MR. BLAKE:

Q Mr. Owyoung and Mr. Johnston, do you have before you as well copies of -- of documents that have been identified as Owyoung/Johnston Exhibit A, B, C, D, E, and

August 18, 1995

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	:	
	:	Docket Nos. 50-424-OLA-3
GEORGIA POWER COMPANY, et al.	:	50-425-OLA-3
	:	Re: License Amendment
(Vogtle Electric Generating Plant, Units 1 and 1)	:	(Transfer to Southern Nuclear)
	:	ASLBP NO. 93-671-OLA-3

REBUTTAL TESTIMONY

OF

SHELDON OWYOUNG AND

ROBERT A. JOHNSTON

ON

DIESEL GENERATOR AIR QUALITY STATEMENTS

TESTIMONY OF SHELDON OWYOUNG AND ROBERT A. JOHNSTON

Q: PLEASE STATE YOUR NAME AND POSITION.

A: (Owyoung and Johnston) Our names are Sheldon OwYoung and Robert A. Johnston. We are employed by Cooper Energy Services in Alameda, California.

Q. WHAT ARE YOUR PROFESSIONAL QUALIFICATIONS?

A. (Owyoung and Johnston) A summary of our professional qualifications is attached hereto as Exhibits A and B.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. Our testimony addresses Mr. Mosbaugh's testimony concerning (1) whether water was found in the Vogtle diesel generator control air system in March-April 1990 time frame, (2) the air quality reqirements applicable to the diesel control air system, (3) the operation of the Vogtle diesel control air system, (4) as-found calibration set points recorded by plant personnel on March 30, 1990, (5) the cause of weak air rolls which occurred on the 1B and 2A diesels in 1990, (6) Georgia Power's openness and honesty with the NRC concerning the Vogtle diesel generators in the days following the March 20, 1990 site area emergency.

Q. MR. OWYOUNG, WHAT EXPERIENCE HAVE YOU HAD WITH DIESEL GENERATOR PNEUMATIC CONTROL SYSTEMS SIMILAR TO THE ONE USED ON THE VOGTLE DIESEL GENERATORS?

A. (Owyoung) For the past 25 years, I have been involved with the maintenance and troubleshooting of the Cooper (formerly Transamerica Deleval, Inc. ("TDI")) diesel generator control systems similar to the ones installed at Plant Vogtle. I have also performed engineering design work on the control systems of Cooper diesels used in non-nuclear applications.

Q. MR. JOHNSTON, WHAT EXPERIENCE HAVE YOU HAD WITH DIESEL GENERATOR ENGINE AND MECHANICAL SYSTEMS SIMILAR TO THE ONE USED ON THE VOGTLE DIESEL GENERATORS?

A. (Johnston) I have been a mechanical engineer, specializing in installation, start-up, and field service testing of diesel engines since 1980. This experience includes extensive field work troubleshooting diesel engine problems as well as the engine fluid and control systems.

Q. AS OF MARCH 20, 1990, WHAT SERVICES HAD YOU PERFORMED FOR GEORGIA POWER IN CONNECTION WITH THE PLANT VOGTLE DIESEL GENERATORS?

A. (Owyoung, Johnston) As representatives of the Vogtle diesel generator vendor, either one or both of us have been involved with every major maintenance overhaul of the Vogtle diesels.

Q. IN WHAT APPLICATIONS HAVE THE COOPER DIESELS WITH PNEUMATIC CONTROL SYSTEMS BEEN USED?

A. (Owyoung, Johnston) They have been used in both marine and land-based settings, including nuclear and non-nuclear applications.

Q. IN THE MARINE ENVIRONMENTS, IS THE MOISTURE CONTENT OF THE AIR IN THE CONTROL SYSTEMS CONTROLLED IN ALL CASES?

A. (Owyoung, Johnston) No. In some marine applications there is no dryer used to control the moisture content of the control air.

Q. HAVE YOU SEEN ANY FAILURES OR DEGRADATION IN THE CONTROL SYSTEMS OF COOPER DIESEL GENERATORS AS A RESULT OF WATER OR MOISTURE IN THE CONTROL AIR?

A. (Owyoung) No, not in any land-based applications, including diesels which have been in service for more than twenty years. In one case in the marine industry, however, I have seen some degradation of the springs in the logic elements after 12 or 13 years of service. In that case, no dryer was in service in the air system.

Q. ARE THERE APPLICATIONS OF THE COOPER DIESEL GENERATORS WHERE AIR DRYERS ARE NOT IN SERVICE AND THERE IS NO SIGN OF CORROSION?

A. (Owyoung) Yes. Clark Air Base in the Philippines, which is a high humidity environment, has four units that have commercial controls and three units that have nuclear controls. The units

have been in operation for over ten years. For the past four years, the air dryers have been non-operational. I serviced the control systems by checking the calibration of components and performing a functional test. This work was performed in November and December of 1994. Most components were calibrated to their required set point. The logic elements showed signs of wear, but no signs of corrosion.

Q. WHAT ROLE DID YOU HAVE IN THE INVESTIGATION OF THE MARCH 20, 1990 FAILURE OF THE PLANT VOGTLE 1A DIESEL GENERATOR?

A. (Owyoung) Following the March 20, 1990 site area emergency, I was asked to come to Plant Vogtle to assist in the investigation of the 1A diesel failure. Based on time records I have retained, I arrived at Plant Vogtle on March 24, 1990 and left the site on April 3, 1990. Along with Georgia Power personnel and other technical consultants, I evaluated the root cause of the 1A diesel failure.

(Johnston) I was already on-site participating in the diesel overhaul activities when the event occurred. I participated in the initial meetings with Georgia Power in establishing a troubleshooting plan and subsequently assisted Mr. Owyoung in investigating and troubleshooting the diesel control system.

Q. DO YOU HAVE ANY RECOLLECTION OF SEEING OR HEARING ABOUT A WATER OR MOISTURE PROBLEM IN THE VOGTLE DIESEL STARTING OR CONTROL AIR SYSTEMS IN MARCH OR APRIL 1990?

A. (Owyoung, Johnston) No. That would have been a noteworthy event and we have no recollection of that occurring at Plant Vogtle.

Q. MR. OWYOUNG, DO YOU RECALL AN INCIDENT IN 1991 DURING WHICH A COOPER TECHNICIAN PERFORMING A BUBBLE TEST ON A VOGTLE DIESEL CONTROL AIR SYSTEM INADVERTENTLY ALLOWED WATER FROM THE BUBBLE TEST EQUIPMENT TO ENTER THE DIESEL CONTROL AIR SYSTEM?

A. (OwYoung) Yes, I do.

Q. DOES THE VOGTLE DEFICIENCY CARD IDENTIFIED IN THIS PROCEEDING AS BOARD EXHIBIT 8 DOCUMENT THAT INCIDENT?

A. (OwYoung) Yes.

Q. WERE YOU PRESENT DURING THE DISASSEMBLY OF THE VOGTLE PNEUMATIC SENSING LINES IN MARCH OR APRIL OF 1990?

A. Yes. We were present for the disassembly of most of the diesel sensing lines, including the high jacket water temperature lines and the jacket water pressure lines.

Q. IF WATER FORMED IN THE PNEUMATIC CONTROL SYSTEM OF THE VOGTLE DIESELS, WHERE WOULD YOU EXPECT IT TO APPEAR?

A. (Owyoung) I would expect to see water in the bowl of the control air filter in the diesel engine control panel. A copy of the specifications for that filter is identified as GPC

Exhibit II-87. I have never seen any evidence of water in that filter at Vogtle.

Q. WHAT DID YOU CONCLUDE WAS THE CAUSE OF THE MARCH 20, 1990 1A DIESEL FAILURE AT PLANT VOGTLE?

A. (Owyoung, Johnston) At the time that we left the Plant Vogtle site on April 3, 1990, we concluded that the cause of the second diesel failure on March 20, 1990 was improper calibration procedures used for the Calcon temperature sensors. However, we were uncertain of the failure mechanism for the first diesel failure on March 20, 1990. Later, after seeing the report of Wyle Laboratories, dated May 22, 1990 (included with Ward Exhibit E; GPC Exhibit II-63), we believed that the foreign material found in the Calcon sensors by Wyle Labs explained the air leakage from the control air system we identified during testing. The foreign material, we also believed, could have contributed to the March 20 failure of the 1A diesel.

Q. WHAT EXPERIENCE DO YOU HAVE WITH CALCON TEMPERATURE SENSORS?

A. (Owyoung) Calcon temperature sensors have been used on Cooper (and before Cooper, TDI) diesels since the early 1970s. Over the past 20 years, I have become intimately familiar with the operation, calibration and performance history of those sensors. During that time, there were numerous occasions when

I was called upon to demonstrate the calibration of those sensors to the personnel of diesel owners.

Q. HAVE YOU EVER SEEN CORROSION OCCURRING IN A CALCON SENSOR, OR OTHER DEGRADATION DUE TO WATER OR MOISTURE?

A. (Owyoung) No, not in any nuclear plant application. I have seen some degradation in settings where the sensors are exposed to a salt air environment.

Q. ARE YOU FAMILIAR WITH THE CALCON LITERATURE CONCERNING THE CALCON TEMPERATURE SENSORS WHICH IS IDENTIFIED IN THIS PROCEEDING AS BOARD EXHIBIT 1?

A. (Owyoung) Yes.

Q. DO YOU KNOW WHAT IS THE BASIS FOR THE BROCHURE'S RECOMMENDATION THAT "CLEAN, DRY AIR" BE USED WITH THE CALCON TEMPERATURE SENSORS?

A. (Owyoung) I have contacted the Calcon sensor vendor (now Amot Corporation) concerning that language and have been informed that there was no specific moisture content limit intended by that language. Cooper recommends only that the moisture content be maintained such that no water is accumulating in the control panel filter bowl.

With respect to particulates, the Calcon sensor vendor recommends that the control air be filtered through a 10-micron air filter. Cooper's recommendation for the control air system

is that a 5-micron filter, such as the one described in GPC Exhibit II-87, be used in the system.

Q. DO YOU AGREE WITH MR. MOSBAUGH'S DESCRIPTION OF THE DIESEL GENERATOR CONTROL AIR SYSTEM ON PAGES 15-16 OF HIS RETYPED PREFILED TESTIMONY?

A. (Owyoung) No. Mr. Mosbaugh failed to mention that before starting air is admitted into the pneumatic control logic, the air passes through a 5-micron air filter. This filter is designed to remove most liquids and solid particles from the compressed air. Also, Mr. Mosbaugh mentions that there are .006 inch orifices in the pneumatic circuit, implying that such small orifices, if blocked, could have caused the March 20, 1990 1A diesel failure. There are, in fact, two .006 orifices in the pneumatic logic; one is for the Group 2 lockout timer, and the other is for the shutdown reset timer. Both circuits are nonfunctional in an emergency start condition. Blocking of either or both of these orifices, however, could not have produced the failure scenario which Vogtle experienced on March 20, 1990. Rather, blocking of both orifices (or the shutdown reset timer orifice alone) would have prevented the diesel from starting on a normal start signal. Blocking of the Group 2 lockout timer orifice alone would not have prevented the diesel from starting or running.

Q. ON PAGE 16, LINES 31-33, OF MR. MOSBAUGH'S RETYPED PREFILED TESTIMONY HE STATES, "VOGTLE DIESEL AIR SYSTEMS SERVED PNEUMATIC INSTRUMENTS AND CONTROLS OF THE TYPE COVERED BY THE ISA STANDARD [S7.3]." DO YOU HAVE ANY COMMENT ON THIS TESTIMONY?

A. (Owyoung) Yes. The ISA Standard S7.3 does not state what type of component, application or pneumatic system this standard should cover. It is left to the end-user to decide whether to adopt this standard.

Q. ON PAGE 16, LINE 34, TO PAGE 17, LINE 2 OF MR. MOSBAUGH'S RETYPED PREFILED TESTIMONY HE STATES THAT THE ISA STANDARD S7.3 DOES NOT APPLY TO JUST NUCLEAR PLANTS "BECAUSE NO ONE WANTS INSTRUMENT MALFUNCTIONS OR DAMAGE FROM WET OR POOR AIR QUALITY. THESE STANDARDS ARE ADOPTED BY ENGINEERS FOR MANY APPLICATIONS. BECAUSE NUCLEAR ARE EVEN MORE DEMANDING THAN OTHER INDUSTRIAL OR COMMERCIAL USES, IT IS EVEN MORE IMPORTANT TO MEET OR EXCEED THESE STANDARDS IN NUCLEAR APPLICATIONS." DO YOU HAVE ANY COMMENT ON THIS TESTIMONY?

A. Yes. Cooper does not specify or require air dryers for its commercial customers of diesel generators. But, consistent with Mr. Mosbaugh's statement, Cooper is more conservative with nuclear industry applications and includes an air dryer. However, air dryers are not essential for reliable diesel operation in nuclear applications, but rather reflect good engineering practice to prevent large slugs of water from

passing from the starting air receivers to the engine due to fast start requirements.

Q. PAGE 20, LINES 26-31, OF MR. MOSBAUGH'S RETYPED PREFILED TESTIMONY SAYS IT MAKES NO SENSE WHY THE INSTRUMENT AIR QUALITY REQUIREMENTS FOR A SAFETY SIGNIFICANT SYSTEM SUCH AS THE EMERGENCY DIESELS ARE NOT AS STRINGENT AS FOR NON-SAFETY SYSTEMS, PARTICULARLY SINCE THE VOGTLE DIESEL RELIED ON AIR SO EXTENSIVELY FOR BOTH PNEUMATIC CONTROLS AND AIR STARTING. DO YOU HAVE A COMMENT ON THIS TESTIMONY?

A. (Owyoung) Yes. Just because a system is safety-related does not mean that it will require a more stringent dew point or a higher quality of air. Some components such as a Woodward device or a pneumatic servo valve (see equipment descriptions attached hereto as Exhibits C and D, respectively), would require clean, dry, non-lubricated air and could be in non-safety-related circuits. Other components that are in a safety-related circuit may only recommend, but not require, filtration, lubrication and moisture protection like the ARO elements (see equipment description attached hereto as Exhibit E) on the diesel logic control board.

Q. ON PAGE 24, LINES 29-31, OF MR. MOSBAUGH'S RETYPED PREFILED TESTIMONY HE LISTS THREE AS-FOUND SET POINTS OF CALCON TEMPERATURE SENSORS RECORDED BY PLANT VOGTLE PERSONNEL ON MARCH 30, 1990. DO YOU HAVE ANY COMMENTS ON THIS TESTIMONY?

A. (Owyoung) Yes. Georgia Power used the site calibration procedure and equipment to check the calibration of those sensors. Because that same equipment and procedure were in question to begin with, the as-found set points recorded on March 30th are also in question.

Q. ON PAGE 41, LINES 17-21, OF MR. MOSBAUGH'S RETYPED PREFILED TESTIMONY HE STATES "WATER IN THE STARTING AIR SYSTEM CAN CAUSE A 'WEAK AIR ROLL'. THE DIESEL AIR SYSTEM SUPPLIES THE STARTING AIR, SO THERE WAS A COMMON AIR SOURCE THAT WAS POTENTIALLY RESPONSIBLE FOR THESE DIESEL FAILURES [ON 1-24-90 AND 1-25-90] AND THE SITE AREA EMERGENCY FAILURES." DO YOU HAVE ANY COMMENT ON THIS TESTIMONY?

A. (Johnston) Yes. Just the presence of water in the starting air system would not cause a "weak air roll." The starting air passes through two strainers. From the strainer, the air goes to four starting block and vent valves that allow starting air to go through both sides of the engine to the starting air valves. Pressure also passes through two on-engine filters to two air distributors. The distributors then pressurize the pilot port of the starting air valves. The valves then allow the air to pass to the combustion chambers of the engine.

If water was in the system, it would either blow by or aid in pressurizing the piston in the starting air valve. Inspections are performed every 18 months on the strainers and filters and there have been no signs of water in the system.

Also, the filter bowl has a 1/4 inch open drain tube. This tube runs to the base of the engine and allows any water to blow out to the engine base.

Cooper Energy Services determined that the "weak air roll" was due to insufficient clearance between parts in the starting air valves. See the 10 CFR Part 21 Report No. 154, attached hereto as Exhibit F.

Q. ON PAGE 41, LINE 35, THROUGH PAGE 42, LINE 5, OF MR. MOSBAUGH'S RETYPED PREFILED TESTIMONY HE STATES THAT WATER IN THE STARTING AIR SYSTEM WOULD "CAUSE CORROSION AND WOULD RESTRICT AIR FLOW. CORROSION COULD CAUSE PARTS OF THE AIR START VALVES TO STICK AND BIND AND NOT PULSE THE STARTING AIR TO THE DIESEL PROPERLY, CAUSING WEAK AIR ROLLS AND THE FAILURE OF THE DIESEL TO START." DO YOU HAVE ANY COMMENTS ON THIS TESTIMONY?

A. (Johnston) Yes. Hypothetically, if water caused corrosion, the engine could fail to start. Under this scenario, however, the engine should continue to fail, unlike what occurred with the Vogtle diesels in the January to July 1990 time frame. Moreover, as a manufacturer, Cooper Energy Services expects the starting air system to experience high levels of moisture in the majority of its customers applications. Accordingly, Cooper has designed the diesel starting and control air systems' critical components to be resistant to this environment. For example, the cast iron starting air valve cap has been treated with a special corrosion resistant coating and

the piston is made of stainless steel. Therefore, Mr. Mosbaugh's assertion is inaccurate because the starting air system will tolerate moisture if present.

Q. DID YOU INSPECT THE VOGTLE DIESEL GENERATOR STARTING AIR ADMISSION VALVES IN JULY 1990?

A. (Johnston) Yes. Following that inspection, I made recommendations concerning the necessary repairs to restore the clearance between the air start valve pistons and their associated caps.

Q. WAS THAT INSPECTION PERFORMED PRIOR TO THE USE OF EMERY CLOTH ON THE VALVE PISTONS?

A. (Johnston) Yes. Following my inspection, the work to restore the clearances where necessary was performed. Before I left the site, in order to reduce the outside diameter of the pistons, the pistons were placed on a lathe and emery cloth was applied to the surface of the pistons to sand down the outside diameter of the pistons. I understand from a review of the pertinent Plant Vogtle Maintenance Work Orders (GPC Exhs. II-150 A through E), some of the valve caps had their flange faces lapped to improve flatness.

Q. DID YOU OBSERVE OR HEAR ABOUT ANY RUST OR CORROSION ON ANY OF THE AIR START VALVE PARTS?

A. (Johnston) No. I did not observe or hear that there was any corrosion or rust found on those valves.

Q. WHAT WAS THE CAUSE OF THE PISTONS STICKING IN THE VALVE CAPS?

A. (Johnston) The manufacturing tolerance range for the clearance between the air start valve pistons and their caps was .001 to .003 inch. The manufacturuer had produced the parts such that the clearance was at the low end of the tolerance range. In addition, the air start cap is made of cast iron material and the piston is made of stainless steel. These two materials have different coefficients of thermal expansion which affect the cap to piston clearance. As the temperature of the diesel engine increases, there is a small reduction (approximately .00065 inch) in clearance under keep-warm or normal operating temperatures. Further, the remaining clearance between the pistons and their caps was consumed by creep deformation of the starting air valve caps due to the loading of their cap screws.

Q: WHAT DO YOU BELIEVE IS THE REASON THAT WEAK AIR ROLLS OF THE VOGTLE DIESEL GENERATORS WERE NOT OBSERVED PRIOR TO 1990?

A: The air start valve assembly is secured in the head by two capscrews which load ears on the flange of the valve cap. These ears are cantilevered out from the valve body and clearance exists between the ears and the shroud deck of the cylinder head. The capscrews are torqued to around 150 ft-lbs. which imparts approximately 13,500 lbs. of load to each ear.

The load induces some immediate small amount of distortion to the valve cap, and its bore, and that distortion will progressively increase over time through the mechanism of creep deformation. The rate of creep is dependent upon the level of stress and temperature. I believe that creep of the cap bore requires years to produce measurable plastic deformation.

To summarize, manufacturing produced parts with approximately .001 inch diametrical clearance. Capscrew loading at installation further reduced that clearance by some small amount. Differential expansion used up more than half of the remaining clearance. The slow process of creep deformation used up what was left over a period of several years to where interference resulted between the cap and piston at keepwarm temperature in the installed state.

We found some seized pistons that released as soon as the retaining capscrews were loosened. Others remained seized in the bore until their temperature began to cool to ambient conditions. I believe that all were free to move at room temperature.

Q. ARE EITHER OF YOU AWARE OF ANY CORROSION BEING FOUND IN THE VOGTLE DIESEL STARTING OR CONTROL AIR SYSTEMS?

A. (Owyoung, Johnston) No. We have never heard that corrosion was found in the starting or control air.

Q. DO YOU BELIEVE THAT GEORGIA POWER CONDUCTED ITS INVESTIGATION OF THE MARCH 20, 1990 1A DIESEL FAILURE IN A PROFESSIONAL MANNER?

A. (Owyoung, Johnston) Yes. In our opinion, Georgia Power's test program was appropriately designed to determine the root cause of the diesel failure. It was conducted in a professional, unhurried manner. During our visit to Plant Vogtle, we were completely satisfied with the actions taken by Georgia Power.

Q. DID YOU HAVE OCCASION TO OBSERVE GEORGIA POWER'S INTERACTION WITH THE NRC WHILE YOU WERE AT PLANT VOGTLE?

A. (Owyoung, Johnston) Yes, on a number of occasions.

Q. WERE THE GEORGIA POWER COMMUNICATIONS WITH THE NRC THAT YOU OBSERVED OPEN AND HONEST?

A. (Owyoung, Johnston) Yes they were.

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OwYoung/Johnston
EXHIBIT A
GPC Exh. II- 161

Cooper Cameron Corporation

SHELDON OWYOUNG

Supervisor, Nuclear Services and Controls

AREAS OF SPECIALIZATION

Design of all diesel-generator controls and panels, including the interfacing between engine generator, and auxiliary equipment. Provided technical assistance in the operation, maintenance and problem-solving for field installation and startup.

BACKGROUND

- Industrial Design, San Francisco State College
- Controls Engineer, Imo Delaval. Inc. (1969-1981)
- Manager, Controls Engineering, Imo Delaval, Inc. (1981-1985)
- Manager, Project Engineering (1985-1986)
- Senior Controls Engineer, Imo Delaval, Inc. (1986-1988)
- Senior Controls Engineer, Cooper Industries (1988-1990)
- Supervisor Nuclear Services and Controls (1990-Present)
- Professional Engineer, State of California, Controls Engineering

NUCLEAR REGULATORY COMMISSION
Docket No. 50-424/425-OLA-3 EXHIBIT NO. OPC-161
In the matter of Vogtle
☐ Staff ☒ Applicant ☐ Intervenor ☐ Other
☐ Identified ☒ Received ☐ Rejected Reporter CALLED
Date 2-23-95 Witness OwYoung/Johnston

SELECTED PUBLICATIONS AND RECENT PROJECTS

United States Patent, Co-Inventor
Automatic Engine Starting System
Application No. 264, 9481 Filed June 21, 1972

Project Engineer for maintenance overhaul and inspection of diesel engines and controls at Gulf States (River Bend Nuclear Power Plant), Georgia Power (Vogtle Plant), and T.U. Electric (Comanche Peak).

JUNE 1995

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EXHIBIT B
GPC Exh. II- 162

Cooper Cameron Corporation

ROBERT A. JOHNSTON
16008 Channel Street
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AREAS OF SPECIALIZATION

Installation, start-up and field acceptance testing of diesel and dual fuel engines. Field failure analysis and rework/repair. Trouble shooting of engine problems, controls, fluid systems. Special tooling and test fixture design. Engineering support for Nuclear Standby Diesel Generator Maintenance.

EMPLOYMENT HISTORY

- B.S., Mechanical Engineering, Kansas State University (1979)
- Service Engineer, Transamerica Delaval, Inc. (1980-1984)
- Service Engineering Supervisor, Transamerica Delaval, Inc. (1984-1985)
- Project Engineer, Cooper Industries (1985-1989)
- Supervisor, Product Design and Development, Cooper Industries (1989 - 1992)
- Senior Engineer, Cooper Industries (1992 - Present)

SELECTED REPORTS AND RECENT PROJECTS

"Field Test Report for Manitowoc Public Utilities, Transamerica Delaval Engines S/N 83011/12", Transamerica Delaval, Inc. Technical Report, September 27, 1985.

"Field Test Report for East Bay Municipal Utility District, Transamerica Delaval Engines S/N 82003/5", Transamerica Delaval, Inc. Technical Report, August 30, 1986.

"Static Strain Gauge Measurement of R-4 Cylinder Head Stud Preload to Test Hydraulic Prestresser", Transamerica Delaval, Inc. Technical Report HE-01-1986.

Nuclear Refueling, Project Engineer for Diesel Engines - GPC's Plant Vogtle (1989, 1990, 1992, 1993); GSU's River Bend Station (1988); T.U. Electric's Comanche Peak (1992, 1993, 1994).

NUCLEAR REGULATORY COMMISSION GPC
Docket No. 50-424 & 425 OLA-3 EXHIBIT NO. II - 162
In the matter of Ga Power / Vogtle
☐ Staff ☑ Applicant ☐ Intervenor ☐ Other
☐ Identified ☑ Received ☐ Rejected Reporter WLW
Date 8-23-95 Witness OWYOUNG / JOHNSTON

AUGUST 1994

SECTION 2
INSTALLATION

INTRODUCTION

Receiving, storage, and installation instructions for the actuator are covered in this section. See outline drawing, Figure 2-1.

RECEIVING

The actuator is calibrated at the factory. Additional cleaning or calibration is not necessary before installation or operation. The actuator weighs about 25 pounds.

STORAGE

The actuator may be stored as received from the factory for a period of time before installation. The actuator should be left in its protective box until ready for installation. Protect the actuator from high humidity or other corrosive atmospheres during prolonged storage.

WARNING

The engine, turbine, or other type of prime mover should be equipped with an overspeed (overtemperature, or overpressure, where applicable) shutdown device(s), that operates totally independent of the prime mover control device(s) to protect against runaway or damage to the engine, turbine, or other type of prime mover with possible personal injury or loss of life should the mechanical-hydraulic governor(s), or electric control(s), the actuator(s), fuel control(s), the driving mechanism(s), the linkage(s), or the controlled device(s) fail.

INSTALLATION

Be careful when installing the actuator. Do not damage the output shaft. Abuse of the actuator can damage seals or installation surfaces, and change the calibration of the unit. Protect the air connections with plastic shipping caps when the actuator is not connected to the normal piping.

See outline drawing, Figure 2-1, for:

1. Overall dimensions;
2. Installation dimensions;
3. Pneumatic pressure fitting sizes;
4. Output shaft dimensions.

The actuator should be installed with the surface above the 2-inch thread in direct contact with a mounting surface. No other surface on the actuator can be used as a mounting surface. When threading the actuator into a 2-12 mounting hole use 271 Loctite to assure positive installation.

If purchased from the factory with a specified mounting base or mounting configuration the adapter will be installed with Loctite at the factory.

The actuator may be installed in any position.

PNEUMATIC SUPPLY

Proper filtration of the pneumatic supply is extremely important. A 10-micron nominal, 25-micron absolute, external filter must be installed in the supply to the actuator within one meter of the supply port. It is necessary to keep the immediate area and equipment clean and free of dirt and contaminants while working on and connecting the pneumatic lines.

Dry instrument air is required. Use a Balston A912A-DX (1/4 inch pipe threads) or a Balston A915A-DX (1/2 inch pipe threads) or equivalent in the pneumatic supply line to provide clean, dry air.

Pneumatic pressure to the actuator must be between 150 and 80 psig and pressure must be regulated to ±5%. (The output power will decrease in proportion to the pneumatic pressure.) The pneumatic supply must provide a minimum of 2 standard cubic feet per minute steady state, 16 standard cubic feet per minute during maximum transient with 100 psi supply pressure.

The Woodward Governor Company recommends the use of a pressure switch to be sure that correct air-supply pressure is established before start up and maintained continually during operation.

PNEUMATIC SERVOVALVES

Component selection

The design and construction of pneumatic servovalves has followed the concepts of their hydraulic predecessors. Some pneumatic servovalves on the market today are basically hydraulic servovalves that have been slightly modified for pneumatic service. Others are designed and tailored specifically for pneumatic applications, Figure 3. A primary difference between these two approaches is price; the erstwhile hydraulic valve has been beefed up to contain 3000-psi hydraulic system pressures, while the pure pneumatic servovalve has been designed to handle only the 200-psi maximum pressure that it will see.

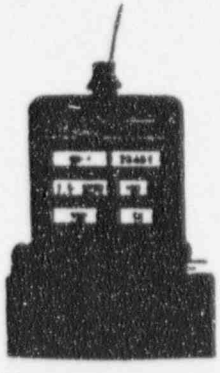


Fig. 3. The DYVAL model 5P utilizes construction and material tailored to the pneumatic environment. It's performance is optimized for compressible fluids.

The accuracy of any pneumatic servo system depends on the characteristics of the servovalve and electronic controls, the actuator quality, and the rigidity of the mass/actuator interface. To obtain non-compliant or *stiff* pneumatic performance, the servovalve must possess certain qualities — the most important of which is bandwidth or frequency response. Tests have shown that servovalves with a frequency response of greater than 12 Hz at 90° phase lag are required to attain non-compliant systems. As the frequency response increases, accuracy and stiffness improve.

The maximum flow of the servovalve should be configured to the maximum velocity requirement, but not any greater. This is necessary to utilize the maximum electronic loop gain of the control system without position overshoot or undershoot.

Other important servovalve qualities are threshold and hysteresis. Generally, the smaller the value of threshold and hysteresis in a servovalve, the more precise is the position set point of the system. Other system factors that effect set point accuracy are the actuator friction, the number and size of compliant members — such as flexible tubing — between the control ports of the servovalve and the load, and any backlash in the system's linkages.

Considerations for pneumatic servo applications

1. Use the highest pressure source available - without exceeding 250 psi for safety reasons. Of course, you should not exceed the rating of any individual component.
2. Use clean, dry, non-lubricated air. System filtration should be 25 µm or better, with a coalescing filter to minimize oil vapor content.
3. Locate the actuator and servovalve as close together as possible to minimize piping.
4. Use flexible tubing only when absolutely necessary.
5. Size the servovalve for the minimum flow required to achieve the maximum actuator velocity required.
6. For unloaded positioning systems, size for the minimum actuator area — to minimize the contained compressible volume.
6. For loaded systems, size for the maximum actuator area (within the constraints of economics) to maximize the force available to control the mass/velocity relationships.

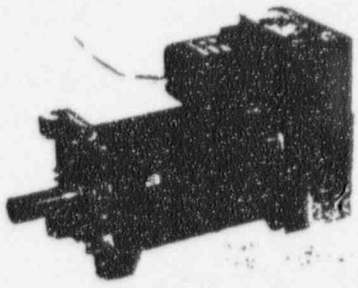


Fig. 4. Single-vane, 270°, pneumatic rotary actuator has very low internal friction, delivers 116 in. lb of torque and combines with high-bandwidth pneumatic servovalve, mounted at upper right, to stop within ½° of commanded position.

Actuator considerations

Actuator characteristics can have an effect on system performance. A rule of thumb for servopneumatic actuators is that breakaway friction should be 5% or less of system pressure, and running friction should be about the same as breakaway friction. In other words, minimizing friction improves accuracy.

Some actuators are designed specifically for pneumatic servo control systems. The rotary actuator shown in Figure 4 is built to very close tolerances to assure consistent running friction, and the vane seal uses a low friction material to provide low breakaway friction. When coupled to a pneumatic servovalve with frequency response of 200 Hz at 90° phase lag, the combination is capable of ± ¼° positional accuracy from a maximum rotational speed of 700° /sec.

Applications

Technology to achieve non-compliant pneumatic servo systems is available and is starting to be applied in automated equipment across the breadth of industry. The industries that have been the first to embrace this technology are packaging, testing, and electronics assembly equipment. In addition, the special-effects and animated-character segments of the entertainment industry (the subject of the *Fluid power on vacation* article in this issue) has been using pneumatic servos for more than five years.

NUCLEAR REGULATORY COMMISSION BPC

Docket No. 50-424+425-OLA-3 EXHIBIT NO. 164

In the matter of Ga Power / Voyle

☐ Staff ☑ Applicant ☐ Intervenor ☐ Other

☐ Identified ☑ Received ☐ Rejected Reporter DLW

Date 8-23-95 Witness DAYOUNG- JOHNSTON

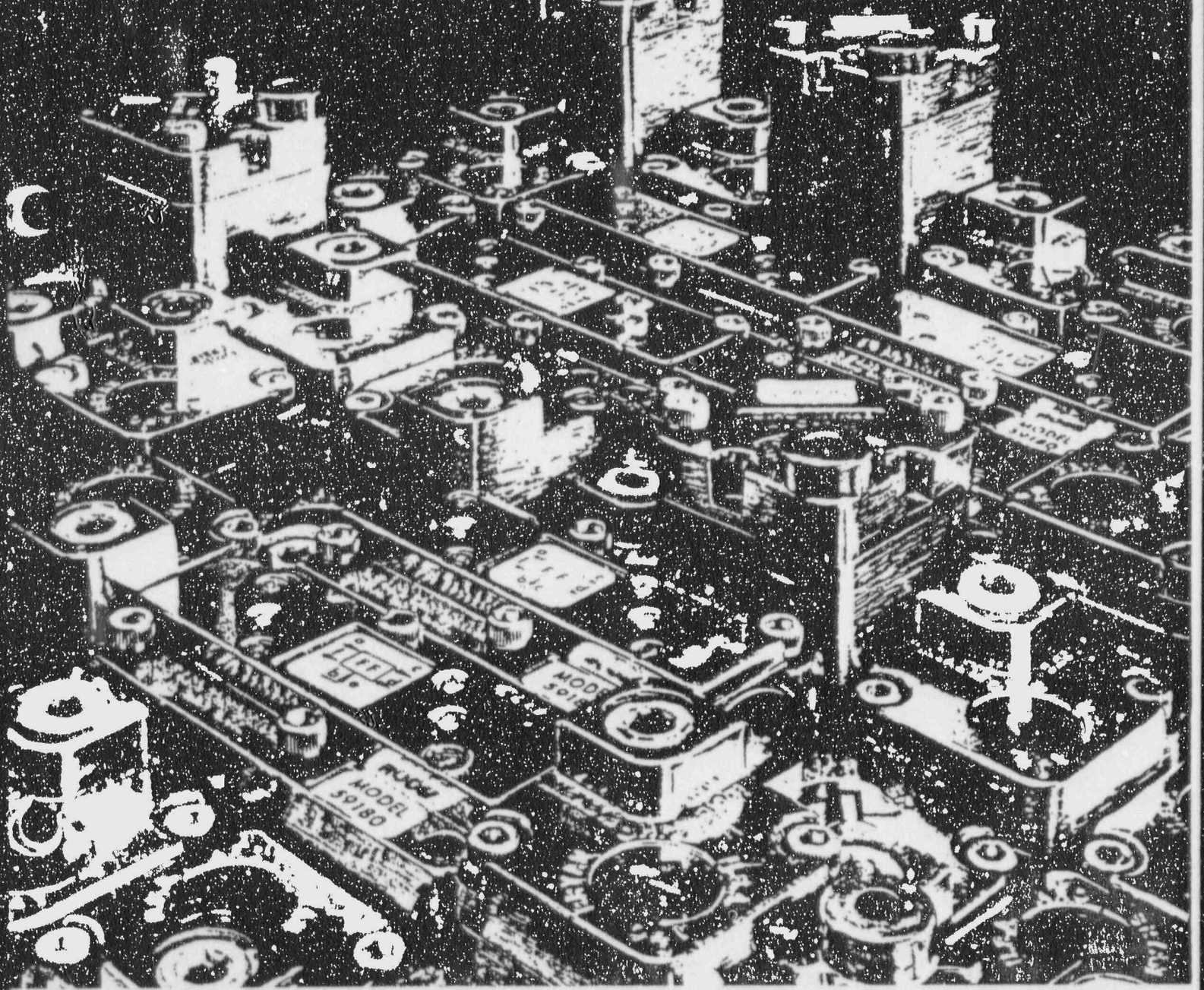
ELECTRO AIR TOOL, INC.
3197 PARK BLVD.
PALO ALTO, CA 94306
(415) 494-3621

OwYoung/Johnston
EXHIBIT E
GPC Exh. II- 165

ARO

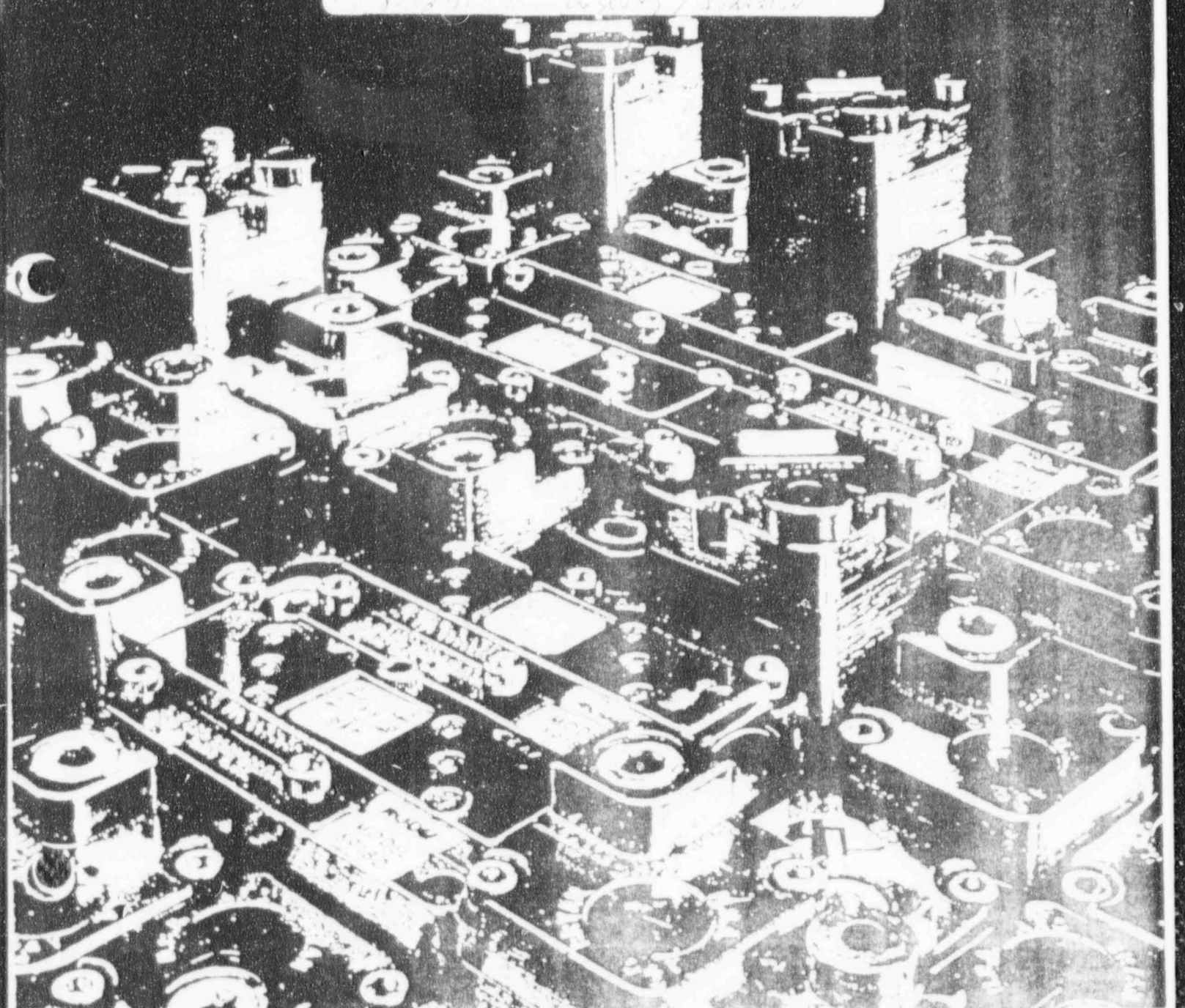
Aro Pneumatic Logic Controls

NUCLEAR REGULATORY COMMISSION GPC
Docket No. 50-424 425-OLA-3 EXHIBIT NO. 165
In the matter of Ga Power / Vogtle
☐ Staff ☐ Applicant ☐ Intervenor ☐ Other
☐ Identified ☑ Received ☐ Rejected Reporter RLW
Date 8-23-93 Witness OWYOUNG / JOHNSTON



ARO

Aro Pneumatic Logic Controls



General Element Specifications and Information

The function of Aro Pneumatic Logic Elements are identified by a symbol on the element covers. These symbols and the terminology used in this catalog conform to A.N.S.I. B93.38 — 1976 and N.F.P.A. T3.28.9 — 1973 method of diagramming moving part logic control. Elements are also marked with the lettered port designations on the cover and the element base.

Pages 18 thru 27 describe the design and operation of the logic elements. Most of the logic elements have common parts, such as identical castings, diaphragms, gaskets, and poppets. The diaphragms, actuators, poppets are the only moving parts. These parts move each other but are not mechanically connected. There are no sliding seals. Snap-action is created pneumatically by the size relationship of the poppet seat to the diaphragm area.

Specifications

TEMPERATURE

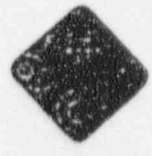
Operating Temperature ..... 32° to 160°F (0° to 71°C)

AIR SUPPLY PREPARATION

Recommended Filtration ..... Air used in an APLC Control System should be filtered with a 40 micron filter or better. Additional filter screens in the base of elements with orifices (timing functions and amplifiers) prevent large particles from entering the element.

Recommended Lubrication .... APLC elements do not require lubrication. Lubrication is not recommended for circuits which include timing functions or amplifiers.

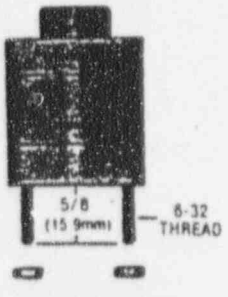
Moisture ..... All metal parts are electroless nickel plated to resist the corrosive effects of moisture and many chemicals. For maximum repeatability of timing and sensing functions a dry air supply is recommended.



OPERATING AIR

Operating Pressure ..... 30 to 150 PSIG (2 to 10 bar)

Shifting Pressure ..... Snap-acting elements (And, Not, Inhibitor, S/R — Mem, Delay, and Pulse) shift when the pressure at the pilot exceeds 70% of the supply. They return when the pilot pressure is less than 40% (Inhibitor 5%) of the supply. All snap-acting elements can be used with timing functions. Non-snap-acting elements (Or — Flip-Flop) have a shift point of 30 PSIG or less. (see Engineering Manual 6914 for details).



Flow Capacity Range ..... Element flow capacities are 9.3 to 16.2 SCFM (4.4 to 7.6 dm³/s) C_V .14 to .28 depending on the specific element and flow path. (See Engineering Manual for detailed characteristics).

IDENTIFICATION

Symbols ..... Each element is identified with a symbol based on the National Standard for diagramming moving part logic control (attached method).

Port Identification ..... Letter designations, cast in the cover and base of each element correspond to the input and output designation furnished in this catalog.

Mounting ..... Elements have 5/8" (15.9 mm) bolt extensions. All mounting hardware and seals are provided with each element.

Test Ports ..... Many elements are equipped with 1/8" NPT ports which connect to the "c" port (output) of the element. These ports may be used with 1/8" fittings as optional output ports or as test ports by inserting one of the test accessories shown on page 9.

ANTICIPATED LIFE

Element Life ..... Years of experience have proven these elements to be extremely durable, operating many millions of cycles and years of service without failure. Should service be required individual parts and repair kits are available for most elements (see parts lists and service instruction manual, Form 4588).

OwYoung/Johnston
EXHIBIT F
GPC Exh. II- 166

COOPER INDUSTRIES
ENERGY SERVICES GROUP

July 19, 1990

Director of Nuclear Reactor Regulations
U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, DC 20555

REPORT #154

Dear Sir,

In accordance with the requirements of Title 10, Chapter 1, Code of Federal Regulations, Part 21, Energy Services Group, a Division of COOPER INDUSTRIES, hereby notifies the Commission of a potential defect in a component of a DSR or DSRV Standby Diesel Generator System. There exists a potential problem with the Starting Air Admission Valve, a safety related component in the starting air system.

COOPER INDUSTRIES supplied DSR and DSRV engines and/or spare parts with this potential defect to the following sites:

UTILITY	SITE	SERIAL NO.	MODEL
LILCO	Shoreham	74010-12	DSR-48
SERI	Grand Gulf	74033-36	DSRV-16-4
GULF STATES	River Bend	74039-40	DSR-48
CP&L	Shearon Harris	74046-49	DSRV-16-4
DUKE	Catawba	75017-20	DSRV-16-4
SO CAL ED	San Onofre	75041-42	DSRV-20-4
CEI	Perry	75051-54	DSRV-16-4
TVA	Bellefonte	75080-83	DSRV-16-4
WPPS	WPPSS I	77084-85	DSRV-16-4
TUSI	Comanche Peak	76001-04	DSRV-16-4
GEORGIA PR	Vogtle	76021-24	DSRV-16-4
CONSUMERS PR	Midland	77001-04	DSRV-12-4
TVA	Hartsville	77024-35	DSRV-16-4
SMUD	Rancho Seco	81015-16	DSR-48

NUCLEAR REGULATORY COMMISSION
Docket No. 50-424 + 425 OLA-3 EXHIBIT NO. II-166
In the matter of Ga Power / Vogtle
☐ Staff ☑ Applicant ☐ Intervenor ☐ Other
☐ Identified ☑ Received ☐ Rejected Reporter WCW
Date 8-27-90 Witness OwYoung / Johnston

ENTERPRISE ENGINE SERVICES

14490 Catalina Street
P.O. Box 1837
San Leandro, CA 94577
(415) 614-7400 Fax (415) 614-7409

Georgia Power at Vogtle has recently reported four (4) intermittent failures to start the 2B diesel generator. In all but the last failure to start, subsequent start attempts were successful.

It has been determined that the cause of the failure to start was the air start piston sticking in the air start valve cap. Sticking in the piston cap can cause the air valve to stick in either the closed or open position.

A valve stuck in the closed position will result in a "dead" cylinder. This will have a slight negative impact on engine start time, but the increase in starting time will not be significant and in almost all cases not noticeable. Multiple closed valves on an engine can result in a very slow engine start or failure to start.

A valve stuck in the open position would most likely result in a very slow engine start or failure to start. If this were to occur on an operating engine, the engine would lose the output of the affected cylinder until normal vibrations freed the piston sufficiently for the valve to close. This could impair the engines ability to carry rated load if the valve did not reseat.

Our investigation continues to establish a course of corrective action. Examination of components suggests a combination of root cause conditions, i.e., a close tolerance design fit between the piston and cap and the affect of coefficients of expansion for different materials of construction in these components. This condition may be exacerbated by possible bore distortion occurring when the cap is tightened to the valve body and cylinder head.

Sticking valves may be identified by first increasing the engine temperatures to the maximum operating temperature by running it at full load for approximately a one-hour period. The valve is then manually cycled by applying a 60 psi pilot signal to the pilot input at the subcover. The valve should audibly open upon application of the pilot signal. It should audibly snap closed when the pilot signal is removed.

Our final recommendation for corrective action will be published no later than July 31, 1990.

A copy of this letter will be forwarded to all of the affected sites referenced in Paragraph 2 of this letter as indicated by the carbon copy list.

Our evaluation of this matter was concluded on July 18, 1990.

Sincerely,

for Bruce C. Guntrum
Manager, Quality Assurance

BCG:ej

cc: see attached

F?

A (Witness Johnston) Yes, I do.

A (Witness Owyoung) Yes, I do.

Q Are you familiar with these documents and prepared to answer questions about them?

A (Witness Owyoung) Yes, I am.

A (Witness Johnston) Yes.

MR. BLAKE: Judge Bloch, I would ask that these six documents, Owyoung/Johnston Exhibits A through F which are also -- would be GPC Exhibits II-161 through 166, be marked as such, and be admitted into evidence.

CHAIRMAN BLOCH: Granted.

(The document referred to was marked for identification as GPC Exhibits II-161 thru II-166 and admitted into evidence.)

MS. YOUNG: Mr. Blake, would you have any objection to Exhibits A and B being bound in the transcript behind their testimony?

MR. BLAKE: No. In fact, these aren't so thick; I wouldn't mind the whole package being bound in, since there's likely to be questioning about it at this point.

CHAIRMAN BLOCH: They may all be bound in.

MR. BLAKE: Judge Bloch, I want now, before I

turn the witnesses over for cross examination, to -- to have a clear understanding of what the scope of cross will be. There was some discussion about this before lunch, and I just want to know whether or not events in 1995, the events that were the subject of questioning earlier of Mr. Johnston on the conference call last Friday, et cetera, are -- are involved in cross examination, or whether or not you want to take that up as a separate matter once we've completed cross examination on his testimony, or the Board has decided that there won't be anymore questioning on that topic of these witnesses today. And frankly it's just unclear to me at the moment. I don't know whether the Board needs to take a short break to determine it, but before I turn them over for cross I'd really like to know what the -- what the bounds are. Maybe you want to hear argument on the topic, I'm not sure.

MS. YOUNG: Yeah. Judge Bloch, before you rule, the staff would just like to state that it was our understanding that the phone call we had with Mr. Johnston on Friday was basically a Board conducted deposition, and that it did not automatically inject all issues discussed in that call into this proceeding. It was a preliminary inquiry into information that had come to light during the course of the hearing.

CHAIRMAN BLOCH: I would stick by the ruling I

made before -- before lunch and permit questioning on this. It's in the nature of voir dire. We still don't know the place of the incident in 1995 in this record, but for the purpose of allowing us to have a more complete record on which to decide that, you may ask questions about that incident, as well.

MR. BLAKE: Then I would like an opportunity to start that questioning by -- by supplementing their -- their testimony.

CHAIRMAN BLOCH: That seems appropriate.

MR. MICHAEL KOHN: Your Honor, I -- the witness are supposed to file (sic) prefiled testimony and, you know, it's just very difficult at this juncture. Over the break we haven't even had a chance to review the other transcripts. We had a car problem on -- and which took us out of the way and we were over eating and we didn't even have a chance to review more than 10% of the transcript. And so I think we're just at a disadvantage to allow voir dire of -- or allow direct testimony of witnesses when we're -- we just don't even know -- Mr. Mosbaugh doesn't even know the scope of his -- of his prior testimony at this point. And...

CHAIRMAN BLOCH: What did you just said (sic)? Mr. Moffitt?

MR. MICHAEL KOHN: Mosbaugh, I'm sorry.

CHAIRMAN BLOCH: Mosbaugh.

MR. MICHAEL KOHN: And if -- the decision should have been clear, prior to these witnesses testifying, whether they were going to be filing prefiled testimony on this. And I think -- and I -- my recollection of that discussion was it was decided that they would not be filing prefiled testimony on it and we would be reviewing it later.

CHAIRMAN BLOCH: It's Licensee's preference that the subject not be covered in this hearing. Is that also your preference?

MR. MICHAEL KOHN: Our preference is that the subject has to become part of the record. We think it's obvious. But the question is at -- it's not their rebuttal case, it's not the time and place for it. It is Intervenor's...

CHAIRMAN BLOCH: If you don't want it covered now we can arrange that.

MR. MICHAEL KOHN: Well, Your Honor, I think we may be in a position to cover it tomorrow. But I will only know that tomorrow. What I'm saying is Mr. ...

MR. BLAKE: Fine. Let's just get on with the cross examination of the rebuttal testimony and we'll take it up at some later date if you want to. And we'll argue about it at that point.

CHAIRMAN BLOCH: All right. If the witnesses are here tomorrow we can do it that way. But they will be permitted to conduct a direct because Georgia Power did not know that this subject would be part of this hearing at all, so that their not filing prefiled testimony is understandable.

MR. BLAKE: And I don't take it as a -- as a given that -- that we'll be here tomorrow with those witnesses. I'm still hopeful we'll finish them up today, but we'll see.

CHAIRMAN BLOCH: Mr. Kohn, let's go. I take it that at this point we don't have a cross plan, is that right?

MR. MICHAEL KOHN: No, the only thing, I have not had an opportunity to go photocopy anything over the break.

CHAIRMAN BLOCH: All right, so at your first break you will copy the cross plan for us?

MR. MICHAEL KOHN: We can accomplish that. It's seven pages long and -- but we can do that.

CHAIRMAN BLOCH: So let's begin.

CROSS EXAMINATION

BY MR. MICHAEL KOHN:

Q Mr. Johnson (sic), you provided documents to Georgia Power Company, is that correct?

A (Witness Johnston) That is correct.

Q And Mr. Owyoung, you also provided documents to Georgia Power Company?

A (Witness Owyoung) Yes, that's correct.

Q When did you first submit these documents to Georgia Power?

A (Witness Johnston) You're asking me have I provided documents to Georgia Power Company, and I've provided documents relative to outage work from 1988 'til the spring of this year.

Q And when did you provide those documents?

A (Witness Johnston) From 1988 until the spring of this year.

Q Thank you.

CHAIRMAN BLOCH: No, the date -- the date you provided the documents to Georgia Power.

WITNESS JOHNSTON: Well, it's been on numerous occasions over the period of 1988. I understand the question.

CHAIRMAN BLOCH: I see. You've provided documents as you did work from time to time?

WITNESS JOHNSTON: Yes, sir.

BY MR. MICHAEL KOHN:

Q You had a -- documents that you maintained in your offices, correct?

A (Witness Johnston) That is correct.

Q When did you provide copies of that documentation to Georgia Power?

A (Witness Johnston) Can you be specific about which documents you're referring to?

CHAIRMAN BLOCH: Okay, in the course of preparing for this testimony did there come a time that either of you sent documents to Georgia Power?

WITNESS JOHNSTON: Yes, I sent a package of paperwork to Mr. John Lamberksi approximately four weeks ago.

MR. MICHAEL KOHN: Note for the record that documents were not produced to Intervenor until I believe Monday evening.

MS. YOUNG: Judge Bloch, I'm not sure the examination so far has identified what documents we're talking about.

MR. MICHAEL KOHN: I'm going to go over that. And I'd just like to...

MS. YOUNG: So they'd be difficult for counsel to state for the record what he did and did not get.

MR. MICHAEL KOHN: Sure.

CHAIRMAN BLOCH: Please don't continue noting your objections. We understand the objection, we really do, and if you have a motion later we're going to hear it.

Just continue with the exam.

MR. MICHAEL KOHN: All right.

BY MR. MICHAEL KOHN:

Q I'm going to show you -- both of you a stack of documents that were handed to me, and if you could tell me whether this is, to the best of your recollection, all the documents you provided to Georgia Power.

(The witnesses are handed certain material.)

MR. BLAKE: Is there some review they could do during the next break, maybe, and we move on to the next question?

CHAIRMAN BLOCH: We could take a break now. Why don't we take a break now, and during the break you can look at those documents to see if that's all the documents. And gentlemen, in a hearing it's important to have some breaks. So if, when we come back, you feel like you need to walk around and stretch your legs and take more of a break, we won't be pushing you. We're going to time a ten minute break, but it you need time for yourselves please let us know that.

WITNESS JOHNSTON: Thank you.

(A short recess was taken.)

CHAIRMAN BLOCH: Before we commence with the witness, Judge Carpenter's wisdom has persuaded the Board to change its ruling on the ripeness of the issue of water

in 1995. We think it would be better not to plunge into this approximately two milliliters of water at this time because both Georgia Power and the staff are doing substantial work, and the Intervenor has obtained the right to start discovery, and once we learn something about this issue then it will be reduced, we hope, into manageable documents that we can all read and understand before we start questioning out of a base of ignorance. So in the interest of a more efficient proceeding, we'll delay that issue until it becomes ripe.

MR. MICHAEL KOHN: John, did you provide the witnesses a copy of the documents? Thank you, sir.

BY MR. MICHAEL KOHN:

Q I have substituted the stack of documents I gave you to a stack of documents that Mr. Lamberski indicates are a duplicate of what he gave me on Monday. And I'd like you to tell me whether the documents you have in front of you are all the documents you provided to Georgia Power?

A (Witness Johnston) To the best of my knowledge, the documents which you presented me are all the documents which I sent to Mr. Lamberski.

CHAIRMAN BLOCH: Okay, now, to be clear, the documents you examined are not the ones in the folder in front of you, is that correct?

WITNESS JOHNSTON: That's correct. I...

CHAIRMAN BLOCH: So the fact that you -- that that's all you sent in is dependent on Mr. Lamberski having correctly represented that it's the same as you had, Mr. Kohn.

Now, the other problem we've got is, the witnesses have now testified that something, which isn't in our record or identified at all, was all that they saw.

MR. MICHAEL KOHN: I think that we should allow the witness an opportunity to -- to go through that stack of documents.

MR. BLAKE: Oh, no.

MR. MICHAEL KOHN: Off the record. But assume for the time being that they are identical, and that that stack of documents be marked.

CHAIRMAN BLOCH: I'd prefer to go on Mr. Lamberski's assertion that it is the same set of documents as was given to you, so that depends on your not having lost some of them.

MR. MICHAEL KOHN: These documents were very important to me.

CHAIRMAN BLOCH: All right, now, do you want them marked? Please just identify them for the record, Mr. Kohn.

MR. MICHAEL KOHN: Yes, I would like that

entire stack of documents marked as Intervenor II-218.

CHAIRMAN BLOCH: Usually, to make sure that we've to the right thing, such the reporter who is here may not be the one who assembles them later, you have to identify it more specifically than "that whole stack of documents." Yeah, and the Board doesn't have any copies.

MR. BLAKE: Nor does the court reporter.

MS. YOUNG: And if the stack is what was given to us earlier this week, at least one document has already been marked on the record.

MR. MICHAEL KOHN: That is correct. Your Honor, I -- the real problem is the late production of the documents, in trying to find out information relevant to this proceeding with respect to these documents, requires identifying which documents are here and it requires some background which I think would be best served, even in discussions off the record with the witnesses, and -- you know, there's background information that has to be presented before...

CHAIRMAN BLOCH: We're going to give you latitude, so let's allow that. But we do need to get these documents so that other people can understand what's going on. Is it possible that under the circumstances here that we could get someone to help us out with getting copies at this point?

MR. BLAKE: I think that we gave -- we've already supplied the only copy that I think we had -- had with us, but I will check.

CHAIRMAN BLOCH: Let's proceed as best we can with -- the staff I guess is going to have to look -- the staff has a set?

MS. YOUNG: Yes, they were provided earlier this week.

CHAIRMAN BLOCH: All right, and we'll rely on our extra sensory perception.

BY MR. MICHAEL KOHN:

Q All right, now, we're -- did you have discussions with Georgia Power as to the scope of documents?

CHAIRMAN BLOCH: Wait a second. You started identifying the documents for the record. Now, finish that.

MR. MICHAEL KOHN: The first document is a May 11, 1990 memorandum from Robert Johnson which was previously marked, I believe, as Intervenor's II-216, if I'm correct.

MR. BLAKE: Judge Bloch, before we go and eat up anymore record time on identification of this stack of documents, not any of the rest of us having copies of them, before I get into an extended examination on -- on this

whole stack, I'd like a proffer. Are we talking about some indication of inappropriate something-or-other which now requires discovery in this way? Are we talking about actual examination within the scope of the rebuttal testimony based on these documents? What are we doing?

MR. MICHAEL KOHN: Your Honor, in order to conduct an adequate examination of the witnesses I have to understand what the documents they have mean. The witnesses were -- would not...

CHAIRMAN BLOCH: The Board grants your notion of scope. It's an unusual situation. We're willing to consider the scope to be larger than if you'd been able to complete discovery before this.

MR. MICHAEL KOHN: Thank you, Your Honor.

The second document is a one-page hand -- a two-page handwritten document beginning with, "At apparently," are the first two handwritten words, and the last entry on the second page is a date of 3/20/90.

The third document is a memorandum long form from Chris Teens (ph.) to Kochery and Stokes dated 3/22/90, one page in length.

CHAIRMAN BLOCH: Why don't you, Counsel, instead of doing it document by document, mention how many documents there are, as best you can count it, about how many pages, and I think it's just going to take much too

long the way you're started.

MR. MICHAEL KOHN: Yes, Your Honor, I think a good way to proceed is when they were provided they all had pink cover dividers that -- and I guess I will -- I will reference them with respect to the pink color dividers, is that...

CHAIRMAN BLOCH: Let's go off the record.

(A discussion is held off the record.)

BY MR. MICHAEL KOHN:

Q The documents that you -- were previously marked as Intervenor's 216, the stack I now have in my hand, were those documents considered in preparing your testimony?

A (Witness Johnston) Yes, they were.

CHAIRMAN BLOCH: If Mr. Owyoung remains silent it's because he agrees.

MR. MICHAEL KOHN: Thank you, Your Honor.

WITNESS OWYOUNG: Oh, I didn't realize his question was addressed to me.

CHAIRMAN BLOCH: All right, now, you should -- all the questions are to both of you.

WITNESS OWYOUNG: Okay.

CHAIRMAN BLOCH: And one person may answer, but if the other person has anything to add or subtract they should do that.

WITNESS OWYOUNG: Okay.

MS. YOUNG: Do we know whether Mr. Owyoung used the documents?

CHAIRMAN BLOCH: Yes, if he -- they were used in preparing the testimony of the two witnesses. If that's not true, he should have said something.

WITNESS OWYOUNG: Okay, yes, I have looked at those particular documents and -- for my testimony, also.

MR. MICHAEL KOHN: All right. And I would like to come back and maybe over the night, photocopying is more readily available, we can figure out how to -- maybe I will...

CHAIRMAN BLOCH: I think you got to mark the batch because they've been referred to already.

MR. MICHAEL KOHN: Okay, thank you, Your Honor.

CHAIRMAN BLOCH: We're not going to bind it in, so if you want we could defer your giving a copy to the reporter until tomorrow.

MR. MICHAEL KOHN: Thank you, Your Honor.

MS. YOUNG: Judge Bloch, should we just go off the record and do a quick listing of these, and then that can be put in a transcript for identification.

CHAIRMAN BLOCH: Can you speak very rapidly and identify them for the record. Do it as fast as you can, the reporter's very good.

MR. MICHAEL KOHN: Thank you.

CHAIRMAN BLOCH: But you'll have to have separate numbers for different portions.

MR. MICHAEL KOHN: I will go then and mark them as individual documents at this time.

Okay, the first one was the May 11, 1990 memoranda from Mr. Johnston which has previously been marked 216, I believe.

CHAIRMAN BLOCH: Okay, continue.

MR. MICHAEL KOHN: The second document is a two-page document beginning with, "At approximately," ending with "3/20/90," which will be marked as Intervenor's -- I believe the package was marked as 218, and we request...

CHAIRMAN BLOCH: The package is now unmarked. We're doing it a document at a time. 218 is the next document.

MR. MICHAEL KOHN: The next document is a one-page memorandum dated 3/20/90, marked as 219.

The next document is headed, "Draft," and consists of Unit 1 DG trip center history summary attachment. It is four pages in length and is marked as 220.

The next document is MWO Number 19001684. It's marked as 221.

The next document is headed "Cooper Outage Logbook Copy." It is a pink piece of paper, and we will include with this document the -- what would be apparently the Cooper outage logbook which we will mark together as -- as 222.

The next document is a pink cover sheet stating, "Robert A. Johnston's Personal Outage Notes," with the outage -- which the attached outage notes following thereafter (sic). We will mark this document as 223.

The next document is a pink cover sheet headed, "Robert A. Johnston's Outage Expense Reports," and apparently the attached expense documentation follows, and we will mark this as 224.

The next document is a pink cover page stating, "Correspondence Relating to July 1990 Starting Air Valve Problems," and accompanying documentation which we will mark as 225.

The next document is a pink cover sheet which states, "Robert A. Johnson's Personal Notes Relating to July 1990 Starting Air Valve Problem," and we'll mark that as 226.

The next document that is being covered is a correspondence relating to pneumatic control component testing. We'll mark this and the accompanying document as 227. And that would appear to be all the documents.

CHAIRMAN BLOCH: The motion to mark is granted with respect to all of the documents.

(The documents referred to were marked for identification as Intervenor Exhibits II-218 thru II-227.)

CHAIRMAN BLOCH: Mr. Kohn, are you going to be able to provide the reporter with a copy with a pink cover sheet?

MR. MICHAEL KOHN: The -- whether -- I can, if that's necessary.

CHAIRMAN BLOCH: Well, you've just described them all as pink cover sheets. It seems to me there ought to be -- that what you -- what you've described...

MR. MICHAEL KOHN: Yes.

CHAIRMAN BLOCH: So that means that that copy can't be too marked up.

MR. MICHAEL KOHN: Thank you, Your Honor.

CHAIRMAN BLOCH: Let's continue.

MS. YOUNG: Judge Bloch, excuse me for a moment. There was a document in the folder that we were given on Monday that was not identified by Mr. Kohn. It was a newspaper article. I don't know whether it's in your folder or not. And I believe the witnesses did look at that. It was somewhere before the outage log.

MR. MICHAEL KOHN: There are two newspaper articles, is that correct? And we will mark those jointly as 227 and put them at the end of the pile.

ADMINISTRATIVE JUDGE MURPHY: No, 227's already...

MR. MICHAEL KOHN: Excuse me, 228.

(The document referred to was marked for identification as Intervenor Exhibit II-228.)

CHAIRMAN BLOCH: I'd like to express a preference for letter tabs instead of colored sheets. I can find things faster with the letter tabs. Let's continue.

BY MR. MICHAEL KOHN:

Q Now, did you -- can you tell me what the -- were you asked by Georgia Power to provide a scope of documents or how did you select these documents to provide to Georgia Power?

A (Witness Johnston) When Mr. Lamberski discussed this with me, he asked me to produce copies of any correspondence that I had relating to the March 20 incident, that outage, the troubleshooting effort that took place after that, any documents which I might have issued following my return to my office relating to that outage, and any document which I might have relating to my

troubleshooting effort of the starting air valves in July 1990.

Q And did you search and produce all those documents?

A (Witness Johnston) That is correct.

Q And the document -- if you would turn to the pink sheet that says, "Cooper Outage Logbook."

A (Witness Johnston) Yes.

Q And...

ADMINISTRATIVE JUDGE MURPHY: What's the exhibit number, Mr. Kohn?

WITNESS JOHNSTON: Mine is marked at 222.

BY MR. MICHAEL KOHN:

Q And this outage logbook ends at -- the last entry is on March 20, 1990, is that correct?

A (Witness Johnston) That is correct.

Q And didn't you maintain an outage logbook after March 20, 1990?

A (Witness Johnston) No.

Q Can you tell me why you stopped a outage (sic) logbook on March 20, 1990?

A (Witness Johnston) The logbook is a tool used by our outage crew consisting of the maintenance personnel, primarily, to document daily activity relative to the scope of the outage work that -- that Georgia Power contracted us

to perform.

On March 20 the incident had so changed the nature of -- let me restate that. As of March 20 we had essentially completed all of the mechanical scope of the outage. I believe, to the best of my recollection, that our maintenance personnel were released at about that time, and Mr. -- and I remained, with Mr. Owyoung returning to the site to begin work on the troubleshooting effort, not related to the original contract. So this outage -- the logbook does not pertain to the troubleshooting effort.

Q So therefore the diesel generator had -- the diesel generators had come out of the outage as of March 20, 1990?

A (Witness Johnston) No, the B train was still in an outage.

Q And was a crew still there?

A (Witness Johnston) To the best of my recollection, the crew was released within a day or two after that -- after the date of March 20.

Q So the B train came out of the outage a day or two later?

A (Witness Johnston) I don't believe the B train... again I'm recalling from memory and the dates are not clear in my -- in my mind at this point...but I believe that the B train remained out of service for a period of

another four to five days.

Q And you also maintained a personal outage notes (sic), correct?

A (Witness Johnston) That is correct.

Q Now, is there any reason there's no written documentation of -- similar to an outage log related to your troubleshooting activities?

A (Witness Johnston) Yes. Again, the outage logbook was a tool used by our service personnel. Since they weren't around for the troubleshooting effort, there would have been no reason for that logbook to be maintained.

Q Was there a logbook for the troubleshooting effort?

A (Witness Johnston) No.

Q Were you aware if Georgia Power was maintaining a logbook for the troubleshooting effort?

A (Witness Johnston) I'm not aware of that.

Q Now, there was a engineering (sic) report, Number HE051991 included in the documents. And there were a list of attachments, but there's only a page that says, "Attachments." Do you have those attachments?

A (Witness Johnston) Could you repeat the engineering report number, please?

Q HE051991.

MS. YOUNG: Are you referring to a specific exhibit in the packet?

CHAIRMAN BLOCH: Mr. Kohn, please, if you can, refer to a number of an exhibit.

WITNESS JOHNSTON: This was included as part of the package shown as 225.

MR. MICHAEL KOHN: If I could ask the witness to continually identify the number because he has the only ones with the numbers written on.

WITNESS JOHNSTON: At the time that I produced this I asked my secretary to locate this report, and she pulled it off her computer. So this is not the original report; it does not bear the signatures of the author and reviewers, and it did not include the attachments. I later had -- the original of this report was filed in our Grove City, Pennsylvania office. After making the submission to John Lamberski, I had Grove City locate the original and send it to me. I do not recall sending a copy of that original to Mr. Lamberski. I do have a copy in my briefcase over in my room.

MR. MICHAEL KOHN: And I would request that you bring it with you tomorrow.

BY MR. MICHAEL KOHN:

Q Now, are you receiving any pay as for expert witness fees or anything?

A (Witness Johnston) I receive my normal company salary.

Q And do you know if Georgia Power is anticipating paying your normal company salary?

A (Witness Johnston) My company will invoice for our time based on the rates that we would use for any services performed for Georgia Power.

Q So you are testifying as an expert, then?

A (Witness Johnston) That is my understanding.

Q And have you been billing Georgia Power for all of your expert -- I mean, let me rephrase it.

All the work you have done in preparing your testimony has been at the expense of Georgia Power?

A (Witness Johnston) That is correct.

Q I also assume...

And, now, can you tell me -- there was earlier communications with Mr. Burr, I believe, that Mr. Owyoung mentioned, is that correct?

A (Witness Owyoung) I had many communications with -- when was this?

CHAIRMAN BLOCH: The mic, Mr. Owyoung, you got to turn it back and forth.

WITNESS OWYOUNG: Okay. When was this?

BY MR. MICHAEL KOHN:

Q When you began the process of preparing

testimony?

A (Witness Owyoung) Oh, yes, okay.

Q All right. And have you had more than one conversation with Mr. Burr during the course of preparing your testimony?

A (Witness Owyoung) Yes. He called me and asked if I would testify, and then I think two weeks later he came by the office and we had a telecon with Mr. Lamberski.

Q So the three of you together were working on the scope of your testimony?

A (Witness Owyoung) No, what it was is, Mr. Lamberski asked me particular questions of the event and -- and my knowledge of the -- such a matter of the control panel.

Q Which event are you referring to?

A (Witness Owyoung) March 20, if I was there.

Q The 1995 event?

A (Witness Owyoung) No, the 1990 event.

Q 1990 event. So you answered the questions in front of Mr. Burr?

A (Witness Owyoung) Yes.

Q And did Mr. Burr take notes?

A (Witness Owyoung) No.

Q And do you know why Mr. Burr was present?

A (Witness Owyoung) He was there as a -- for an

owners' group meeting which was held in the bay area.

Q Why was he present when you were talking to Mr. Lamberski?

A (Witness Owyoung) He basically set up the telecon with us.

Q And can you tell me how many hours to date you have worked on preparing this testimony?

A (Witness Owyoung) I can only guess. Maybe 30. It's only a guess.

Q And Mr. Johnston?

A (Witness Johnston) I believe it to be 24 or less.

Q And do you know what your billing rate is?

A (Witness Johnston) No, I don't...

MR. BLAKE: I've got an objection as to the relevance and the materiality. I've let a number of these questions go so you could get a sense of these people, but just how far do we...?

MR. MICHAEL KOHN: I'll withdraw that question.

BY MR. MICHAEL KOHN:

Q What other documents are maintained in your Pennsylvania office that you were mentioning, that might relate to this that you're unaware of...? That's a poor question.

Would there be documents in your Pennsylvania

office relating to the area of your testimony that you were unaware of?

A (Witness Johnston) Not to my knowledge.

Q I said "would there be." I should have said "could there be."

A (Witness Johnston) Not to my knowledge.

Q And, now, at some point was Mr. Owyoung present -- or let me rephrase it. Was -- Mr. Johnston, Mr. Owyoung, were you both together when Mr. Burr was there?

A (Witness Owyoung) No, it was just myself.

Q And then there was -- and during the course of this discussion -- let me withdraw that

CHAIRMAN BLOCH: Mr. Kohn, we'd be grateful if you'd get to the subject matter.

MR. MICHAEL KOHN: I'm trying to as quickly as I can, Your Honor.

BY MR. MICHAEL KOHN:

Q Mr. Johnston, the document marked as Intervenor Exhibit 216, which should be the first document in the stack in front of you, are the facts and information contained in that document true and accurate to the best of your current knowledge? That is the May 11 memo from Mr. Johnston.

(The witness reviews certain material.)

A (Witness Johnston) Yes, I believe it is.

Q And on the last page of this document you state, under "Closure: The root cause becomes adherence to strict calibration procedures," do you see that?

A (Witness Johnston) Yes, I do.

Q And do I understand what you're saying there to be that in your opinion the root cause of those Calcon failures during the site area emergency was the strict adherence to inadequate calibration procedures?

CHAIRMAN BLOCH: Mr. Kohn, if I understand correctly, there was a date of the -- that they had that belief, wasn't there? I don't have it in front of me, but that's not -- may not be their current conclusion, there was a qualification on that. Isn't that right?

MR. MICHAEL KOHN: Well, let me say at the date -- at the time this was written.

WITNESS JOHNSTON: Pardon me, what's the question?

MR. MICHAEL KOHN: That...

WITNESS JOHNSTON: They just said that the whole document, to the best of their knowledge, was correct. Now, is there really a reason to go sentence by -- you know, just specific sentences?

MR. MICHAEL KOHN: I would -- Your Honor, I had not read the sentence back identically. I was interpreting

what the sentence meant and asking if that was...

CHAIRMAN BLOCH: All right, ask the question again.

BY MR. MICHAEL KOHN:

Q Was the root -- you state the root cause becomes adherence to strict calibration procedures. By that, do you mean to state that the root cause was a result of following -- of inadequate calibration procedures, strict adherence to an inadequate calibration procedures (sic)?

(The witness reviews certain material.)

A (Witness Johnston) Could you rephrase that question, please?

Q Can you tell me what you mean by the sentence I just read.

A (Witness Johnston) I felt at the time that improper set points on the jacket water temperature trips were the cause of the engine to trip on March 20th. I feel that those trips were improperly calibrated, and that that improper calibration was the result of either lack of adherence to the existing procedures, or inadequacies in those procedures to calibrate those devices.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Did you not form an opinion as to which of

those two was the cause?

A (Witness Johnston) At this time I don't know the answer to that without having a chance to re-review the procedures that were in effect at the time of the calibration.

A (Witness Owyoung) My recollection is -- is that I really don't remember actually seeing the physical calibration when I was involved in watching some of the technicians perform the calibration.

Q You don't remember seeing the physical calibration?

A (Witness Owyoung) I don't remember reading the calibration procedure that the technician was -- was using.

Q Now, is that because he wasn't using one or because you didn't look?

A (Witness Owyoung) Basically I didn't look, because I more interested in what he was doing rather than the procedure that he was using.

Q So you didn't observe at any time a procedure that appeared to be for an electrical switch that was being used for the Calcon sensors?

A (Witness Owyoung) I would not know what he was using, again, because I didn't -- I don't remember actually physically, you know, reading a procedure.

BOARD EXAMINATION

BY ADMINISTRATIVE JUDGE CARPENTER:

Q Mr. Johnston, this sentence reads, "The root cause becomes adherence to strict calibration procedures." Do you mean that they basically adhered to strict procedures and that caused a problem?

A (Witness Johnston) No, sir, at this time, as I re-read this, I believe that this is...

Q I believe it's poorly worded.

A (Witness Johnston) I agree. At this time, as I read this, I believe that was poorly worded. Again, my belief at the time was that the calibration procedures and/or calibration methods were not satisfactory to produce the desired set point on these devices.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Now, as a consultant on site, did you at that point have an obligation to fill out any deficiency paper to record that as a plant record?

A (Witness Johnston) If I did, I'm not aware of that requirement.

Q So when you came on site working for the company, were you briefed on what your responsibilities were or were not on deficiency paper?

A (Witness Johnston) We attended, as part of the badge authorization training -- which included instructions

on work orders and other procedures relative to the work we would be performing. I do not recall at this time that that included training on deficiency cards or not.

Q Well, how about work orders. Did you have a responsibility to see that a work order was completed so that somehow your finding could be trended and resolved by an engineer?

A (Witness Johnston) Yes, we had training on work orders.

Q Did you complete a work order that memorialized your finding?

A (Witness Johnston) I believe that the work order -- my recollection is that the work order associated with the troubleshooting effort was a work order that was being completed by Georgia Power personnel.

Q So there was no route that you knew you were required to use to make sure that a finding of that importance would be a part of the permanent plant record?

A (Witness Johnston) My belief at that time and at this time is that my participation in the numerous meetings which discussed this subject was sufficient to advise those who were completing the work order of our findings, and that they would take the appropriate action to correct this.

Q And it was not important for you to see it

become part of the permanent written record of this plant?

A (Witness Johnston) I did not feel so.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q Did -- were you asked to submit a final report of your observations?

A (Witness Johnston) No, I was not.

Q After you left the site on 4 -- as I understand, it's April 2nd, 1990, am I correct in that?

A (Witness Owyoung) April 3rd, I think.

Q After you left the site on April 3rd, did -- were you contacted by anyone at Georgia Power for feedback as to your observations?

A (Witness Johnston) I was contacted by both personnel from Georgia Power as well as personnel from the NRC relating to various observations that we had during the course of the troubleshooting.

Q What time frame was that?

A (Witness Johnston) I would say for the six months following the event.

Q Were you contacted for factual information?

A (Witness Johnston) Yes.

A (Witness Owyoung) I was basically contacted for clarification on some of the operations of the system.

Q Did you say "clarification"?

A (Witness Owyoung) Yes.

Q And prior to leaving the site did you participate in any form of debriefing where you explain what your observations or conclusions or concerns were?

A (Witness Johnston) I attended numerous meetings, again both with Georgia Power personnel and NRC personnel where we discussed the troubleshooting effort and our findings.

Q I'm saying at the time prior to April 6th was there some form of finality saying, "All right, gentlemen, you've performed an invaluable task and you have information that maybe no one else has. Can you now give us a complete debriefing of your total experience?"

A (Witness Johnston) There was not a meeting such as this where people focused on -- solely upon our impressions. There was a meeting, as I recall, on April 2nd with the IIT wherein everyone that had been involved with the troubleshooting effort contributed to a summary of the findings and development of a root cause.

Q Were you...?

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q I'm sorry. Is it your recollection that you told the IIT that you believed there was a problem with the calibration procedures on site?

A (Witness Johnston) I don't recall.

A (Witness Owyoung) I don't recall us making that statement to the IIT. We had numerous meetings with Bockhold and -- and his group of people and made statements to that effect, mainly because Georgia Power wanted basically one person to head the conversation with the NRC.

Q Well, I -- I read some of those transcripts and I can't remember Mr. Bockhold telling the NRC about inadequate calibration procedures. Did you ever hear him say that to the IIT?

A (Witness Owyoung) I thought I'd read something where they said that -- that they have had some problems with the calibration of components.

Q Okay. So you believe that the Georgia Power people did tell the IIT that?

A (Witness Johnston) Yes.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q Well, is there a difference between calibration of the components and a -- and problems with the calibration procedure?

A (Witness Owyoung) I personally don't see a -- if you have a problem with the calibration -- calibrating a component that is operational, then you have a problem with the procedure of either not being clear enough for a

technician to calibrate that component.

Q And from your earlier testimony I was inferring that Mr. -- that you knew that Mr. Bockhold was to be the point of contact with the IIT, is that correct?

A (Witness Owyoung) Yes, that's my understanding. Yes.

Q And that you were to filter the information through Mr. Bockhold? That was the normal procedure?

A (Witness Owyoung) My procedure was basically to filter information through basically Ken Stokes.

Q I'm -- I'm certain you were not prohibited from communicating with the IIT, but was it your general understanding that the preferred methodology at the plant at this point was for you to report to Mr. Stokes, and that Mr. Stokes would then pass it up the line?

A (Witness Owyoung) Yes, that was my impression when I was at the site that, you know, basically we report to a person, either the maintenance foreman -- a person. And I took it as -- as Ken Stokes would be the person I reported to.

Q Did you tell Mr. Ken Stokes about -- I'm referring to Mr. -- let me ask the question to Mr. Johnston. Was there a person that you were -- had -- were reporting to?

A (Witness Johnston) My recollection is that as

plant manager George Bockhold oversaw the entire troubleshooting effort, and that all the information from the individual parties that were performing this investigation filtered their information up to him. During the meeting of again April 2nd, as I recall, with the IIT, Mr. Bockhold appeared to be the natural spokesperson as the -- as the primary spokesperson for relaying information that had been found during the course of the investigation. The other members that were present in that room that had participated in the troubleshooting effort then contributed, where necessary, to add detail or amend statements that were made by Mr. Bockhold.

Q Have you -- were you ever interviewed by the IIT team?

A (Witness Johnston) I was not formally interviewed by the IIT. I had many conversations with individual members of them.

A (Witness Owyoung) I was.

Q And on what date were you interviewed?

A (Witness Owyoung) I would have to look at my time sheets. It was within that period that I was on site.

MR. BLAKE: Judge Bloch, I hope there'll come a time when the Board feels it's satisfied with its earlier ruling of sort of a discovery, broader background setting and we can get onto having cross examination on the

testimony.

CHAIRMAN BLOCH: Yeah, the subject that we're interested in with these witnesses, as they are rebuttal witnesses, is the moisture and dew points and the sensors. Yeah, let's continue.

MR. MICHAEL KOHN: Well, Your Honor, I wish I could agree with you, but the purpose of their testimony states that they're testifying about Georgia Power's open -- openness and honesty. And...

MR. BLAKE: Go ahead and ask them.

BY MR. MICHAEL KOHN:

Q Now, Mr. Johnston, why did you prepare your May 11, 1990 memorandum?

A (Witness Johnston) This memorandum was addressed to distribution, which consisted of our DPQ group, and that is an acronym for our delivered product quality that consisted of the management of the San Leandro office. DPQ met on a weekly basis and, among...

CHAIRMAN BLOCH: Okay, that's internal to your company; that's not so important to us. You may continue. What about the rest of the distribution?

BY WITNESS JOHNSON:

A It also included Lance Block, Sheldon Owyoung, and Don Eiso. Lance Block was the project manager; Sheldon and Don Eiso participated in the inspection.

The purpose of this memorandum was to advise my management of my understanding of the events so that this DPQ group could review this for reportability under our Part 21.

Q Did you share this memorandum with Georgia Power?

A (Witness Johnston) No, I did not.

Q And is -- why didn't you share it with Georgia Power?

A (Witness Johnston) Pardon? I said I did not.

Q Why didn't you?

A (Witness Johnston) At the time I felt that the information contained in this memorandum was redundant to everything which Georgia Power had documented during the course of the investigation.

Q Including your interactions with the I&C shop?

A (Witness Johnston) That's correct.

Q And that would have included interactions with Mr. Briney?

MR. BLAKE: I'm going to object. This was the subject of conversation with Briney. This document was used in the cross examination of Briney; it's not within the scope of these gentlemen's testimony. It was used there; I didn't object to it there. And now we're going to go off and talk more about this document with these fellows

that wasn't included in the scope of their testimony. If you really think this is necessary, Judge Bloch, I'll withdraw my objection. It's these couple of sentences in the -- in the notes that were -- then Mr. Briney was confronted with about what these gentlemen's views were of his calibration procedures.

CHAIRMAN BLOCH: We'll entertain any objections to specific questions. Let's see how it goes.

BY MR. MICHAEL KOHN:

Q Who did you tell at Georgia Power about your interactions with the I&C Department?

A (Witness Johnston) I don't recall the specific individuals. I know that most of the time that we had spent in the I&C Department was with Mr. Stokes; Mr. Burr was there on many occasions. I don't recall other individuals at this time.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q So is it logical to conclude that both Mr. Stokes and Mr. Burr knew of your conclusions about the procedures for calibration being defective? The way they were using them at least was defective?

A (Witness Owyoung) Yes. I observed one of the technicians using a wrong size orifice in calibrating a component. But again I forget which type -- which

component. Proceeded to tell him that the -- the orifice was the wrong size. I received somewhat of a -- some resistance from that particular technician, and so I -- I went up to Ken Stokes and mentioned it to him, and he proceeded to -- to correct that.

Q He corrected the way that particular individual was performing the procedure, is that what you mean?

A (Witness Owyoung) That is correct.

Q And did they ever request your help in designing a procedure that could work reliably for them in the future?

A (Witness Owyoung) Actually, no, they haven't. What they did basically, they did not ask me because I think Gary Haslett was on site during that period of time and I -- and I think they asked him.

Q Okay, thank you.

Well, do you know whether or not -- did anyone at the site ever tell you that they had been calibrating instruments with people from Calcon present at the time that they were doing it?

A (Witness Owyoung) No, I was the one that requested Gary to come on site.

Q Okay. To your knowledge, had he been there prior to this visit?

A (Witness Owyoung) I don't remember. I

wouldn't know.

Q Okay. And did anyone tell you that they had -- in developing the procedures they were using, that they had performed them in front of Mr. Haslett or someone else from Calcon?

A (Witness Owyoung) Not to my knowledge, no.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q Mr. Johnston, on Page 4 of your May 11, 1990 memorandum you identify Gary Haslett as -- on a 3/28/90 entry. Is that the time when he would have been requested to come on site?

A (Witness Johnston) Without the aid of this memo my memory is not good enough to recall dates. I have to assume this memo is correct on that date.

Q And were either of you gentlemen involved with further recalibration efforts to Calcons after March 27th, 1990?

A (Witness Owyoung) No. Since Gary was on site, then basically they relied on his expertise.

Q On -- on Page 5, Line 12 of the prefiled testimony there's discussion about being present during the dissembly of Vogtle pneumatic sensing lines. Can you tell me -- I guess we'll take it -- take it in turn as to what was the percentage of these sensing lines that -- that you

you were physically present for when they were being disassembled? In other words, I'm sure there was activity -- let me... I'm really interested in finding out the scope of the dissembly of sensing lines that occurred outside of your presence. What...?

A (Witness Johnston) The statement, as I addressed it, was interpreted to -- to relate to the performance of the functional test, and that functional test was performed exclusively by Mr. Owyoung and myself. That included the disconnection of all of the protective trip lines within the generator control panel.

Q And what was the date of that functional test?

A (Witness Johnston) I don't have that information in front of me.

Q Were you present on the evening of March 29?

A (Witness Johnston) I don't know. I know that at some time on March 29 I was on site.

Q Mr. Owyoung, do you know if you were on site during the evening of March 29?

A (Witness Owyoung) Again, I don't know, either. I know that I was on site every day while I was -- was there for that period of time.

Q Were you generally working daylight hours?

A (Witness Owyoung) Not necessarily.

Q I mean, not -- I don't mean to say that you

would stop went the sun went down. I understand and I'm sure you worked very long days, sometimes into the evenings.

A (Witness Owyoung) Yes.

Q But...

CHAIRMAN BLOCH: Mr. Kohn, I think they would be better able to tell you whether or not they were present for an event rather than a particular date.

MR. MICHAEL KOHN: Thank you.

BY MR. MICHAEL KOHN:

Q Does that -- do either of you gentlemen recall being present for bubble testing on March 29th? The evening of March 29?

A (Witness Johnston) Again, the date -- being five years ago, I don't recall specifically whether it was day or evening, or the 29th or the 30th. But the performance of the bubble testing was considered part of the control panel functional test, and to the best of my understanding, Mr. Owyoung and I exclusively performed the bubble testing during that outage.

Q Did you exclusively dissemble (sic) all the tubing yourselves?

A (Witness Johnston) In association with the bubble testing, yes, that's my memory.

Q Was there bubble testing performed prior to

March 20?

A (Witness Owyoung) I would say yes, performing the actual functional test.

A (Witness Johnston) I don't recall. It's my vague recollection that the performance of the bubble testing was -- was unique at that time frame. It has been performed as part of the functional test since then, but I don't recall if it was part of the testing prior to March 20 or not.

Q So when you did the overhaul of the diesel generator before the site area emergency you did not perform bubble testing?

A (Witness Johnston) That statement is correct to the best of my recollection.

A (Witness Owyoung) Yeah, I think that -- that is correct. I was in error when I said that it was done before that during the functional.

Q How long does it take from the beginning of the bubble testing to completing the end of the bubble testing?

A (Witness Johnston) There are two phases associated with it, at least as the procedure is currently structured. One is a static check of the Group 1 sensing lines; one is an operational check of Group 2 sensing lines. Because you go to an engine inoperable state to an engine in operational state there is some time lag

introduced there. But the sum total of time spent bubble testing is generally an hour.

Q Including the dissembly of all the tubing?

A (Witness Owyoung) Yes. Now, this is based on assuming that there are no leaks.

Q Well, what happens if you're finding a lot of leaks?

A (Witness Owyoung) Then it depends on how long it takes to find the leak.

Q Did you find leaks during the bubble testing?

A (Witness Owyoung) My recollection is yes, we did find some leaks.

A (Witness Johnston) I don't recall on the A train, because I believe prior to the performance -- prior to our performing the bubble test, I believe that Georgia Power I&C Department traced down the tubing with -- with snoop solution. And I don't know if -- I don't recall at this time if they found all of the leaks or not.

CHAIRMAN BLOCH: Page 4, the entry for 3/30/90 is relevant to leaks found during bubble testing.

MR. MICHAEL KOHN: We'll get to that, and I -- we're looking at Intervenor 216 of Page 4.

BY MR. MICHAEL KOHN:

Q And you mentioned that -- I think, if I understood what you said correctly, that the I&C did

something in-between the bubble testing, is that correct? They did the snoop?

A (Witness Johnston) Again, from my recollection, prior to the performance of this bubble test they had checked these lines with snoop solution.

Q And -- and do you know if prior to doing the bubble test that leaks were repaired?

A (Witness Johnston) Yes, that's my recollection.

Q And then -- and to repair leaks it would require the dissembly of tubing?

A (Witness Johnston) Not necessarily.

Q That wouldn't surprise you, though, would it?

A (Witness Johnston) Not necessarily.

Q Well, wouldn't you want -- if you had a significant leak wouldn't you want to dissemble the tube to make sure that there wasn't any debris inside?

A (Witness Owyoung) Not necessarily.

CHAIRMAN BLOCH: Do you know whether or not the tubes were disassembled as part of the process of repairing leaks?

WITNESS JOHNSTON: I do not.

WITNESS OWYOUNG: No.

BY MR. MICHAEL KOHN:

Q But you were not present when that occurred?

A (Witness Owyoung) I wasn't.

A (Witness Johnston) Not that I recall.

Q Okay. And if the fittings were obviously overtightened you would want to check the ferrules, wouldn't you?

A (Witness Owyoung) Why would we want to check the ferrules if the fittings overtightened if -- if it's not leaking?

Q No, if there is a significant leak.

A (Witness Owyoung) If it's a significant leak and -- and we could not tighten the fitting to stop the leak, then yes, we would disassemble the fitting.

Q Now, what does -- what does a one-to-three bubble per second leak indicate to you during bubble testing?

A (Witness Johnston) That indicates to me a minor leak.

Q And if I understand, then, after bubble testing was complete -- excuse me, let me rephrase it.

CHAIRMAN BLOCH: Just a second. When you say "minor," with respect to what? I mean, what's the criterion for whether a leak is minor or major?

WITNESS JOHNSTON: At the point that we performed this inspection the bubble tester device sent all of the air to the sensors through the bubble chamber.

After this outage we had discussed the bubble testing device with Georgia personnel, and Sheldon designed a new bubble tester that provided a bypass orifice so that when one checks the sensor, if you detect leakage with all the flow going through the -- the water chamber, you then proceed to a flow check position which puts the bubble chamber in parallel with a four-thousandths orifice to see if that leak is of a large enough size that the makeup orifice in the control panel would not be able to keep that line charged.

CHAIRMAN BLOCH: So basically your criterion was that it was a leak which was small because it was very unlikely to affect the functioning of the logic system?

WITNESS JOHNSTON: That's correct.

WITNESS OWYOUNG: That's correct.

BY MR. MICHAEL KOHN:

Q And did you actually ascertain the -- how many bubbles per second were coming out on each line in determining what logic sections were in -- were associated with that line?

A (Witness Johnston) Well, we were certainly aware of the -- the function of the lines that we were checking at the time that we were checking them.

MR. BLAKE: I just want to make an observation, and I'm going to start objecting now unless we move on.

Because this is all very interesting and there may be a lot of intellectual curiosity among us on these various topics, and these are fellows that spend a lot of time on it, but time is time. So I'm -- I'm going to start now paying more attention, Judge.

CHAIRMAN BLOCH: Well, if -- if they're irrelevant we should know that.

MR. BLAKE: Yes. And I'm saying I -- I've given a certain license to -- earlier you said you wanted to get background and allow them... And -- and I'm -- I'm just saying from now on I -- I don't see the relevance and the materiality actually for the last couple, and I'm prepared to -- to start objecting.

CHAIRMAN BLOCH: We'll take a ten minute break.

ADMINISTRATIVE JUDGE CARPENTER: And then we can start afresh.

(A short recess was taken.)

CHAIRMAN BLOCH: Welcome back. A couple of quick questions to start with, related to the March 30 entry on this memorandum.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q In particular, the sentence in the second line of the March 30 entry, beginning with the word "Find," I'd like to know if that means that Mr. Johnston and Mr.

Owyoung found what the rest of that sentence says, including the part after the semicolon.

A (Witness Johnston) Again, the bubble test, to my recollection, was performed exclusively by Sheldon and myself. Once we would locate a leak, we would not necessarily be the personnel that would have gone out to try to stop it or find its source.

Q Okay, but in this instance you also found that you couldn't stop the leak, you were unable to stop the leakage because the fittings were damaged, is that correct?

A (Witness Johnston) That may have been reported to me by the personnel that were trying to stop that leak.

Q Okay, so that may not have been found by you and Mr. Owyoung?

A (Witness Owyoung) That's correct. Yeah, we would identify that there is a leak but we were not the people that actually went out and actually looked for the leak.

Q Okay, so you didn't personally observe over-tightening of Schwage lock fittings?

A (Witness Owyoung) No.

Q And did anyone ever tell you how they solved this problem?

A (Witness Owyoung) No.

Q But they were aware that the problem existed?

A (Witness Owyoung) Yes.

Q And do you know who the "they" is, who would have been aware that the Schwage lock fittings were over-tightened?

A (Witness Owyoung) Ken Stokes, Ken Burr.

CHAIRMAN BLOCH: Thank you.

A (Witness Johnston) If I may add, the Maintenance Department was also involved in most of this work at this point.

BY CHAIRMAN BLOCH:

Q Did you recall this problem, mechanical problem, of Schwage locks when you saw the results of the Wyle report?

A (Witness Owyoung) about over-tightening or what?

Q Well, about the apparent over-tightening of the Schwage locks on the Calcon sensor causing threading to be found within the sensors.

A (Witness Owyoung) Over-tightening of the fittings does not cause threadings -- over-tightening of the fittings is the cap to the fitting itself. The thread -- the pipe thread is what goes into the actual component and you --

Q I didn't think these were the same Schwage locks as were -- isn't it correct that it was the over-

tightening of Schwage lock fittings on the Calcon sensors that caused those threads to be found within the sensors?

A (Witness Owyoung) No.

Q It's not. What's your impression of how the spoilings came to be found within the sensor?

A (Witness Owyoung) Installing the fitting in the sensor itself.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q The pipe thread side of the fitting?

A (Witness Owyoung) Yes, the pipe thread side of the fitting.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Okay, but was it a similar problem of over-torquing that caused that problem?

A (Witness Johnston) It could have been over-torquing, it could have been improper alignment of the fitting as you installed it in the body, so that you attempted to cross thread it. We don't know.

Q Do you know whether -- do you have a concern based on that as to whether there was improper workmanship on the part of people who were working with the reinstallation of the Calcon sensors?

A (Witness Johnston) Yes.

Q And do you have the same concern about the over-tightened Schwage locks on the lines that were found in this paragraph we've been discussing?

A (Witness Johnston) To my recollection, the leak rate which we found, which we attributed to over-tightening of the fittings and that we were unable to resolve, was not sufficient to cause operational concerns with the pneumatic logic.

Q Yes, but doesn't it raise questions of whether there was professional work being done in how the Schwage locks were being tightened?

A (Witness Owyoung) Yes, there was a concern and I expressed my concern to Ken Stokes.

CHAIRMAN BLOCH: Okay, thank you.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q And if I understand your prior testimony, the bubbles that you were observing during the bubble testing was after the snoop had been done and the leaks were supposedly corrected, right?

A (Witness Johnston) That's to the best of my remembrance.

Q So you really wouldn't know then whether the leaks that you observed were sufficient to cause logic problems.

MR. BLAKE: I object.

BY MR. MICHAEL KOHN:

Q Let me rephrase it. The leaks that existed on the diesel generator on March 20th, you would have no way to verify whether they were sufficient to cause logic problems based on your bubble test.

A (Witness Owyoung) The leaks that we observed, or at least I would say that they would not cause a problem.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Counsel was questioning whether since there had been a prior step of checking with snoop, whether you were really measuring the as-found condition after the --

A (Witness Owyoung) Oh, okay, the as-found. Okay, the as-found condition, no, I would not.

Q And counsel also pointed out that you were doing the bubble test after the snoop had been done. Is it possible that your finding with the bubble test that there was still a leak was actually the first time that anyone knew that the leak persisted after the attempts to repair it? In other words, they worked with snoop, they did something to fix it up, is it possible that when you did the bubble test, that was what confirmed that this wasn't fixed by them?

A (Witness Owyoung) That's a possibility, yes. There are multi-fittings in the routing between the panel to the engine or to the sensor itself, and for them to find every fitting is very difficult.

Q Okay, but once again, where you found that there was a possible problem of workmanship and the problem may have been discovered by you, it was not your understanding that you had any responsibility to make paper about that.

A (Witness Owyoung) That's correct.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q And Mr. Johnston, can you tell me your 3/30/90 entry in your May 11 memo, whether -- I'm reading it like a chronological way, it says "Operate engine and perform bubble test for leak detection of inter-connected tubing." And then it starts, "Find that most of the tubing is leaking." Is this the observation you were observing during the bubble testing?

A (Witness Johnston) That is correct.

Q Do you recall whether the snoop process could have resulted -- in 1990 during the bubble testing, are you aware of any events that could have resulted in water entering the diesel generator trip lines?

A (Witness Johnston) Is the question could it

have or did it?

Q Could it have?

A (Witness Johnston) The use of the bubble tester has the potential to introduce water to the trip lines.

CHAIRMAN BLOCH: Well the way that you used the bubble tester, could it have?

WITNESS JOHNSTON: Again, the use of the bubble tester has the potential to do it. The way I used it, no, I did not.

BY MR. MICHAEL KOHN:

Q Are you the only one who used the bubble tester?

A (Witness Johnston) No. Again, Mr. Owyoung and I used it.

CHAIRMAN BLOCH: But Mr. Owyoung would have had the obligation to speak up if he had used it in a way that would introduce it, so we assume from his silence that he did not introduce it either.

WITNESS OWYOUNG: Right, that's correct.

BY MR. MICHAEL KOHN:

Q Now in 1991 --

MS. YOUNG: Judge Bloch, I think we need to be careful about making assumptions on silence in transcripts, because it's not always clear that witnesses or even the

attorneys hear the question.

MR. BLAKE: Except that with the earlier instruction, I think it's not inappropriate to make that sort of assumption. The witnesses were given early on an instruction to speak up if they really took issue with things that were being said.

MS. YOUNG: But there's still head nodding and head shaking and none of those things are going to be reflected on the record.

MR. BLAKE: We'll count on you since you have a good angle of attack there, to see it and call it to our attention.

BY MR. MICHAEL KOHN:

Q Now, in 1991, water was introduced during bubble testing?

A (Witness Owyoung) That's correct.

Q And was it -- do you know if it was actually introduced into the system?

A (Witness Owyoung) Yes.

Q Were you present when that occurred?

A (Witness Owyoung) Yes.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Where in the system was it introduced?

A (Witness Owyoung) It was introduced from the

control panel. The engineer that I was training disconnected the wrong fitting, and as he turned on the bubble tester, he didn't realize that that was an open line and the flow just pushed all the water into the tube.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q Did it push the water so far into the tube that it would have reached the Calcon sensor?

A (Witness Owyoung) We're assuming that it did, by the DC.

Q Well, do you know that it did?

A (Witness Owyoung) I am making an assumption that it did.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q The DC, Mr. Owyoung, was not written at the time of this event, was it?

A (Witness Owyoung) That's correct.

Q And we've got a similar kind of question, did you have any obligation to create any paper at the time that the bubble tester misadventure occurred?

A (Witness Owyoung) I don't remember if we did create any paperwork. We were performing the procedure. I don't remember if it was noted on the continuation sheet or not.

Q It might have been noted on the work order.

A (Witness Owyoung) Yes.

Q But it was not made into a special deficiency document.

A (Witness Owyoung) That's correct.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q Now, what's your understanding of how long -- do you know who determined -- were you involved in any of the follow up efforts taken to determine what the introduction of the water, or how the introduction of the water could have affected the diesel?

A (Witness Owyoung) No.

Q Do you know who had that responsibility?

A (Witness Owyoung) It was Georgia Power personnel.

Q Do you know any particular Georgia Power personnel?

A (Witness Owyoung) No.

Q And were you aware that a Calcon sensor --

CHAIRMAN BLOCH: I'm uncertain as to the time period you're referring to, Counselor.

MR. MICHAEL KOHN: As I understand, this is the 1991 bubble testing.

WITNESS OWYOUNG: Yes.

CHAIRMAN BLOCH: No, we know that the events happened in 1991. You said the follow up effort, that's the time period that's uncertain.

MR. MICHAEL KOHN: Thank you, Your Honor.

BY MR. MICHAEL KOHN:

Q Do you know when the follow up effort began and how long it took to correct?

A (Witness Owyoung) The follow up effort began when we found a sensor -- that sensor failed. We got -- if my memory serves me correctly, we had a sensor malfunction alarm.

Q So if I understand it, there was water introduced during the bubble testing. Was it your understanding that an effort was made to take all the water out of the system before you then started it?

A (Witness Owyoung) Again, my recollection is that we disconnected that line and blew air through that line.

Q And so then, you started the diesel and there was a malfunction of the Calcon associated with that line?

A (Witness Owyoung) Sometime afterward, yes. I don't know exactly what period. Yes.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Mr. Owyoung, when you disconnected the line and

blew air through, how did you satisfy yourself that the water hadn't gone beyond the section that you disassembled?

A (Witness Owyoung) We just made that assumption, when I, you know, disconnected the line and blew it through, I just assumed that, you know, it was clear.

Q So there was no examination of the next section?

A (Witness Owyoung) No.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q And what's your -- can you explain what the next section would have been, how long a tubing line you're referring to?

A (Witness Owyoung) The sensor itself.

Q So you blew everything up to the sensor itself.

A (Witness Owyoung) Yes.

Q But you didn't check the sensor?

A (Witness Owyoung) No.

Q Was there a reason that you decided not to check the sensor?

A (Witness Owyoung) No, just made assumption that it didn't attack the sensor, at that time.

Q And what's your understanding of how long these Calcon sensors can be exposed to moisture before they start

to corrode in any way?

A (Witness Owyoung) We've used these sensors on marine applications and those are pretty harsh conditions and I've seen them installed for over 15 years.

Q Without corrosion?

A (Witness Owyoung) Yes, without failing.

Q And so if --

A (Witness Owyoung) Not necessarily corrosion, but without failing.

Q So then given the length of time that the water would have been introduced into the Calcon sensor that failed, do you believe the corrosion of that Calcon sensor was associated with the bubble testing, or was associated with some unknown phenomenon?

A (Witness Owyoung) I would say at this time it would be unknown. But I'm just making the assumption that since the water was introduced, cause and effect.

Q Did you make your belief about the fact that the origin of the corrosion in the Calcon sensor may not be associated with the bubble testing to anyone at Georgia Power?

A (Witness Owyoung) No.

Q But you did review the deficiency card prior to testifying today, is that correct?

A (Witness Owyoung) That's correct.

Q And you are aware that within that deficiency card, it makes the assertion that the corrosion was associated with the bubble testing, correct?

A (Witness Owyoung) That's correct.

Q So if I understand your testimony then, you believe that this deficiency card incorrectly states the actual cause of the corrosion?

A (Witness Owyoung) No.

MS. YOUNG: Mr. Kohn, for the record, could you identify the exhibit the deficiency card is in?

MR. MICHAEL KOHN: Board Exhibit 8.

BY MR. MICHAEL KOHN:

Q Can you explain your answer a little bit more? I'm a little confused. If you would like to see Board Exhibit 8, I have it here.

A (Witness Owyoung) I think I have a copy of that.

Q On the page of the document on the top, it says 13 of 45, do you see in the little box?

A (Witness Owyoung) Yes.

Q There is a statement "Water" -- looks like it's the --

CHAIRMAN BLOCH: Mr. Kohn, they agreed with you that the corrosion was caused by the water from the bubble testing. Is there really more to get out of that?

MR. MICHAEL KOHN: No, I -- that's my concern, I thought the witness originally testified that based on his understanding of these Calcon sensors being installed in --

CHAIRMAN BLOCH: Is it your testimony that the water from the bubble testing caused the corrosion in the Calcon?

WITNESS OWYOUNG: Yes.

BY MR. MICHAEL KOHN:

Q And what is the basis of that belief?

A (Witness Owyoung) Because --

CHAIRMAN BLOCH: What does that matter? Do you really want -- what was the basis -- there was moisture and it got on an aluminum part and it corroded.

MR. MICHAEL KOHN: Your Honor, I'm asking the question --

CHAIRMAN BLOCH: Okay, I'll allow the question.

BY MR. MICHAEL KOHN:

Q What was -- what about the bubble testing would have resulted in the corrosion of the Calcon sensor in that short period of time?

A (Witness Owyoung) Ask the question again.

Q The bubble test occurred and in what period of time -- how many days after was it that the Calcon was found corroded?

A (Witness Owyoung) I don't remember.

Q Can you give me your best estimate?

A (Witness Owyoung) It'd be a sheer guess, I just don't remember.

CHAIRMAN BLOCH: Well, we have the date of the bubble testing and we have the date of the deficiency paper, which was in about 1993, wasn't it? No? Before that? What's the date of the deficiency paper?

MR. MICHAEL KOHN: 10/1/91.

CHAIRMAN BLOCH: Oh, October 1, 1991. Does that strike you as a particularly short time period in which water would cause corrosion of the --

WITNESS OWYOUNG: Not necessarily.

CHAIRMAN BLOCH: Okay, Mr. Kohn, continue.

BY MR. MICHAEL KOHN:

Q What is the period of time you would expect a Calcon sensor to expose to moisture before corrosion would commence?

A (Witness Owyoung) That depends on how much moisture it sees. I don't know how to gauge that.

Q In a --

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Well, does it matter whether it's more than a thin film?

A (Witness Owyoung) I would say so. What we introduced in that line could cause that to happen.

Q But would there be more rust -- would there be just as much rust if there's a thin film of moisture on the aluminum as if there's water filling the Calcon sensor?

A (Witness Owyoung) It's based on over a period of time, but I would say no, there wouldn't be a difference.

Q I'm sorry, my question was rusting, it should have been in terms of corrosion.

A (Witness Owyoung) (Nodding head affirmatively.)

CHAIRMAN BLOCH: Let the record show that the witnesses smiled and nodded yes.

(Laughter.)

WITNESS OWYOUNG: Yes.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q Can you tell me, on page 5, line 17 through page 6, line 2 of your testimony, you discuss evidence of water in the control air filter. Can you tell me how the control air filter was inspected?

A (Witness Owyoung) During the outage, we are required to inspect the filter. I think on this particular procedure, we were required to change out the filter

element itself. So we have to disassemble the filter, the filter bowl, to get at the filter element.

Q And you say the outage, that means it occurred prior to March 20?

A (Witness Owyoung) That's correct.

Q Do you know how much prior to March 20?

A (Witness Owyoung) Whenever I performed the outage work.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q And did the procedure specify how you were to inspect the removed filter?

A (Witness Owyoung) I think the procedure just states to remove the filter and note any abnormal conditions.

Q And you're pretty confident -- we won't have to check the procedure if you're pretty confident that's what it says.

A (Witness Owyoung) They have changed the procedure as various outages, because I made statements stating that they should change the procedures because the filter element itself looked brand new. So they should change the procedure to state to inspect and replace as required.

Q So they may not have to replace it if it looked

brand new.

A (Witness Owyoung) That's correct.

Q And did you ever --

A (Witness Johnston) I'm sorry, Judge Bloch, I missed your question, your initial question.

Q The question was what the procedure required about how you were to inspect the filter.

A (Witness Johnston) The procedure stems from a DRQR requirement to replace the filter element. The procedure does not specify the physical action required to access that filter element to replace it. The construction of the filter requires that the filter bowl be removed to get the filter element out. Further to what Sheldon said, while that suggestion to re-use a filter element was made, to the best of my understanding, the DRQR matrix still requires the replacement of it and Georgia Power's procedures still require that that element be replaced, to this date.

Q And do you recall what is said in the procedure about what you were or were not to document about the condition of the filter?

A (Witness Johnston) I do not believe that the procedure has any instruction about documentation requirements on that other than there is a sign-off to designate completion of the task.

Q Mr. Owyoung, do you agree with what Mr. Johnston has just said?

A (Witness Owyoung) I don't know, I would have to read the procedure. I remember there are steps to say, you know, note abnormal conditions, and it could be for that particular filter, there could be some other step that was performed.

Q Okay, and did either of you ever remove a filter and notice that it looked white?

A (Witness Owyoung) No.

A (Witness Johnston) No.

BY ADMINISTRATIVE JUDGE CARPENTER:

Q Have you ever observed at other facilities a degraded filter?

A (Witness Johnston) I have not.

A (Witness Owyoung) I have not at any nuclear sites.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q How many times have you replaced these type of filters?

A (Witness Owyoung) At Georgia Power?

Q No, within the nuclear setting.

A (Witness Owyoung) I don't know if we performed that at River Bend or not.

A (Witness Johnston) This is a requirement again of the DRQR matrix. To my recollection, that requirement applies to all enterprise installations and it would have been replaced and it's required on an end-of-cycle basis, to my recollection. So it would have been replaced at every end-of-cycle here at Vogtle. We've also participated in outages at Gulf States where we did control panel work. The other customers tend to have their own I&C Departments do this control panel work.

CHAIRMAN BLOCH: For the record --

ADMINISTRATIVE JUDGE MURPHY: Mr. --

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q I'm sorry, I just want to know for the record what a DRQR matrix is.

A (Witness Johnston) DRQR stands for Design Review Quality Revalidation, it's a document that was generated following the Shoreham crankshaft failure and was adopted by the utilities as a maintenance program to ensure that all of the identified problem areas of the site were adequately inspected at the required frequency.

Q When you say the utilities, do you mean INPO?

A (Witness Johnston) No, I'm referring to all the utilities that participated in the enterprise owners' group.

Q And one of those was Vogtle?

A (Witness Johnston) That's correct.

If I can clarify a question that was answered much earlier, which I believe asked -- I believe it asked when the A-train filter was replaced prior to March 20. And while I don't have the date documented, I do know that we began our maintenance activities on March 1, so it would have been sometime between March 1 and March 20.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q And the A diesel would have been put back in service about March 13, correct?

A (Witness Johnston) To the best of my recollection, that was correct.

Q So it had to occur sometime before March 13.

A (Witness Johnston) That's correct.

Q Now do you -- did both of you gentlemen inspect this filter or just one of you?

A (Witness Owyoung) It's whoever is performing the task normally.

Q Did --

A (Witness Owyoung) I think I performed that particular task, so I inspected it.

Q Are you -- have you discussed this amongst the two of you as to who actually performed that task?

A (Witness Owyoung) No.

Q Mr. Johnston, is that your best recollection?

A (Witness Johnston) That's correct.

Q And is there -- who else was present when the filter was observed?

A (Witness Owyoung) I don't know.

Q Is this the type of significant event when you're overhauling the diesel or working on the diesel that you want to call a lot of people together and say all right, we're going to take off this filter, let's see what's there?

A (Witness Owyoung) No. It's basically half an hour job.

Q And you would not report what you observed to anyone?

A (Witness Owyoung) Only if I found something abnormal.

Q And in your observation -- mind, how much moisture would have to be present for it to be abnormal?

A (Witness Owyoung) Basically in my mind, if I found any moisture, any evidence of moisture or rust.

Q Did you document your inspection?

A (Witness Owyoung) Yes.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q This is a burnished bronze filter, is that right?

A (Witness Owyoung) Yes.

Q Was there any substantial likelihood of rust?

A (Witness Owyoung) Not on the filter. I was thinking more of the bowl.

Q Okay, so the bowl was made of what?

A (Witness Owyoung) The bowl is made of cast iron.

A (Witness Johnston) Aluminum, I believe.

A (Witness Owyoung) Is it aluminum?

A (Witness Johnston) Also, it's a porous bronze filter. I'm not sure what a burnished bronze filter is.

Q So it's porous, and therefore it is susceptible to rust or corrosion?

A (Witness Owyoung) No, not the filter.

Q No. But you would find it in the bowl, you'd expect that to be a lead indicator of the presence of moisture, corrosion in the bulb?

A (Witness Owyoung) Yes.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q The bowl is made of aluminum?

A (Witness Owyoung) Yes.

Q And do you recall what model filter assembly

was on there?

A (Witness Owyoung) No.

Q You are aware that there is more than one type of filter assembly that can be installed at that application?

A (Witness Owyoung) There are different micron filter sizes that can be installed.

Q Well, how about differences in the filter itself?

A (Witness Johnston) There's a wide variety of available vendors and models of filter elements available.

Q And who maintained the record as to what filter was on the system at the time you did your inspection?

A (Witness Johnston) Enterprise Engine would have specified through the -- what we call the procurement specifications -- what the model for that application was.

Q And do you -- are you familiar with differentiation between automatic and a manual drain on these filters?

A (Witness Johnston) Yes.

A (Witness Owyoung) Yes.

Q And do you recall what type of drain this filter had?

A (Witness Owyoung) A manual drain.

Q Now you testified on page 7, lines 3 through 7

of your testimony about corrosion occurring in a Calcon sensor. I believe you amended that to make reference to Board Exhibit 8. Were you aware of corrosion in Calcon sensors at the Catawba facility?

A (Witness Owyoung) No.

Q Are you aware of the types of problems the Catawba plant was having with its Calcon sensors?

A (Witness Owyoung) Yes.

Q And what was the problem they were having?

A (Witness Owyoung) They were having sensors that would not trip over a period of time.

Q Now were you -- have you reviewed NUREG 14.10?

A (Witness Owyoung) I've read it.

Q And when is the first time you recall reading it?

A (Witness Owyoung) When Mr. Lamberski sent it to me.

Q And Mr. Johnston, did you read NUREG 14.10?

A (Witness Johnston) Yes, I have.

Q And when is the first time you read it?

A (Witness Johnston) I vaguely recall seeing a copy of that back in the 1990-'91 time frame, I don't recall the date of the document at this time. I certainly didn't remember reading it or remember the contents of it until I reviewed it prior to coming out here after Mr.

Lamberski sent it to us.

Q Do you, either of you gentlemen, recall mention in NUREG 14.10 about a corroded Calcon sensor?

A (Witness Owyoung) It could be in there, I don't remember.

Q On J-29 of NUREG 14.10, there's mention of an inspection revealing evidence with respect to a lube oil pressure sensor, an inspection indicating that the pressure plate spring was rusted and sensor internal surfaces appeared to be stained, such as could be caused by dew formed by condensation. Prior to today, were you aware of that fact?

CHAIRMAN BLOCH: Before the witness answers, could you please show him the document so he can see the context?

WITNESS JOHNSTON: Yes, I believe this pertains to an inspection that I performed in San Leandro in association with Mr. Ken Burr.

BY MR. MICHAEL KOHN:

Q You said an inspection you performed where?

A (Witness Johnston) In San Leandro, where our offices were at the time of this occurrence.

Q And when did this inspection occur?

A (Witness Johnston) I can best answer that by my report of these inspections, which you have identified

as Exhibit -- bear with me for a moment, please.

MS. YOUNG: Are you looking for 225?

WITNESS JOHNSTON: It appears to be 227.

BY MR. MICHAEL KOHN:

Q That's headed "Correspondence Relating to Pneumatic Control Component Testing." Did you find the document?

A (Witness Johnston) Yes, I did.

Q Rather than -- we'll come back to it after I have a chance to study the document.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Well, could you just tell us what it shows about that incident?

A (Witness Johnston) Yeah, this is a summary of inspections that were performed again in our San Leandro facility. Following the March 20th event, Georgia Power took the high temperature jacket water sensors and had those evaluated by Wyle Labs. There were some other malfunctioning devices that Ken Burr brought to our San Leandro facility for inspection by the Enterprise Group. These included lube oil pressure sensors that had been removed by I&C following the March 20th incident, and a logic board. The inspections I performed on the lube oil pressure sensors found that on sensor ID number 1PS4749A,

which Vogtle I&C reported would not reset during calibration, I found that the cause of the failure to reset --

Q Excuse me, could you tell me what page you're reading from?

A (Witness Johnston) I am reading from page 5. I found that -- and I'm paraphrasing now and not reading it from the document -- I found that the cause for the sensor to fail to reset was because the diaphragm had stretched within the sensor and had seated against the pressure head of the device, reducing the effective area that lube oil pressure acts against this diaphragm. It is a condition which was reported prior to this date by Enterprise as a Part 21 notification, and corrective action was to machine the pressure head so that this reduction in area could not occur with the stretching of the diaphragm.

While performing this inspection, we noted that within the spring chamber, which is not part of the lube oil cavity, nor is it part of the instrument air side of the device, we found that there was some minor rusting, as I felt it to be at the time, of the spring and as I reported, some moisture tracking in that cavity. But I did not attribute either of those findings to the sensor malfunction.

Q Well, did you form any conclusion as to where

the moisture might have come from?

A (Witness Johnston) As I reported in here -- and again, this is not -- these findings were not in the lube oil cavity, nor were they in the instrument air side of the device. I identified this device to have been manufactured in March of 1981. It was provided with the engine as original equipment, had been subjected to transportation, field storage, considerable time during installation and the time up to the time of failure in service. I didn't consider the findings to be anything abnormal and not relevant to the failure of the device.

Q And did the history of that sensor show that it had not been removed since the time that the installation had been made?

A (Witness Johnston) I can't answer that, I don't know what that history was. The only thing I know for certain is it was date stamped March of '81 and it bore factory engine paint to indicate that it was part of the equipment as it was painted by our factory.

Q But was there any reason to be removing it for calibration or was it the practice of the plant to remove it for calibration?

A (Witness Johnston) I can't speak to that. I don't know the frequency of the calibration on the device and in our scope of work in performing the outages, we are

not involved with calibration of components.

Q If it was removed for calibration, can you then rule out the possibility that the moisture you found came from the instrument air -- the control air system?

A (Witness Johnston) Could you repeat that, please?

Q Yeah, if it was removed for calibration and then reinserted, can you still rule ut the possibility that the moisture came from the instrument air -- from moisture that was in the instrument air portion?

A (Witness Johnston) Again, this device is chambered --

BY ADMINISTRATIVE JUDGE CARPENTER:

Q Is it your testimony, sir, that this portion of this device where you observed the rust is the portion of the device that's filled with ambient air, be it room air or outdoor air or what-have-you?

A (Witness Johnston) Yes, sir, I believe so.

CHAIRMAN BLOCH: You can drop my question.

CROSS EXAMINATION (Continued)

BY MR. MICHAEL KOHN:

Q Do the trip lines vent into this portion?

A (Witness Johnston) I don't recall without looking at a schematic of the device.

Q And did you also find metallic debris and some

dirt?

A (Witness Johnston) Yes, I made note of that.

Q And did -- was there any determination of how the metallic debris and dirt got in there?

A (Witness Johnston) No, there was not.

BOARD EXAMINATION

BY CHAIRMAN BLOCH:

Q Your report was sent back to whom in Georgia Power?

A (Witness Johnston) It was addressed to Mr. Ken Burr.

CHAIRMAN BLOCH: Thank you.

Let's go off the record for a second.

(Discussion off the record.)

CHAIRMAN BLOCH: Let's go back on the record.

MR. BLAKE: Let me report on our discussion about schedule. It appears from the schedule, the length of cross examination still to go on Messrs. Owyoung and Johnston that Mr. Chenault will not be here.

CHAIRMAN BLOCH: What Mr. Kohn said off the record was that it would take all day tomorrow. That's what this is based on. So continue.

MR. BLAKE: So we've decided, given that, to get in touch with Mr. Chenault and not have him come tonight and therefore, he'll not appear this week. It

appears that Messrs. Owyoung and Johnston will fill tomorrow and on Friday, based on prior conversations of counsel, Mr. Hairston will not be here and we'll talk with counsel about how we'll fill out the rest of this week, the possibilities are to complete Eckert, have the three I&C techs and the prospect, if there's time, of any other witness and those could be Mr. Kitchens, Mr. Webb or whoever we might agree on. But that's the current line up.

CHAIRMAN BLOCH: So it is 4:30 and we began at 8:30. Mr. Kohn, if there are two or three questions that you'd like to ask so that we can remember the answers all night --

MR. MICHAEL KOHN: No.

CHAIRMAN BLOCH: Then we'll resume tomorrow morning at 9:00.

(Whereupon, the hearing was adjourned at 4:30 p.m., to resume at 9:00 a.m. on Thursday, August 24, 1995.)

C E R T I F I C A T E

This is to certify that the attached proceedings before the U. S. Nuclear Regulatory Commission in the matter of:

Name of Proceeding: Georgia Power Company (Vogtle Electric Generating Plant, Units 1 and 2)

Docket Number: 50-424-OLA-3 and 50-425-OLA-3

Place of Proceeding: Augusta, Georgia

Date: August 23, 1995

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

William L. Warren

WILLIAM L. WARREN
Official Reporter

NEAL R. GROSS AND CO., INC.