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TECHNICAL SPECIFICATIONS BRANCH

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STAFF VIEWS ON TECHNICAL SPECIFICATIONS

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U.S. Nuclear Regulatory Commission

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One White Flint North

11555 Rockville Pike

Rockville, Maryland

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MONDAY, NOVEMBER 20, 1989

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9:00 o'clock a.m.

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PROCEEDINGS

MR. CALVO: On the record. My name is Jose Calvo. I am the Chief of the Technical Specifications Branch in the Office of Nuclear Reactor Regulations, NRC. The purpose of this meeting is to present the NRC staff view on several important issues concerning technical specifications which have recently been the center of attention in nuclear operating plants.

Examples of such issues are equipment and systems operability, support systems and allowed outage time. A typical electrical power system will be used to illustrate these issues as well others.

The NRC staff presentation will be in two parts. The first part will be a general introduction to include the purpose of the technical specifications, the technical specifications' relation to the safety analysis of the plant, the application of the general design criteria to the tech specs; that is, Appendix A to 10 C.F.R. Part 50. The abbreviation C.F.R. is in the list that was given to you.

Using a functional diagram of an electrical power system, we will discuss the exemptions to the single failure criteria from the tech spec standpoint and we will also illustrate operability support systems.

Richard Emch was going to be the person giving this presentation. He is not here today. He is ill and I will do

the best I can to fill his shoes.

The second part of the presentation will be given by Dr. Chris Hoxie and his presentation consists of a detailed discussion of the support systems and the interaction with the systems they support.

Also, he will have a discussion of the allowable outage time which will include the results or interviews that we had, that the staff had with the operator licensing instructors in the Technical Training Center in Chattanooga, Tennessee and he will use some conditions and require actions from a typical power system LCO to illustrate these items.

Now we would like to hold questions to the end of the presentation unless requested by the presenter. We would also like to give priority to questions of a general nature first. Questions of a specific nature will be deferred towards the end of the meeting. Also, we would appreciate it if the persons asking the questions would identify themselves so we can put the name on the record.

So let me start now with the presentation, the first part of the presentation, which was going to be given by Richard Emch.

[SLIDE.]

MR. CALVO: I guess Richard was very well prepared and I have to give his presentation and I am going to have to read some of the things that he was going to say so you are

going to have to bear with me. If you have any trouble with my reading, I will provide that information later to you so that you can put it in the record.

Now I note that most of you know what these things are but I think if we try to establish a base that from here that we are going to go back to what Dr. Hoxie is going to say, I think some of the things I would like to put them in the open so everybody understands how this whole tech specs was put together.

The fundamental purpose of the technical specifications is to define and preserve the validity of the results and conclusions of the design basis accident and we are going to call those "DBAs" from now on, analysis and the mode for which they are analyzed. The LCOs to be located in the technical specifications should meet this fundamental purpose.

The criteria used for the technical specifications improvement program that will identify the limited condition for operation to maintain plant safety are stated in the interim Commission policy on technical specifications improvement. This criteria is closely tied to the design basis accident safety analysis.

The general design criteria, Appendix A to 10 C.F.R. Part 50 was used as the basis to govern the capability of component systems and structures taking credit for in the safety analysis, to perform the intended function when

required.

Examples of general design criteria that will illustrate this point and will be used later in connection with the discussion of the electrical power system's tech specs is the associated design criteria associated with the fluid system general design criteria.

I would like to read a little excerpt in the criteria. This is 34 and 35 and has to do with the decay heat removal systems and it is important to know that because I think it establishes the purpose of the tech specs and I think we will understand what operability and supported systems are and what is the purpose of the systems.

It says in there that it is suitable and I am taking a little part of it, "suitable redundancy in components and features and suitable interconnections, leak detection and isolation capabilities shall be provided to assure that for on site electrical power system operation assuming off site power is not available, the system safety function can be accomplished assuming a single failure."

What I would like to do now is to put up a slide which is going to show a typical electric power system diagram and we can start the discussion from there. You have some other slides in there that Richard Emch was going to talk about but I feel that I don't have the dialogue that he was going to use so I am trying to improvise and give you the essence of

what he was trying to convey.

[SLIDE.]

MR. CALVO: The electric power system is considered to be the most important support system in a nuclear power plant. I am trying to use it to illustrate the applicability for the general design criteria. I want to also illustrate how we can take exception to the single failure criteria in the tech specs the space that will be acceptable and we also illustrate how the support systems and supported system interact with each other and also illustrate the operability of the supported systems.

Now in a typical limited condition for operation for the electrical power systems, normally, I guess, there are two off site power sources and two on site power sources which must be operable, must be available at all times to meet the general design criteria.

The general design criteria that I mentioned before that it has to do with the fluid systems, the safety function must be accomplished for the on site on the off site given that one of them is not available assuming a single failure. You must have those two operable, the two off site and the two on site operable to meet that single failure criteria and meet the GDC.

Now let's assume that we have one on site -- and let me before I go on just quickly tell you what we have in here.

We have a switchyard and a brick and a half configuration and we see the off site power sources going to transformers which in essence supply emergency buses, A and B to signify redundancy and the same thing from the other side.

Also in here, we have a diesel generator which is connected to one of the buses and a redundant counterpart connected to the other bus. We have loads in here at this power level, normally it is a 4,160 volts and we have load A1, load A2, Load A3 and we also have the redundant counterparts in the B train.

As you can see, I am selecting one particular load here to indicate a motor control center which in turn supports other loads in here and the same thing for the redundant counterpart.

Now let's assume that we had one source inoperable in either the off site or the on site and the question that we asked, that system under those conditions doesn't meet the general design criteria that I had said before for the fluid systems. One thing is acceptable.

I think it is acceptable because the probability of occurrence of having a design basis accident at that time is so small in the allowed outage time is consistent with the reliability of that system that on the tech specs space we say it is fine to be under that degraded condition as long as you fix the equipment or that particular source to the operable

status as soon as you can.

So the completion time becomes a very significant piece of information that you must comply with, you must do what you can so once you quickly restore the equipment, you want to go back again to establish the two off site sources and two on site sources so you are still in conformance with the general design criteria.

Now the question that we asked, you will have either this source or that source out or inoperable at the lowest power in here is also considered inoperable. The answer is no. Both sources have to be out of service because these loads in here are considered enough because it is power in here. The power coming to those loads, this one doesn't know where it comes from, whether it comes from the outside or whether it comes from the diesel generator so it is the power to those loads.

So if you look at the definition of operability, you find in there that we are talking about electrical power. At one time there was some concern that we put in there the electrical power to mean off site and on site, they had to be available to meet the general design criteria but it is not. On this particular one, it is power that we are looking into so it is only if those loads become inoperable, we remove both this source or that source in there.

Now there is a condition in here that suppose we lose

off site power and right at that instant in time, there is no power to this bus. Right for that instant of time with this coming up to speed to the connection here to provide power to those in there, are those considered inoperable? No, they are not considered inoperable because the safety analysis of the plant accepted the fact that for that short period of time where these come up to speed normally in the order of ten to 20 seconds, it was analyzed that it was acceptable during that time delay that if the diesel comes up to speed, the intended function for those loads to mitigate the consequences with a loss to off site power of the accident, it will be fine.

So under those conditions, our view of it is that those loads should not be declared inoperable.

We talked about resources. Now let's talk about the loads a little bit. Now again if we happen to have this motor control center out of service and we happen to have any one of those presumable loads in here which are supported by the motor control center out of service, any one of them, and the question that we asked is, if we had one of those out of service, this out of service, and we wanted to know would we again be vulnerable to the single failure criteria and we happened to have right at that time a design basis accident and we also postulate a concurrence of a loss of off site power, if that is the case if we postulate single failure, then we have lost function, we don't meet the general design criteria.

But again in tech spec space we saw that within a completion time, they are allowed to restore this particular equipment back to operable status, you are allowed to postulate, you are not permitted, or we are not considered to postulate single failure in the redundant counterpart train.

The allowable outage time, I will just give you a little capsule of it because I think Dr. Hoxie will go into much more detail later with some examples of it and it will be talking about direct support systems, systems that are directly tied up to a support system and a system which is indirectly tied up such as the ventilation systems and things like that which different considerations must be taken.

Let me talk just a little bit on the supporting systems. The supporting systems in this particular case, you have a small control center and if we assume that we lost power to this train A, are those support systems considered inoperable? Yes. Pursuant to the definition of operability, if we lose the small control center directly connected to those there, those systems become inoperable right at the instant of time.

Now also further variations of this, Dr. Hoxie will present during his presentation. I guess in essence this summarizes more or less what Richard Emch, a little shorter than what was envisioned to take, but I guess maybe now we should get into the details of this thing and I think Dr. Hoxie

will bring that to you. Thank you for putting up with me on this one.

[SLIDE.]

MR. HOXIE: Good morning. My name is Chris Hoxie and I am going to be talking about two main things this morning, the first one is support systems and then the second thing I will talk about really is completion times and our meanings of them.

[SLIDE.]

MR. HOXIE: I want to start on slide two. So that we are talking the same language, a lot of the regulations, tech specs that are in existence, they use a big phrase; they say, "Systems, Subsystems, Trains, Components or Devices" and so that I don't have to say that long phrase every time that I mean that, I am just going to call those "Features." Features for me then is a generic term that means any of those things. So all through this, I will be talking about support features.

[SLIDE.]

MR. HOXIE: To give you an overview then of what I am going to talk about on support systems, basically I am going to talk about some proposed guidance that we have, five pieces of it which are labeled here A, B, C, D and E and those five items are if you have a support feature, how should you go about finding the completion time of the support feature.

Then item B is, what about support features where the

support is a little bit more indirect and I will discuss a little bit what we mean by direct and indirect support, for those types of support systems how do you find the completion time for an indirect support system.

Item C is what about the required actions? What do you have to do when a support feature is inoperable? What required actions do you have to take.

Item D is what about support features that are not in the tech specs and item E are what is it about an inoperable support feature that does not prevent the supported feature from performing its safety function.

So those five things are what I am going to discuss now and we will go back then on the next slide to item A to a discussion of how do you find the completion time of a supported system.

[SLIDE.]

MR. HOXIE: Basically the way you do it is laid out on this slide. The completion time for an inoperable support feature is simply the minimum of the list that you see there, it is the minimum of the completion time of supported feature one, the completion time of supported feature two, ... through completion time of supported feature N.

In other words, you look at all of the various supported features, you take the shortest one and that becomes the completion time of the support feature.

MR. BERKOW: Chris, could you tell us what you mean by completion time? I am not familiar with the term.

MR. HOXIE: Basically, I use it, do you know what an allowed outage time is?

MR. BERKOW: Yes.

MR. HOXIE: Let's say that it is very close to that. It is the amount of time like in the tech specs, there are LCOs and then there are action statements or whatever it is called, required actions. The completion time is the amount of time that you have to complete the required action.

MR. CALVO: If a particular system or component all of a sudden you wake up one morning or you do a surveillance and you find it inoperable, you enter a limited condition for operation, and you say, "Okay, you have a certain amount of time before you restore this component or system to operable status." If you don't do that in that amount of time, then you must have, normally you go to a mode or condition in case you have an accident there, you are better to mitigate the consequence of it so you go to a different mode of operation.

MR. BERKOW: I just never heard the term, "completion time."

MR. CALVO: That is new. This is a new term that we have agreed between the owners and the NRC staff as part of the technical specifications improvement program that we are going to use that instead of allowable outage time. You can see

allowable outage time is a mouth full. Completion time, I think you can say more easily. By the way, that person who made the comment was Herb Berkow.

[SLIDE.]

MR. HOXIE: Let's continue on then with the next slide. This will probably make it a little bit more clear what we have. Let me give you an example. One of the large support systems in nuclear power plants is the electrical power distribution system that supports a whole bunch of stuff and suppose you were trying to find the completion time for it.

What this first piece of guidance that was on the previous slide says is that you would look at some of the various supported features, you would actually look at all of them and I have just listed a couple here and you might find that the electrical power distribution system supports an RHR pump and that these types of pumps typically have a 72-hour AOT or completion time.

Also, supports containment isolation valves, CIVs, those have like typically a four-hour completion time. The power distribution system also supports battery chargers and battery chargers are rather critical to plant operations and so they have a very short two-hour AOT.

The guidance I just gave you, what you would choose then for the completion time for the electrical power distribution system would be the minimum of those or two hours.

Now you say, "Is this different than the typical guidance we have today?" I don't think that the intent is any different but if you go and you look in a lot of specs, you will find for the AOT under the electrical power distribution system, you won't have two hours. You will find eight hours.

It has been assumed by the NRC staff though that if the electrical power distribution system is inoperable, and the part of it is that is inoperable supports a battery charger, that the operator would be smart enough to go and enter the battery charger spec and find out that he has to shut down in two hours.

You can see then some of the advantage of taking this new approach is that the real problem is in the electrical power distribution spec, that is where your inoperability is. If he would have had two hours there in front of him, he would know immediately what completion time he had to face.

The requirements cascade any way. If the battery charger is inoperable, it is inoperable and you have to do what you have to do for an inoperable battery charger. But as much as possible, we would like for the tech specs to be clear for the operator, to be operator friendly, to give him the guidance that he needs right in the spec where the problem is. So that is sort of the philosophy.

Let's go on to the next slide and I will summarize then some of the reasons why we are doing this.

MR. STENGER: Dan Stenger with Bishop, Cook, Purcell and Reynolds. How are you defining electrical power inoperability here in this example? Is it loss of both emergency and normal power or just one?

MR. HOXIE: Just one.

MR. CALVO: Could you give me the electrical diagram that I had before? Excuse me for a minute, Chris.

[SLIDE.]

MR. CALVO: It would be the electrical power. You see the loss in here, they don't know where the power comes from whether they are coming from here or coming from there. There is no meter in here that tells me that I have off site power or on site power. So it is power in here.

So if I lost power, presumably I lost this source and this source is not capable of being collected. So it is that loss to power right here. If the distribution system he is talking about is this one and this is the motor control center and one of those is the battery chargers, that means that you had completely lost power in here.

If you lose power in this, I don't know what you can do in here to make that thing operable unless you quickly bring another diesel or something that connects power in there. But we are talking about the total loss of power, both sources in this case.

Mr. STENGER: You are talking about loss of both?

MR. CALVO: That's right and in that definition, that gives it away. A lot of people today, as a matter of fact if you go back and look at some of the old plants and you look at the procedures for operability, they considered having both and I think in our opinion, in our view now they are going beyond what is needed. As a matter of fact, I was looking at a plan a couple of weeks ago, a procedure for operability and they were defining electrical power to mean both of them. We are saying there is no need to have both of them and I will tell you why.

Logically suppose you have an accident, a design basis accident, concurrent with a loss of off site power, I have an accident, I lost off site power, around right here, it is all connected to these buses from one source of power. Are the loads inoperable? No, they are not inoperable.

MR. STENGER: Is there a discrepancy in the understanding? I thought you said it was just one.

MR. HOXIE: I misunderstood your question.

MR. STENGER: All right.

MR. KINTNER: I am Les Kintner with NRC and I have a question. Jose, have you been talking about modes one, two and three as opposed to modes four and five in which there is only one diesel generator required to be operable?

MR. CALVO: Yes, that's true. During the shut down mode of operation, I think those requirements and I don't know

if you have it in some of the tech specs, they are not being considered right now as part of the tech spec improvement program. When we say that we would require, we are still discussing those questions and problems, we would be required to have at least, we would require one off site and one on site and also we require one off site in the redundant counterpart.

Do you see what we are saying? We are saying that we like to have the two off site power sources and the reason we like to have them is because we like to be sure that on the normal operation, we like to be constantly meet the general design criteria. But the loads in there, they are not inoperable by the fact that you lose one source but if you don't put those sources back into service within a given amount of time, then you must pick up another mode of operation which you can be safe.

But if you are shut down, you can't pick up any mode of operation because you are already shut down.

MR. KINTNER: Right. So that if only one diesel generator is required in shut down condition and one off site power supply and you lose that diesel generator, should there then be an allowed outage time to get that diesel generator back on even though you have off site power?

MR. CALVO: Sure. It will be an allowable outage time but the question that you asked, where can you go if you are already in mode four or five, you can't go any further,

right, and what you have to do is do what you can to restore whatever source due to loss to operable status and in the mean time, you may want to elect to suspect core alteration separation because you feel that you are losing that kind of the security blanket having one source instead of two.

MR. KINTNER: I guess my point is that there may be specific considerations for shut down that don't fit what you were saying here. In general, operability for power supply only means the power is there for the system whether it is on site or off site.

MR. CALVO: No. I know what you are saying and everyone is having trouble with this separating both the sources from the loads. In both cases that you go mode one, two and three or modes four and five, you still establish requirements to the sources, the off site and the on site sources.

The loads don't care whether you are in modes one, two or three. They want to know whether they have power and there is no meter there to tell me whether I have off site power or on site power. As long as you have power, either modes one, two, three, four or five, you are still operable. When you lose the power from both sources that is only when you become inoperable.

So in the case of the shut down that you are talking about, if I am required to have one off site and one on site

and I lose one of them, are the loads operable? Yes, they are still operable and the other train was only required to have one off site as long as on the off site, I am still operable. Now if I lost that off site and the diesel is not capable of performing the function, then it becomes inoperable.

I gauge my power available today, it doesn't care whether you are off or on site. All that they know is that they have power available. That is, I guess, the philosophy, the kind of rationale that we used when we put this whole thing together.

MR. KINTNER: Thank you.

[SLIDE.]

MR. HOXIE: So the philosophy then behind taking the completion time of a support feature as being the minimum of all the completion times of the supported features is simply that we look at it as being an operator aid.

It means that the shortest completion time will indeed appear in the tech spec where the problem is and, therefore, that the operator doesn't have to search through multiple LCOs to try to find out, "Gee, is there a shorter completion time somewhere else." So that was the reason behind taking this approach.

[SLIDE.]

MR. HOXIE: Therefore, to summarize all of this in the next slide, we have what I call proposed Guidance A which

simply says, "When a support feature is inoperable and an LCO for that support feature is specified in the technical specifications, the completion time stated in the support feature LCO to restore it to operable status must not be greater than the most limiting completion time of all the features it supports." Hopefully with the discussion we have had now, that is a clear statement. Let's go on to the next slide.

[SLIDE.]

MR. HOXIE: This may seem, you say, "Gee, there is an awful lot of support systems in a nuclear plant and I can think of some cases where this might be too restrictive" and so let's discuss if there might be some exceptions.

To do that, I would like to discuss a thing which I call the "directness of the support." Basically, there is direct support and there is indirect support. If you have something like electrical power, for example, if a motor doesn't have its electrical power, it is going to fail immediately. It can't do its function at all. It is a very, in terms of time, it is a very direct form of support. Electrical power is absolutely necessary and it is necessary now.

The same with lubricating oil say for a diesel generator. It is not going to run very long without it or even cooling water is quite often very necessary. You are not going

to run very long without it but there are other support systems, take for example, the ventilation system for a large room in which there are batteries.

In this case, the ventilation system may be, if the plant's FSAR says so and the design basis for the plant says so, the ventilation system might be a support system for the batteries and if you use the type of logic that I just now said, you would have to take the battery AOT of two hours and put it back as the completion time for the ventilation system.

So let's discuss if we always want to do that. Next slide, please.

[SLIDE.]

MR. HOXIE: To get around that, what we are considering is basically it is an exception to the General Guidance A that I just now had and it says that basically if you have an inoperable support feature, but that the support is more of an indirect nature, again like this ventilation system case, in that case we might allow the support feature completion time to exceed the supported feature completion time.

In this case then you have to think of the support feature completion time as being composed of an initial portion and then a final portion and during the initial portion of the support feature completion time, we will not cascade, we will not go around and declare all of the supported features

inoperable. What we would say is that we would give them some time up front, for example, to fix the ventilation system before they would have to cascade its inoperability into say the batteries.

However, if they are going to do that you would have to have some justification in the technical specifications bases based on either a risk analysis or some kind of safety analysis. Next slide, please.

[SLIDE.]

MR. HOXIE: This slide puts up then exactly the example that I have been referring to. The support system then is say a ventilation system for a room that has batteries in it and supposedly there is some justification in the bases that says we think that the completion time should be 24 hours.

We have already discussed before that the batteries have a two hour completion time and what this guidance would say is that you would have 22 hours before you would have to cascade the inoperability of the ventilation system over to the batteries so you would have some up front time.

What it amounts to is that if you can make a justification in the bases that it is not in the public interest, it is not safe to challenge all of the safety systems and shut down the plant just because I have a fan out in a ventilation room for some batteries and that you have a risk basis for showing that that is the safer thing to do. Those

are the types of arguments that we would like to hear.

Next slide, please.

[SLIDE.]

MR. HOXIE: Then to summarize this Proposed Guidance B which is really an exception to Proposed Guidance A we can say it in these words. "When a support feature is inoperable and it does not degrade the capability of the features it supports below acceptable levels until some time later as justified in the Bases for the support feature, then the initial completion time specified in the support feature LCO may exceed the completion time of one or more of the features it supports." Now this is an exception to the definition of operability.

During that 22 hours normally you would say, "Gee, the ventilation system is broken." At soon as the support feature for the batteries, the ventilation system is broken, you would normally have to say that the batteries are inoperable, also, but we are going to give you a 22 hour exception to the definition of operability and that is what this guidance is.

[SLIDE.]

MR. HOXIE: On the next slide, there is a little bit more to it. "If the support feature cannot be restored to operable status within the initial completion time specified, all the supported features involved shall become inoperable by

the definition of operability and the additional completion time for the support feature to restore it to operable status must not be greater than the most limiting completion time of the features it supports."

So this second piece is talking about what you do after the 22 hours. At that time, you have two more hours in the 24 where you do have to cascade the inoperability and the batteries do become inoperable.

Next slide, please.

[SLIDE.]

MR. HOXIE: This is basically the slide and we are moving into the third area of guidance that I talked about, what required actions and so I ask the question, "What are the consequences of having an inoperable support system?"

One of them is this idea of cascading. In terms of requirements, you do have to if the support system is inoperable, then its supported features will be inoperable and you do have to cascade, you do have to look at the required actions of the supported features.

So the question that comes up is when I have a support feature inoperable, what required actions do I have to take? I think everyone would agree that you have to take the required actions in the support feature tech spec. In other words, it is what is broken and if there is a tech spec on it, it is clear that you have to take those required actions.

Where it gets a little bit fuzzy at times is what about all of those supported features? Do I have to go do all the required actions of those supported features? Some of them? None of them? That is what we want to discuss now.

[SLIDE.]

MR. HOXIE: Basically on the next slide for the supported features, the short form or the guidance is basically that all of the required actions from the supported features LCOs must be accomplished except those that can not be accomplished because of the inoperability of the support system.

Basically we are saying we don't want you to do the impossible. We also, if you have a diesel that is broken, its lubricating oil system is broken, we don't want you to start it and run the diesel if that was what the required action is, those are some of the things. We don't expect you to do the impossible but if there are required actions for the supported feature such as "call the NRC," "start taking data," do items like this, then we do expect that those actions would be followed.

MR. CALVO: Excuse me for interrupting but I guess what we are doing today when we lose a support feature, let's assume that we lost train A in the electrical power system, all the LCOs from the technical specifications must be entered to find out which one is the most limited. You cascade to all of

those. Can you imagine the burden that that must be for the operator?

He has to go through all of those, find out where is the most limited, focus into that one and see what he can do now and also he has to go through all those other LCOs and find out all the things we asked him to do, "call the NRC," "collect data," "look at the redundant counterpart immediately."

By the time all the thing is done, that particular transient, the point is that there are more important things to do by somebody who has to go through pages and pages and by the time he finishes, we had done the simulation up in Chattanooga, the operator focused to the wrong thing.

He is not focusing to the safety of the plant. He is focusing on going through all those pieces of paper there and looking criss-cross to procedures and by the time he finishes with some of the customized tech specs, it could be as long as hours.

In the meantime, everyone is screaming, "I have lost the whole train," "the plant is down," "I need to do things now" but the operator is worrying about that because if you don't do that, then there are going to be violations. There is going to be enforcement.

We tried some kind of way to get around that by making this proposal.

[SLIDE.]

MR. HOXIE: To summarize then what this third piece of the proposed guidance is, it simply says that once a support feature is declared inoperable and its supported features become inoperable by the definition of operability except as indicated in proposed guidance B, that was the exception, the required actions specified in the supported features LCOs which are not impacted by the inoperability of the support feature must be accomplished in accordance with the completion time specified in the LCO. All other required actions specified in the support feature LCO must also be accomplished.

Next slide, please.

MR. CALVO: Let me just interject something.

MR. HOXIE: Sure.

MR. CALVO: We looked at the tech specs and we found out, we had determined approximately that all these other support features that must be accomplished, there are not very many, something on the order of about five percent of what you normally do is those features that you have to do immediately right after the support system becomes inoperable.

So those can be -- what you do today, you can almost enter LCO and figure out where they are or have them listed in a procedure so you can go through them all at one time. That is what I would do if I were operating a nuclear power plant. I don't want to go through all the LCOs.

I will take them aside and the procedure when I lost

a whole train, when I lost power to a whole distribution system, then I know exactly what I must do there. We say that it is about five percent of those special actions that you have to do. So if you can plan ahead, you don't have to enter every single LCO because once you enter and you find out what you have to do, the next time you don't have to do it so once you do it, you might as well take that knowledge and put it aside and enter those procedures when you lost that particular train and then do those special actions.

[SLIDE.]

MR. HOXIE: Moving on then to the fourth piece of proposed guidance, Proposed guidance C, here we are talking about inoperable support features that are no in the tech specs; in other words, the support feature is not tech spec'd.

In this case the licensee has the responsibility to make a prompt determination of the operability of all of the supported features affected by the inoperable support feature or features and to take the applicable tech spec remedial actions.

Basically, I am going to go ahead and bring up the topic, it has as next word, "prompt" and prompt is kind of like immediately. If you walk by a support feature and there is a wire hanging off of it, prompt in that case means pretty darn fast.

There are some other types of situations where prompt

may take a while because it may take a while to determine whether the supported feature is impacted. So it is very difficult to put a precise hour figure on it.

MR. CALVO: May I supplement that?

MR. HOXIE: Sure.

MR. CALVO: I guess we are looking at prompt, I think prompt must be commensurate with the safety importance of the equipment you are looking at. If it is something that is really important, maybe you want to come out with a quick determination of operability.

If it is a support in a pipe or support in a cable tray and you know a quick determination, it looks like it is giving a design basis event, seismic event, the tray is now going to fall down, cut the cable and actually make a lot of equipment inoperable, that prompt determination could very well go for longer than 24 hours.

So I guess again, it is commensurate with the initial evaluation which would tell you what to do next. Now if you do that in a particular case, and you find out that the support and you say, "No, never mind and the integrity of the cable tray, we will be maintaining given the worst case condition or the worst case design basis event," then you say, "yes, it is the support system but the interaction with the support system, cable trays, cables and switchgear" and you say, "No, nevermind" therefore, all the supporting system remains

operable. But it is going to be different in each case. It is very difficult to quantify what you do and generalize it. It is again commensurate with the importance of the equipment in question.

[SLIDE.]

MR. HOXIE: So to summarize this, the proposed guidance D is on the next slide. It says, "When a support feature is inoperable and an LCO for that support feature is not specified in the technical specifications, and if it is determined that such a support feature will impact supported features LCOs specified in the technical specification, then all the impacted LCOs for the supported features must be entered."

That is a summary of what we were just discussing.

[SLIDE.]

MR. HOXIE: The final case that we are talking about is one where the simplest way to say it is it is a case where the support feature in a given case is not really a support feature. If the supported features can still perform their safety function without the support feature, then there is really some question in that case whether the support feature should even be called a support feature and what this proposed guidance tries to do is, I think, is state the obvious thing. In that case, you really don't have to do very much.

What it says is that when a support feature is

inoperable, regardless of whether or not an LCO for it is specified in the technical specifications, and if it is determined that the supported features governed by the tech specs are capable of performing their intended function with an inoperable support feature, then no additional action is needed in the supported features tech specs.

I don't believe that is anything different than what the licensees are doing now. At that point then, that is about all that I wanted to say about support systems. I think the second part of the talk is on completion times but I would like to break here for just a moment and see if anyone has any questions on support systems.

MR. STENGER: Dan Stenger with Bishop, Cook, Purcell and Reynolds. On proposed guidance D toward the end where you talked about "then all the impacted LCOs for the supported features must be entered," is that intended to be -- it is slide 17 actually -- is that intended to be the minimum, the most restrictive LCO in actions taken. It says "all." I am not sure if that was what was intended.

MR. HOXIE: Just because you enter the LCO, basically you would enter the LCOs and then you would do what the LCOs say and the chances are that most of the required actions in the LCOs, it depends on the situation, but that many of the required actions you would not have to take.

So in a way I can understand where you are coming

from with your minimal set.

MR. CALVO: But again let me supplement.

MR. HOXIE: Go ahead.

MR. CALVO: It says, "When a support feature is inoperable and an LCO for that support feature is not specified in the technical specifications, and if it is determined that such a support feature will impact supported features LCOs specified in the technical specification, then all the impacted LCOs for the supported features must be entered."

I guess the question is, if I got outside the tech specs support system, it could be many support systems and I do an engineering evaluation to determine whether the support system either through a surveillance, so kind of the ASME testing and determined that it was something wrong, then I must ask myself the question, first of all, how many other safety systems have been in some kind of way degraded because of the inoperability of that support system.

So first you look outside the tech specs and then in some kind of way you go to the other systems and find out where the implications are. Then you must ask another question. How about all those other systems which are controlled by the technical specifications, are also those impacted by that support feature?

When you ask that question through engineering evaluation, then if you have any of those in the technical

specifications, then you must enter those and find out what those ask you to do.

It is not only tech specs. Tech specs is only a very small part of the systems in the plant. There are more things outside the tech specs. Only those things that are important are in the tech specs.

MR. CESARE: I am Guy Cesare from Grand Gulf. Jose, I have two questions. The second one you might want to defer. Firstly, has the staff thought of and it does look like you have put a lot of thought into this in the arrangement of these concepts, have you considered that some allowable outage times have different technical bases such as AC power distribution system which says one division de-energized is eight hours and that is a different concept, a different vulnerability.

You were talking about then a diesel generator, on site power supply, inoperable that is 72 hours and so you distinguish in your remarks that power supply, two sources is one issue and then we talk about the slide showing the example of varying LCOs and which one you would choose.

Those numbers you had there for that example, if all those numbers 24, two and eight, whatever they were have the exact same technical basis, then the logic works. If they do not have the same technical basis, then it doesn't seem like it may be appropriate and it may be inappropriate to put the plant in that kind of allowable outage time for shutdown.

Has the staff considered that and how do you remedy that?

MR. CALVO: Correct me if I don't understand what you are saying, if I have a support feature and let's say it is a distribution system, a 4,160 volt distribution system which goes to more control centers which eventually goes to a battery charger, okay, ther when I lose the distribution system, you look around and you find out that the particular distribution system has a pump in there which as 72 hours allowable outage time and, of course, there it pumps an air compressor and that instant air compressor becomes a safety system, maybe there would be five days allowable outage system and you go through all the evaluation and all the assessment, but the one who is actually leading the parade is that battery charger.

So, yes, we consider all those possibilities but you may have a different technical basis but the one that is the most limited of all happened to be the battery charger. Now in some designs, the battery charger is not two hours, it is eight hours. Under those conditions, then eight hours is okay. The distribution system today in the existing tech specs, you have eight hours up there. Normally you feel that it was important enough to have eight hours.

I don't know how that number got there. It was grandfathered over the years. We can look at it and I guess the interim Commission policy allows you to come out with a

number that it can either make it smaller or it can make it larger depending on the operating experience and based on the analysis that you had done.

Have I understood your question or have I missed it all together?

MR. CESARE: I think you are close. You have given it some thought.

MR. CALVO: Yes.

MR. CESARE: An example that I might be better versed on and Les Kintner and Bob Giardina are more familiar with it at Grand Gulf is ESF broom coolers which is a ventilation function cooling ESF switchgear, part of AC divisional power supply distribution system, that switchgear if inoperable is if de-energized is eight hours.

MR. CALVO: The switchgear, that is correct.

MR. CESARE: If the switchgear is de-energized, then that is one condition of somewhat severe exposure to the plant with all that gear de-energized apart from availability of the diesel or off site power. If the bus is de-energized, eight hours seems appropriate and there are other ones more severe for DC power.

Does the staff contemplate that that eight hours has a certain vulnerability, a certain risk, as opposed to the ESF switchgear ventilation which if it is inoperable and not able to cool that room, that there is a different technical basis

and it looks like Guidance B is talking to that.

MR. CALVO: We did consider about the switchgear, the temperature rises on the breakers, all the things and we figured that if you lost the ventilation of the cooling, also given the worst case condition, a DBA when you assume the maximum cooling from a given period of time, we assume that if you lose ventilation on the systems, we feel that you have some time before the temperature got to the point that with the equipment as degraded below a level that it can't perform the intended function.

That flexibility is there right now for all the plants. If you feel that you can show that certain support systems are unduly restricted when there is a failure, you can make that point, that the equipment is designed to withstand a loss to the ventilation system for seven days. If you prove that case, that after seven days given a worst case condition, the temperature goes high, high to the point that it degrades the capability, then at that time it becomes inoperable and then you must take the eight hours action in there for that switchgear.

So yes, that is the whole concept, the whole philosophy. I think it gives you a latitude without hanging you up with a system which is very time delay or lagging to degrade the capability of the system below an acceptable level by giving you that additional time to fix it and that is the

philosophy that we tried to follow and I think you can use that philosophy today. You don't have to wait for the tech spec improvement program to convey that philosophy. That philosophy is available today. If ycu submit an amendment to us, we will entertain that philosophy.

MR. CESARE: That leads to my second question which you might want to defer. It deals with how this guidance is promulgated. What you have just described in a process whereby we would consider these ESF switchgear room kind of systems that are not treated very well in tech specs --

MR. CALVO: That's right.

MR. CESARE: In fact, I have an open issue with the staff that I am probably going to generate a tech spec change specifically for that. You have generated in your process here of coming up with this guidance lots of new terms basically, initial completion time, additional completion time, direct, indirect, directness -- things that impacted.

On one page it says in English I understand and then the next page, the guidance uses the term "impacted." I find it a little difficult to see how you are going to promulgate this to the region in short order where it is going to be an auditable criteria. What is the process?

MR. CALVO: I think what we are trying to do is right now for the last 16 years, we have been talking about these terms. Everybody is still confused. The readers are confused,

we are confused, you are confused and it is about time that both the staff and the industry started speaking with a single voice on this.

When I used to be a project director, I used to be calling at night all the time. How do you interpret that technical specification? Are we going to shut down the plant or we are not going to shut down the plant? So I felt when I got this job, I felt that it was about time that we put this in perspective, give you at least from a logical, practical point, what should be done.

It is ridiculous to lose the ventilation system for a battery charger and then shut down a nuclear power plant. It doesn't make sense. I think that is more unsafe than safe. The same thing will apply for the coolers. If you have a design that is capable to perform the intended function of the loss to cooling, why not use that capability? Why shut down the plant and rock the boat and challenge the safety system?

The words aren't important but the important part is that everybody understand what operability means, that everybody understand what support systems means and what is the latitude and also from the standpoint that you are confronted with a transient on that plant, don't go through the paperwork to find out what you have to do, pre-plan the actions so you do what you are supposed to do and worry about the plan that was the important thing to do. We have not been doing that for 16

years. I think it is about time now that we consider those possibilities and generally come up with something that everybody else can understand. That is the approach.

MR. ABBOTT: Ed Abbott. Has the staff looked at the effect of this guidance on a two-train action statement and how it would be implemented? For example, if you have an RHR pump out of service on one side and the ventilation system out on the other side, right now you would have to enter the two-train action statement. Would this guidance relieve you of having to do that or not?

MR. HOXIE: It would give you some flexibility.

MR. CALVO: Remember when you got a slow response system here, that can be considered. You have one ventilation on one side and the other ventilation on the other side, I think you must consider that. Of course, the time that you are going to allow because of the urgency of it is going to be less.

MR. ABBOTT: Right.

MR. CALVO: But again, that is another thing that should be considered, why not? I have a system that is the low response system. I have my switchgear designed to withstand a high temperature rise, if I have the right temperature outside, I am not even need a ventilation system in some cases. Why not take advantage of that? That's fine.

Today what you will do most probably, you go to a

loss of function, right, you go to a 303 and you into immediate shutdown. Is that the right thing to do? The answer is no. It is not the right thing to do.

So all we are doing is making aware to you that it is flexibility and the staff is receptive to giving those kind of commitments, we don't want unnecessary plant shut-downs assuming that certification can be fully justified as to why you have additional time.

MR. HOXIE: Any other questions?

MR. STENGER: I have a more general question and maybe it is in the nature of a comment. Dan Stenger again. Following up on Mr. Cesare's point, if this guidance will be promulgated through a generic letter or something like that, I think since as you recognize many people are confused about this issue, I would strongly encourage you to seek industry input on this subject and I know a lot of work is going on with tech spec improvement.

MR. CALVO: Absolutely. The whole purpose of this meeting, things got hot on these issues. I guess the predecessor of this was the famous Clinton letter which has applied to everybody but it applies only to Clinton and there was a lot of commotion originally. What are we going to do next? NRR is going to tell us what kind of direction to give.

So I said, "Well, presumably we are moving ahead with this" and then we felt that maybe several times, we could put

this story together so we can get not only the original comments because that is the people working on the fringes there but we also want to get it from the industry representatives.

We all have to be together, working together in this effort but I want to move it forwards to the point that we start, interpretations are happening every day, the challenge to the plants stopping every day. We have to put on the record quickly how the staff feels about these things and then we will talk to the regions. We are going to have the regions here coming up soon and we are going to be discussing those things. I am not worried so much about the words. I am worried about the understanding. If we can understand what we are saying and the flexibilities, I think we can talk to each other better.

MR. HALL: Warren Hall, NUMARC. Let me ask a question. Suppose there is a case where the ventilation system, a non-safety ventilation system that would define the battery room if you will, what do you do in a case like that where you have that capability and you still have on site/off site power and you just lost a safety grade ventilation train, you can still cool the room, you can still maintain your equipment qualification, where do you put the utility? Do you put it in a box there?

MR. CALVO: No, let me put this way. We asked that question ourselves. Suppose you have a ventilation system and

somebody says, "Why don't you open the door and let some air come in, let's open a window and let some air come in or let's bring a fan and let that fan get some air moving in there" and the question is, if that was something that was analyzed, pre-analyzed, and determined to be acceptable, fine, you can do that as long as it wasn't connected to a safety related system.

But it has to have been previously analyzed. If you haven't previously analyzed it and you felt that it is important for you to do it, then you prepare an engineering evaluation and submit it and most probably considered to do a 10 C.F.R. 50.59 and it is a perfectly good case to do it but you have to make your own case.

Keep in mind that the basic responsibility for safety is not with us. It is with you. You are the licensees of these nuclear power plants. You are the ones who are supposed to assume that basic responsibility. All we are is policemen in here. We want to be sure that we are monitoring and that you are assuming that responsibility and you have a lot of latitudes up there that you can do this kind of a thing.

MR. HOXIE: It looks like we are ready to go on to part two, completion times but perhaps we should take a ten minute break first. Let's come back at 10:15.

[Brief recess.]

[SLIDE.]

MR. HOXIE: I think we will get started on the second

part. We have a couple of attendance sheets coming around, so if everyone when it comes around, please sign in and make sure you sign it before you leave so we can get an attendance.

Also, a few people have asked about transcripts. If you would give Lynn your business card, then she will give it to us and we will distribute, we will take care of the distribution of the transcripts.

So let's talk about completion times now.

[SLIDE.]

MR. HOXIE: As I mentioned earlier, a completion time like a strict definition of it or a simple one is that simply it is an amount of time to complete a required action but I want to come at it from a little different point of view. It is one that Jose in his talk was talking about, like AOTs are completion times.

The way that they got into the tech spec is what it really is that the LCO is like the minimum functional state that you want to be in and if you don't meet the LCO, then you are in an action statement and while you are in the action statement, you are giving up single failure protection and so you only want to be in that degraded state for a little while and so from that point of view, the completion time is an amount of time that you feel that you can be at this risk.

It is an acceptable amount of time to be at risk to not be able to withstand a single failure if you had a design

basis accident. If you keep that point of view in mind, you will have an easier time of understanding where the staff is coming from on these completion time definitions.

Basically, as this slide therefore says, if you follow that type of philosophy completion times then don't belong to components. Completion times like in say a one pump or two pump system, they belong to like the level of degradation of the plant.

In other words, if you have 72 hours for a diesel generator to be out, it is 72 hours for one diesel generator. It doesn't matter which one. It is not 72 hours for this diesel over here and then I get an additional 72 for this over here.

The idea of the 72 hours is that we will accept being one level degraded being without a diesel for one diesel for up to 72 hours in a row. That is the philosophy behind this.

[SLIDE.]

MR. HOXIE: To give some examples then, I am going to go through basically four completion time examples to illustrate how we work with these completion times. Basically I am going to use the first section of the electrical power of any, probably most typical electrical power system specs. It usually called AC sources - Operating.

The LOC in such a spec will usually have two main requirements, that you have to have two physically independent

off site circuits running from a switchyard to the safety buses and that you have to have two separate and independent diesel generators.

Then if you don't meet that LCO, then you have usually a set of conditions and in a very summary form for just the discussions here, I have conditions A through F and very briefly the descriptions which are condition A is like one off site inoperable; B is one diesel generator inoperable; C is one and one, one diesel and one off site; D is two diesels inoperable; E is two off sites inoperable and F is a condition that you go to if you fail to either meet the required actions, basically it is a condition you go to if you fail to meet the required actions within the completion times and the completion times are listed in hours out in the far column, 72, 72, 12, two and 24.

So you might want to keep that slide because you are going to need it to sort of be able to follow the four completion time examples I will do. It is also written up here behind me but probably too small and you will be better off just using the slide in your packet.

Next slide, please.

[SLIDE.]

MR. HOXIE: The first example is that an operator comes on shift one morning and he finds out that at some initial time zero, that he has two off sites inoperable. Then

if you go to your sheet, you will find out that you are in a condition E which is 24 hours that you have for a completion time but then half way in, so you start out at time zero and you have 24 hours for your completion time because you have two off sites inop but at point B, 12 hours into while that clock is ticking, one of the off sites is restored and the question arises is how much time is left before proceeding to condition F?

The idea is that you would actually have 60 hours. What we worry about is that somebody would say, "Well, gee, I entered condition B at the 12 hour mark and condition B says that I have 72 hours," it is actually condition A, one off site inop, you don't get 72 more hours from the 12. That is what we are trying to say. You only have 60 hours left and the idea is that during that 72 hours that we were discussing, you had one off site inoperable during that whole time and that is all that we are going to allow.

Let's do the next example. I want to mention on that particular one, we recently conducted a training exercise down at the Technical Training Center in Chattanooga, Tennessee where we asked some training instructors, former plant operators and some trainees these questions and on that first one, we had basically 100 percent of the participants said 60 hours. So there didn't seem to be a lot of misunderstanding about that particular one.

[SLIDE.]

MR. HOXIE: Let's now go to example two. This one, at time equals zero or point A on the time line down there, you have one off site inoperable and so in that case you would look at your conditions, you would be in condition A and you would have 72 hours.

Then you are working along trying to fix that one off site but 60 hours into that event, you lose the second off site so now you have two off sites inoperable and the question then becomes at point B, at 60 hours, how much time do you have left before you shut down?

If you look for two off sites inoperable, the completion time says 24 hours. However, since you have been without an off site for already 60 hours, losing a second one you are still without the first off site, so you really only have 12 more hours left. So you really have again using this philosophy, you have been without an off site for 72 hours and that is all that we are going to allow.

Again now at Chattanooga when we asked that question of the participants, 100 percent of them answered it this way so I don't think there is too much misunderstanding here.

[SLIDE.]

MR. HOXIE: The third example we have is one that we start out at time equals zero with one off site inoperable in which case starting at time zero, you would say I have 72

hours. Then at 12 hours in at point B, you lose the second off site which puts you into at that point, you would have 24 more hours to go so that once you have lost two here, you would actually be shutting down or going to condition F at 36 at point D but then we throw in an additional complication that before you hit the 36 at point C, you restored one of the off sites and so the question is then, at point C you are back to just being down to one off site less, how much time do you have left.

Basically the interpretation again is really the same as the other two, that you started way back at time zero, all this time you have been without one off site and you therefore have 72 minus 24 or only 48 more hours left before you would have to go to condition F.

At Chattanooga, on this one there did seem to be a little bit more confusion. If I remember right it was 70 percent of the people answered it this way. Thirty percent of the people wanted to essentially allow more time but that is still a majority of people with operations experience are interpreting it this way.

[SLIDE.]

MR. HOXIE: Going on to example four, this is one where I think it is a little bit more difficult but basically the concept is that the LCO covers diesels and off sites and once you get into that LCO as soon as you enter the LCO that

covers diesels and off site, a clock starts ticking and you can't turn that clock off until you have fixed all your diesels and your off site.

So with that in mind, let's go through the example. At time equals zero, I lose one off site and that would normally give me 72 hours. Then 12 hours in at point B, I lose a diesel generator so now I have one off site and one diesel. That is condition C if I looked at my specs and it says that at this point that condition C gives you for one off site and one diesel, you have 12 more hours so that I would have from 12 to 24, I would have that time interval to either fix one of the diesels or fix one of the off sites.

But then at point C, halfway into that, I said, "Gee, I restored an off site so now all I have is a diesel generator inoperable" and so the question becomes how much more time at C where we are down to just one diesel generator inoperable do I have left?

Still the interpretation is that you have a 72-hour clock that is running and that you really only have 54 hours left. The other interpretation that some people might have is that since at point C, you have just one diesel inop, that you should have 72 hours from when the diesel generator was first discovered inoperable but that is not the way that we are interpreting it.

QUESTION FROM THE FLOOR: Why?

MR. CALVO: I will tell you why. It goes back again to the fundamentals of the tech specs, the purpose of the tech specs. When we go back again, the relationship of the tech specs to the safety analysis of the plant. It goes back again, the approval of a license based on the general design criteria and the general design criteria for the fluid systems where it says to you for the capability of the particular system, the system will be capable of performing the intended function assuming with all on site power available and off site power is not available.

So we want to be sure that when you come down here, when one of those sources becomes inoperable and we allow it to be in violation of the general design criteria and be in violation of a possible single failure criteria, that we want to stay there for a limited amount of time.

Trying to understand it, yes, then you are in essence, you are increasing the risk that you can be without a capability to meet the general design criteria or to meet a single failure.

Now if you feel that you can justify why 72 hours is too short and you justify that you have diesels that are so reliable and so available and you can prove it through experience or risk and you can extend out from three days to six days, that is fine.

But when you come out with the number there, that is

the number that you are at risk, the things that we had established as the basis for giving you a license and we want to be sure that when you are there with equipment inoperable that we do what we can to put it back to the operable status.

That is or philosophy. The option you have is to in some kind of way challenge that philosophy and the standards allow at times to satisfy consistent with the reliability of the equipment and the proving experience on your part. At least, that is the reason for doing it this way.

As a matter of fact and I didn't want to bring it up but if you will allow me and I didn't want to bring it to this meeting without the owners being here, in the Technical Specification Improvement Program, some of you are more restricted than we are in the application of this. As a matter of fact, you are more from the standpoint of being more conservative, you allow less flexibility in this completion time than what the NRC staff proposed.

Again, that is our philosophy. It is our view at this time. It is there on the record. People can talk about it. You can think about it.

MR. LOZITO: I am Ed Lozito with Virginia Power. How many people got this answer correct?

MR. HOXIE: In all honesty, this particular question was not asked of the people so I don't have a data point for you.

MR. CALVO: I know why it bothers you because it bothers me, too. As a matter of fact, Chris and I had that discussion before. You are talking about a diesel and we are talking about the off site power system. Why can't you consider them separate? Why don't we do an LCO for the diesel and why don't we do an LCO for the off site power?

If we do that, those can be treated independently and we don't have to put them together. We felt when you are look at how the LCO is structured and the definition of operability, either one or the other makes a particular load operable. The absence of both make it inoperable.

Also, they have some requirements in there which says that if I lost the power, if I lost one source on one train and I got a component inoperable in the other train, if I happened to postulate a design basis accident concurrent with a loss to off site power, that results in a loss of function. Do you understand what I am saying there because that is an important one.

We don't know which component in the other train but if we have one diesel down and then the window of vulnerability is small but if something happened during the window of vulnerability and we got an inoperable component in the other and we happened to have an accident at that time, you are going to lose function and that is why we combined it.

If I say, if I got this diesel down and I got a

component in here, LB22 inoperable, and then I got a loss of off site power concurrent with the DBA, I am going to lose this bus. I lost LA22. If that one happens to be down, then I also lost that one.

If you go back into the conditions that you have not put in there, under those situations you allowable outage time becomes very, very small because there are you operating in a condition that doesn't meet the general design criteria, it doesn't meet the single failure and there you must do quickly get out of there and fix it or go back to a mode where you can be safe. That is the reason we combined them. That is the reason why we gave them the same weight.

MR. HOXIE: That is basically the end of the examples. I would take other questions on completion times. Thank you all for coming. Do you have some closing remarks?

MR. CALVO: Yes, I have some closing remarks.

MR. HOXIE: Sure.

MR. CALVO: Again, I want to reiterate the purpose of this meeting. The purpose of this meeting is to express the staff view on this matter which all of a sudden had come into recent attention in nuclear operating plants. We call them guidance.

At least you know now how the staff feels about these things. I think there is room for negotiation. I think there is room for dialogue in there. We can talk to each other but

at least we are all coming from a base. We had established the base.

Whether you agree or not agree with it, it is a base and now the question is how to meld that base and working together come in with something that is consistent with our charter, trying to protect the health and safety of the public and which is also consistent with your charter to make the plants available and safe and I think this provides on the table, on the record, how we feel about this issue which I feel is important.

I feel it is the foundation of the technical specifications. I think once you get these issues square in your mind, I think you will understand technical specifications and that was the whole purpose. We did it among ourselves.

The technical staff got together, we discussed these things. You can see that a lot of effort was taken to put it together. We want to share it with the owners group but some delay precluded us from doing that but we have to more forwards.

We have a lot of screaming regions out there saying, "Give us the interpretation." We are going to give them the understandings and I hope that everybody understanding and everybody talking together, we can come up with something in here that we can all march forward with and resolve this issue once and for all.

That is all I have to say. Thank you very much for coming here. I truly appreciate it.

MR. STENGER: Jose, what is your schedule for promulgating this guidance?

MR. CALVO: It is not a document. It is just a workshop that we are going to have. We have workshops with the regions all the time. As a matter of fact, we have workshops all through the months of December with the resident inspectors which we participate in and we talk about different topics.

As a matter of fact, NUMARC is involved in those in presenting the guidance to the 10 C.F.R. 50.59 and some of the people we have given some guidance to had to assess operability and discuss this kind of thing. So it is just part of the program that the NRR headquarters jointly with the regions do these things coincident with the resident inspectors meetings.

So again, thank you very much for coming here. I truly appreciate it. Thanks. Any questions anybody has before we close?

[No response.]

MR. CALVO: If not, the meeting is closed. Off the record. Thank you very much.

[Whereupon, the meeting was adjourned at 10:45 o'clock a.m.]

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: Staff Views on Technical Specifications

DOCKET NUMBER:

PLACE OF PROCEEDING: Rockville, 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 Nations

MARILYNN NATIONS
Official Reporter
Ann Riley & Associates, Ltd.

ACRONYMS

DBA Design Basis Accident

DBE Design Basis Event

AOT Allowed Outage Time

GDC General Design Criteria

CT Completion Time

OS Offsite Circuit

DG Diesel Generator

OTSB Technical Specifications Branch

NRC Nuclear Regulatory Commission

FSAR Final Safety Analysis Report

TS Technical Specifications

STS Standard Technical Specifications

LCO Limiting Condition of Operation

SR Surveillance Requirement

SER Safety Evaluation Report

CFR Code of Federal Regulations

USAR Updated Safety Analysis Report

AGENDA

- PURPOSE OF TS
- TS AND THE SAFETY ANALYSIS
- OPERABILITY AND SUPPORTED SYSTEMS
- ILLUSTRATIVE EXAMPLES

  USING ELECTRICAL SYSTEM

PURPOSE OF TS

- COMMISSION POLICY STATEMENT
- 10 CFR 50.36
- TO PRESERVE THE VALIDITY OF THE SAFETY ANALYSES

TS AND THE SAFETY ANALYSIS

- POLICY STATEMENT CRITERIA

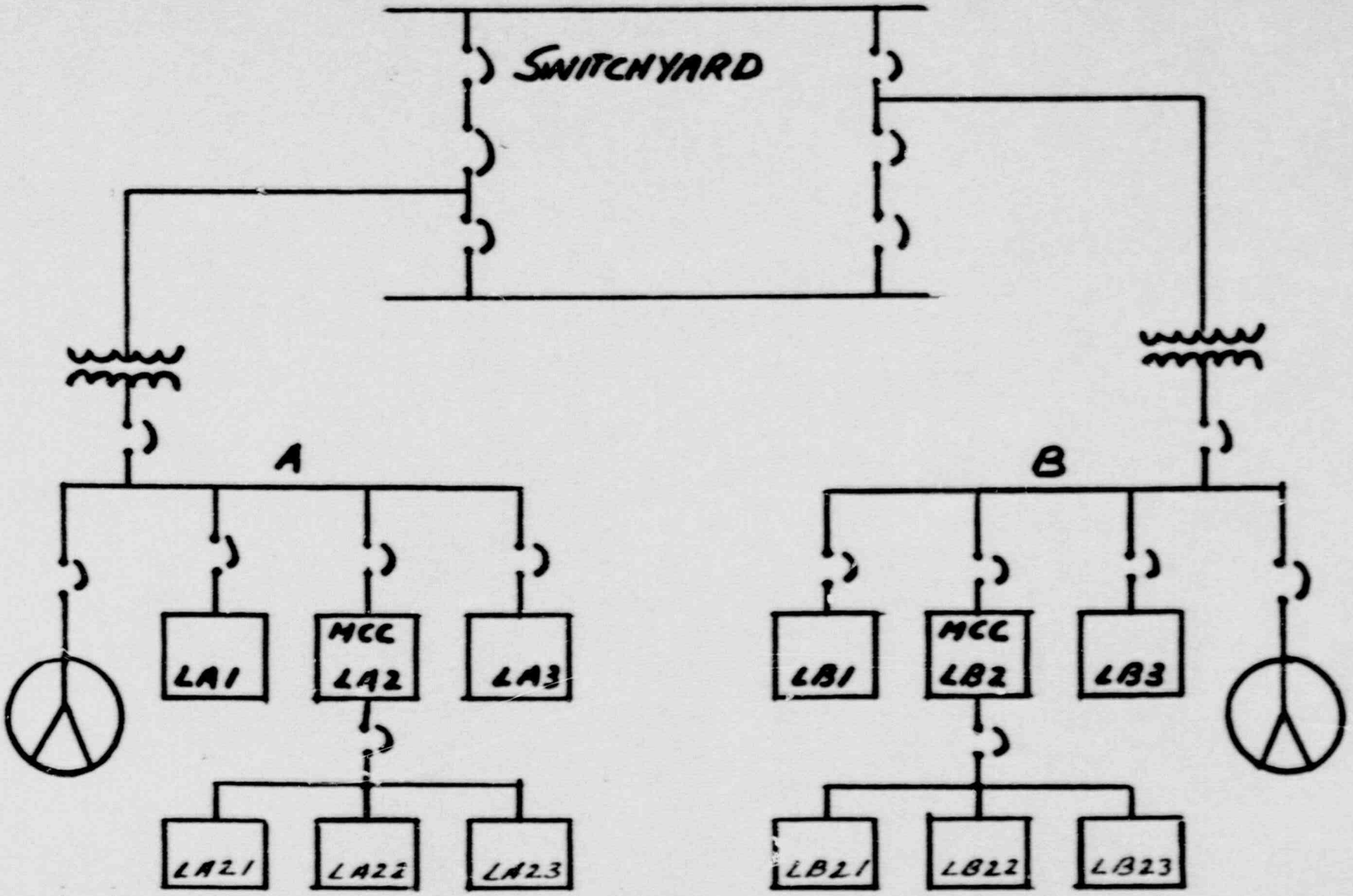
  BASED ON DBAS

- LCOS AND AOTS BASED ON GDC
  - SYSTEMS/CONDITIONS RELIED ON FOR DBA
  - SINGLE FAILURE CRITERION
  - LOSS OF OFFSITE POWER
  - LOSS OF SAFETY FUNCTION

OPERABILITY AND SUPPORT SYSTEMS

- DEFINITION OF OPERABILITY
- SAFETY FUNCTION DESCRIBED IN USAR
- LICENSEE'S RESPONSIBILITY FOR DECISION
- CASCADING OF OPERABILITY "IN OR OUT" OF TS
- AMENDMENTS FOR SPECIAL CASES
- APPROACH IN NEW STS

FUNCTIONAL DIAGRAM OF TYPICAL ELECTRIC POWER SYSTEM



SLIDE 1

SUPPORT SYSTEMS AND OPERABILITY

NOVEMBER 20, 1989

DR. CHRIS L. HOXIE

301-492-3138

TECHNICAL SPECIFICATIONS BRANCH, NRR

SLIDE 2

"FEATURES"

INCLUDES

SYSTEMS, SUBSYSTEMS, TRAINS,

COMPONENTS, OR DEVICES.

OVERVIEW

A. CT OF A SUPPORT FEATURE

B. CT OF AN "INDIRECT" SUPPORT FEATURE

C. REQUIRED ACTIONS DUE TO SUPPORT FEATURE INOPERABILITY

D. SUPPORT FEATURES NOT IN THE TS

E. INOPERABLE SUPPORT FEATURE THAT DOES NOT PREVENT SUPPORTED FEATURE FUNCTION.

THE COMPLETION TIME (CT)

FOR AN INOPERABLE SUPPORT FEATURE

IS

MIN(CT OF SUPPORTED FEATURE 1,

CT OF SUPPORTED FEATURE 2,

.

.

CT OF SUPPORTED FEATURE N)

WHERE N IS THE TOTAL NUMBER

OF SUPPORTED FEATURES.

SUPPORT FEATURE

ELECTRICAL POWER DISTRIBUTION SYSTEM

CT = ?

SUPPORTED FEATURES

1. RHR PUMP (72 HOURS)
2. CIV (4 HOURS)
3. BATTERY CHARGER (2 HOURS)

PHILOSOPHY

- OPERATOR AID
- SHORTEST CT WILL APPEAR IN THE TS WHERE THE TROUBLE IS.
- OPERATOR DOESN'T HAVE TO SEARCH MULTIPLE LCOS TO SEE IF A SHORTER CT EXISTS.

PROPOSED GUIDANCE A

A. WHEN A SUPPORT FEATURE IS INOPERABLE AND AN LCO FOR THAT SUPPORT FEATURE IS SPECIFIED IN THE TECHNICAL SPECIFICATIONS, THE COMPLETION TIME STATED IN THE SUPPORT FEATURE LCO TO RESTORE IT TO OPERABLE STATUS MUST NOT BE GREATER THAN THE MOST LIMITING COMPLETION TIME OF ALL THE FEATURES IT SUPPORTS.

DIRECTNESS OF SUPPORT

- DIRECT SUPPORT
  - ELECTRICAL POWER
  - LUBRICATING OIL
  - COOLING WATER
- INDIRECT SUPPORT
  - VENTILATION

AN EXCEPTION TO PROPOSED GUIDANCE A

- INOPERABLE SUPPORT FEATURE, BUT INDIRECT SUPPORT
- ALLOW SUPPORT FEATURE CT TO EXCEED SUPPORTED FEATURE CT
- DURING INITIAL PORTION OF THE SUPPORT FEATURE CT, SUPPORTED FEATURES NOT DECLARED INOPERABLE.
- MUST BE JUSTIFIED IN THE BASES BY SAFETY ANALYSES OR RISK-BASED ANALYSES.

EXAMPLE

- SUPPORT FEATURE:
  VENTILATION SYSTEM (24 HOURS)

- SUPPORTED FEATURE WITH MOST LIMITING CT:
  BATTERIES (2 HOURS)

- 22 HOURS BEFORE CASCADING
  INOPERABILITY OF VENTILATION SYSTEM
  TO THE BATTERIES.

PROPOSED GUIDANCE B

B. WHEN A SUPPORT FEATURE IS INOPERABLE AND IT DOES NOT DEGRADE THE CAPABILITY OF THE FEATURES IT SUPPORTS BELOW ACCEPTABLE LEVELS UNTIL SOME TIME LATER AS JUSTIFIED IN THE BASES FOR THE SUPPORT FEATURE, THEN INITIAL COMPLETION TIME SPECIFIED IN THE SUPPORT FEATURE LCO MAY EXCEED THE COMPLETION TIME OF ONE OR MORE OF THE FEATURES IT SUPPORTS.

THIS IS AN EXCEPTION TO THE DEFINITION OF OPERABILITY.

PROPOSED GUIDANCE B

(CONTINUED)

IF THE SUPPORT FEATURE CAN NOT BE RESTORED TO OPERABLE STATUS WITHIN THE INITIAL COMPLETION TIME SPECIFIED, ALL SUPPORTED FEATURES INVOLVED SHALL BECOME INOPERABLE BY THE DEFINITION OF OPERABILITY AND THE ADDITIONAL COMPLETION TIME FOR THE SUPPORT FEATURE TO RESTORE IT TO OPERABLE STATUS MUST NOT BE GREATER THAN THE MOST LIMITING COMPLETION TIME OF THE FEATURES IT SUPPORTS.

CONSEQUENCES OF AN INOPERABLE SUPPORT FEATURE

- CASCADING
- REQUIRED ACTIONS
  - FROM SUPPORT FEATURE LCO
  - FROM SUPPORTED FEATURES LCOs

REQUIRED ACTIONS OF SUPPORTED FEATURES LCOs

ALL REQUIRED ACTIONS FROM THE SUPPORTED FEATURES LCOS MUST BE ACCOMPLISHED EXCEPT THOSE THAT CAN NOT BE ACCOMPLISHED BECAUSE OF THE INOPERABILITY OF THE SUPPORT SYSTEM.

PROPOSED GUIDANCE C

C. ONCE A SUPPORT FEATURE IS DECLARED INOPERABLE AND ITS SUPPORTED FEATURES BECOME INOPERABLE BY THE DEFINITION OF OPERABILITY (EXCEPT AS INDICATED IN PROPOSED GUIDANCE B), THE REQUIRED ACTIONS SPECIFIED IN THE SUPPORTED FEATURES LCOs WHICH ARE NOT IMPACTED BY THE INOPERABILITY OF THE SUPPORT FEATURE MUST BE ACCOMPLISHED IN ACCORDANCE WITH THE COMPLETION TIME SPECIFIED IN THE LCO. ALL OTHER REQUIRED ACTIONS SPECIFIED IN THE SUPPORT FEATURE LCO MUST ALSO BE ACCOMPLISHED.

INOPERABLE SUPPORT FEATURES THAT ARE NOT IN THE TS

LICENSEE HAS RESPONSIBILITY TO MAKE "PROMPT" DETERMINATION OF OPERABILITY OF ALL SUPPORTED FEATURES AFFECTED BY THE INOPERABLE SUPPORT FEATURE(S) AND TO TAKE APPLICABLE TS REMEDIAL ACTIONS

PROPOSED GUIDANCE D

D. WHEN A SUPPORT FEATURE IS INOPERABLE AND AN LCO FOR THAT SUPPORT FEATURE IS NOT SPECIFIED IN THE TECHNICAL SPECIFICATIONS, AND IF IT IS DETERMINED THAT SUCH A SUPPORT FEATURE WILL IMPACT SUPPORTED FEATURES LCOs SPECIFIED IN THE TECHNICAL SPECIFICATION, THEN ALL THE IMPACTED LCOs FOR THE SUPPORTED FEATURES MUST BE ENTERED.

PROPOSED GUIDANCE E

E. WHEN A SUPPORT FEATURE IS INOPERABLE, REGARDLESS OF WHETHER OR NOT AN LCO FOR IT IS SPECIFIED IN THE TECHNICAL SPECIFICATIONS (TS), AND IF IT IS DETERMINED THAT THE SUPPORTED FEATURES GOVERNED BY THE TS ARE CAPABLE OF PERFORMING THEIR INTENDED FUNCTION WITH AN INOPERABLE SUPPORT FEATURE, THEN NO ADDITIONAL ACTION IS NEEDED IN THE SUPPORTED FEATURES TS.

SLIDE 1

COMPLETION TIMES

NOVEMBER 20, 1989

DR. CHRIS L. HOXIE

301-492-3138

TECHNICAL SPECIFICATIONS BRANCH, NRR

COMPLETION TIME

- DEFINITION
- DOES NOT APPLY TO COMPONENTS
- DOES APPLY TO "LEVELS OF DEGRADATION"

CONDITION SUMMARY

AC SOURCES - OPERATING

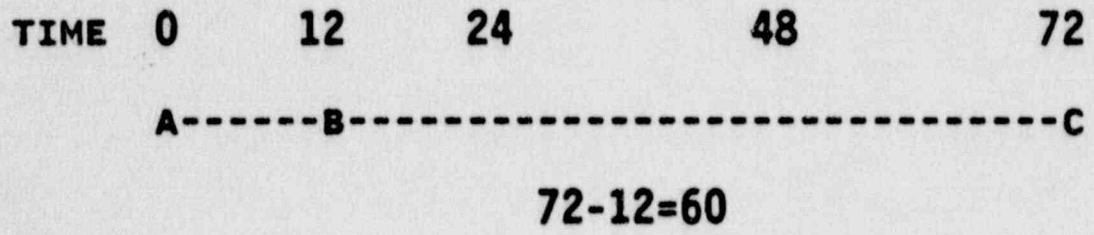
CONDITION	DESCRIPTION	CT
A	1 OS INOP	72
B	1 DG INOP	72
C	1 OS & 1 DG INOP	12
D	2 DG INOP	2
E	2 OS INOP	24
F	REQUIRED ACTIONS NOT COMPLETE WITHIN CT	

CT EXAMPLE 1

A. AT T=0; OS 1 & OS 2 INOP

B. AT T=12; OS 1 RESTORED

HOW MUCH TIME IS LEFT BEFORE PROCEEDING TO CONDITION F?



72-12=60

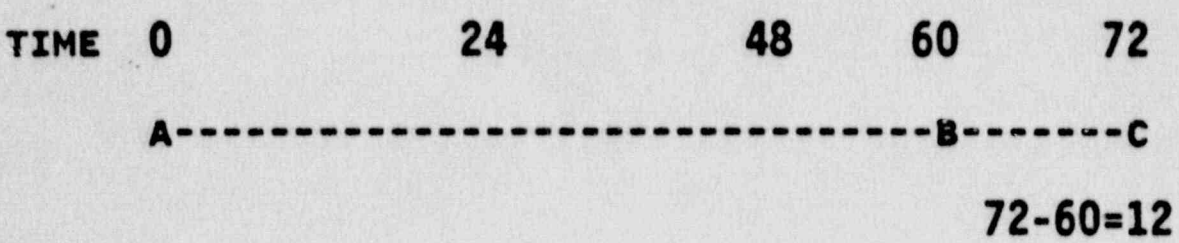
CT EXAMPLE 2

A. AT T=0; OS 1 INOP

B. AT T=60; OS 1 & OS 2 INOP

HOW MUCH TIME IS LEFT BEFORE

PROCEEDING TO CONDITION F?



72-60=12

CT EXAMPLE 3

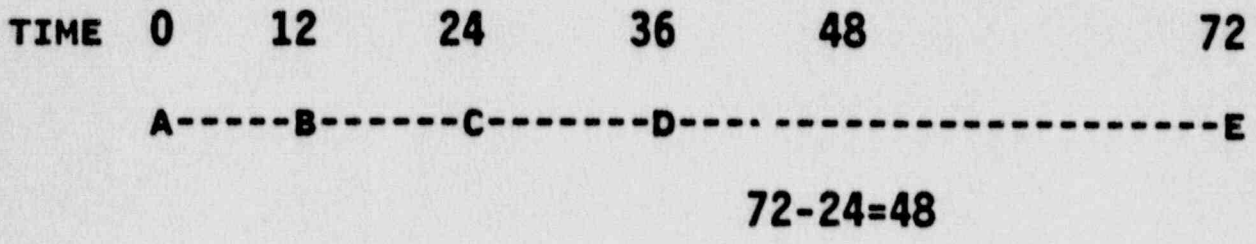
A. AT T=0; OS 1 INOP

B. AT T=12; OS 1 & OS 2 INOP

C. AT T=24; OS 1 RESTORED

HOW MUCH TIME IS LEFT BEFORE

PROCEEDING TO CONDITION F?



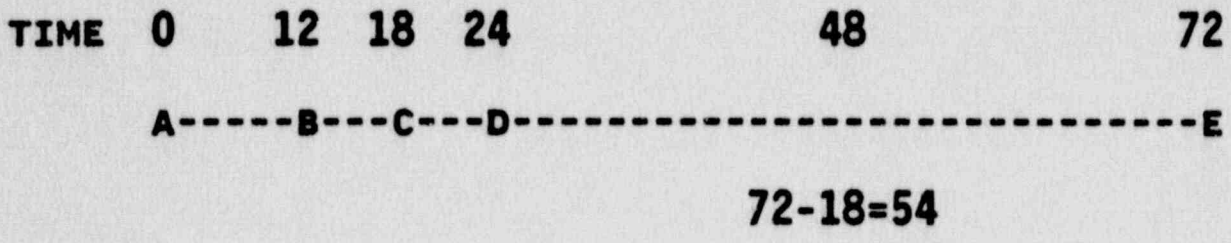
CT EXAMPLE 4

A. AT T=0; OS 1 INOP

B. AT T=12; OS 1 & DG 1 INOP

C. AT T=18; OS 1 RESTORED

HOW MUCH TIME IS LEFT BEFORE PROCEEDING TO CONDITION F?



Please Place
this in the PDR.

Questions? Call

Chris Hoxie 492-3138
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