NRC PDR

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of:

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

SUBCOMMITTEE ON POWER AND ELECTRICAL SYSTEMS

Place: Washington, D. C.

Date: April 9, 1980 **Pages:** 1 - 85

INTERNATIONAL VERBATIM REPORTERS, INC.
499 SOUTH CAPITOL STREET, S. W. SUITE 107
WASHINGTON, D. C. 20002
202 484-3550

UNITED STATES NUCLEAR REGULATORY COMMISSION

- - - - -

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
SUBCOMMITTEE ON POWER AND ELECTRICAL
SYSTEMS

United States Nuclear
Regulatory Commission
1717 H Street, N.W.
Washington, D.C. 20555

Wednesday, April 9, 1980

The Committee met, pursuant to notice, at 2:00 p.m.

BEFORE:

WILLIAM KERR, Chairman

PRESENT:

COMMITTEE MEMBERS

J. EBERSOLE
WILLIAM M. MATHIAS
JEREMIAH J. RAY
J. CARSON MARK
CHESTER SIESS

PRESENT: (Cont'd.)

U.S. NUCLEAR REGULATORY COMMISSION

STAFF

ORMON E. BASSETT
BERNARD WEISS
F. ARSENAULT
G. QUITTSCHRIEBER

ALSO PRESENT:

MR. WOODRUFF

C O N T E N T S

P R O C E E D I N G S

CHAIRMAN KERR: The meeting will come to order. This is a meeting of the Advisory Committee on Reactor Safeguards, specifically a meeting on Power and Electrical Systems. My name is William Kerr. Other members present are: Mr. Ebersole, Mr. Mark, Mr. Mathias, Mr. Oakrant (ph.) Mr. Ray. Mr. Larotsky (ph.) may join us later.

The meeting is being held to discuss the proposed nuclear data link being proposed by the NRC Staff, and is in response to a question from Mr. Gilinski of the Commission, who asked for a ACRS comments on the link.

The meeting is being conducted in accordance with provisions of the Federal Advisory Committee Act and the Government and the "Sunshine Act," I hope. Mr. Quittschrieber is the designated Federal employee for the meeting. Participation has been announced with notice of the meeting published in the Federal Register of March 25, 1980.

A transcript is being prepared, and it will be available as stated in the notice. We request that each speaker identify himself and use a microphone. We have received a written statement from the Westinghouse Electric Corporation. Does each member of the Subcommittee have a copy of the statement?

We have received requests for time to make oral statements. We will proceed with the meeting.

Let me say before introducing Mr. Weiss of the NRC Staff, or before giving him the floor at least. I suspect he does not need an introduction -- but we have 2 hours in which to gather information, to ask questions and to even make speeches, if that is necessary.

We will have to make some sort of recommendation, or we have been asked to make some sort of recommendation by Mr. Gilinski based on this meeting, and I guess, a substitute presentation by the Staff to the full Committee

MR. QUITTSCHRIEBER: Depending on what you describe today?

CHAIRMAN KERR: On our recommendations. The subject is a complex one, and I think our Agenda calls for both discussion of what the Commission Staff expects or what it considers its mission to be in emergency, which is perhaps a complex part of the question; and given, I suppose that it has not yet been defined what the role will be, how is the data link to fulfill that as yet has not been completely determined.

It seems to me that we have a number of choices in making a recommendation, one of which, I suppose, is that given the limited amount of time that we have devoted to this and the -- well, I will leave you to judge the information. And we can only give them preliminary comments; but we would need further study to make a more definite recommendation.

From what I have seen of the question, it would be my guess and we might reach the conclusion -- but I certainly want to leave the matter open for further discussion by the Subcommittee, and certainly by the full Committee.

I will at this point call on Mr. Weiss of the NRC Staff, and gather that the printed Agenda that you have will not be followed exactly in sequence, but in substance it will be. Mr. Weiss.

PRESENTATION BY BERNARD WEISS, STAFF, NUCLEAR REGULATORY COMMISSION

MR. WEISS: Thank you. We have changed the Agenda somewhat in respect that we will discuss first the role of the NRC, and then we will talk about the needs and desirability of the nuclear data link. This will then be followed with a discussion of the details of the system as we now see it.

Since Three Mile Island, and actually before Three Mile Island, the Commission and the Staff had been struggling with, I guess, the idea of what the NRC's role would be in an accident.

The Staff, and I think, the Commission, are coming to a point where they are feeling more comfortable in their ideas of how we will react in an accident. These cannot be essentially clearly stated in terms of any legislative mandate, but rather, they have been developed as an amalgam

of NRC's authorities and responsibilities and perceptions of what NRC should do.

[Slide]

MR. WEISS: We clearly do not see that we have a single role in any kind of an incident, but rather, we see this more as a spectrum of roles in an emergency; and even those roles that are identified, there are a spectrum of actions that can be taken within each one of these.

The obvious and basic role that we have is one of monitoring. We state it in many ways. Basically, we state that they "Verify and evaluate data from multiple sources." Basically, what it is is, essentially, we see that the licensee is doing what he says he is, and to assure that adequate steps are being taken to protect the public health and safety.

This is somewhat a role of collecting information, of evaluating that information. But once we have taken the position of monitoring, evaluating, we then get into the position of having opinions, reaching conclusions, and providing advice.

Now "advice" in the sense that it can be requested and requested from State and local authorities. It can be requested from the licensee, or we have, on occasion, volunteeers for our advice and guidance in such situations.

So when we talk about "advisory," we are talking

about advisory to the licensee and advisory to Government, to other Government officials. And we include in that, although it shows in a separate bullet here, particularly protective action -- determining that is one of the most critical things that the NRC is considering during any accident -- is what recommendations it will make in terms of protective action to the State and local authorities.

Once you get into the position of advisory, there is of course a next step in which we may get into the position of feeling strongly enough to direct the licensee to take a particular action. That spectrum can be from requesting the licensee to do something, to threats, to essentially, orders to take particular action.

One thing the Commission has clearly stated is that we would prefer that any direction of a licensee be not carried out from the NRC Headquarters operation center but rather that that be done at a site. And the large constraint on that is we do not, particularly with regard to a reactor accident, ever see the NRC taking over and physically operating the facility, turning the knobs.

We can see a situation such as a transportation accident where the NRC clearly has the expertise that is necessary, and maybe the local authority do not, where we may have to consider taking over the action and the management of a particular accident.

We do not see that situation with regard to a reactor facility, but we do see the possibility of directing management and taking considerable action.

[Slide]

I will put this in a little more graphical demonstration. We kind of see a progression of roles; underlying all of this is always monitoring. None of these roles are separate and distinct. You get into position of advice and you stop to monitor.

We saw this as an aggressive thing, something that doesn't have distinct steps. We have to clearly understand where we are at any one time. It's possible, obviously, that you would go from monitoring to direction if the situation calls for it; but generally, these things go in a step-by-step progression, evaluating the information, reaching conclusions, making decisions.

Now, this particular graph (indicating) indicates the take-over function is a possibility. This essentially comes from a study, and again, I would like to emphasize that we do not consider that a viable alternative with regard to every active situation, but with some of the other activities that we license, that is a possibility.

MR. EBERSOLE: Does that last mean "hands-on?" It doesn't, does it?

MR. WEISS: Take-over?

MR. EBERSOLE: Yes.

MR. WEISS: As I was indicating, we can see that in a materials license or a transportation accident, where the NRC has the only expertise. We do not see that in any situation where we are talking about a reactor accident.

And if we ever got into this, even off the record, we see that as at the site, where people at the site have that information available to them, and we then look at the headquarters operations center as a support to anybody in the field.

This kind of information has been, or this position is now included as part of our procedures, for incident response, and has been provided to the Staff for their planning of any further options they may take with regard to incident response.

CHAIRMAN KERR: I'm sorry -- I did not understand your last statement.

MR. WEISS: Essentially, that position has been disseminated from the Executive Director of Operations to the Staff to be used as a basis for planning any of his actions with regard to emergency planning.

CHAIRMAN KERR: That position being that he would not physically operate?

MR. WEISS: Right. That is one of the constraints. That is the major constraint.

CHAIRMAN KERR: I was trying to understand what you meant by that position.

MR. WEISS: Essentially the position I have just expressed briefly, and it is part of our procedures. I don't know whether the ACRS -- that committee has received a copy of the incident response procedures. But that statement is included as part of the incident response procedures.

CHAIRMAN KERR: I expect that we must have gotten a copy of it but I don't remember seeing it.

MR. WEISS : It is essentially what I had to say with regard -- with respect to the role of the NRC. If there are any specific questions about the details of that, we would be happy to answer them.

CHAIRMAN KERR: Mr. Mark?

MR. MARK: The tendency to exclude the possibility, I guess it is called item No. 1 up there -- the take-over, 5 - I suppose partly in recognition that you simply could not be able to do it?

MR. WEISS: That is right.

MR. MARK: In a sensible way. But No. 4 gives me some concern. If the NRC ever were to tell someone, "Turn off that pump," or "turn it on," from that moment on, they have the total responsibility for whatever may happen. And is it really thought that an agency out in Bethesda is going

to make useful use of that?

MR. WEISS: Well, we feel that there can come a time when the Commission feels that it has the responsibility to protect the public health and safety when it is in conflict with what the licensee is proposing to do. And it feels strongly about -- to issue an order to ask him -- to order him to take another action.

I think we understand that we are going to have some responsibility and liability, but that is a decision that will have to be made at the time based on the legal advice and based on the particular situation. But clearly, we see that we may have to make that decision.

MR. MARK: I could more easily see that with respect to some action, such as evacuation or things of that sort, than with respect to any equipment operations. Why, some of these things were done at TMI; we either issued an order or were able to issue an order. But essentially, the position of the Commission -- and I think it was Commissioner Hendrie who ordered the licensee, whether it was verbally or actually on a piece of paper, not to discharge any of that liquid because of safety concerns and other concerns.

MR. MARK: That still seems like a very large step back from anything having to do with real time maneuvers of controls. But it is a policy decision rather

than an action order.

MR. WEISS: I see what you are talking about, and I would see most of those would be in that realm where a few would be in terms of -- you know, what to do at the next instant. But clearly, we would have a very hard at this point separating out you know, which ones are instantaneous, which ones are policy decisions.

We are not that far yet, but we do recognize that we have to make up, and what we are looking at now is some of the things -- what are our liabilities in this, what additional resources do we use if we feel that we have a position like that, what communications back-up do we need, what additional physical resources, what communications resources do we need to do these kinds of things.

But I think it is recognized clearly that we are in that area where we are going to have to make those kinds of decisions.

CHAIRMAN KERR: Are there other questions? Mr. Weiss, I have a copy of a letter dated March 12th, which was sent by Mr. Eisenhut to all operating nuclear plants, which gives specifications for an NRC nuclear data link.

It says among other things that Sandia join a systems study, and that it has a goal achievement of an operating data link by January 1, 1982. Now, if one reads

the letter carefully, one recognizes that perhaps this is under discussion, but there is a considerable amount of detail of the data link given in specifications, which are dated February 21st.

I also have a letter from Sandia to the NRC which encloses copies of Chapters 1 through 6 of a draft document entitled, "Conceptual and Programmatic Framework for the Proposed Nuclear Data Link."

It has a good enough detail. Now, it strikes me that -- I'm trying to understand how one gets from here to there. There is enough detail given in this sort of thing that one must have some sort of mission in mind -- much more detail and much more specific than this sort of thing that you have given us.

And I recognize that you have a limited amount of time. My question is: Where is the documentation, or where would one get details of the planning that preceded the very detailed specifications of the data link being talked about?

This is because it strikes me that it would be helpful in judging the data link to know what one proposed to do with it. And somebody must have given a lot of thought to that in order to come up with this sort of thing that Sandia has come up with and that Mr. Eisenhut has transmitted to operating clients.

MR. WEISS: As I understand you, are you talking about what kind of an organization do we have that will --

CHAIRMAN KERR: I'm not talking about an organization. There must be something on paper somewhere that says, Here is what we think of as our mission. You referred to something earlier -- it may be this Chapter NRC-0502? Is that the same as you referred to as an incident response program?

MR. WEISS: No. That is the manual chapter that essentially set up the responsibilities and duties of each office in an emergency situation, which has --

CHAIRMAN KERR: Is there something on paper that we could look at today that would give us some idea of what it is that the Staff conceives of as its responsibility, which would then make sure of the data link?

MR. BASSETT: Bernie, if I could suggest perhaps Victor's paper from the February meeting, the Commission paper that was prepared for the February meeting.

MR. WEISS: I believe the Subcommittee has that.

CHAIRMAN KERR: About a 3-page something or other?

MR. SIESS: You mean the meeting where the Commissioners were trying to decide what they would do in case of an emergency?

MR. BASSETT: Yes, indeed.

MR. SIESS: They decided that the Chairman should

be head of the incident response center -- is that right?

MR. WEISS: No.

MR. BASSETT: No -- there was nothing conclusive from that meeting.

CHAIRMAN KERR: I read the transcript of the February 12th meeting, and the impression that I got from that was that it was the February 6th meeting.

CHAIRMAN KERR: Okay -- the early February. I didn't see any evidence there that there was a defined responsibility at least in the minds of the Commission, but there may be in the minds of the Staff --

MR. BASSETT: Perhaps I can respond a little as the budget engineer on the study. We started off with the concept that we should explore the feasibility and desirability of the data link as a constant, as an adjunct to the Commission's understanding of incidents in the early phases.

We had no guidance in the form of function requirements to look at, and we had no guidance in the form of a data list. However, it was apparent that it would be worthwhile to conduct a staffing study and to find out what a data link would consist of, and what it would amount to and roughly how long it would take to implement it, and so on.

So we took as our initial objective to try to draw together some sort of an idea of what type of data

would be needed, and some concept of the functional requirements of a link.

I am stating that in terms of a program engineer furnishing a service. We need to know what is to be transmitted and approximately how it will be displayed, and so on. We have no other written guidance, and we were anxious to find out what was involved in the link.

And so we had some Staff members from I&E, and from NRR to help us draw up the list of the functional requirements which were tentative. We used these to try the initial phases of the study, they have emerged presently in the form of a specification which I believe you all have.

CHAIRMAN KERR: It strikes me that there are two ways to go at this problem. One is an approach which says, "I have a beautiful data link -- now what am I going to do with it? It would be a shame not to use it." I don't have anything against that approach as long as I understand it.

The other would be to say, "What is the responsibility of the NRC in an emergency?" And I think, define that; then one might ask, "What data would be helpful or needed in order to carry out that response?" It strikes me that that is the rational approach, but it might not be a possible one.

MR. BASSETT: I think it is entirely rational. We started our study of the link as an entity as an

engineering project in the absence of, I believe, any codified directions.

CHAIRMAN KERR: Well, I'm reminded of a colleague of mine who is kind of a theoritician, who designed a whole-body counter. And his body counter was very simple -- he would line the bodies up and then count them - 1, 2, 3. Now, that was a perfectly rational approach where his whole-body counters were concerned. What he wanted to do was count whole bodies. [Laughter.]

MR. MATHIAS: Very good, Bill.

CHAIRMAN KERR: If you have a different objective, it seems to me that one might come up with a different set of equipment. I am looking for a description of the mixture.

MR. BASSETT: If we assume in this manner of description -- the monitoring -- the data we provide by this elementary system is of the nature necessary of any form of monitoring, and proceeding from there.

MR. WEISS: I think we recognize some of which you are talking about, but there was placed upon all of this a time constraint which said, "We will want this in 2 years." That was placed on the Staff; and therefore, what we did concurrently with that in developing the nuclear data link, and there was the subcontract which is currently going on with the Mitre Corporation, which is also supposed to define the funcational relationships of their versions there.

CHAIRMAN KERR: Then the logical thing to tell Mitre would be, "Here is the data -- what would you do with it if you had this data link?"

MR. WOODRUFF: My name is Woodruff. I'm with the Operations Center, which was previously called the Incident Response Center. And the Incident Response Center has existed for a number of years now -- perhaps 3 years. And there have been procedures prepared to guide persons responding to -an incident.

There have been practice drills over the years, over the years prior to Three Mile Island, and really it was the experience gained from those drills and from Three Mile Island and from the procedures prepared for the Incident Response Center to guide the IRACT, the Incident Response Coordination Team.

It was that experience and that documentation upon which the specification for the nuclear data link was based.

MR. BELTRACCHI: Simply stated, I think, it gets down to the need to improve communication during an incident.

I guess we had the experience at Brownberry, the Fort St. Frain incident, at Three Mile Island, and it was a thread that seemed to run through them, which was the need of better data to make decisions that we knew were being asked of us to make

CHAIRMAN KERR: Yes, sir.

MR. BELTRACCHI: Not only in the better data. It is the security of the data that can be provided by a formal link of this firm. I think the recent incident at Crystal River showed that the communication of the data involved, its interpretation -- which can happen if you have false communication. And I guess it was a pressure gauge --

MR. BASSETT: I think the word we want is "reliability."

MR. BELTRACCHI: Well, security, reliability, authenticity -- is also a better word.

MR. SIESS: Correctness.

MR. BELTRACCHI: Again, it comes under a command and central-type function, which would be a form of communication. But I don't mean control from the point of view that you are actually operating the plant. That just can't be done.

MR. EBERSOLE: Isn't Crystal River a poor model? Would you have lost their communication as a result of having lost the indication system?

MR. BELTRACCHI: I don't think that the objectives of the link is to say that it had to be of the level of a Class I(E) type system. You have to make trade-offs, and I think it is a reasonable trade-off. There may be incidences where it just may not be available, but I think

in terms of managing an incident and being able to communicate, one of the biggest things, I think, that convinced me of it is just sitting in a drill and just watching people labor over communications.

MR. SIESS: You said, "managing." What does "managing" an incident mean within the scope of NRC's responsibility? I think that is what Dr. Kerr was asking, and I still haven't heard it answered.

MR. WEISS: Whenever we talk about managing an incident, we really talk about managing NRC's resources.

MR. WOODRUFF: We are talking about the flow of information and the answering of many queries that we get from the Congress, the media. In the case of Three Mile Island, we were involved in obtaining material, for example, lead for shielding. The Government was in a position to expedite --

MR. SIESS: And has it been decided that now that all of those will be answered from Bethesda and not from the site?

MR. WOODRUFF: No, sir.

MR. SIESS: They all will be answered by the NRC and not by the utility; but that's what you seem to be saying, that you have got to have all the information in Bethesda to answer all these questions.

Now, I thought at the February 6th meeting there

was agreement amongst the Commissioners that somebody from the regional office, probably the director, as soon as he got to the site would be in charge for NRC, and it would not be somebody in Bethesda in charge.

MR. WEISS: The Commission said that it is the direction it wants to go, but it did not make that an automatic thing.

MR. SIESS: What I am being told is.

MR. WEISS: When the director arrived, then they would make the decision as to whether they did want to turn it over to him. This did work that way at Crystal River during that incident.

MR. SIESS: I guess as far as the Commission is concerned, there is no policy.

MR. WEISS: With regard to what?

MR. SIESS: Every time I've tried to draw on from the February 6th meeting, you told me it was not decided, and I am pretty sure you are right -- they didn't decide anything. So what else is new?

So right now there is no policy as to who is going to run the show, or that we run by NRC by the site, by NRC from Bethesda, whether you are going to let the utility run it, or what?

MR. WEISS: No -- I don't think we're talking about whether we run the show, or the utility runs the show.

MR. WEISS: It is clearly secondary, but the major thing that we are concerned about would be those -- making decisions, to make recommendations to the State and local authorities of the possible protective measures.

Many of those are going to be based strictly on what is going on inside the plant, not what is going on outside the plant. And we want a better position to understand the situation so we can make reasonable decisions along those lines.

And we understand clearly that it will be at least 3 to 6 hours before our team ever arrives at the site.

MR. SIESS: You have a resident inspector there.

MR. WEISS: That is right.

MR. SIESS: He would be a lot more familiar with the plant than anybody in Bethesda. He can see all the instruments.

MR. WEISS: He will be, and we will depend heavily on him; but he is only one person, so he may or may not be there. The other thing is that we do not want to get into the position of providing that resident inspector with a list, and saying, "Get this data for us," when his real responsibility is to find out what is going on, not collecting a bunch of numbers.

MR. SIESS: You just said something that I hadn't gathered from the other things I read; and that is, the main

reason for having these data is to reach decisions regarding protective actions that might be needed, and not to reach decisions regarding recovery of the plant. I put the last in -- you didn't -- as opposed to routine decisions regarding coverage of the plant. Is that right? that they need to give advice on protective action, is the overriding need here?

MR. WOODRUFF: I would say that that is clearly so.

MR. EBERSOLE: May I ask -- you just said, within 6 hours. One of the merits of the system was it was going to clear the control room so it would not become a conference center.

MR. WEISS: You are talking about the nuclear data link?

MR. EBERSOLE: Yes.

MR. WEISS: I think I was responding in terms of not having a nuclear data link.

MR. EBERSOLE: I'm thinking that if you have a nuclear data link it would relieve the control-room problem of becoming a conference center, which makes it a scene of chaos.

MR. WEISS: Right.

MR. EBERSOLE: I think it would also formalize everything between NRC and the operators, rather than

informal actions taking place on the basis of suggestions and cross-talk in the control room. I thought the formalization and clearing of the control room of confusion, certainly there was lots of merit in that.

MR. WEISS: Yes.

MR. EBERSOLE: But I hear now that's going to occur in 6 hours anyway.

MR. WEISS: No -- I said we will have our team to the site.

MR. EBERSOLE: Does that mean they will converge?

MR. WEISS: They will converge in different places.

MR. EBERSOLE: I have some horror of the control room becoming a convention center.

MR. WEISS: I do, too, and that is one of the reasons why the Commission has required the on-site coordination center. But when we are talking about our people, we are talking -- I don't know what the numbers would be -- 6 to 10 people. Some of them would go to the On-site Technical Support Center, some would go to the Emergency Operations Facility.

MR. EBERSOLE: But the Technical Support Center doesn't have a display system like this.

MR. WEISS: It may. I don't think the requirements of that have been --

CHAIRMAN KERR: Gentlemen, I don't want to cut off this discussion because I feel it is fairly important, but we do have four items to discuss.

MR. WEISS: I think we are already into the second one.

CHAIRMAN KERR: And we have been discussing the role of the NRC in nuclear accidents -- right?

MR. WEISS: But we have moved into the second one, which is the need for the center.

CHAIRMAN KERR: Are you going to discuss that one, too?

MR. WEISS: I can. I've already said some of the things.

CHAIRMAN KERR: We now officially start discussing the need for a nuclear data link.

[Slide]

MR. WEISS: Some of this, therefore, will be summary petition. But the point of this slide is really our basic feeling for the need for a data link if the NRC feels it has certain responsibilities in monitoring and protecting the public health and safety, for making recommendations, both to the licensee and particularly to the Government officials.

And it will reach conclusions based on the information that it has available, and it will make decisions

because it is going to be mandatory. It is in a position it feels it has the responsibility to make decisions, particularly regarding the question of protective measures.

CHAIRMAN KERR: Well, a good deal of progress has been made since the Commission meeting in February, because at that point, if I read the transcript correctly, it wasn't at all clear who had the responsibility for making recommendations to assume the responsibility for evacuation.

MR. WEISS: There is some confusion -- yes, and some discussions going on as to whether F.E.M.A. would make recommendations to the governor, or whether the NRC would make recommendations to the governor. But I think it is clear that the NRC would make the basic recommendations, whether we make it to the director of F.E.M.A and he transmits it to the governor or we go directly to the governor, I think basically we will be making the technical decisions and recommendations to the Federal Government.

And if we have to make that decision, it is the Staff's position that we ought to have the best data available to make that. We should not be cut off from information that could be made available to us to make those kinds of decisions.

CHAIRMAN KERR: And you would probably make the decision in Washington and not on these sites?

MR. WEISS: No - that is not a foregone conclusion

in the first several hours -- 3 to 6 hours, if it is a fast-breaking event -- yes; those decisions may finally be made or may be made with the support of the Headquaters Operation Center once the responsibility is transferred to the site.

CHAIRMAN KERR: But at what point does the responsibility get transferred to the site?

MR. WEISS: That is not clear -- as soon as the operations center is activated.

CHAIRMAN KERR: How will that become clear? What is the decision process?

MR. WEISS: The decision process right now is somewhat on an ad-hoc basis by the Executive Management Team, depending on the situation. But as soon as the regional director arrives at the site, he is required to go as soon as the center is activated at that point.

It would be considered. Now, the Commission clearly intends, or would like to see it transferred as soon as possible to the site. But they do not want to be put into the position that it always goes there.

CHAIRMAN KERR: Now, before it is transferred to the site, where is it?

MR. WEISS: At NRC Headquarters Operations Center. The Executive Management Team has the responsibility for making the decision. Is the HRS clear on who the Executive Management Team is?

That has changed slightly. When you talk about the Executive Management Team, at the present time, that's the Chairman or his alternate; and in the case of Crystal River, the Chairman designated Mr. Hendrie to be the director of the Executive Management Team.

And it includes the Director of the EDO, the Director of INE, and one other director, either NRR or NNRS, depending on the particular incident. If it's a reactor incident, it would obviously be Carl -- . Those are the four.

MR. WOODRUFF: Is it clear here that the licensee is responsible for the operation of the plant under the terms of his license? I'm concerned that we may have miscommunicated.

MR. WEISS: Yes.

CHAIRMAN KERR: Well, I don't know whether it is or not. Nothing about this is very clear to me yet. But I'm trying to keep an open mind. If the licensee is responsible for operating the plant, I take it he is responsible until you order him to do otherwise.

Now, if you can order him to do otherwise, then it seems to me he is responsible for operating the plant until you take that responsibility from him. And I don't know, and therefore I am not sure that I know what you mean when you ask, "Is it clear that the licensee is responsible

for operating the plant."

MR. WOODRUFF: You have described the situation very well.

CHAIRMAN KERR: Okay. So he is responsible for operating the plant except when he is not responsible.

MR. WOODRUFF: When he is ordered to do otherwise.

CHAIRMAN KERR: I think that is clear -- yes.

MR. WEISS: The thing we would like very much to do is just monitor the situation and report it to the public. But we are describing our situation where our opinions are different from what the situation is, and we feel impelled to take some action.

CHAIRMAN KERR: Mr. Mark?

MR. MARK: I have forgotten the exact terms you used -- the emergency management team?

MR. WEISS: Executive Management Team.

MR. MARK: They consist of people who usually at 2 a.m. when the plants all blow up are home in bed?

MR. WEISS: Right.

MR. MARK: So nobody manages until they get to Bethesda, or is the senior person at Bethesda that person until relieved?

MR. WEISS: Essentially, during that period until the Executive Management Team meets, there would be very little in the way of NRC decisions that would be made. And

obviously, the licensee would be handling the situation. We do have a duty officer who would probably receive the call because we have 24-hour duty officers. And we would continue in contact with the site.

The licensee has the responsibility and the requirement to stay in continuous communication with our office and provide that information, and he would be collecting information to understand the particular information and pass it on to members of the Executive Management Team who may be in transit; but any decisions clearly could not be made during that time.

MR. BASSETT: One of his decisions is to determine whether to activate and send them to their stations, and the more information he has at hand then the better off he is in making that decision?

MR. MARK: Right. Now, you said it would be 3 to 6 hours until you got someone from one of the regional offices.

MR. WEISS: To the site.

MR. MARK: Wherever you're inclined to get to that place, in San Clemente or wherever it happened to be.

CHAIRMAN KERR: That is an interesting observation. Excuse me, Mr. Mark.

MR. MARK: I just wanted to ask how long a time is there until the Executive Management Team can be

assembled. If it's 5 o'clock in the afternoon, it might be an hour and a half; if it's 2 in the morning, it's likely to be a little quicker.

MR. WEISS: OUr experience, during the day, we could have Staff there and the Executive Management Team assembled -- generally within about 20 minutes, during off-duty hours.

MR. MARK: Not the names you just gave me who might be up on the Hill testifying somewhere.

MR. BASSETT: During duty I was there, obviously extraneous circumstances. There are alternate names for each one of these people. So we can assemble these individuals or their alternates within probably 20 minutes to half a hour during duty hours. During off duty hours, we have found that we can keep an operation going within generally half a hour, be accepted to the management team -- probably would be assembled within half a hour to three-quarters of a hour.

CHAIRMAN KERR: I have heard a couple of statements now that say the more information one has the better off one is in making a decision but I just don't believe that one really needs that because if the data are completely irrelevant, they are confusing.

I think what we want is relevant and useful data in whatever quantity but I don't think we want to take an approach that says the more data we have, the better position we can make -- I hope you don't really mean that.

MR. BASSETT: I certainly would like to avoid that semantic trap.

CHAIRMAN KERR: Okay, but data are data and as I look at the specifications, the amount of data being proposed for monitoring is rather large. I assume that on an initial basis, somebody has concluded that those data provide information that are going to be needed and that sort of thing --

and I don't have any basis at this point to agree or disagree. It is for that reason that I asked how is it that one arrived at this because clearly a lot of work has gone into writing these specs and getting these decisions, and yet, I can't see where one started, at what point.

I have this thing from Mr. Stello, for example, and I don't believe he used that as a basis for the specifications that were written.

MR. BASSETT: I think I can address that briefly. We started off with the idea of sizing the link, what sort of capacity would be meaningful,what the minimum capacity would be that would be meaningful if some situation were to arise.

As the project manager, I went to people from NRR and I&E and we had key things we wanted to know. One was what was the size of the package that would be meaningful. The other was what are the functional requirements to be done with that data.

So -- went with me -- worked with me, going to the officials of -- and then came up with a list with the original headquartered items on it -- he can tell you the way that list was screened out and what the basis for this selection of the present items are.

CHAIRMAN KERR: What I am trying to find out, the people who contributed to this list must have had something in mind as their concept of a responsibility of the Commission

in an emergency. Maybe it was never written down. If that is the situation, then that is what I am looking for. Then you are telling me nobody has made an effort to write down something from which an outsider could judge what it is the Commission thinks it needs to do? I mean people have a very good idea of this without writing it down. Apprently what you are telling me is nobody has attempted to write this down and get coherent documents but one has made use of the experience and background of different groups and have said to the groups, what sort of data would you need if you were going to manage an emergency?

MR. BASSETT: The only documentation that has emerged is the specification and we extracted that using the percentages of the divisions by making a few more details.

MR. EBERSOLE: Is that specification preliminary?

MR. BASSETT: Yes.

CHAIRMAN KERR: Okay. Where are you now, Mr. Weiss, in your data link discussion?

MR. WEISS: I guess we were going discuss or talk a little bit about some of the recommendations that were made by the Remeny Commission and Rogovim which we feel were things which indicated a need.

Basically they thought our response was slow and there was a lot of confusion and misunderstanding and fear. There was some feeling by those groups that we did not have the

data necessary to diagnose a reactor system status. There was a great feeling, I know among the staff at TMI, that they could not understand or they had no feel for what was going on, that they had to depend on other people and even that information was lacking. It added greatly to the condition around the operation center and that obviously was transmitted to that kind of information which was relayed to the public.

There were communications difficulties which contributed to the failure to bring all of our expertise to bear. There was a lot of expertise around; there was a lot of expertise at the center; there was a lot of expertise at the site -- they didn't have the information, in many cases, that they needed to do their job and this did provide some confusion. Things could have been -- I think the point is things could have been better.

In addition to this, although it is not on the slide, the President has directed the NRC -- to evaluate the need for a stronger federal presence in the control -- by adding more people, by it being a direct computer link-up.

(Slide)

MR. WEISS: In trying to improve the situation of the operations, we had made certain modifications, particularly in response to particular notifications. We now have dedicated telephone lines; we have two dedicated telephone lines, one for

initial notification and an open line to the control room and a second one which is a dial-up line for -- information.

We have completed the 24-hour duty officer. It has worked out fairly well and we have put a requirement on licensees to have expanded event reporting to be sure of getting the information from him rather early in a particular situation.

We have tried to increase the efficiency --

CHAIRMAN KERR: Excuse me. I probably have seen it but for example, does that involve the requirement that he report everytime he gets a Scram, for example, you have to report?

MR. WEISS: Yes. We are receiving somewhere between two to 10 a day. I think it averages about six reports a day.

CHAIRMAN KERR: I don't want to pursue too much detail but as you think about the data link, suppose every Scram, would you start the monitor in progress at that point, say or maybe you haven't gotten that far?

MR. WEISS: We would have the capability, at that point, to bring up the additional data, look at it and follow that situation.

CHAIRMAN KERR: But the specific details, you probably have not worked it out?

MR. WEISS: No, we haven't worked that out but there

would be a capability when we are informed about something about like that to bring up the data.

CHAIRMAN KERR: But you wouldn't have to be informed about a SCRAM if youwere monitoring?

MR. WEISS: No, You wouldn't but you would probably still want a voice link in addition to the data.

CHAIRMAN KERR: So you would be sure of your instrumentation?

MR. WEISS: If there is an incident, Operations would call anyhow. With regard to organizational efficiency, we have changed the organization. The most significant change was adding the Chairman to the Executive Management Team. We have upgraded our physical facilities; we are upgrading our information resources. We have improved our notification procedures to get more people in there quickly.

In terms of data acquisition, we are still in the same place. It is still a voice linkup to the site.

MR. EBERSOLE: It is always taped, isn't it?

MR. WEISS: Everything is always taped. The telephone conversations are always taped.

(Slide)

MR. WEISS: I guess the point that I was trying to make, and I think it has been made around here, is that voice communications I have thought them adequate in providing us

as the staff with a clean and accurate assessment of plant conditions. I think we alluded to the situation at Crystal River where I think the basis for activating the operations center was based on the pieces of information, one of which was a high radiation pressure and almost a high pressure -- we were told that it was 16 PSIG which was of great concern to us. We later found out that it was 16 PSIA. Whether we would have been so concerned with this , I don't know but it is a lot of information, accurante, reliable information coming over the telephone which does cause us some problems.

MR. OKRENT: Excuse me. It seems to me that what was going on at Crystal River wouldn't be measured only by those two parameters and had you know the pressure accurately, should have actuated your center, since there was potential for trouble.

MR. WEISS: When we talk about activating the center, in a sense that is a significant event because it then takes all of the NRC's responses and funnels it into this place to start -- attempting to look at this thing and alerts the public and everybody else that something really significant is going on.

I didn't mean to say that if we knew that, we would have sloughed it off. Many times we will get reports of an event, the staff will congregate in a much smaller group and watch the situation until we get to a point where we are more than

satisfied that the situation is under control but the activation of the operations center alerts the public that something very significant is happening and we don't want to keep doing that consistently. We want to do it only when we feel the conditions are important enough to do it.

One of the things that our experience has shown is that post communications is a tremendous funnel. You can't have many lines to the facilities to get the information. This is much information that has to go between the operations center and the site and the communicator talking to the control room becomes a serious funnel. I think it is very difficult.

CHAIRMAN KERR: While it may be a serious funnel, it also provides alot of discrimination which can affect transmitting a lot of irrelevant and confusing information, it seems to me. So just to say that it is a funnel alone, it may be a fairly important funnel for all I know.

MR. WEISS: It may except there are many groups showing concern in many different areas. One of the things is that if you look at the data link, we have about 60 operating parameters in it of post parameters, probably very few would really pertain to that particular incident but what it would help us to understand are the systems that are not involved. I think that -- so at least we can get rid of the non-problems and provide some assurance to everybody that we don't have

problems and then concentrate on those areas that information people tend to concentrate on,particular area during an incident and some of the other areas which may become important are not handled quite as well because of this funnel system.

CHAIRMAN KERR: The Crystal River situation puzzles me. For example, it seems to me one of the first -- I can't understand why there wasn't more skepticism about the 16 PSI gauge pressure at Crystal River because it takes a fairly serious incident to produce that much pressure differential.

Well, I guess it is not worth pursuing in detail because there may not be any answer to it but it just seems to me if you will pose questions in a -- conversation would settle the issue.

MR. WEISS: I wasn't -- there was skepticism over that number. In that kind of situation where you are faced with making an immediate decision, you have to accept that number and then go back and find out whether it is right or not.

CHAIRMAN KERR: But immediate decisions based on -- if they are wrong, are a lot worse than decisions --

MR. WEISS: Not the immediate decision that I was talking about, merely the activation of the center.

MR. O'SHINSKY: May I add something. Having been involved in the Crystal River event, in this case what Bernie was saying, I think Mr. Stello had indicated when he got this

particular information the pressure that was the thing that caused him to activate the response center. Maybe that was -- I think that was questioned later, the parameters were questioned later and I share your concern about perhaps getting too much information but one point that has not been made that I would like to make is that on the voice communication tie up as we have it now, about the data link -- we have to be concerned that using voice communications, we don't interfere with control room operations. I think we have a tie-in now and if you try to get information, such as at Crystal River, you want to be concerned about information that you are trying to get but you don't discuss the operation in the control room while that is going on.

Crystal River was a very rapid event. I think the voice communication that we had there caused the information we were getting to be signficantly behind the operations that were taking place.

I would have been concerned if we had tried to move that up much because whenever you are seeking information from a control room over a voice communications, you are taking this operator's attention so I think the outlying data link at Crystal River is a good example of why we need one because you have to restrain yourself from asking for certain information if you feel it is going to interfere with the operations.

MR. MATHIS: But if you had had one at Crystal River,

what would you have done differently?

MR. BELTRACCHI: I will address that. You can display on the screen what the pressures were to see whether or not there was a problem, to note trend and to see whether it was consistent with what a normal type response should be.

MR. SIESS: But you have avoided starting up the incident center, would there have been someone there to look at the 100 readings and pick that one out and say well, I don't to need activate the incident center? Would you have gotten all of those people in, and each one got a CRT, and one of them would look at that and say, it was only 4 PSI, we don't need to be here?

MR. BELTRACCHI: It is awful hard to answer because it is going to say that you are going to have to probably look at several parameters which you have the capability to do, given that you have a data base and the capabilities to produce that.

MR. SIESS: I got the impression that you are not going to activate these things?

MR. WEISS: No.

MR. SIESS: The duty officer would.

MR. WEISS: The duty officer would. In this particular case, what happened was the duty officer got the call and the information automatically went out. Normally he would have headed up one of the technical teams and Vic Stello came into

center room. Some of the data was presented to them and at that point, they said, well, I think Vic was very leery about that 16 PSIG, but he said, based on that,we had better activate.

In another situation, where we would have had a -- he would have looked at that because that was the information which supported that or would have looked at some other piece of information which may have collaborated that piece of information and we may have done something different.

MR.BELTRACCHI: That other point you made is a very valid one. You have to look to be sure, not saying get in a bad sense -- corroboration would be an easier thing to do with the link.

CHAIRMAN KERR: You would probably call up on the dedicated line and say, hey,are these data really correct?

MR. WEISS: Right.

MR. O'SHINSKY: There were a number of things you want to look at. One, for instance, on the Crystal River, the safety valve, there was a significant length of time before people became convinced that it wasn't an indication of safety but a significant length of time before it would be verified but you still weren't getting flow through the safeties.

MR. MATHIS: I am not too sure you would have waited downstream like that before activating the center. There is a lot of different information you want to look at.

MR. WEISS: I think we have kind of exhausted the points that we were going to bring up at this point and because of the details --

MR. BASSETT: We would like to go through it.

CHAIRMAN KERR: That brings us to point three, characteristics of the data link. Excuse me -- one more question. I understand that there was a loss of offsight power, ANO-I, ANO-II, during a recent tornado in Arkansas. Was the center activated at that point?

MR. WEISS: No, it was not. I am aware of it and we kind of followed the situation but we did not activate the center.

CHAIRMAN KERR: Thank you.

MR. BASSETT: I have a fair amount of material here (Slide) which I can use to lead into a reactor situation concerning the discussion of what the data link looks like. I thought I would give you a little chronology to show what started it off.

Vic Stello and Denton got together and decided that they would like to research to investigate the feasibility and sort of scoping system concept study, what a data link would look like and inclined in that, of course, is would it be useful, what sort of characteristics could we develop from it and what could be done with a reasonably good turnaround time.

This sort of activity is one that NRC is not -- given to and we started with the idea that we would scope out a system and we would derive specifications from this system so we invited -- with NRR and in I&E.

We kicked the job off on a nationwide tour and we went on to determine with Sandia was interested and had the capability to take this job. They were and they did. We got a coordinated request for a research project from NRR and I&E which stated in most general terms that this study was something they wanted done and they wanted to find out what it would take, what would be involved, and have a meaningful capability effective on the first of January 1982.

We started in the absence of a data list and in the complete absence of functional requirements which we construe as meeting the limited items on the supply presentation, even the arrangement of the space in the operations center and by having competent and energetic people assigned to it from the various divisions, we have been able to rapidly throw together what we consider a minimum list and I was reminded while the discussion was going on previously, that the function monitoring this incident is one we have addressed with this data. We considered the list to be one which is minimum for that monitoring requirement, while the other was a massive operation built on the basic requirement that the Commission be informed of what is going on.

In that connection, of course the data furnishes the fact that at the threat of an incident, you only have to bring the data up and present it. There is no action required: nobody has to go activate any circuitry, nobody has to begin any special action. Even the telephone requires that somebody man it whereas the downlink is there and if there is any provocatior at all, you can bring it up for that quick reaction.

So this was a quick reaction study and it was done on the basis that research could coordinate and conduct a study that we would have full advantage of the Sandia assets, one of which includes independence of mind, that the independence of mind does not go into the defining of roles or other than indications of feasibility towards the data.

Some of the considerations on our contractoring and on our customers, who are the two operating divisions of NSS are that the link has to be reliable; you have to have some confidence in the data; they have to be realized early on, it is not a five year or 10 year implementation study if it is to be useful.

CHAIRMAN KERR: Are there special specifications given as qualitative or quantitative criteria?

MR. BASSETT: In terms of qualitative at the initial development, we worked on the specification with the Sandia

Corporation. We had some feeling for putting numbers to these but we started off the general -- the data be reliable and that it have high confidence.

We rapidly determined what we could do subject to the time constraints that were present but these time constraints required the following considerations, you can't invent anything, invent or develop anything and you must use, by our own groundrules, shelf hardware; to the extent we can, we have to use shelf software. We proposed to get our data from existing sensors or from sensors which would be installed as a result of the technical option plan and so on. So it really was a feasibility systems study, what can you do with what exists, and what can be done from catalogs and what is available in the state of the art and be implemented rapidly?

We have found out, as a result of the Sandia study, some of the results we can get from that and they are described in very general terms in the draft specification.

Minimization of complexity is obvious in this. Overall cost to the public is another interesting thing and we can probably implement the system --

CHAIRMAN KERR: I must say that minimization complexity is not obvious to me. In fact, it does not really mean anything to me. What does it mean to you?

MR. BASSETT: It means to me, for example, that data should be acquired from readily accessible sources, and it

means that it should be handled by ANSI standpoint --

CHAIRMAN KERR: What do you mean by "readily accessible sources"?

MR. BASSETT: For example, one good source of data from the operating plant is a data process computer. If you put a task on the plant process computer to actually sequester this data and send it your way at a turn of an incident, you might overload the computer to deal with those other functions -- however, by suitably isolating -- into the plant process computer, you can have access to the data while while learning the theory of its normal functions. Then the data comes out in simple scheme form.

Similarly, the telephone company and various communications companies have developed conventions for handling data over wire lines. Some of these are far more elaborate and complex than others. Some of them afford a good deal of gold plating and others do not. We took it as a groundrule but we wanted something that was as simple as we could manage while giving us an accepted degree of reliability.

The overall costs, interesting enough, I suspect this whole thing was on the cheapest system too because things that have to be developed, then sometimes we have to work when they are developed and I am familiar with one data system in the Air Force that is in its 18th year of shakedown. So we don't propose to develop that kind of system. We propose to

try to develop something along the commercial line and we have not -- commercially operating system.

(Slide)

MR. BASSETT: The system that emerges -- we sort of set these groundrules up as seeming reasonable and we derived them from conversations with the people who will use the data and the people who understand what can be done with the present state of the art.

Typically we are talking about 100 parameters; it could be 120 plus or minus 20. There are a couple of open ends in the list of parameters --

CHAIRMAN KERR: Excuse me. You mentioned the people that would use the data. Who are these people? Is that the people in the response center?

MR. BASSETT: With my simplistic mind, I meant two categories there, the I&E sort of people who are anxious to man the center, to take part and effective action in response to reporting incidents and there is another group of men who are interested in finding out and diagnosing to try to understand what is going on in greater depth as an insight in progress. And those are the sources.

CHAIRMAN KERR: In discussing this, was there every any effort to say NRC won't take over in less than 10 minutes or 20 minutes or 2 or 3 hours or is that still an open -- I realize it is still open because the final decision has not

been made. I think that sort of thing can enter into your specification system that I might need to take over immediately or after two hours or what.

MR. BASSETT. In some ways the role that I have been playing is a very pleasant one because what I am trying to do is provide them the best we can provide and allow them to derive the roles from what we can manage with the system specifically.

We can see the system as monitoring 80 reactors, of the order of 80 reactors, continuously. The system, as we see it, would have an alert function on say perhaps six, five to 10, perhaps signals or a significant deviation of those signals would create an alert situation at the headquarters operations center.

At that point, the duty officer can bring up the entire display and use it to assist him in deciding what sort of incident he has. We would like to provide that.

CHAIRMAN KERR: Would the entire display mean that he would look one at a time or 10 at a time to all of the 100 parameters or --

MR. BASSETT: We picture them good, logically, with a certain intention of human factors such that on a few screens, probably some of the simulators in the more dense control systems that are now available on a few screens.

The duty of a second lab would be to at least

assimilate what the situation is.

CHAIRMAN KERR: What is it, two or 10?

MR. BASSETT: Probably on the order of four to six but they'd be adjacent to each other.

CHAIRMAN KERR: The duty officer gets some sort of an indication that something is off normal -- it buzzes or something?

MR. BASSETT: You see an alert signal which says "Reactor 23 is giving us indication of an incident".

CHAIRMAN KERR: Then he pushes a button?

MR. BASSETT: Could bring himself up automatically but in any event, if he comes up, if he prefers to bring it up or it could come up automatically.

CHAIRMAN KERR: He first looks at all these parameters on say Flash Green, simultaneously or something like that?

MR. BASSETT: Bear in mind, the way information has to be edited and processed in some of the more advanced presentation methods that are now available, are such that you can get a comprehensive plant picture in terms of a limited number of parameters like this 100. You can get a comprehensive picture at a very rapid glance because of the way the information is presented.

For example, all loops can be shown at normal pressure and that picture is shown in different colors and so on. The idea was that on evidence of an incident, you would

havethis display, this display would come up and you would look at this display and have sufficient training and understanding that he could make a decision as to whether the incident was significant or whether you should just watch it.

CHAIRMAN KERR: So this means the duty officer has to be fairly intimate with the details of about 70 plants, what pressures are normal,what are abnormal, where these exist in the plant and that sort of thing?

MR. BELTRACCHI: Not necessarily. If you are advocating that you are going to have an expert in the form of a duty officer?

CHAIRMAN KERR: No, no. I am just trying to find out how this man is going to judge that something is right or wrong?

MR. BELTRACCHI: I think if the screens are properly human factored and maybe various tech spec limits say for the various plants, a particular plant, then he would be able to --

CHAIRMAN KERR: Okay. So you will have in the computer stored tech spec?

MR. BELTRACCHI: We haven't worked that detail out but I am offering that as an example of how that could be done to reconcile that.

CHAIRMAN KERR: So that you wouldn't really have to know the particular plant but say maybe have something that

says the temperature should be 502 degrees -- is actually 507 degrees?

MR. BELTRACCHI: Or could be conveyed in the form of images which some of the vendors in the industry have taken some rather good approaches in the form of conveying information, a lot of information.

CHAIRMAN KERR: Having an appointed layout for each one of the plants, bring it up and it would have temperatures and pressures that ought to be there and that are there?

MR. BELTRACCHI: Or tech spec limits using that approach.

MR. BASSETT: This is the nature of the system.

MR. MARK: I wonder if you could help me understand something. I may have the wrong picture. At one point, in fact almost immediately at the TMI-II, there is the statement that the computer on which people will rely in further display of information is right now a hour and a half behind?

It would have gotten to be four hours behind except that it had a little electric kick and dropped all of the memory for a hour and a half and so it only got two and a half hours behind.

Is that rapid processing of display that you are talking of here?

MR. BASSETT: Let me take it first. This is about a five minute answer but I think it is important enough to give

it some time.

The reactors are now implemanting an on-site technical support center as a result of the technical action plan resulting from TMI. The support center will require the presentation of a substantial quantity of data in the support center and probably in larger measure than we have on our data list. At least it appears to the NRC that the data was a bare minimum for what will be in the technical support center; to be able to abstract that data and be able to present it in the technical support center, will require the fitting of a dedicated computer aside from the plant process computer, primarily because the process computer is bound to be quite old, they tend to be far overloaded for their present functions and they are not competent or capable to furnish the appropriate data that is needed by the technical support center.

In this case, we feel that, and it is universally accepted by the utilities that I can determine, that they need such a capability, they need to fit this independent, stand-alone computer to supply this data properly processed to the technical support center and it will also meet the need for the system. But the process computer can't do it.

MR. MARKS: So when you are saying that is not basically new equipment, you are at least counting in equipment which everybody is in the course of planning to get?

MR. BASSETT: That would be one of the ways but in

the absence of the TSC, we'd have to think about it but I still say the TSC is driving us down a stream of considerable help.

CHAIRMAN KERR: I thought Mr. Ray had a question.

MR. RAY: Let me see if I can summarize the visual -- you have presented. You could have stored in the central processor of the computer, the memory bank, if you will, the memory file and many representations of the system, the primary system and the secondary system of many of the plants and you could have associated with that the normal conditions, if you will, that the ordinary condition of the plant would represent and the computer could be programmed so that when that element had a value which deviated from that you got printed out when you called up this particular plant, memory -- flow or pressure,temperature, rather than green or blue or white, is this the kind of thing you are proposing?

MR. BASSETT: This is the sort of displacement in factors considerations of the display that would make it of maximum use and it is the sort of thing that we are considering. For example, we feel that the data will be transmitted in general terms of say zero to 100 or zero to 1,000 and then we will have started the headquarters operations center a backup memory which shows what normal conditions are for each of the 80-odd plants.

When the signal comes in at 50, we know that is 50

percent of 920, let us say. Then up goes the value and we can register what normal is and what we are actually seeing. The degree of human factors, implementation and so on is something we will have to feel our way into. However, we know that capability can be had if we do have this stream of outprints coming in.

MR. RAY: When the operator is off, something out of service, the system would respond automatically to show no flow, temperatures there or pressure zero, something of this nature, but the component that is involved there is the generator or a minor something else, the status of equipment?

MR. BELTRACCHI: This one for seven, safety status monitoring of equipment and in reality the reason that calls for an automatic monitor, yes, what you said can be done but that is done at the plant, not at the center. It is not appropriate to do it.

MR. RAY: Let me talk about the mimic that the operator may have for the particular plant. This is brought up there on the CRT. These gentlemen want to know what valves have been closed, what the abnormalities are, if you will.

MR. BELTRACCHI: Well, now you are asking for a lot more than 100 points.

MR. RAY: It could be but it seems to me that this is essential information.

MR. BELTRACCHI: I think if you attempt to control a

plant from a remote control --

MR. RAY: I am not talking from control; I am trying to understand what is going on. That is where I think you people have a tendency to stop.

MR. BELTRACCHI: Agreed.

MR. RAY: You don't have any equipment control or is there anything like this in real computer.

MR. BELTRACCHI: Well, you are talking about an ordinary plant; you are talking about monitoring dozens of points and I think for a link of this size, for a limited project of what we are trying to do at the operations center, it is appropriate to start this way.

If you are talking about thousands of points, you are talking about a very large operation. You are virtually talking about control.

MR. RAY: You do not intend to depict the status of equipment on such a mimic. You could indicate -- you could deduce that certainly -- that certain equipment was out of service.

MR. BELTRACCHI: It would be more appropriate to have that function performed at the plant site than have any anomalies transmitted over the link.

MR. RAY: I don't understand what you mean by having anomalies transmitted over the link.

MR. BELTRACCHI: I'll give you anexample. The

Europeans are currently developing a system -- an RGB system -- a virtual implementation of what you are talking -- calling for. They show on the screen the status of each of the safety systems and if everything is fine, it is all green. If you have a problem with one, it might be yellow or red. The operator can call up on the screen what he needs. He sees all of the details of that circuit, the logic circuit, the hydraulic circuit is so involved and if he has reached the point where he has left enough safety in functions that he has to shut the system down, that is so illustrated to him on the screen.

MR. RAY: That this is the upright of the --

MR. BELTRACCHI: Of the plant. I do not think we can attempt to do that kind of -- at the operations center. It doesn't make sense.

MR. RAY: Maybe from the viewpoint of the -- I can see but would not the value of the flow going from zero, for instance, or temperatures down to zero or temperatures that -- stabilized point?

MR. BELTRACCHI: Why can't that be detected in the form of parameter monitoring rather than the status?

MR. RAY: That is what I am talking about.

MR. BELTRACCHI: That is what we attempted to do in picking the two parameters.

MR. BASSETT: We did start with a tremendous number of

functional -- and we have reduced it. I can quote a couple from the list, safety injection signal, on/off, containment isolation signal on/off -- all closed, all not closed.

MR. EBERSOLE: You have got here what is rather than why it occurs.

MR. BASSETT: In general.

MR. EBERSOLE: You would pick up a telephone and find out why?

MR. BASSETT: In general, but everytime you pick up the telephone, that is printed out more graphically than I can and I am not experienced in the field of emergency -- the people there and we are anxious to have this thing coming in supplying basic information.

As I say, we started about 400 plants; we are down to 100. We think that 100 will answer 99 percent of the questions that will be asked by a person being first not familiar with in fact that there is an incident.

CHAIRMAN KERR: I have gotten the impression that the dedicated phone lines for the reactor would in some cases permit NRC to communicate with its own staff man who is on-site. Is that not the case?

MR. WEISS: That is right.

CHAIRMAN KERR: While he is not -- above the head operator, the point is --

MR. WEISS: But he may -- to get the information.

CHAIRMAN KERR: Well, he might but he doesn't. The mere fact that you call him doesn't have to distract the operation of staff.

MR. WEISS: Again we have got to look at -- in the beginning there will be no NRC person. If we are lucky to have a resident there, he would arrive shortly but the main job is to find out what is going on which may not be sitting and talking on the telephone. It may be finding out from other places within the facility what is happening and what the licensee intends to do. The licensee is responsible for keeping somebody on the phone until relieved by NRC.

CHAIRMAN KERR: It would seem to me his purpose there is not to find out what is going on so he can tell you but it is not to tell the people there what to do. I am not quite sure what his purpose is. I had thought he was there so he could keep up with what was going on so that if you needed to find out, you would have somebody there to tell you.

MR. WEISS: To --

CHAIRMAN KERR: Yes.

MR. WEISS: The -- man's job is to find out what is going on, not necessarily to begin going through that telephone.

CHAIRMAN KERR: I am not talking about being confined to it. I am talking about talking on it occasionally.

MR. WEISS: He does.

CHAIRMAN KERR: So he does not have to be handcuffed to it and it just seems to me -- and it may well be -- that he will be the -- but I can't quite see -- it is impossible to talk on the phone with someone without distracting the operators. It might well be possible to talk to him without distracting the operators very much.

MR. WOODRUFF: You have to anticipate the resident inspector is going to be home in bed -- the first few minutes are very, very important.

CHAIRMAN KERR: You mean you want to make decisions within the first few minutes? What sort of decisions can you make?

MR. WOODRUFF: The first thing we want to know is whether the reactor is under control. The operator has to report via the hot line if the unit is not functioning as expected and I think really at this point in time you are sort of overplaying the role of the duty officer at NRC Headquarters and his obligation is to relay to the director -- this very cursory status that he is aware of that exists at a plant. It is that director then who makes a decision of whether or not to activate the incident response center. The duty officer does not activate the operations center. The duty officer is not doing that; he is an information type man.

CHAIRMAN KERR: I just have an idea that in many cases, this would work, the duty officer being in some position that

he doesn't know what to do so at 2:00 a.m., he calls up Joe, and I am not talking about -- hey, Joe, I am not sure what the problem is. Let us know if anything goes wrong. Maybe that won't happen because TMI-II is too fresh in our minds but further decision is going to be tough when things are critical. I don't care how much you've got on that computer, you are going to get more, you are going to get on the phone lines with somebody and say hey, I need some more information.

You may have to do it less if you have a lot of information on the computer but it is that kind of judgment that I can't make much of it.

MR. O'SHINSKY: I don't think you are trying to eliminate the one thing that is going down in conjunction with the -- the fact that before the information from the phone line is going to be flowing from the on-site technical support center too because in conjunction with the nuclear data link that is development support center, there is going to be a lot of information entered there so it doesn't necessarily all have to come from the control room. It can come from the staff that manages the technical support center --

MR. MATHIS: If you have got the funds all tied up, and that is what we seemingly are talking about, and you get a lot of information, when you try to link them what are you going to do with it if you can't relay it back and say do something. Then it is worthless. A flow of information in one

direction isn't going to accomplish anything.

MR. WOODRUFF: We view this information as a library with the capability of the person in the operations center to call up for a display of the parameters which are pertinent to the event at hand and time track it or tabulate it. We can't anticipate exactly what is going to happen so we need that array of parameters and what we have is a very modest one and based on the information that is drawn up, display and relay to the director.

Perhaps within I&E decisions will be made with regard to activating or not activating the center at that point in time. We start out with a very muddy picture and you gradually understand that which is -- and depending on signficance and the judgment that is exercised by those persons bearing the responsibility for activating, it is whether or not he activates.

MR. BASSETT: In this connection, these systems tend to come in quantity and this is about the smallest quantity. You wanted the order of 10 points, you'd still be -- phone line and we still have substantial amount of investigation and limitations studies that are reflected by -- of 100 points.

One of the basic concepts of this system is that the link is running whenever the reactor is up. So it is not a safety requirement as I understand it. When the reactor is

up the link is running, the data is coming in and the last half hour of these 100 points is stored in memory for each of the reactors at the headquarters operations center.

If you then have an incident, that data can be printed out and made available so that you would have some idea of what happened before the alert. I think this is a valuable feature.

It could also be embodied by having it start at the plant in the sense of a cockpit recorder for the last 30 minutes and played out over the line at the time of an incident, but these are lesser possibilities. It appears it would be better to do it than to have it stored at Bethesda.

CHAIRMAN KERR: Did you have a question?

MR. OKRENT: A comment. It seems to me the NRC is in the position where it is expected to try to maintain sufficient knowledge of what is going on in the case of an accident, that certainly it can comply -- provide good advice on off-site measures and the need for it to give instructions to the operators and they could have done this with some practical system, then possibly it would have been wanted after the fact, as it were.

I think it is considerable pressure on the NRC to have such capability. I am not sure how much I should belabor the question of is there a need for it? The thing that I can't tell is -- seems to be the very considerable cost. Are

you getting as much for this and spending your money in some other way? How do you judge this sort of thing? If they could do it over a million dollars, I don't think there would be any question.

It seems to me one would say go ahead, just make sure you get it yourself -- so that situation is there either way and I am inclined to agree with the people who say you are less likely to give wrong advice if you have more information than if you had less, not necessarily true, but there is a chance at least that you won't give wrong advice if you have more information.

I think I can foresee situations -- the utility would want to hold the NRC's hand -- it could be that they would like there to be lots of information there so they could look at it together. So it seems to me -- well, the cost puts it in my mind into a little bit of competition with other things.

CHAIRMAN KERR: Mr. Siess?

MR. SIESS: I would like to go back a little bit to the point that I thought was made a little earlier that one of the main purposes of this would be to help the Commission, help local officials, decide when to take protective action.

I put it that way deliberately because I don't think the Commission decides when to take protective action. Do they? That is up to the local officials and I think that

I have heard many arguments on that. I can think of arguments against this if it is going to be used to give advice. I am not even sure whether it makes much difference whether it is good advice or bad; unless it is all good, it worries me a little bit co-ing from several hundred miles away from people that are familiar with the equipment. But I think I could be convinced of having this information as a basis for helping to decide whether to take protective action.

That was one of the strong arguments the ACR has presented in its recommendations regarding implementation that will follow the course of an accident and let me know when you might want to take protective action or that you might need to take protective action in the next 6 hours or something of that sort.

You really haven't said much about it; maybe because of the kinds of questions and in that connection, how easy would it be say for the State of Illinois, which has about 50 million barrels, or 27 million, or whatever it takes, to tie into this system so that it could get this same information for all of the reactors in Illinois as an aide to making protective action decisions?

Right now, they have some centralized network and they have asked for it but I don't think it deals with plant parameters. It is environmental parameters, right?

MR. BELTRACCHI: I am aware of the effort. I don't

know what the scope of parameters is.

MR. WEISS: It is a much more limited effort. It is a concept.

MR. SIESS: Suppose it was an idea, a good idea, but they decided we would like to tie into this; would that give anybody a problem?

MR. BASSETT: No problem. We anticipate --

MR. SIESS: You mean you could isolate it, that their tide wouldn't affect your tide?

MR. BELTRACCHI: I think in terms of computer architecture, that can be worked out, communication architecture, that could be worked out.

MR. BASSETT: We anticipate that the data signal will be required by the government to be furnished to the government but that otherwise, the utility could send it anywhere they wanted. Indeed, a good many of the utilities, as they implement their TSC, are making provisions for a data link to their corporate headquarters.

In the case of PG&E, they are sending the data to Bolling to keep track of their core for them.

MR. SIESS: What about the -- through NSEC?

MR. BASSETT: Indeed, a matter of a conference call and buying a set of motors to unscramble.

MR. SIESS: I am beginning to think it doesn't make much difference in Bethesda because they are going to get so

much advice; some of it ought to be good.

MR. BASSETT: But it is envisioned that off-site radiation information, for example, will come in through the TSC of the Associated Reactors and that we would incorporate it as part of our data signal and that would be of interest in evacuation.

MR. BELTRACCHI: The -- has to be careful if there is the security in the data to insure that they would not be sabotaged.

MR.SEISS: How much is this going to cost NRC? I saw $27 million that someone mentioned.

MR. BASEETT: The implementation through -- was to spend $27 million on this. I assume it is not yours. There is somebody above you who is supposed to decide -- $27 million here, $27 million there -- and which one you --

MR. WEISS: The Commission and the Congress.

MR. SEISS: Nobody between you and the Commission? No action plan?

MR. WEISS: We represent the officers' office. They are bossing us.

MR. SEISS: I missed it. Has this task force got any cross-emphasis?

MR. WEISS: No. This cuts across offices. I am from I&E Research and from NOR -- it is often the response center. We have to convince our office directors to take it to the

Commission, the Commission takes it to --

MR. SEISS: One reason I asked is -- and the reaction pump. I realize the priorities are not based on costs but they are supposed to be heavily weighted towards improvements in safety and a priority three in the action plan would indicate a very high, very high investment, because of the pretty significant cost and somebody made that value judgment.

VOICE: We have gotten to the point where we have a handle on visibility, we have some idea what the cost will be and the next event will be that Mr. Stello would decide whether or not he wants to go up and ask for the systems.

MR. SEISS: I heard that from you and I heard that from Roger Matteson last week on the action plan but it sure didn't sound like that -- letter that was just studied. The letter said it like it was all set up,, tied up with a red ribbon and it was just a question of how far it was going to be, 80 or 100 instruments.

MR. BASSETT: I want you to know we think it is a capital idea and if we have persuaded others, well, we are pleased. In terms of implementation, it would be implemented by I&E requesting the Commission to go ahead and look for some means to implement this system.

MR. SEISS: Who would do the evaluation priority for the action -- task force --

MR. BELTRACCHI: I wasn't involved.

MR. WEISS: A steering committee.

MR. SEISS: I forget what score it got; do you remember?

VOICE: I don't remember.

MR. SEISS: It was a Category III which would make it under 100 out of a possible 210. That 100 could have brought them -- I don't know. I don't know the cost and time involved.

MR. BASSETT: There is the fact that you see the system has no status. All it is is a paper study. If it is decided to request the Commission to go out and implement it, and if the Commission decides to do it and go and get the money, it becomes a real item and its priority may very well change.

MR. SEISS: Well, maybe you misunderstood my comment on priorites. The one, two or three doesn't mean much but the fact that something like 70 or 80 percent is the score in a priority could come out of importance to safety and that if somebody didn't think it was important to safety, whether they didn't think the nuclear data link was important to safety, or whether they didn't think a study of a nuclear data link was important to safety, I don't know. I won't make that distinction although I don't know what it means.

MR. BASSETT: It's only been in the last two or three months that we have had some feeling for what could be done and in what sort of a time schedule. During those last two or three months we used a greater amount of time talking to

user groups and the vendors and I think it is interesting that every one of them is providing a data link for their own units and are expecting to connect it to Washington.

MR. SEISS: I don't recall from the Sandia report, was there a comparison made between that list of instruments, list of ratings that would be transmitted and the readings from Redguide 197?

Redguide 197 is the implementation following the course of an accident. I would have thought that would have been the place to start.

MR. BASSETT: That is where we did start.

MR. SEISS: It is?

MR. BELTRACCHI: We started from Redguide 197, looking at the parameter, at least an early version of Redguide 197.

MR. SEISS: The early version wouldn't have it -- only the instruments; I am talking about revision too.

MR. BELTRACCHI: An early revised version.

MR. SEISS: Okay.

MR. BASSETT: That was the first piece of paper that was brouhgt in.

MR. OKRENT: Is somebody going to be able to tell us if the NRC does this what it won't be able to do? If they can't tell us today, could somebody tell the subcommittee?

CHAIRMAN KERR: I think that is a legitimate question but I don't think that is what Mr. Gilinski is asking us, or

maybe he is.

MR. BELTRACCHI: What will the NRC not be able to do if they do this?

MR. BASSETT: I am expected to just schedule and budget.

CHAIRMAN KERR: There is no one here who can address this. We may want some time at the meeting of the Full Committee. We think it is something in the discussion on the option plan because they will have already started work on an FY '80, what they plan for FY '81, FY '82. They will also have from each office those current tasks that will be deferred because of the need to pursue the action plan items and I think you can get some idea from that.

MR. OKRENT: I would prefer to have --

MR. SEISS: That is more in terms of manpower resources than dollars though.

CHAIRMAN KERR: You would prefer that?

MR. OKRENT: I would prefer to have the NRC tell me what they would not be able to do if they pursue this.

CHAIRMAN KERR: I think we could ask for some comments.

MR. SEISS: I think they can give it to you.

CHAIRMAN KERR: Mr. Bassett, if we permitted you to continue with your presentation, how much longer would it take?

MR. BASSETT: I would like to give you some idea of problems we are still facing that need resolution and I'd

like to give you some idea of schedule and money and then I will be through. I estimate 10 minutes or less.

CHAIRMAN KERR: Okay. You couldn't make it faster?

MR. BASSETT: I can make it in a minute and a half.

CHAIRMAN KERR: I'd like to have the Subcommittee have a little time to talk about what -- to the Full Committee.

MR. BASSETT: Let me address myself to this. We can realize this; it is realizable. It is realizable on a -- schedule and it is realizable in what we think willbe a reliable and consist of good,long life which which will require a minimum of debugging and breaking in and will be flexible in adapting and incorporating lessons when they are learned in the first few years of operation. It can be done.

The data is available at the reactor site and is, in general, being applied now to recent TSC and therefore, will be available for transmission.

As I said before, every utility that is addressing the TSC situation, as required by the action plan, is planning on a link, at the very least to their output engineer and to their vendors and they all allow for the fact that they think a link to Washington, the NRC,is appropriate.

CHAIRMAN KERR: And these things will carry 100 parameters.

MR. BASSETT: The data list differs from implementation. However, I am given to understand that NRR is going to require

the data link list as a minimum for a TSC and therefore, they will have a lease on it.

Some of the things we are still looking at are, you may have heard the talk about -- what are you going to do with all this data anyhow when you get it? That, as you may have gathered, is an emerging picture. It is not clear and we still need to know a lot about what the functions of the link are because they go directly to the hardware at the headquarters operation center.

We need a better handle on the reliability and availability -- if required of a computer setup at headquarters to give a reliability to headquarters comparable to having nuclear reactors depending on that one headquarters installation. So we need a better handle on reliability.

We have some requirements for a transmission of transit data which was put on us by the NRR which would require substantially -- and we have to work that out. The question of how good the identification of data is and how much skew there is in time between point one and point 100, again has to be worked out. Some of these things would take a Cadillac system and we are anxious not to do that for the reasons and sort of questions we get.

We don't know as much as we'd like to know about tornados, flood and seismic resistance of this system. It might very well create instances and it would be nice to have

a system somewhat resistant to it.

Finally, but very important is the technical support center coupling because here we have the opposite case. We have a system with status because it is in the action report, it is required that a TSC be implemented and yet it is very, very sketchily defined, but thelink has no status and I think we have it quite well defined. So the two will fit together and implementation of TSC will make implementation of the downlink a great deal simpler and less expensive.

So with that in mind, I will give you some idea of the overall schedule situation. (Slide) We started the scramble off with the idea that we would have some meaningful capability on the first of January 1982. That is somewhere right around in here.

The schedule that you see before you assumes that we get funded, assumes that the Commission wants to go ahead with the link, assumes that the Congress is willing to get up the necessary front money to buy the long lead procurement items --

We feel we have a substantial capability sometime in the late spring of 1982 and this is on the basis of competitive procurement of the various bits and pieces. In other words, it is not a Manhattan Project; it is a rather commercial implementation.

In terms of money,(Slide) this will equip 80 sites. The total bill is $23,510,000 of which $3.8 would be spent in '80 and about $7.9 would be spent in '81. The operation center hardware will be purchased by the government. This is called STCU which is a site transmission unit hardware.

My understanding of the management desires of NRC it would be purchased by the utility for about $1.6 million. This apparatus -- could very well be specified by the government which would be money that would be furnished by the utility. This is a mote question and will not be resolved right away but that is about the only uncertainty in terms of what is involved.

CHAIRMAN KERR: That is for how many reactors?

MR. BASSETT: 80. You will notice there is extremely generous contingency;research is running this contract with Sandia and Sandia feels that sort of contingency will give some continuity of action and allow them to cope with nasty surprises.

It is our feeling that perhaps it reflects a degree of -- continuity, carrying it from one year to the next, allowing for the fact that we can purchase certain items in the absence of assurance that they won't go up in cost the following year. In other words, it will allow us --

VOICE: What will it cost to run this thing if you have it?

MR. BASSETT: I have a slide that describes it.

(Slide)

MR. BASSETT: In 1983 fiscal year, selected as the year where it is implemented but it is still in the latter phases of shakedown, there are line charges for eight reactors on the order of $500,000 a year.

Some of these items, including the personnel and operations center, maintenance, the people out in the field, to verify that the link is running, are judgment calls. I don't have a real good handle on it.

MR. OKRENT: But it is $2 million a year?

MR. BASSETT: $2 million a year and could not get much greater; it might get a little less.

MR. OKRENT: Those are all FY '80 dollars.

MR. BASSETT: I can answer any questions.

CHAIRMAN KERR: Are there questions?

(No response.)

CHAIRMAN KERR: Thank you, Mr. Bassett. I think we probably should spend the rest of the time talking about the presentation of the Full Committee. It seems to me that we should ask the Full Committee to listen to this but I am open to suggestion. We have been asked to respond to Mr. Zillinski which I assume means a committee letter. I would think about the presentation we heard today, perhaps there are a number of questions on the part of the Committee and

that would be appropriate, which means roughly 40 minutes of presentation to the Full Committee. Do we have that much time?

MR. QUITTSCHREIBER: We have a total of one hour including your introduction.

CHAIRMAN KERR: Cut that this down to seven minutes and have a 10-minute presentation.

(Laughter.)

CHAIRMAN KERR: I think you can if we don't ask too many questions. If we ask too many questions, that isn't your fault but --

MR. BASSETT: I think for the questions though we will get a feel for what you would like to say on that basis.

CHAIRMAN KERR: Yes. In responding to some earlier comments, I think I understand the pressure on the Nuclear Regulatory Commission and the comments from a good many people that said the NRC should have known what to do and should have been able to take over and operate the reactor.

It is precisely that sort of comment that bothers me because I don't think the NRC should have taken over and operated the reactor. In fact, I don't think the NRC would ever have the capability to do that. If the NRC is more capable of operating the reactors than the people who operate the reactors, then I guess I think we are in serious trouble. Maybe that is the case but I think that is even the case of a

reactor on the top -- and if a reactor is in an emergency situation, it seems that is the point at which you need everybody's expertise and knowledge of the individual plant on which you can call.

It just seems to me that the people who are more likely to know what to do in a given situation are the people who have lived with that plant and who understand its behavior and idiosyncrasies.

I certainly feel the need for an I guess the responsibility of the NRC to give advice on evacuation but I can't, for the life of me, believe that is going to be made by people in Washington on the basis of information they get off a computer. I just don't believe it.

I think they are going to have, at least at the very minimum consultations locally and I would guess that unless a decision has to be made within a few minutes after the beginning of the accident, the decision is going to be made by alocal group of NRC people, perhaps after some consultation with people in Washington.

It is incredible to me that they would make the decision based on information they'd get off a computer. The information may be of some assistance --

MR. EBERSOLE: You could give it a test by asking what if it were inplace at TMI?

CHAIRMAN KERR: You can't answer that question. I

wish we could because everybody has a different idea of what would have happened -- Dick is a pretty astute guy and he has operated a lot of reactors but he may have missed that call.I don't know.

MR. SEISS: Bill if you can think they wouldn't make a decision based on that kind of information, then I think that is the answer to Mr. Gilinski's question, that it will not change the role of the NRC.

CHAIRMAN KERR: The other thing that puzzles me a little, and this is a minor consideration, but I remember the discussion of the CPC at ANO-II and you will remember the combustion engineer proposed to use the data from the reactor protection system, feed it into a computer and then make it available with calculations to the operator.

NRC staff asked Oakridge to come in and comment on the CPC and particularly on that point. If I remember correctly, and I think I do, both the Oakridge consultants and the NRC staff were unanimous and adamant in their decision which said we will not permit the operators to have information that has been processed by a computer because the computer might make a mistake and the operator might make the wrong decision.

Granted this is a little bit different because the operator is going to make a decision, a hands on decision, and he may do something with the control system that doesn't make sense.

Here it seems to me we are setting up a system which is likely to be much less viable than that and either one is going to make decision on the basis of the data or one is not. If one is not going to make decisions on the basis of the data, one is going to have to go back to the original source and verify it. Then you can say, well, this system will alert you to the possibility that something is wrong and you can check --

It seems to me that any emergency situations where the decisions are crucial, you really are not going to depend on the system unless it has a reliability which higher than any efforts specified today. All we have heard today are comments that say it needs to be reliable and you need to be able to depend on the data.

Granted it is in its formative stage and I am trying to look at -- I think it is our job to look at what one sees as possible weak points. I haven't emphasized the virtues and it certainly has some, and I ask what is one going to do.

It seems to me that in order to evaluate the amount of data and the reliability one needs in the auxiliaries you need, we need to have a better idea than I now do about what is going to be done with it. I get the impression that nobody has a very good idea of what is going to be done with it but rather that here is the capability of the arts and science of

computing, here is what one could do -- what one ought to do. That might be a valid arguement and if that is the argument that is being used and if it doesn't cost any money, maybe we ought to say go ahead. We are not quite sure what one would do at this -- but it sure would be nice if you had it when you needed it.

MR. SEISS: How many resident operators could you put at the plant and in-residence inspectors for $27 million?

CHAIRMAN KERR: I don't take that $27 million very seriously. I immediately multiply that by three so I am talking about $90 million or $81 million rather than $27 million. I am giving the NRC the benefit of the doubt --

MR. SEISS: I am just wondering what you could do with $27 million -- the other advantages you'd get.

CHAIRMAN KERR: The one thing one does have to say about computer stuff is that they are practically the only thing that I know where prices have gone down over the past several years so maybe that has to be taken into consideration.

MR. RAY: I think your -- on the cost level is more accurate because such projects have been notorious for over-runs, believe me. The electrical industry has been beaten to the ground on this kind of thing where they have estimated it originally and found the final costs went up, installing and operating.

From the viewpoint of practicality, there is no reason

in the world why this system couldn't be designed or any system couldn't be designed to do this because it has been done, effective transmissions are operating with such systems. All you are doing, you are not operating, you are recording.

Perhaps to give you a bit of reassurance, I personally would not ride in an airplane that was flown by a computer.

MR. RAY: I think this may be better visualized as a system of instrumentation.

MR. SEISS: I don't think that is fair. It is not a computer in the airplane--

MR. RAY: All right, but this is a system of instrumentation with just the technical -- if you will at headquarters, instruments to follow the course of an accident. If it is there and properly keyed into the characteristics of a system by a mimic representation so that the men who are considering that have to be involved with all of the details of diversification between various plants.

The thing is programs so as to indicate anomalous values, values that are going to deviate from normal. A group of technically competent people could follow up what was going on with a minimum of conversation over a telephone.

While they may not make decisions, remember the computer is computing. It isn't calculating and giving results -- this is what you should do. That is going to be done by the individual himself and what he is looking at is raw data, if

you will but he would put in whatever his formulas are for calculating reaction to various components.

In that sense, and also from the viewpoint of the computer making a mistake, if this is properly designed with redundancy and memory modules and so on so that a failure of the memory modules isn't going to take the last 30 minutes of information away from you and you have it available, there is no reason why this could not be reliable. It could be just as reliable --

MR. EBERSOLE: In any case, it is something -- to be taken from this computer. Keep it corroborated by other information--

MR. RAY: It seems to me this would be --

MR. SEISS: That's fine but what if it's contradicted -- let me ask one quick question. You have 80 plants and of course nobody in Bethesda can be expected to know the operating characteristics of all 80 operating plants or to even catch up on it.

Would you computer in Bethesda store what is normal readings?

MR. BASSETT: Yes, sir. We have tapes and we change the tape and it is brought up to date and all the information about parameters will be done and it is necessary because this will soon be the -- of 100 and you want to know what is 100.

MR. EBERSOLE: Will you be dependent on the battery

-- and power supplies of the plant?

MR. BASSETT: We expect that this will be the same grade as the TSC.

MR. EBERSOLE: This is a single track battery --

MR. BASSETT: I don't know the answer to that.

CHAIRMAN KERR: Let me thank you for your patience and for response to our questions, not all of which make sense, maybe but it has been interesting to hear this much about the system and we will look forward to a presentation which will occur when?

MR. QUITTSCHREIBER: At about 6:45 p.m. tommorrow I believe.

CHAIRMAN KERR: Thank you. Meeting adjourned.

(Whereupon, at 4:02 p.m., the meeting adjourned.)

ATTACH - C TRANSMITTAL

RECEIVED

1980 APR 9 AM 10 25

U.S. NUCLEAR REG. COMM.
ADVISORY COMMITTEE ON
REACTOR SAFEGUARDS

Westinghouse
Electric Corporation

Water Reactor
Divisions

Nuclear Technology Division
Box 355
Pittsburgh, Pennsylvania 15230

NS-TMA-2228

April 9, 1980

Mr. G. Quittschreiber
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
1717 H Street, N.W.
Washington, D. C. 20555

Subject: Westinghouse Comments on Nuclear Data Link

Dear Mr. Quittschreiber:

Westinghouse is pleased to accept your invitation to provide a written statement regarding a proposed nuclear data link system between the Nuclear Regulatory Commission Operations Center and all operating nuclear power plants. In general, Westinghouse supports the overall objective of the Action Plan (NUREG-0660) Task III.A.3 to improve the NRC Emergency Preparedness. Specifically, Westinghouse believes that methods for improving the communications capability between the NRC staff and the staff of an operating plant subsequent to the event of a nuclear accident at the facility are desirable. The NRC staff needs to be accurately informed of the plant status and the actions being taken by the operating staff to mitigate the accident, so that the NRC is capable of communicating with other appropriate governmental agencies - federal, state and local - and with the news media. In particular, in an extreme case, the NRC staff needs the information to permit decisions on implementation of emergency evacuation plans.

Westinghouse does not agree with utilization of the data by the NRC to issue orders governing plant operations, however. Westinghouse believes that all available technical expertise should be accessible to the operating staff of an affected unit in an emergency situation. To this end, Westinghouse has been developing its own Emergency Technical Center with the intention of providing immediate access to knowledgeable, effective support for any of our domestic operating plants in the event of such incidents. In our concept, systems and component designers, familiar with the details of the plant designs, would be available to provide input to the plant operating staff, as well as recommendations for plant recovery operations. Westinghouse believes, however, that all operation decisions should be made by those most knowledgeable of the

ATTACH TO TRANSCRIPT

Table V-1

Ground Rules for Cost Estimates

1. 9% annual inflation.
2. None of the costs to the licensees are included.
3. It has been assumed that the project will proceed on the schedule shown in Figure 1.
4. Cost of space, power, environmental controls housekeeping or furniture at the Operation Center has not been included.
5. A staff of two people at the Operations Center beginning in FY82.
6. No redundancy for major system components.
7. An expansion capability to 140 sensors per plant for 80 plants.
8. The licensee will provide data in a specified, standard format.
9. The cost of space, power, and environmental conditioning at the reactor sites is not included.

TABLE V-2

ESTIMATED NDL COSTS

CATEGORY	Cost Estimate ($K) FY 1980	FY 1981	FY 1982	FY 1983	TOTAL
I. Engineering and Project. Mgt.					
Man-power (man-years)	$1,350 (20)	$3,100 (42)	$3,500 (44)	$ 900 (10)	$ 8,850 (116)
Travel	100	700	550	100	1,450
Sub-Total	1,450	3,800	4,050	1,000	10,300
II. Equipment					
Operations Center	1,850	450	0	0	2,300
STU's	50	1,300	250	0	1,600
Sub-Total	1,900	1,750	250	0	3,900
III. Operating and Maintenance	0	300	1,800	1,810	3,910
IV. Contingency	500	2,100	2,300	500	5,400
TOTAL	$3,850	$7,950	$8,400	$3,310	$23,510

Table V-3

Estimated Operating and Maintenance Costs for FY83

Item	
Lease Line Charges	500
Two Systems Programmers	170
Operations Center Equip. Maintenance	200
Software Maintenance	20
Seven People for System Testing, Accuracy Verification and Site Equip. Troubleshooting	550
Travel	170
STU Repair and Servicing	200
TOTAL	1,810

Table V-4

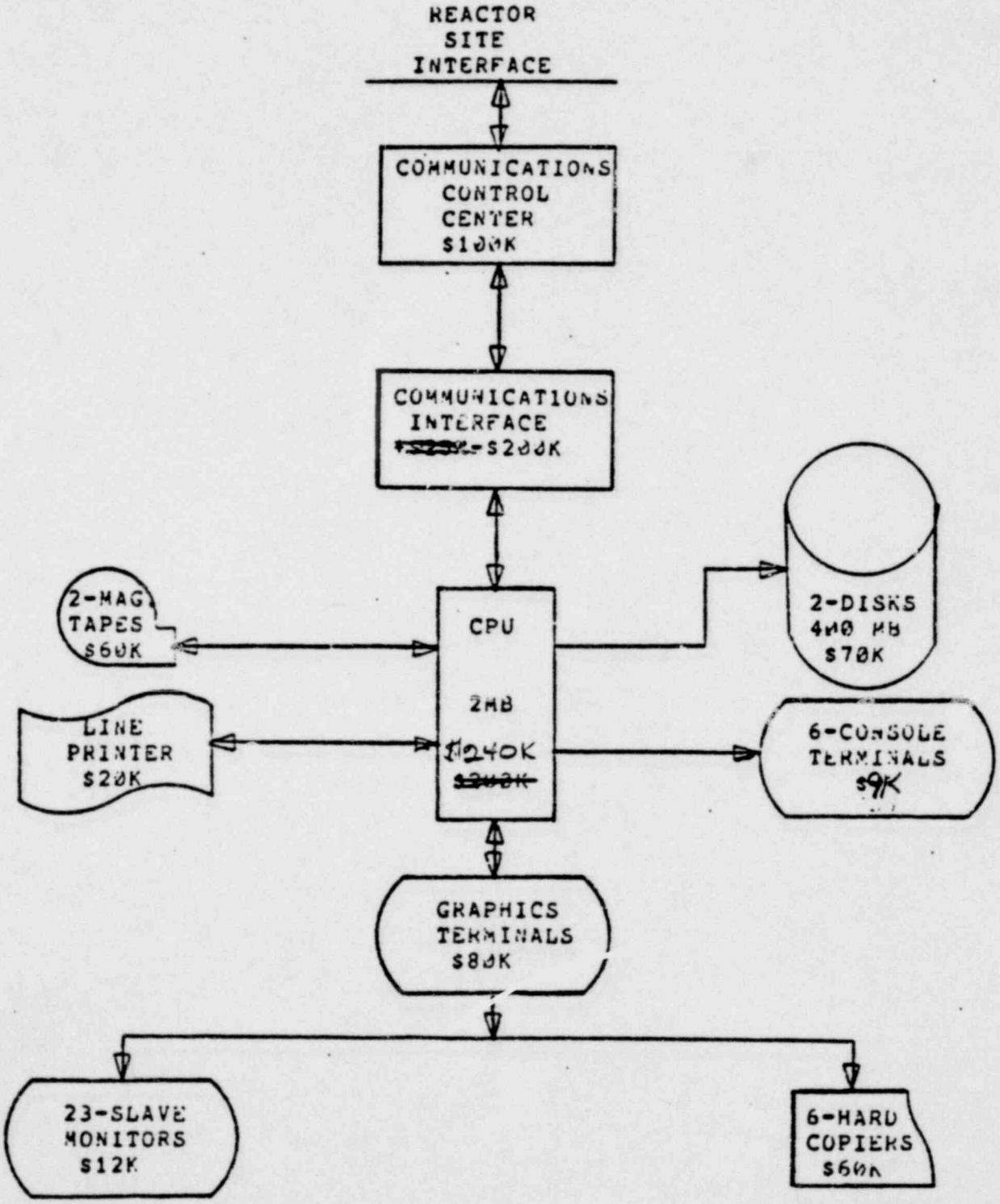
FY80 Funding Requirement Schedule
($k)

	Sandia Manpower and Travel	Contract Support	Equipment	Operating and Maint.	Contingency*
April	125	120	0	0	0
May	125	0	900	0	0
June	140	130	0	0	100
July	150	0	0	0	100
August	170	0	0	0	100
September	190	0	0	0	200
TOTAL	900	250	900	0	500

*Contingency will also provide continuity across fiscal years

V-A

Fig 4 — NDL OPERATIONS CENTER DATA PROCESSING EQUIPMENT



~~* Communications interface costs dependent upon polling or continuous transmission option.~~

Fig-1

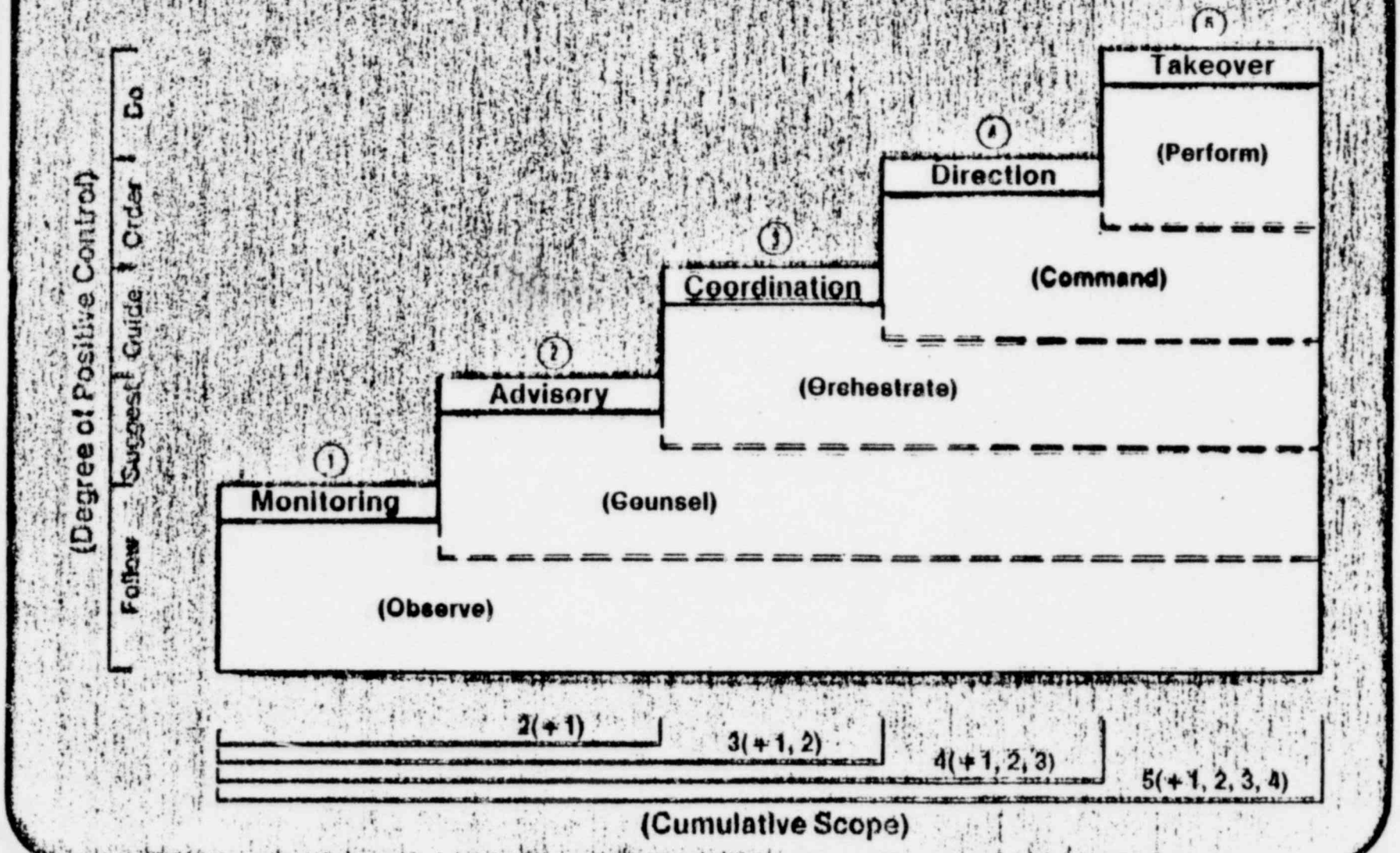
ATTACH TO TRANSCRIPT

ROLE OF NRC IN EMERGENCIES

- Spectrum of Roles
  - Monitoring - Verify and Evaluate Data from Multiple Sources to Assure That Proper and Adequate Operational and Protective Measures Are Being Taken and Inform the Public.
  - Advisory - Provides Requested or Volunteered Assistance in Diagnosing The Situation and Isolating Critical Problems.
    - Protective Action Determinations - Advise Other Concerned Agencies.
  - Direction - Assume Initiative in Making Operational Decisions Regarding Licensee Actions to be Taken.
- Constraints - NRC Would Not Physically Operate Facility.

Spectrum of NRC Roles

(Alternative Roles/Transitional Stages)



KEMENY COMMISSION AND ROGOVIN GROUP CONCLUSIONS

- o RESPONSE WAS SLOW
- o CONFUSION, MISUNDERSTANDING AND FEARS WERE EXAGGERATED BY DISORGANIZED RESPONSE TO THE EMERGENCY. CONFLICTING AND ERRONEOUS REPORTS ISSUED
- o NRC OPERATIONS CENTER DID NOT HAVE DATA NECESSARY TO DIAGNOSE REACTOR SYSTEM STATUS
- o COMMUNICATIONS DIFFICULTIES CONTRIBUTED TO FAILURE TO BRING AVAILABLE EXPERTISE TO BEAR

NEED FOR DATA LINK

NRC RESPONSIBILITIES

- oo Monitoring
- oo Protecting Public Health and Safety
- oo Recommendations
- oo Other Roles

CONCLUSIONS REACHED

DECISIONS MADE

SHOULD BE BASED ON BEST DATA AVAILABLE

OPERATIONS CENTER MODIFICATIONS

INITIAL NOTIFICATION

- o Dedicated Telephone Lines
- o 24 Hour Duty Officer
- o Expanded Event Reporting

ORGANIZATIONAL EFFICIENCY

- o Organization
- o Physical Facilities
- o Information Resources
- o Notification Procedures

DATA ACQUISITION

- o Voice