07. 526B-91

OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: U.S. Nuclear Regulatory Commission
Incident Investigation Team

Title: Interview of Brian Grimes
(Closed)

Docket No.

LOCATION: Bethesda, Maryland

DATE: Monday, September 9, 1991 **PAGES:** 1 - 46

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ERRATA SHEET

ADDENDUM

Page	Line	Correction and Reason for Correction
5	11.	change "role" to "rule"
5	12	" " " "
5	20	" " " "
~~7~~ 8	6	" "ga" " "a" — transcription error
7	9	" "o" " "of"
8	24	" "planned" to "plant"
22	1	" the second "and" to "in"
22	5	~~delete~~ "that's" to "that"
22	11	delete "you" — clarity
24	4	delete "," and add "in"
25	4	add "for" after "statistics"
25	19	add "the" before "SSFI"
25	25	change "in" to "end" — transcription error
26	5	change "saving" to "safety"
29	21	delete "N"
29	~~22~~ 21	change ~~"something"~~ "some" to "something" we treat it as an " — clarity
30	2	change "to compile" to "compiled in"
30	3	change "categorize" to "categorized"
31	3	change "Johnson" to "Johnston" — transcription error
36	13	add "it would include" before "things" — clarity
37	11	change "is" to "could use"
40	2	add "such as" after "common"
40	13	change second "problem" to "question"
40	14	change "Doesn't" to "Does it" — transcription error
40	24	add "go" after first "to" — clarity
43	13	change "system" to assistance — transcription error

Date 9/24/91 Signature Brian Kramer

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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INCIDENT INVESTIGATION TEAM

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INTERVIEW OF: :

BRIAN GRIMES :

[CLOSED] :

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U.S. Nuclear Regulatory Commission

Conference Room 100

The Woodmont Building

8120 Woodmont Avenue

Bethesda, Maryland

Monday, September 9, 1991

The above-entitled interview commenced in closed session at 1:00 O'clock p.m.

PARTICIPANTS:

JOSE IBARRA, IIT Team Member

FRANK ASHE, IIT Team Leader

RICHARD CONTE, IIT Team Leader

BRIAN GRIMES, Interviewee

LYNN ESTEP, Court Reporter

PROCEEDINGS

INTERVIEW OF BRIAN GRIMES

[1:00 o'clock p.m.]

MR. CONTE: Good afternoon. It's almost 1:00 o'clock on the 9th of September. We're in Bethesda Maryland at the Woodmont Building.

We're conducting interviews associated with an event that occurred at Nine Mile Unit 2, August 13th, 1991, where there was a loss of power to annunciators and subsequent declaration of site emergency. We're here with Brian Grimes and we'll introduce each other.

My name is Richard Conte, I'm from Region I.

MR. IBARRA: Jose Ibarra, I'm a member of the IIT/NRR.

MR. ASHE: Frank Ashe, I'm member of the IIT/NRR.

MR. CONTE: Brian, will you give your name and your current position?

MR. GRIMES: Yes, Brian K. Grimes, and I'm Director, Division of Reactor Inspection and Safeguards in NRR.

MR. CONTE: Okay. Let me just ask you what your involvement -- you or your staff's involvement in the site area emergency, August 13th, 1991 at Nine Mile 2?

MR. GRIMES: Essentially none. As I mentioned before we went on the record, I was on vacation at the time

and was back briefly last week, and this was my third day in the office. So, I have just a very sketchy knowledge of the incident, itself.

MR. CONTE: Okay. How about past involvement with the generic letter 83-28 on the Salem ATWS actions dealing primarily with the broader scope issue of important to safety and the handling of vendor-related information, as it applies to the safety-related and nonsafety-related?

MR. GRIMES: I was involved in discussions, particularly after 83-28 was first published, and we got the industry responses then as to the adequacy of industry responses. We also did some vendor inspections at that time which looked at vendor interface at -- vendor inspections at plant sites, which looked at vendor interface and brought that perspective back to the -- to the technical groups. I was also involved in discussions leading up to the supplement to 83-28, where we -- we redefined our expectations on what -- what should be done, in terms of vendor interface information, and to what degree utilities should have established relationships between the various vendors themselves.

MR. ASHE: Could you define the scope of that for us, please? Are you covering just safety-related equipment, or were you covering safety-related and nonsafety-related, in terms of vendor information?

MR. GRIMES: Principally, the safety-related. Although, from time to time, we'd get into things which are required by the NRC that are not strictly safety-related, the ATWS and things that are not defined as safety-related, but nevertheless, have requirements on them. Occasionally we look at that sort of thing.

In terms of the vendor branch and vendor fraud areas, we go beyond strictly safety-related at some times when there's misrepresentation. But, in general, we stick to safety-related.

MR. CONTE: Okay. How about the maintenance role?

MR. GRIMES: Little involvement in the maintenance role, some indirect involvement. I have -- one of my branches is the Special Inspection Branch, and we did a couple of maintenance team inspection out of headquarters, one at North Anna and one I believe at Salem in the last few years. So, I have some insight on the development of the maintenance team inspection and conduct of those, but I was not involved in the current negotiations on the maintenance role.

MR. CONTE: Okay. One last question on establishing the scope of your knowledge here. In particular, the IE -- I'm sorry, the NRC Information Notice 85-05, which dealt with the loss of annunciators to -- at three plants, that was attributed to a common power -- a

common vendor-made equipment. Any involvement in that information?

MR. GRIMES: You'll have to remind me what the -- what the vendor was and the equipment was, because I don't remember the information notice by the number.

MR. CONTE: There were fires in the control cabinets. I'll have to look it up for you.

MR. ASHE: Okay. There were fires in the control cabinets, I believe, that ultimately resulted in loss of annunciators and some instrumentation, that was the issue that was addressed.

MR. GRIMES: I don't recall right off the top.

MR. ASHE: In terms of your maintenance team inspections, can you expound on that a little bit, in terms of the kinds of equipment that you were primarily focusing on? Is it Class 1E stuff that's viewed as safety-related, as opposed to non-Class 1E?

MR. GRIMES: The two that we did were principally safety-related equipment. The only nonsafety-related emphasis that I've been involved in in the inspection area recently was about '86 or '87 we developed a balance-of-plant inspection module, to assist the regions in looking at nonsafety-related areas. We did, as I recall, perhaps one prototype inspection and I think one or two of the regions since then have done some balance-of-plant inspections. But

there is an inspection module on balance-of-plant that I think came after the Commission paper on important to safety.

MR. IBARRA: What does that cover?

MR. GRIMES: I covers how you would go about taking ga sample of balance-of-plant equipment and what sort of regulatory leverage we have or don't have and from what standpoint should the inspector look at it, in terms of the context o the safety of the plant.

MR. IBARRA: Okay. But this is an inspection?

MR. GRIMES: It's an inspection.

MR. IBARRA: So, you actually go out there and then start looking at it?

MR. GRIMES: Right, yea. It's something that's put in the -- it has been put in the inspection manual as a tool for people to use if they find an area in the balance-of-plant that they think is worthy of attention.

MR. CONTE: Do you happen to remember the number?

MR. GRIMES: No. No, not off-hand.

MR. CONTE: Okay. It's my understanding that that is an initiative-type inspection. It's not really a core-mandatory --

MR. GRIMES: Right. Right.

MR. CONTE: -- type inspection?

MR. GRIMES: It's as needed. As needed.

MR. CONTE: So, it may or may not have been implemented in --

MR. GRIMES: Right.

MR. CONTE: -- Nine Mile 2, we just don't know at this point?

MR. GRIMES: Yes. Right.

MR. IBARRA: What is the result of that so far?

MR. GRIMES: I am having a hard time remembering which plant we did the -- we did, I think, one pilot, perhaps from headquarters or with the Region -- one or more pilots. Since that time, the only recent one I remember is -- it seems to me Region III did a balance-of-plant inspection someplace, perhaps at Fermi within the last year. That's the last one I remember.

MR. ASHE: Could you expand on the leverage an inspector has in that area of BOP in such an inspection? You mentioned that earlier.

MR. GRIMES: Yes. It's not very much, but if we find technical problems, those need to be brought to the attention of the utility, and those problems generally have some indirect safety significance that can be pointed out.

I think it kind of goes back to the overall context that the NRC does have the ability to regulate in the balance of planned or non safety related area, but we have chosen to focus on a core of what we think is the most

important aspects.

As we find things that require some additional attention either from requirements or from an inspection standpoint, we have the ability to do that, but we've kind of made the up-front decision to put our resources on this predefined set of things that people have thought about as the most important.

MR. ASHE: Do you recall a specific issue in the BOP area that's come out of these maintenance inspections?

MR. GRIMES: The maintenance inspections?

MR. ASHE: Yes. A specific item or issue in that area. Do you recall one which fits the category of the kinds of things that you were talking about?

MR. GRIMES: No, not under the maintenance inspection offhand.

MR. ASHE: Okay.

MR. CONTE: Let's talk about that general philosophy before we go into the details about the handling of the vendor information and preventive maintenance program. Your name is listed on that. We have a copy of the SECY paper, 1986. Your name is listed as a contact.

MR. GRIMES: Right.

MR. CONTE: Could you give us the flavor of what's the results of that SECY paper? All we've got is the staff recommendation for the Commission to pursue some options,

but we don't have any documentation to tell us what ever happened to it.

MR. GRIMES: As far as I know, it's never been acted on, and it was discussed I think at the time, after it went up by the commissioners and the top staff management, the EDO at the time -- probably Mr. Stello, I think -- and it was decided that it was -- one of the options was to leave things as they were, and I think that was the option that was chosen.

At the time the paper was written, it was at the Commission's request. It was not a staff initiative; it was a specific request by the Commission to try to address this area in more detail. The staff took a shot at it and when the Commission looked at it, I presume that they decided that maybe the status quo was okay because they've never acted on it.

MR. CONTE: Would you know that there's a piece of paper that says that, that we opted to do that?

MR. GRIMES: Not that I know of. Not that I know of.

MR. CONTE: That's the last document in this trail on the importance to safety issue?

MR. GRIMES: As far as I know.

MR. IBARRA: The model you listed earlier, the BOP inspection, wouldn't that be sort of a follow-on?

MR. GRIMES: The BOP inspections were a follow-on. After that, we decided that -- and I don't recall whether we mentioned that possibility in this paper or whether that was ever --

MR. IBARRA: I think you briefly mention it.

MR. GRIMES: But we went ahead and followed up and did put a BOP inspection module in place.

MR. CONTE: As an inspector in the field, I remember getting the word -- I think it was verbal -- that we were discouraged from using the term "important to safety." Was that ever written or formalized in some shape or form? And I guess it was about the time that this --

MR. GRIMES: I think that you're right.

MR. CONTE: -- second paper came out.

MR. GRIMES: Yes, I think you're right, because people were using it in a variety of different ways, and it was easier to just talk about safety related and things that were not safety related rather than to talk about a class of things which wasn't very well defined.

MR. CONTE: Was that guidance ever formalized in writing or was it just word of mouth to the staff?

MR. GRIMES: I don't recall any specific document, but I don't recall a decision to not document it either, so, you know, I suppose it could have been written down as, "Stay away from this terminology because it's causing

confusion." But I can't recall exactly at the moment.

MR. IBARRA: If something was written on it, whose responsibility would it be, what group?

MR. GRIMES: Well, it could have come out either of the I&E organization at that time, or with directions to inspectors, or it could have come out as something out of NRR as general policy to the technical staff. But I just can't remember a specific memo. I may have, you know, in normal correspondence reemphasized the point someplace myself; so there may be something around, but I don't recall a specific memo.

MR. CONTE: Let me just make a comment. It's interesting that the paperwork from the region involved with Nine Mile One -- in relation to Nine Mile One start-up as the terminology "important to safety" in it.

MR. GRIMES: It relapsed.

MR. CONTE: I got the feeling it was not a written guideline.

Okay. I think you've given us enough on the important to safety concept, and we were going to ask you what ever happened to the SECY 86-164 proposals, and I think you've answered that. I guess let's talk about the maintenance rule. We're interested in some of your views on specific pieces of equipment in terms of where it fits in the whole scheme of things. But what is your involvement or

what was your involvement with the maintenance rule as it relates to your current function?

MR. GRIMES: As I indicated, I have had very little involvement with the maintenance rule itself, but we did do a couple of maintenance team inspections which have fed information into that. So we did use the maintenance tree, the tree concept to evaluate maintenance programs and things like that at at least two facilities.

MR. CONTE: It's our understanding that those maintenance team inspections, I guess, spoke to utilities and vendors? Is that correct --

MR. GRIMES: No.

MR. CONTE: -- that they involved the vendors?

MR. GRIMES: No.

MR. CONTE: They were just --

MR. GRIMES: Maintenance team inspections were strictly utilities.

MR. CONTE: Just utilities. Okay. I guess the benefit in those maintenance team inspections were reliance by the Commission that they don't need to get into the details of how to maintain things. Is that a fair characterization?

MR. GRIMES: Yes. I think it was establishing some confidence that there were industry programs in place to perform the principal important functions in the

maintenance area, and that these were generally being implemented in the field. That's what the inspection did. It looked both at the programmatic and the implementation aspects of a variety of different subparts of the maintenance program.

MR. CONTE: Do you have any information on the apparent di-pole of the staff and the Commission on the maintenance rule as to why they were -- it seems like the Commission wants the rule and the staff didn't, and yet the Commission obviously overruled. Is there a reason why that difference of opinion?

MR. GRIMES: My impression at the time was that there was just a difference of opinion on how sure the NRC needed to be that there was future leverage on utilities in the long-term, that the Staff, I think, felt very comfortable with an ongoing process and ongoing relationship with the industry that they didn't see changing that much, and Chairman Carr, in particular, worried about the future in terms of making sure that what was done now was going to stay in place. And I think that was the main thing.

I have no insight as to how the current Commission proposal got developed. That was done kind of at the Commission level.

MR. CONTE: Do you think that the maintenance rule will solve the problem of poor maintenance practices dealing

with non-safety-related equipment?

MR. GRIMES: Non-safety-related equipment, of course, there was some attempt, I know, to expand the definition of what maintenance should cover in the maintenance rule, and I guess I didn't study it well enough to say how it would match against the old definitions we had proposed previously. But it looked to me like there was an attempt to expand beyond safety-related certainly.

MR. CONTE: Just for everybody's benefit, I participated in Mr. Ader's transcript, his interview this morning, and he's very heavy into that. And the way he characterizes it is that it's clear the maintenance rule applies to safety-related equipment. The extent that it applies to non-safety-related equipment is based on some analysis of the availability or unavailability of that equipment, a monitoring function, if you will.

And he acknowledges, going from memory, that that would not necessarily -- you know, if there's an urgent preventive maintenance recommendation for a piece of non-safety-related equipment, the maintenance rule may or may not pick that up.

You've got to wait for it to fail or become unavailable, and then go into some kind of analysis before it gets picked up.

MR. GRIMES: Yes. I'm just not familiar with --

MR. CONTE: The maintenance rule.

MR. GRIMES: -- the maintenance rule itself. I haven't really studied it.

MR. CONTE: Well, how about -- you're dealing with vendors; is that correct?

MR. GRIMES: Right. And the licensees.

MR. CONTE: Can you characterize that interchange in a non-safety area, equipment that's classified non-safety in terms of how those preventive maintenance recommendations or good operating practices or training are transcribed into the plant?

MR. GRIMES: It's highly dependent upon the utility. Some utilities, as I recall TMI is one of them, treat most everything like it was safety-related, and so they have a common process for procurement and treating these things in terms of experience.

Other plants draw very sharp lines and pay almost no attention to the non-safety-related class of equipment.

And there's a third class that's kind of in-between. As things come up that give them problems, they'll feed that into their programs and pay more attention to them.

So I'd say there's a pretty wide spectrum of how people handle this.

MR. CONTE: I think I'd like to go into some of

the specific equipment that we've been looking at with you two guys in the electrical area.

But before we do that, let me ask another general question. Does your group have any recent maintenance involvement, aside from the Regional implementation of an MTI, at Nine Mile-2? Do you have any recent information about maintenance practices at Nine Mile-2?

MR. GRIMES: The last thing we did at Nine Mile -- there's a couple things we did at Nine Mile-2, but they're more than a year old, I think.

MR. CONTE: What were they?

MR. GRIMES: We did a -- the Special Inspection Branch, we did an inspection. I think it was in the winter of either '89 or '90 when Nine Mile was in the midst of its problems with the Headquarters team inspection. They did one at Calvert Cliffs in a similar timeframe.

MR. CONTE: It was a Special Inspection Branch?

MR. GRIMES: Yes.

MR. CONTE: What was the focus of it?

MR. GRIMES: It was on -- it was a mini-diagnostic type of thing to try to determine what some of the root causes of the problems were.

MR. CONTE: This is the problem that led to the shutdown of Unit-1? Is that --

MR. GRIMES: I think we were there just after.

MR. CONTE: It was applied to both units, Unit-1 and Unit-2?

MR. GRIMES: Yes. We looked at both units.

MR. CONTE: Do you remember any --

MR. GRIMES: But I don't remember. I'd have to pull out the report to say what we did in maintenance. I don't really recall what we did in maintenance. I know there were substantially different attitudes between the two, the two units, on operations and maintenance matters, but that's about all I can recall.

MR. CONTE: We have access to NUDOCs, but not the microfiche themselves at this point. Could I ask you to commit to getting that report out?

MR. GRIMES: Sure. Give me a piece of paper.

[Pause.]

MR. GRIMES: The other thing, the other involvement with Nine Mile has been through the Vendor Branch where there have been a few problems in terms of equipment, and I think it was electrical equipment, and this dealt with General Electric and how well General Electric qualified the equipment, I believe, or dedicated commercial grade equipment for safety-related purposes.

So there probably -- probably is an inspection report or two that would relate to that, if you're interested.

MR. ASHE: Do you recall the specific pieces of equipment you're talking about installed by GE?

MR. GRIMES: No.

MR. ASHE: Or any specific piece of equipment?

MR. GRIMES: No. Again, it was a couple years ago. But it was electrical, in the electrical area.

MR. ASHE: All right. For this mini-diagnostic, who was the Team Leader? Do you recall the guy on the Special Inspection mini-diagnostics, as you characterized it; do you recall the name of the Team Leader on that?

[Pause.]

MR. ASHE: You don't recall at the moment?

MR. GRIMES: No. I know I went up for part of the inspection.

MR. CONTE: That will be obviously in the report.

MR. GRIMES: It will be in the report.

MR. IBARRA: On that paper, can you also give us a copy of the BOP module inspection?

MR. GRIMES: Yes. Yes, I'll get you the BOP module.

MR. IBARRA: Brian, can you tell us the Branches under you, please?

MR. GRIMES: Yes. The Special Inspection Branch, the Vendor Inspection Branch, and the Reactor Safeguards Branch.

MR. IBARRA: When we're talking about the vendor inspection, do you all do hardware as much as also procedures?

MR. GRIMES: Oh, yes. In fact, much of our activities are reactive, and we go out when something fails. For example, we went to ASCO in August, because in early August there was a report -- I think it involved perhaps Calvert Cliffs -- that the calibration seemed to be or something -- it was off when they used it, used the -- when they did their DC -- checked their DC system or something.

Anyway, the Vendor Branch sent one or two people out and determined that the vendor was using -- had the wrong value in the vendor manual. They had used an AC value for DC solenoid valves.

So the vendor has committed by the end of September to, you know, determine what the right value is and get to their customers and to report back to us.

So a lot of the vendor activity is reactive to specific hardware problems rather than procedural. Now when we're out there, we also look at their Part 21 reporting evaluations and try to make sure that that threshold is right and they're doing -- notifying their customers of problems.

But often it's triggered not by the fact that we haven't been there for awhile, but rather by the fact that

there's some specific events that we can use as examples to dig into with the vendor.

MR. IBARRA: When the NSSS vendors did their EOP revisions or their initial EOPs right after TMI, was your group ever involved into looking into the integration aspect of it?

In other words, when they were doing the EOPs do we know if they had specialists in I&C, electrical, human factors and so forth in the development of those EOPs?

MR. GRIMES: I guess we didn't look at that particular aspect and we did get involved after the EOPs were put in place. We did about 13 inspections of the Mark I facilities, not including Nine Mile.

I think that was done by Region I but we did a number of field inspections of how these things were implemented in the field and whether the plant matched the procedures and whether the procedures were doable, whether the operators were trained, and observed simulator exercises but we didn't go into the actual base recommendation of the EOPs.

MR. ASHE: You mentioned something about vendor inspections.

Are most of these at the vendor's facility?

MR. GRIMES: Most of them are but a few a year are at power plants and there we look both at commercial grade

dedication and using commercial grade items and safety-related things, things that were not produced under an Appendix B manufacturing process but rather by commercial grade and then special tests done.

That's part is vendor interface, 83-28 for example, aspects. In the last year or so our focus has been almost exclusively on the commercial grade. When we first started in the '86 time frame it was more on the -- '85-'86 time frame, I guess it was more on the vendor interface aspects but we -- for the most part people now have systems that you evaluate at least for safety-related aspects with the vendor information when it comes in the door and have it processed and distributed to the right technical folks.

This eventually gets into the manuals they use for maintenance on the equipment.

MR. ASHE: You mentioned that the vendor inspection branch is reactive, suggesting that you wait until something happens and then you go out and do something.

Is there any activities that are proactive?

MR. GRIMES: Yes, there are a few and that are related more to the utility inspections, particularly for example commercial grade dedication, that consciously went to a few plants and inspected them and then that resulted in enough pressure that NUMARC started an initiative in that

area. We backed off for a year and we've been doing some assessments. Now we're ready to go back to inspections, so that's been a conscious area where we planned to look at a particular area.

Other than that, I guess there's one, there's two other areas that -- two other places we've been, GE and Westinghouse, where we have gone in with the idea specifically of looking at their threshold for reporting. That was partly because of past experience but partly because we made a conscious decision that we should, they were pretty important players and that we should look at that area.

MR. IBARRA: Was your branch involved in any of the EQ inspections?

MR. GRIMES: Yes. When I was in I&E we did all the, essentially all the EQ inspections on a fairly rapid schedule.

MR. IBARRA: When we were looking at those inspections did we make sure -- was there ever any connection with the EOPs whatsoever?

Was there any tie-up?

MR. GRIMES: I don't recall a direct tie-up. The EQ scope is a little bit broader or can be a little bit broader than strictly safety-related but I think we relied on the NRR SER to define the scope and then we just went out

and looked at the implementation of the things that had been agreed that fell within the scope, so I don't think we were looking at what should be or should not be inside because they were relied on, the EOPs.

MR. IBARRA: Under your programs under the Special Inspection Branch have a term called vertical slice, right, or team inspections, which is a very good mechanism for integration but do all your team inspections include an electrical and an I&C engineer?

MR. GRIMES: No. The recent inspections by the Regions we have a current area of emphasis, which is the electrical area, so all of the current major -- a lot of the current major team inspections are in the electrical area so every plant, and we have been to about 30 I think so we are about half-way through but every plant will have an electrical/vertical slice by early '93, early calendar '93, and we found a number of problems.

In fact we just had a counterpart meeting last week and one day it was devoted to the electrical team inspections, and should we -- one of the questions was should we call a halt now and draw some general relations or should we go on?

The consensus was we should go on and do every plant because they are mostly implementation questions. They aren't questions of telling somebody to do something. They

are how somebody implemented what they were supposed to do and the errors they made.

For example, 7 out of 21 I think was the statistics under voltage problems but that wasn't -- everybody had agreed to take care of under voltage grid problems but the way they did it in detail, engineering detail, based on their specific systems turned out to not be adequate.

Those don't have an I&C component, for example.

Some of our vertical slices cover several different areas, the SSFIs, the electrical and mechanical systems and often they will have an I&C component also -- not always but quite frequently.

MR. IBARRA: For Instrumentation and Control itself, are there any plans for a functional inspection just dealing with instrumentation?

MR. GRIMES: Yes. Region V, as a result of a vertical slice we did at San Onofre, one of the pilots for the electrical inspection was a vertical slice. SSFI at San Onofre had an I&C component. And out of that inspection, we found enough problems that about a year later, Region V went and looked strictly at I&C and found some, you know, interesting things.

My understanding of where that stands is we've had discussions with the Electrical Branch in Region V, and I

guess the I&C Branch has gotten involved, also. And I think the thought is to do one or two more pilots with that, with the I&C thing, but the consensus was it wasn't a big enough safety payoff. While there were a lot of small findings, it wasn't clear there would be a big enough saving payoff to do it as a major, major thing. But we are planning to do one or two more pilots with I&C as the focus.

MR. IBARRA: Team inspections, do they include a human factors engineer?

MR. GRIMES: Not always. When we did the EOP inspections, we did take along human factors folks, for example. I think perhaps on the Nine-Mile diagnostic there may have been a human factors person. It just depends on the scope of the inspection. But not as a normal, as a normal thing.

We get some, I was going to say we get input on PRA from the PRA folks when we go out, as to where they would suggest we focus in terms of importance for that particular plant. But we don't usually get human factors input unless it's a human factors-type problem.

MR. CONTE: Let me see if I can give you some feedback here.

You're saying that the current electrical functional inspections that you're doing right now are mostly focused on power to the equipment rather than power

on the instruments? Is that what I'm hearing?

MR. GRIMES: Well, I would say yes.

MR. CONTE: And you're kind of piloting this I&C component?

MR. GRIMES: We also, of course, worry about whether the operators have the information to take the actions. But the I&C look was more, in a little more detail as to when the sequence of valve openings, it was mechanical-electrical things. For example, switching from injection to re-circ. mode. You have to look at all the delay times, and you have to determine whether the setpoints take into account all the uncertainties and all the different possible conditions.

MR. CONTE: So this is looking at the instrument loops themselves, not so much the power supplies to the instrument loops?

MR. GRIMES: Right. The I&C really focuses on that. The electrical inspection, certainly from the standpoint of whether or not the operator has information, they would look at it that far, but they would not go into the actual instrument loop, they would take a load path. They would come from the switchyard and under both offsite available and offsite power not available, or testing during a diesel test configuration. What if something happens at that point; how does the system react?

Then they go through all the, take at least a load path through all the different voltage levels and then look at the actual calculations that support the adequacy of that, and they draw some conclusions, and if they find problems they ask the licensee to expand and check other similar things.

MR. ASHE: When you say that you find problems during these inspections, what kind of problems are you talking about? Are you talking hardware problems, are you talking software problems? And if so, could you give us a percentage on each in raw figures?

MR. GRIMES: In terms of software, you mean computer software?

MR. ASHE: No. I mean paper problems as opposed to hardware problems which require hardware to be fixed. That is to say you change a line, the cable is too small, bus is not adequate, has to be replaced; as opposed to doing other calculations, analysis, this, that, or the other.

MR. GRIMES: I'd say the first attempt, when we identify a problem, is to sharpen the pencil and see if they can make it go away.

I would say on these under-voltage problems, most of those are resulting in actual changes to procedures, as temporary fixes, and eventual hardware changes.

For example, Susquehanna, which had a setpoint to

switch over, which was, I can't remember the numbers, 85 percent, and they needed 92 percent, to run the, all the equipment.

It was in their tech. spec's that 85 percent was okay. They clearly could not run the equipment if the grid had degraded there, so they put in temporary administrative controls to switch over to the diesels, if the grid fell that low, and they've got a longer-term hardware fix.

There are a number of other undervoltage problems where similar things are being done. Hatch had to put in an administrative fix. Dresden had to, I think, also.

MR. ASHE: In terms of percentages, did you take the total number of problems identified in electrical, and just give a broad over-figure, would you say 80 percent are paper problems as opposed to 20 percent being hardware problems? Paper problem being defined as the guy can't demonstrate to you how he did the analysis to come up with the hardware he has or something like that.

MR. GRIMES: I guess we don't really call it a finding until we get down to the bottom of that trail.

InN other words, if he just has a problem showing us some unresolved item until he shows us one way or another, then when he shows us it's okay, then that goes away. If he can't show it's okay, then he's got to do something about it.

Probably if you're interested, the easiest thing to do is we've got the inspection results today to compile a computer listing and categorize a couple of different ways, and we're still working on the program, but we do have a printout of the electrical.

MR. ASHE: Do you recall the primary consultants you are using to do these inspections with?

MR. GRIMES: Well, we use AECL, Atomic Energy of Canada, Limited, as the prime contractor, and we've gone through a number of people, some who we use again, some of whom we don't. They also sub to several people that we've used in the past. So we've got some pretty good consultants identified by this time to assist us in the details. And the regions, I was impressed at this counterpart meeting, each of the regions got up and gave a presentation on a particular technical area that was of interest to them, or had given them problems, and each region demonstrated a really in-depth, better than I thought they would, knowledge of electrical theory and the safety significance.

MR. ASHE: What's the driving point behind that? Obviously you feel that something is driving that, because otherwise, it wouldn't be so widespread, the EDSFIs. Is that simply based on the nature and number of problems that you've found in your pilot inspection programs, or is it based on something else?

MR. GRIMES: It came out of the SSFIs, partly, the problems identified there, over the last few years. It also came out of a study that Bill Johnson from Region I did, and I think he came down to Headquarters and compiled the experience information, and that was part of the input. And I think that study is referenced in the temporary instruction that's out to the Regions, if you want to consult that. It was based on experience, essentially.

MR. CONTE: Who can we contact about the computer listing you just mentioned?

MR. GRIMES: Let's see. I was trying to think who is -- Gene Imbro is the branch chief, and Anil Gautam I think is the best guy to talk to.

MR. CONTE: Okay. What's being found on uninterruptible power supplies? Has that topic come up recently in any of these electrical distribution SSFIs? Just your nature of your work in dealing with the vendors.

MR. GRIMES: Well, the power supplies, whether they're called uninterruptible or not doesn't matter too much to us, and so I guess I don't have an impression on that particular item.

I know we've had a lot of problems on bus transfers from one power supply to another, so that that is a problem. Transferring among the power supplies is something that comes up.

MR. CONTE: How about with the -- to focus that down a little better, where the ACs and DCs are being provided as back-ups to one another, and the inverter battery charger --

MR. GRIMES: I think you're going beyond my electrical engineering expertise. I'm a chemical engineer.

MR. CONTE: So in your division, you haven't really heard of an issue at this point with inverters, power supplies --

MR. GRIMES: Oh, yes. I hear all of those things as problems at various times, but I can't say there's an overwhelming pattern like there is on under-voltage problems. I think when you look at the computer list, you'll be able to pick off, you know, a few of each of those.

MR. ASHE: Are you planning to do any inspection of Exide as a result of the Nine Mile Point occurrence?

MR. GRIMES: I haven't really looked into the thing.

MR. ASHE: Are any of your people -- have they touched base with Exide about uninterruptible power supplies, as far as you know?

MR. GRIMES: Not as far as I know.

MR. CONTE: Would you characterize Exide as a problem vendor?

MR. GRIMES: I don't think we've dealt with them. I guess the one thing that surprised me in the trade press was that Nine Mile was having trouble getting information from Exide, but that to me is telling me we really ought to have a relationship with a vendor that is willing to give us the full design information on its product.

MR. CONTE: I went out and got this Information Notice 88-05. It's Electro Devices, Incorporated of St. Louis, Missouri. Apparently, the three plants affected had fires. The fires, at least from the information notice, it's not clear what caused the fires, but the commonality there is all the power supplies were manufactured by Electro Devices, Incorporated. Any knowledge on them?

MR. GRIMES: No, I don't recall that specific one. We might have done an inspection, then in which case there would be an inspection report, but the guys listed here were not in the vendor branch, they were in the branch that evaluated operating information. But we could take a look and see if we've got any inspection reports on them.

MR. CONTE: Would you do that for us, please?

MR. GRIMES: Yes. And what was the number on that?

MR. CONTE: Information 88-05.

MR. GRIMES: 88-05.

MR. CONTE: And the company is Electro --

MR. GRIMES: Electro.

MR. CONTE: -- Devices, Incorporated, of St. Louis, Missouri.

MR. GRIMES: Yes. That's easy enough.

MR. CONTE: By the way, whatever you provide us, please provide in duplicate. That's the standard rule.

MR. GRIMES: Okay.

MR. CONTE: Okay. Anymore specific questions?

MR. ASHE: Yes. On this Item 4, we have a standard list. I don't know -- it may -- certainly, if you don't have a response, perhaps you'd like to say that. I'm just going to read it really right off here.

For each of the following equipment, should that equipment be considered safety related, non safety related, or important to safety, and why or why not? The first item on the list is rod position, sensing elements, indicators and their power supplies. In your mind, should that be safety related, non safety related, important to safety, and why or why not?

MR. GRIMES: I don't have enough information on that. I guess you can read the rest of them, but I suspect that I'm not going to have any strong opinions.

MR. ASHE: Okay. All right. All instrumentation used to verify the reactor shutdown, to verify the reactor shutdown? The same response?

MR. GRIMES: Same response except "all" is a very big word. Generally, you can get away with less.

MR. ASHE: Most EOP used parameters and indicators and equipment.

MR. GRIMES: In general, my experience is they are not. There is a reliance in EOPs on both safety related and non safety related equipment, with the realization that they fall back to the safety related in a pinch. But they generally use everything they've got.

MR. ASHE: And do you think that's adequate?

MR. GRIMES: Well, I think it's a good practice to have your EOPs consider everything that's available. Whether we've made the right delineation as between safety related and non safety related, I think that's going to take some more thinking.

MR. ASHE: Okay. And the last item on the list is the power supplies to control annunciators and balance of plant instrumentation. Should it be safety related, non safety related, important to safety, and if so, why or why not?

MR. GRIMES: I guess annunciators are not safety related, and I think it's appropriate to have special procedures if you lose them to be able to know when you have trouble with them. But you can make a reasonable case that they don't have to be safety related, but again you could

take some detailed failure analysis and decisions on how often you run into that kind of thing before you make a final decision, I think.

MR. CONTE: Do you have any general guidance for us in this list of all these instrumentations? Some of them, the instrument strings perform safety related functions directly. They cause actuations, they cause trips. In other cases, they're used by the operators to verify, to monitor. Any guidance in your mind for us what should be safety related?

MR. GRIMES: Well, current definitions, safety related would not necessarily include things that provide information, things that can cause problems or whose failure could cause problems, or -- which is directly relied on in an accident. So if you broaden the definition, you're sweeping in a lot of other equipment, and the question is does that dilute our attention? You can pour a lot of attention on a small island, whereas we might not be able to put that much attention on everything. On the other hand, it's good to treat everything like it was significant.

MR. CONTE: As you can gather, we're dealing with non safety related equipment.

MR. GRIMES: I know.

MR. CONTE: That is why all these questions.

MR. IBARRA: Let me ask you an additional

question. You mentioned EDSFI has come out of the SSFI area. And you also mentioned that Scott Newberry has said that there wasn't very much to be gained from a safety point of view. We looked at Instrumentation and Control. But are we really going that extra mile? Because I think electrical stops at the bus. And yet we're dealing in incidents like this at the instrument level, where they failed.

Are we missing the link here?

MR. GRIMES: I don't know. I guess I'd want to look at the TI and see how far down we actually have people taking this. Maybe the TI is something else. But I think we are looking at a lot of different failure modes. And when the electrical inspectors look at this they postulate all kinds of different initiating events and what-if events to test the adequacy of the setup.

But generally, the problems don't come from how you bought the equipment, but from how you engineered the equipment, and not even whether it's redundant or not, but whether the engineer hooked it up right or not.

So often there's better payoff looking at the details and the implementation of the details and the calculations that support the coordination of breakers or whatever it is, or getting the voltage there, than there is defining something in a particular safety class. That assures redundancy and maybe some quality and higher

reliability, but it doesn't assure that the engineer hooks it up right.

In this case, it may be a case of somebody not paying enough attention to batteries or whatever it was in terms of making sure the configuration stayed okay. And maybe you buy something by making sure your maintenance program covers a broad area.

MR. IBARRA: Previous to getting on Nine-Mile Point, I was involved in a study, and I've been talking to Gene Imbro and Anil. But it was looking at instrumentation and the type of problems that are being encountered. We are seeing a lot of design-type issues that I think might have a direct bearing with Nine-Mile Point.

So we are concerned with non-safety-related equipment that is being used by the operators, and them not realizing what they had.

MR. GRIMES: I think if you get some insights out of this IIT, the way I'd like to approach this kind of problem is not blanket regulation, but targeting focus of inspection or review. So if you get some insights as to how we might focus a couple of inspections, we would be happy to look at those and work with the technical branches, maybe shape an inspection to look at some areas and see what we find when we dig into a different plant in that area.

MR. ASHE: to your knowledge, is there anybody in

the NRC looking at upgrading the power supplies for selected equipment?

MR. GRIMES: It doesn't ring a bell.

MR. IBARRA: Like I mentioned before, your Special Inspections Branch do a very good job on integration because of the vertical slice technique, but from your understanding of the staff itself, the NRC, is there the same, is there a like mechanism that is taking care not only on a spot basis, but overall? Is anybody looking at the whole integration aspect?

MR. GRIMES: PRA is supposed to do part of that, supposed to give you relative importance of various systems and various failure modes and things. So from one standpoint, from a kind of an overview, a single-line diagram standpoint, PRA kind of does that. And there are some interfaces on particular problems between the technical branches and things. I don't think there's any, there's no vertical slice branch setups there. But that is a powerful technique, as you said, to look at the integration of various disciplines in a team-type fashion.

MR. ASHE: Do you give any special attention to common cause problems that you identified in your various inspections?

MR. GRIMES: That's something we worry about if we can find, if we find something that we think is a common

mode between things, and sometimes design errors are common under voltage.

MR. ASHE: But no special treatment?

MR. GRIMES: Give me an example of a common cause and I can maybe better --

MR. ASHE: Okay. Five pieces of equipment go down because you wired them wrong.

MR. GRIMES: That's what I mean by design, if you got sloppy design or whatever. If we find poor design implementation in one area, we'd probably ask the utility to check other similar areas to see if the same problem was there. So from that standpoint, vertical slice finds a particular problem, then asks the horizontal problem. Doesn't apply to other areas.

MR. IBARRA: Do you perform those design inspections?

MR. GRIMES: Yes.

MR. IBARRA: Under your branch?

MR. GRIMES: Yes. Yes. And the Regions do, also. The module is there for the regions to use, or for us to use.

Now, we also do NTOL design inspections, integrated design inspections, or overview of IDVPs, by the utilities. We probably are going to down to Unit 2 at Comanche Peak this Fall to take a look at construction and

design.

MR. CONTE: What is the NRC's position or policy on vendor-related recommendations, the tech. manual requirements on preventive maintenance, or what have you, as it applies to safety, non-safety, and what's our source, what's our regulatory basis for that? Do you understand what I'm driving at? Do we expect utilities to implement everything that's in a vendor manual from a preventive maintenance program? Do we have a position on that? Do we ask utilities to evaluate that, apply as appropriate, what is our position?

MR. GRIMES: With respect to safety-related equipment, the position clearly is they must take the information they have from the vendor, evaluate it, and determine to what extent it applies to them and do it. We do not expect them to implement everything the vendor says, but to consciously decide whether indeed it applies, on an engineering basis, does it apply to their situation.

MR. CONTE: Is that policy in the recent generic letter that modified the scope of the Salem ATWS; it's a 90-03 something?

MR. GRIMES: I don't know. That's more to do with how often you check with your vendor to find out whether he's got new information for you.

MR. CONTE: Where's the written document on this

policy?

MR. GRIMES: 83-28 I thought covered it to some extent with respect to having an engineering process to consider this.

MR. CONTE: How about non-safety?

MR. GRIMES: None-safety, I don't know if there's a written policy.

MR. CONTE: Well, we do know that 83-28 loosely tried to broaden the actions to the important-to-safety. It uses those words. Any licensee response was, basically from what we can get, it was accepted. Yes, we have that or we don't need it.

I think I've got that straight. Thank you. What else?

MR. ASHE: Is there a more detailed interface between your groups and the various other NRR technical review groups, other than what you've already said. From time to time, you said you talked to Newberry and a few more others.

MR. GRIMES: Yes. In particular, when we developed, for example, electrical module, there was a great deal of sharing of the draft inspection procedure and working with the electrical branch. We also encourage people to come up on our inspections. We don't get a lot of that, but we get some.

MR. ASHE: Is there a formal mechanism of sharing your inspection findings with the various NRR groups that may be interested in some findings that you would have?

MR. GRIMES: Just the availability of the inspection reports, mainly.

MR. ASHE: So, there's no formal mechanism?

MR. GRIMES: We -- we -- the other mechanism is periodically, we write information notices. For example, this last winter we wrote an information notice on initial results of the electrical inspections. That gets distributed to everybody. Other than that, the formal mechanism is -- there are a couple of mechanisms, one is the technical systems request from the regions. When we run into a problem where there's no clear guidance, the regions will write in, if they're doing an inspection, or we'll write it if we're doing the inspection, to the technical branch and say we need some interface on this particular subject.

As we see general areas come up, we occasionally write. In fact we just got a response on testing of breakers or something, what should be expected. When that area isn't clear, we'll try to flush that out of the technical branches.

But, the availability of the inspection reports is the principal thing and the NRR weekly highlights, of

course, carries the results of headquarters inspections to the other branches.

MR. ASHE: Do you have anything else to offer? I'll just take any positive or negative that you feel that we haven't covered or we didn't cover it adequately, or questions that we should have asked and that we did not ask.

MR. GRIMES: I don't know enough about the Nine Mile event to really make a judgment in that area. I guess I would re-emphasize, just based on 20-some years of experience in this place that the biggest safety pay-off comes when you find problems and focus in on them, as opposed to trying to find a new definition that will fit everything in the world. I find we get a lot more safety payoff if power supplies are the problems or whatever, that we then devote some resources to them and the details of that particular thing, rather than trying to redefine the world.

MR. CONTE: Yes. I think what you're saying is -- let me summarize for you -- to focus on the treatment of the equipment rather than the classification of it. That's good advice. Thank you. Frank?

MR. ASHE: I don't have anything.

MR. CONTE: Jose?

MR. IBARRA: I don't have anything else.

MR. CONTE: I don't have anything else. We -- I

do want to summarize here. We have to be somewhat formal in our request for documents, so we're going to follow-up our request here with a listing. And you'll see something faxed to you.

MR. GRIMES: Okay.

MR. CONTE: But I wanted to make sure we got the list of documents straight.

MR. GRIMES: Here's my list.

MR. CONTE: I was taking notes here. Correct me if I'm wrong guys. You're going to provide the BOP module. We asked for that. The special inspection that was done, in the winter of '89 or '90 at Nine Mile. Nine Mile Point vendor inspection reports.

MR. GRIMES: If we have any vendor inspection reports that relate to Nine Mile. At GE we talked about that.

MR. CONTE: Thanks. And the TI on the EDSFI, and any information on Electro Devices -- any inspection report which is related to the information notice 88-05. I heard somebody say something about a computer listing of problems or something?

MR. GRIMES: Yes. Findings -- computer list of EDSFI findings.

MR. ASHE: I think he wanted to make it a little broader than that because he was interested in I&C also.

MR. GRIMES: That's the only computer list I've got.

MR. CONTE: Just to make sure we've got the right words, I'm going to xerox a copy of this paper when we go out, and I'll give this back to you and you'll see the follow-up.

MR. GRIMES: Okay.

MR. CONTE: Okay. With that, let's go off the record.

[Whereupon, at 2:03 o'clock p.m. the above-entitled interview was concluded.]

REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission

in the matter of:

NAME OF PROCEEDING: Brian Grimes

DOCKET NUMBER:

PLACE OF PROCEEDING: Bethesda, Maryland

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.

Marilynn Estep

Official Reporter
Ann Riley & Associates, Ltd.