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UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of:

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

SUBCOMMITTEE MEETING ON THREE MILE ISLAND,

UNIT 2 ACCIDENT ACTION PLANS

Place: Bethesda, Maryland

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SAFEGUARDS SUBCOMMITTEE MEETING ON

THREE MILE ISLAND, UNIT 2

ACCIDENT ACTION PLANS

- -x

Room P-118, Phillips Building
7920 Norfolk Avenue
Bethesda, Maryland

Tuesday, April 1, 1980

The Subcommittee met, pursuant to notice, for presentation of the above-entitled matter, at 8:30 a.m., with Harold Etherington, Chairman of the Subcommittee, presiding.

BEFORE:

WILLIAM MATHIS

CHET SIESS

ACRS Consultants:

DR. LIPINSKI

DR. ZUDANS

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P R O C E E D I N G S

CHAIRMAN ETHERINGTON: The meeting will now come to order.

This is a public meeting of the Advisory Committee on Reactor Safeguard, Subcommittee on Three Mile Island Unit II, Action Plans.

I am Harold Etherington, subcommittee chairman.

The other members present today are Mr. Mathis, on my left; Dr. Siess, on my right. Also present today are consultants: Dr. Lipinski and Dr. Zudans. Dr. Caden (phonetic spelling), we expect, will be in later.

The purpose of this meeting is to continue ACRS consideration of draft III of NRC NUREG 06-60, action plans developed as a result of the Three Mile Island II accident.

This meeting is being conducted in accordance with the provisions of the Federal Advisory Committee Act, and the Government -- and the Sunshine Act.

Mr. John McKinley is the designated Federal employee for the meeting.

The rules of participation in today's meeting have been announced as part of the notice of this meeting previously published in the Federal Register on Monday, March the 17th, 1980.

A transcript of the meeting is being kept. And it is requested that each speaker first identify himself or her-

self and speak with sufficient clarity and volume so that he or she can be readily heard.

We have received requests from the General Electric Company and Vermont Yankee to make oral statements to the Subcommittee. Time has been set aside to hear these statements, starting on about 10:00 a.m. tomorrow, April, the 2d.

We will now proceed with the meeting.

We will have an executive -- short executive session, which will be open, of course, but not recorded -- but I think first Mr. Denton would like to make a statement.

Would you like to make that first?

MR. DENTON: Yes, I would.

CHAIRMAN ETHERINGTON: And will this be on the record, Harold?

MR. DENTON: At your convenience.

CHAIRMAN ETHERINGTON: Put this on the record, please.

Incidentally, I understand that the microfilms are not addressed for the benefit of the recorder.

Can people at the back hear fairly well or not?

(Brief discussion.)

MR. DENTON: What I'd like to do is just outline the forthcoming NRR organization. And I'll go through it rather quickly. This is the first chance we've had to discuss it with the ACRS since we've announced it. It's not in place yet;

there are a few administrative details stil pending; but I would like to show you the structure of the reorganization and point out where some responsibilities for the action plan implementation will lie.

We pre -- they're shown along the bottom, Division of Project Management, headed up by Darryl Eisenhut, will have the responsibility for all the projects, CPs, OLs, and operating reactors in Project Managers.

Pre to the Division of Engineering, which will have the responsibility for what I've called the, the typical engineering areas: mechanical engineering, civil engineering, and equipment qualifications that will also have a responsibility for environmental technology -- we've selected Dick Vollmer to head that division -- division of systems integration will be responsible for doing the systems integration studies of all the reactor systems and all the electrical systems -- that's headedup by Genny Koss.

Division of Human Factors is a new division. This one has in it licensee qualifications from a management standpoint, operator licensing, control room design, procedures and testing. This is headed up by Steve Hanauer (phonetic spelling).

Division of Safety Technology is our forward-looking division. That's headed by Roger Mattson. It's got unresolved safety issues; it's got risk assessments, operating

experience feedback, coordination of research. So basically the middle three are the engineering part of the organization in terms of the technical capabilities, this is the project management. This is one who looks ahead, establishes standard review plans, serves the function that the old Ratchet Committee used to serve in the organization. So in terms of the implementation of the actual plan items where it is specifically known how to implement it, it will be implemented in one of the three, where it requires future work, it will be Roger Mattson's responsibility to put it in a form whereby it can be implemented by the technical parts of tbe organization.

Let us mention too, we've established a TMI program office, selected Bernie Snyder to head that office, it's to oversee and direct all the activities associated with the recovery of TMI-2, including preparation statements, safety evaluations....

I'll go through each of these in a little more detail -- and incidentally we have about eight vacancies scattered throughout this organization; so

if you know about people back in academia or otherwise who might be interested in some of these, be sure to alert them; we're looking for candidates for them.

As I mentioned, Steve is the director; we've, we've posted the job for deputy director for human factors. We hoped to find someone from the outside to fill that slot. Human Factors Engineering Branch has mainly the questions of control room design, somewhat broader; that job is being posted. We don't have a branch sheet for that one. It also has the operating licensing branch, licensee qualifications branch, which deals with the whole management approach to the utility and the procedures and test review branch.

(Pause.)

Safety technology is the one I mentioned that's headed up by Roger. It's got two components. Generic projects, the first branch, is the generic safety issues branch, which includes all those unresolved safety issues activities that were under Steve's direction previously -- the project managers for things like ATWS are here, licensing guidance branch -- this branch keeps the books on the standard review plans and on the standardized tech specs, and the research and coordinations branch, to be sure that we more effectively utilize what's coming out of research and standards in these areas.

Safety Program Evaluation Branch -- this is a branch I'm looking to to do an overall holistic approach to new issues

that come up, so that we don't, don't do our changes and requirements piecemeal, operating experience evaluation branch will interact with I&E and Carl Michaelson's group to be sure that we learn our lessons from operating experience and feed them back in the organization; the liability risk assessment branch is a new one for NRR, and we're recruiting for a branch chief in that area.

MR. SIESS: I'm a little surprised that the coordination has lumped research and standards together. These are not really at the same level. Research is developing new information, and Standards is simply codifying it.

Is it -- is the primary function there just coordination with other people? Or --

MR. DENTON: Partially, it works out to numbers. And I'm trying to take the number of people we've given this function and make a branch; but there are two distinct different activities. One activity is to take all those hundreds of reports that Research generates every year and make sure that we act on them as an organization. The other half is to make sure that our need to interact with standards on new guides and standards is effectively carried out. And we've just --

MR. SIESS: Well, what about development of user needs in developing research programs? Would that be done in this branch? Or would that --

MR. DENTON: Well, they would -- take, take a new

user need coming out of the division of engineering. It would come over to be coordinated by this -- it's really a matrix organization, with the projects group on one side and this one on the other side, with the detail capabilities lying in the middle of the organization, so the user need might be developed by the civil engineering branch; but it would fall to this division to flesh it out, put it in the right form, and make sure it moved on a, on a right schedule, or priorities.

MR. SIESS: Would it also coordinate other user needs within NRR? Or would it just accept everything that comes into it as being equally important?

MR. DENTON: No, I would hope it would be -- it would serve the purpose that RQC used to serve, that this would be the group who'd put everything in context, and that any, any new requirements that'd come up in the organization would be evaluated for their real impact on risk reduction and safety. And we would not change our standard review plans without this group going, you know, doing a kind of review that should be done and then feeding that recommendation back to the rest of the organization.

Roger, are you here?

DR. MATTSON: Where does the development -- who has the development of standard review plans? Is that in --

MR. DENTON: The development of standard review plans per se is in this licensing guidance branch. The work

might be done anywhere in the organization, but this is the group that has to give the final okay for change in our standard review plans.

MR. SIESS: And reg guides --

MR. DENTON: And reg guides and standard tech specs. So what we really have done is institutionalize many activities that before were somewhat scattered throughout the -- and not focused.

And this whole division is new. These, none of these had branch-level organizational status before.

DR. MATTSON: I think, Chet, the idea is to put together all of these management and monitoring functions marching to the same drummer with the same sense of priorities, with the spending of resources either for standard development or for research or for changes in regulatory requirements within NRR. It is the same system of priorities, same understanding of what's important and what's not important as is applied in the approval of new requirements and the review of new information.

MR. DENTON: From, from my standpoint its big features are that it eliminates this turnover of a plant from DPM to DOR in a different treatment of plants. It collects all the technical talents in big clumps of people like in the Division of Engineering, three main groups: components and structures, materials and qualifications, and then the

environmental technology.

One new branch, for example, is Environmental Qualifications Branch. You remember we've had a lot of difficulty in the past in this area. We've given this branch the responsibility for both seismic, radiation, chemical, temperature qualifications of equipment. And are staffing enough to, for a frontal attack on the equipment qualifications problems; so that's our sole job here.

Chemical Engineering Branch is a branch we didn't have before. It's, it's to address all the problems -- coolant chemistry, corrosion in, in a focused manner.

The other branches, I think, look largely -- branches you've seen before. And they just pull together, for example, in the mechanical engineering branch all the people who used to be in DOR, in DSS, under one branch.

(Pause.)

The Systems Integration Branch is, is our attempt to make sure we take a real focus systems look, as opposed to the piecemeal look, so it only has systems in it. We've, we've in some cases split up what the branches used to do where they did both systems analysis and then some engineering, more classical engineering also. So the branches look pretty much the same in these areas. We've made the Systems Interaction Branch that we didn't have before in the organization; otherwise, I think most -- except for that branch - you're familiar

with the activities of these branches.

But we've called out those activities that can go in engineering, and have chartered this group to integrate the total approach, from a systems management standpoint.

DR. ZUDANS: One little question: They look at the AD for reactors, D and AD for plant systems. Should these systems also be interactive -- these two groups?

Power systems branch, container systems branch, and power reactor systems branch?

They have a common objective. The whole system's interaction really contains these components.

MR. DENTON: Yes.

DR. ZUDANS: And how is that going to be handled if these are competing branches?

MR. DENTON: I don't see that they are competing. We've got them under one --

DR. ZUDANS: Normally, they -- you would expect them to cooperate, I agree. They may not happen that way.

MR. DENTON: Well, we've got them fairly close together. And the question is one of numbers. This --

DR. MATTSON: How many people are in this group, do you remember --

MR. DENTON: About 175 people, total, in this area, so you have to give it some, some kind of a structure. But it would be up to the director of this one and these two assistant

directors, to be sure that, that even though they're, they're a little broken out for supervisory purposes they do integrate the, because they're quite important --

DR. ZUDANS: I didn't know. There's no specific focal point for this interaction except that the division systems integration director level.

MR. DENTON: Yes. And, and this branch, whose job it is to make sure that all systems get pulled together.

And then finally, the division of project management, which looks the closest to what you've seen before, what we've done is, is put all the operating reactors under an AD for operating reactors. All of the plants that are under review such as CP and OLs, under another AD, but we don't plan to transfer them. We're, as plants get license, for example such as Sequoyah, it will stay in this branch; and eventually this branch will become an operating reactor branch.

That, that, you know, we're not going to move the case up to someone else. The same project manager will retain that, that plant; and as we will just fill up branches then, and they'll become all operating reactors eventually, in the absence of any w applications.

In this area we've, we've left a operating reactors evaluation branch, which was really a swap team -- it's a small group of technical experts that can be called upon on a crash basis by the operating organization when something

happens and they need someone to respond in a rapid manner -- we're not going to let this branch build up to a competing technical discipline and we're going to rotate people into and out of it, but need a access to technical people on a rapid notice for operating problems.

We also have the SEP function split into two groups here. All the SEP plants are in this operating branch number five. And the technical reviewers who are looking at those SEP plants -- are in this group.

And we've left the emergency planning branch down here too, until we can finalize some memorandum of understanding with FEMA and see exactly where FEMA is going. You may eventually move this emergency planning branch somewhere else in the organization, but at the moment it's been run by this assistant director, Brian Grimes; and I've left it here so Brian can continue to supervise it till it straightens out.

So that, that just gives you a quick overview of, of the organization; and it will probably be put in place within the next couple of weeks when all the paperwork --

CHAIRMAN ETHERINGTON: Do you have handouts of those, Harold?

MR. DENTON: Yes, I do; and we'll be happy to provide them.

CHAIRMAN ETHERINGTON: Good. And have you plans for briefing the full committee?

MR. DENTON: I'd like to, at the next opportunity that's available. Gary tells me it's been set for Thursday.

All right. Well, thank you for the opportunity.

(Brief discussion.)

CHAIRMAN ETHERINGTON: The Subcommittee will go into executive session, and this will not be recorded.

(Executive session.)

CHAIRMAN ETHERINGTON: Will you start off then, Roger?

DR. MATTSON: I have three things I want to talk about as an introductory matter -- probably going to take most of the next hour.

First, the Staff response to the ACRS letter of March 11th, concerning the NTOL list.

Second, our development of a response to the Atomic Industrial Forum's report on priorities and resources.

And third, a summary of how we're doing in this balancing of resources for the action plan versus the other safety activities of NRC.

To do this, you can see I have an enormous pile of paper, several piles of paper, in front of me, your bedtime reading in the greater Bethesda area will be long tonight.

I'm going to start by handing you a draft copy of a memorandum from the executive director to the chairman of NRC. We hope this letter's being signed just about right now across

the street, and later this morning we'll give you copies of the final version. We got cornered by a VYDEC machine yesterday, and it didn't quite get signed.

I'm going to give you an unsigned version that we think is -- I haven't made a whole lot of copies to hand out in the audience on the possibility that there are last-minute changes: but it will suffice to lead a, lead us through a conversation.

What I want to do is spend 10 minutes or so just leafing through this 10-page item-by-item Staff response to the March 11th ACRS letter on the NTOL list.

First, by way of summary remarks, let me say that there were two kinds of comments in the ACRS letter from our perspective. One kind is a set of comments, both in that letter and in the letter on the Bulletins and Orders Task Force meeting that you had last month, which in essence said, There are some things that concern the Committee. Slow down a little bit. And I'll talk about those in more detail.

There was another kind of comment we heard from you, which was, We don't mean to add this to the NTOL list, but here are some things you ought to do a little differently or some things you ought to add to the plan that may relate to items on the NTOL list that are more for consideration on a time schedule not associated with the start-up of new plants.

We found no comments that would cause us to add or

subtract items from the NTOL list. Now, it may be that you intended a few of them to do that -- and that's the reason for putting this response in front of you here today, so that we have an opportunity for you to see it, consider it this evening, or the remainder of the day, and maybe tomorrow we could take it up in more detail if there are difficulties in this response.

We don't think that the NTOL list changes as a result of your comments in the March 11th letter. And this letter says why.

Let me summarize them quickly. Starting on page 1, your first two comments concern the evaluation of organization a' . management improvements. This business of NRC doing some kind of preliminary ad hoc review of management and technical qualifications of new licensees before the plants go into operation.

And in comment number one, you say that you think that this must not apply to utility management; it must apply only to plant management. That's, that's an error; we do intend this review to be not only a plant management, but also utility management, the difference being home office versus field office. We mean to include both, and the way they interact and support one another in operations decisions.

And you go on to say that we need to take time and learn in developing these criteria, and that the criteria may be made as clear as possible; and you see no basis for applying

them to new plants, unless it's the first plant of a given utility. Instead, your priority would be to apply them to all operating reactors.

We agree that it's important to get on with applying these kinds of criteria to all operating reactors. We agree that one must not move too quickly. think we acknowledged to you last month that we felt we were in an area where there were some learning experience to occur.

But I think you have to recognize that we've been looking at licensee, management, and technical qualifications, albeit never before as closely as we intend to look in the future. We view new licensees as -- whether it's a first plant or a second plant -- as taking on a substantial new responsibility, going through a trial or debugging period that's associated with any reactor start-up, and providing an opportunity when we still have their intent, attention in the licensing process to make creative contributions to this learning experience, this learning together as to how we ought to improve management and technical support capability.

So with the understanding that we're using draft criteria in a, in a fairly flexible, not yet rigid manner, that is still on a learning curve in this area, we disagree with the Committee's comments on this item insofar as the NTOL list is concerned; that is, we disagree if your intent was to tell us to take it off the list.

If your intent was to tell us, Leave it on this list, it's reasonable, but be careful -- we agree with you.

So we're not sure exactly what you intended, but it appeared you may be trying to say, Take it off the list. In that sense, we don't agree with you.

DR. ZUDANS: How is that different from what you used to do?

DR. MATTSON: Well, what we used to do was dominated more by financial considerations than by, by trying to -- that is, determining that the utility was financially qualified to be able to hire the right people.

DR. ZUDANS: More than that, I mean, making --

DR. MATTSON: Much, much more than that.

DR. ZUDANS: Before -- you tested, for example, what nuclear background they have -- and personnel by person by person, division by division.

DR. MATTSON: I don't think we paid that much attention to it, but I'll let Don Skoholt try -- be a little more specific.

MR. SCOHOLT: We did do the type of thing this gentleman is describing, but we very much limited our attention to the outside organization.

Now, we're looking at the corporate capability as a whole. And certainly in an emergency response situation, the offside components of the company become very, very important.

DR. ZUDANS: Well, I guess it might vary from plant to plant, but the ones I sat in -- you looked at the corporate capabilities, although you made a very specific issue as to whom these groups would report to and how independent they are and whatnot. It was pretty deep.

. MATTSON: Which, which plant?

DR. ZUDANS: Well, many of them.

MR. SKOHOLT: We did make some judgments about were there clear lines of authority indicated in corporate organization, but we did almost nothing about trying to assess the capabilities of the people --

DR. ZUDANS: Are you going to review the resumes of people in this context?

DR. MATTSON: I believe the on-site teams are looking at the people that are filling the slots in the --

MR. SIESS: What are your criteria?

DR. MATTSON: Yes. We gave you a copy of them, I think, at the last Subcommittee meeting. They have been made publicly available. If you'd like a set --

MR. SIESS: This is the kind of thing that says a B.S. degree in engineering, physical science, and three years' experience? Is that a criterion that has no meaning? Whether the degrees --

MR. SKOHOLT: That's the type of thing that you have been using; there's a document entitled Technical -- Criteria

for Evaluation of Technical Competence, and 16 copies were forwarded to the Committee by Mr. Denton about -- weeks ago.

MR. SKOHOLT: That type of thing is in it, but it's not limited to that type of thing.

MR. SIESS: What was your standard for that? Did you look at some utility that you thought was real good and said, "Now, everybody should be this good." Did you look at TVA, which has a big back-up organization and never had any problem and said, "Gee, this is the way to do it"?

DR. MATTSON: We've got one person who's associated with this part of the program here today right now, Don.

We've got, I think, Dominic Vassallo, who's the new branch chief in charge of this business, coming down a little bit later.

While Don and you could probably engage in a very useful conversation on this particular subject, I think you might get more of it when we get to chapter 1 at 10 o'clock.

MR. SIESS: I don't want to get too much -- I'm mainly interested in what kind of criteria, because it seems to me we're getting to the point where we're telling the utilities what to do and how to do it. This prescriptiveness that the ACRS has commented on in the past -- but not only what to do and how to do it, but who to do it with.

And I just wonder on what basis we have the knowledge

to be that prescriptive in our, in our requirements.

DR. MATTSON: Well --

MR. SIESS: And so I'm interested in the bases, the criteria of what was the pattern. I don't see how anybody can go in on an absolute basis and judge anybody's organization.

DR. MATTSON: I think that's what we're trying to say to you. We think it's very difficult also, and that isn't what we're trying to do in these near-term OLs. It's that kind of thing that we're learning, in applying these criteria to the near-term OLs.

And when criteria firm up, having had that learning experience over the course of the next few months, as we say in response to your comment number two, we'll bring those criteria to the Committee for a formal review with you.

MR. SIESS: Okay. That's enough.

DR. MATTSON: Comment number three was this question of whether the N-triple-S vendor review of procedures ought to be supplemented by an architect-engineer review of procedures. Jesse Ebersole was the origin of this comment, that the number of people on the Committee supported.

As we said before, it's a close call, whether you go with or without the architect-engineer, our judgment continues to be that the N-triple-S supplier is more important. Our judgment also continues to be that we're using a very large number of resources, professional engineers, in implementing

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these near terminal held requirements in the other short term lessons learned on operating plants and that the return on the investment of more architect-engineering time in the review of these procedures is in our judgement not likely to be high in on a close judqement call we tend not to agree with the ACRS and the architect-engineer at this time. We say we keep our minds open. We'll look at these first few NTOL's and if it appears that more could have been done if we involved the architect-engineer then when we go through procedure reviews more generally - procedures revisions more generally, as the action plan says we will in another year or two, then we will involve other people.

MR. ETHERINGTON, CHAIRMAN: Do you considering a review by the AE's a major thing? It seems to me if you send the procedures to the AE's for comment this is something that doesn't involve anybody in a great deal of work

MR. MATTSON: I think that we understand it much differently than that, Mr. Chairman. The stack of emergency procedures is that high. There in excruciating detail of this valve and that valve of this poke and that poke; this switch and that switch and so. And to do the job correctly does require a large expenditure of resources. We are requiring the job to be done correctly by the NSS

vendor to go through and detail those emergency procedures . We choose not to require another entity to do the same thing.

MR. SIESS: Now, that assumes that the NSS vendor knows the plant and all of the differences that have been introduced to balance the plant, right?

MR. MATTSON: Well, ...

MR. SIESS: I mean, he doesn't deal just with his portion of the plant.

MR. MATTSON: He has to see how the overall plant design once intergrated and thought about and analyzed feeds back on his more immediate concerns, which is the protection of the core, and the primary system that the NSS vendor supplies.

MR. SIESS: The significant differences between Davis Besse and Crystal River in many respects - were those balance differences or were all those NSS differences?

MR. MATTSON: Most of those were probably balance and plant differences. In the system we have proposed, the utility would be responsible for assimulating and putting those things in the emergency procedures correctly. The NSS vendor would review of procedure would be a double check that when all of those things have come together taking into consideration the balance of plant they did so correctly to protect the core, and the primary

cooling system the way the vendor of those primary components intended.

MR. SIESS: And the utility in effect then, if they are not knowledgeable enough, they will probably call on the AE to help them on balance of plant items.

MR. MATTSON: Well, it is our experience that the AE usually helps write the procedures with the utility. That the AE generally designs the control room and develops procedures and those kinds of things in support of the utilities. So that the AE would have been through the procedure development process. The over-lay of the NSSS vendor review is more of a double check. The whole we found when we looked at this business after Three Mile Island is that there were things that could have been found by the primary system vendor if he had only been asked and some utilities had not been asking. Whereas the architect-engineer was more generally involved in the development of the procedures.

MR. ZUDANS: I was going to ask some of the same questions -- so your decision here is based on the fact that the procedures are developed already by AE and the utility -- they should be accounting for everything that NSSS specifies and this action is only a stamp of approval from the NSSS side.

MR. MATTSON: This is closing the loop. It gives NSSS vendor a chance to see how those people have done their work -- sort of a fresh prospective after the process is done. How did it all come together?

MR. ZUDANS: Well, I think that's O.K.

MR. LIPINSKI: One thing that bothers me is the assumption that the AE's right to procedures is true in all cases.

MR. MATTSON: Well, it may not be true. You know, in addition to the NSSS vendor review, we've got the NRC staff review of selected emergency procedures where we call in the vendor the AE and the utility and we sit them down at a table and we say how did you develop your procedures? What were the steps you went through? Who checked? Who double checked, so on and so forth? How did you use them in training? How did you use them at the assimulator? How did you use them at the plan? Now let's go to the simulator and apply a few of them--let's go to plant apply a few of them -- and walks through. And then the staff sits down and says to the applicant for the near term OL this is what we found in conducting that kind of spot-check of the process you use. That's why we have a double-check you see, if we made a mistack in not involving the architect-engineer, the staff review will find that out. The require-

ment we are talking about here whether we carte blanc say for every near terminal OL you'll do not only a NSSS vendor review but also a full architect-engineer re-review of emergency procedures. And we think that the payoff for that expenditure resource is not high. We would rather use the architect-engineer manpower on some of these other near term OL requirements.

CHAIRMAN ETHERINTON: But isn't it true that in the past niether the AE or NSSS vendor wrote the procedures. It's the utility that wrote the procedures on guidance from their contractors isn't that right? Mostly?

MR. MATTSON: If I understand it, it was a case where it was very seldom that the NSSS vendor was involved with the writing or even the checking of the procedures. More often the architect-engineer helped the utility prepare the procedures.

CHAIRMAN ETHERINGTON: But didn't review the procedures after they were written, right?

MR. MATTSON: There are some utilities but I don't think are in the majority, who in the past did QAing of procedures--double-checked that they worked correctly by asking people to come in, look at the integrated package and double-check. Some of them even involving some review by NSSS supplier. What we want to

do is raise the standard of quality assurances and double-checking improvement of procedures in light of things that we learned about procedures at Three Mile Island.

CHAIRMAN ETHERINGTON: As you say some of them did get an AE check of their procedures and others did not. Wouldn't it improve the process -- upgrade the process to have those that didn't go back to their AE's and have them reviewed?

MR. MATTSON: You mean the operating plants.

CHAIRMAN ETHERINGTON: Yes

MR. MATTSON: Our judgement for the operating plants has been that we've changed a number of procedures in operating reactors already. The small break local procedures we're looking generally at at Core uncovery whether it comes from small locker or whatever and then in a third phase of analysis over the next year or so the complex transients and accidents other than small break lockers of core uncovery. That we'll see quite a bit of scrubbing and re-reveiw of utility procedures. Recall that in that process you do a new analysis the vendor develops new guidelines the utilities writes nw new procedures -- they are reveiwed by the utility and its suppliers and the staff before they are incorporated people are trained against them and so on. Down the road,

after some studies that are in the plan are completed, and after control rooms are backfed it is our intent that emergency procedures may change significantly in their character. That we may be moving to day of more sympton oriented proecudures using safety monitor consoles and control rooms with different kinds of training, different kinds of displays of data and we may cause all operating plants to revise the format and fundamental character of emergency procedures. What we are afraid of is doing it so many times, that all we are doing is changing procedures in these plants and nobody remembers what he is supposed to be doing from one year to the next. That's our basic logic for not requiring the same things of operating reactors that we are requiring of near term OL's

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MR. SIESS: In the present system that the human factors people get involved, I know the utilities think they're doing that because they've had experience, and they probably use their people. You've got a perfectly good procedure, but if the person can't understand it or can't follow it, or doesn't go to the right one -- is that being done now at any stage, or is it proposed that it be done at any stage?

DR. MATTSON: It's proposed that it be done in this more thorough going fundamental change of procedures over the long-term. There is no requirement plan that the utilities about to start up the plant engage human factors experts.

MR. SIESS: And in effect, you don't think it has been done?

DR. MATTSON: No, it has not been done.

MR. SIESS: And so if you're going to do it, you've got to factor it in a little more slowly. I agree to that.

DR. MATTSON: Well, one thing -- the human factors experts are generally not reactor experts, and the reactor experts are generally not human factors experts. And there's a time required for the meshing of these. And to just arbitrarily shove them into the

2/2

control room today and tell them to do the right thing -- I don't think you'd have any guarantee that the changes they'd make would be the right changes. I think the changes will be made as necessary, assuming there are control room design and procedure reviews on these plants. And there are some that we're requiring to be made.

Or a simple QA mistake -- people mislabel gauges. Procedures call for a man who stands there and make a decision when the gauge he needed is part of that decision was across the room behind the panel. Those kinds of things that when you think through the use of a procedure in a real accident situation -- that is, you believe in it. And you do walk-throughs that you find --

MR. SIESS: Well, the kind of thing that bothers me is the man that executes the procedure perfectly, but it's the wrong procedure for what happened, and is there some systematic review that looks through and says -- now, here are two procedures that are almost identical to deal with different circumstances or that they are identical to deal -- or do they develop them one-by-one till they get that stack, and nobody checks to see if there are duplications, completeness, any hierarchy.

DR. MATTSON: That's the reason for the long-term program to come for systematically at how procedures are

2/3

written. Sort of independent of how you got here, here are the symptoms of what you have. This is what they mean, and here is a hierarchy of possibilities for getting out of this.

MR. SIESS: You want uniqueness. You want completeness. You want certain logical things satisfied, and I just wonder if anybody has ever done it.

DR. ZUDANS: For the symptom-oriented type of procedures, that means you go in the direction of it.

MR. SIESS: Yeah. Well, they can go all directions. That's the trouble. Do they go the right direction?

DR. ZUDANS: Well, if it's this size -- if it's this size, I don't know how the poor guy and the operators locate the right procedure. But that's a aside from the point. That's his problem.

DR. MATTSON: That's precisely the point of why over the long term we think they probably need fundamental revision in parallel and consistent with revisions to the control rooms, revisions to their training, revisions to their qualifications. They all need to mesh.

MR. LIPINSKI: How do you visualize that the NSSS will implement his assignment?

DR. MATTSON: How do you?

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MR. LIPINSKI: Well, yes. He's going to need specific information and the balance of plant as built. So is he going to be provided with as-built drawings; walk through the plant. How does he go through this assigment? He doesn't have the information in his own offices. He has to get it from the architect engineer.

DR. ZUDANS: Well, I mean that's interface information. That's all.

DR. MATTSON: Well, he doesn't have the complete balance of plans.

MR. SEISS: Anybody who's been involved in the reviewing what the builder at Sequoyah or North Anna -- Larry, you weren't involved in that -- were you?

MR. CROCKER: I was not.

DR. MATTSON: I don't know the answer to your question. We are supposed to have the procedures people come in at ten that were involved in Sequoyah start-up and North Anna review that's going on now. Let me see if I can get the answers.

MR. LIPINSKI: Well, the case in hand -- even in TMI-2 did not have complete as-built information at the plant.

DR. MATTSON: Well, I doubt that the NSSS vendor review that is being done is a component by component,

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switch by switch, step by step and so on. It's more, if I understand what they're doing -- are the symptoms stated correctly? Does this procedure comprehend the kind of phenomenology that would be experienced, and the kinds of implications of that phenomenology that would be manifested in the control room from a sort of overall nuclear engineering, reactor-response point of view.

MR. LIPINSKI: But a complete review would have to be done based on the assurance that if I perform a function in closing a specific valve that that procedure identify the proper valve and not get mixed in somewhere where it may be some related function, not the specific function.

DR. MATTSON: There is a distinction between a 100 percent audit or a complete review of work and procedures on one hand and an overall review of various kinds of transients and accidents treated by procedures to see that they have the right symptoms; that they'll take the operator from the indications he has on the console to an understanding of the accident; to the right kind of a remedy.

I think it's more the latter kind of review than the former, but let us try to get some people down here who have been involved in Sequoyah to see how it worked

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on that first plant and see if that is their understanding also.

MR. LIPINSKI: Without the 100 percent audit, you don't find out till the transient is in effect that you do not have the proper procedure.

DR. MATTSON: Well, you do and you don't. You know you can use them in drills. You can use them in simulators.

MR. LIPINSKI: But the drill is never done under accident conditions. You can do a walk-through, but the plant variables are not responding during that walk through.

DR. MATTSON: Well, it's my understanding that the requirement is not 100 percent complete redo of the procedures to ascertain that every detail has been correctly handled. We can find out -- verify that that's the case. I would argue that that needn't be done. You seem to be proposing that it should be done. And that's a difference of opinion.

CHAIRMAN ETHERINGTON: It seems to me, Roger, that your disagreement should be based on assurance of adequate participation of the AE in the original formulation of the procedures. And I don't know that we have that assurance in all cases.

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DR. MATTSON: It seems to be the hole in the logic that -- it seems to the be the hole in the logic as it is developed here this morning.

DR. ZUDANS: It would be necessary for AE to be part of the procedures in order to accept this independent check by operators who are not involved in AE.

DR. MATHIS : Well, I think you'll find from experience that most of the AE -- when they have been in ATP with the utility, acceptance test procedure, are going to go through a system. And the procedure is going to be written that says, okay, we'll test the procedure this way. And this is the way it should react.

Now, do they go beyond that in a procedure that ties that system to other systems for integration? I would kind of doubt it. I know they go through the first part and quite thoroughly, but it's a system by system. And how this might tie back to the NSS, that's something else.

Of course, there's one other problem here, and that is that we talk about emergency procedures. If there is a transient in the plant, the operator is going to react, and he's not going to thumb through a book until he's taken some action. Then, he's going to go back --

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DR. MATTSON: There is a period of trained response.

MR. MATHIS: Then he's going to go back and then he's going to use the procedure as a check list basically. And if these things are being written with that kind of symptomatic reaction checklist approach, then I think we're making some progress. I don't know the answer to that though.

DR. MATTSON: Well, I think the procedures usually contain a step-by-step description of that instinctive trained response period because that's the place where the operator goes in his training and first learns what his prompt response should be. Not so much a matter that he's going to go run and look that up in the first ten seconds of the transient, but that's what he's going to learn in order to pass his exam or run the simulator or whatever. Don, is that basically a correct understanding?

MR. SCHOFIELD: Yeah. That's traditionally emergency procedures, and this is really consistent with the industry's handling of the subject. Have a section called "Immediate Action Steps" and "Subsequent Actions."

And the immediate action steps are to be memorized by the operators for the highly safety

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significant kinds of emergencies. They are not to run and look things up. The immediate action steps are supposed to be instinctive. F when you get past that, then the paths of action, the de rable action, might diverge depending on th ecific circumstances.

And at that point, the individual can refer to the procedures and get assistance in diagnosing what to do next.

MR. SIESS: Yeah. But the first step is diagnosis. He doesn't know what procedure to go to or what immediate actions to take unless he diagnosed the problem right. And that's the thing that bothers me. It's a thing we've seen happen.

If he makes the wrong diagnosis, it's not going to help to give all the wrong medication. You can kill the patient. So first he's got to have the diagnosis. And this gets back into control room design, the systems panel and all of this stuff.

But I don't -- if you know what the scenario is, you can write the perfect procedure. But unless the man goes to that procedure, makes the correct diagnosis, we can all be in trouble. So don't leave diagnosis down the line and somewhere after immediate action. The diagnosis may have to be intuitive. Or it may have to

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be trained into him to where he doesn't have to look up a series of symptoms.

DR. MATTSON: You start out with line by line review of procedures, and we've gotten to where the people in the control room are trained to diagnose transients.

MR. SEISS: I never did get to the line by line. I got -- that's back to procedures, and how do you get to the right one. I'm assuming somebody knows how to write procedures. I want to know how the operator does the right thing.

I mean the paper doesn't help the planner a darn bit. It's the operator that does.

DR. MATTSON: And that's more involved with training and qualifications and information availability kinds of things than it is with the review of --

MR. SEISS: And integrating them all. That's the difficult part.

DR. ZUDANS: Well, the procedures are based on assumption that you do know the symptom. Now, you've got the symptom, and what happens?

MR. LIPINSKI: North Anna Two had an abnormal pressurizer behavior procedure. The immediate action is close the block valve, but they concluded that that procedure didn't apply.

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DR. MATTSON: If you get back to procedures, I think what we're -- what we tried to say is we wouldn't involve the architect engineer on these near term OL's. We would involve the NSSS vendor. And part of the reason is because the architect engineer or the architect engineer in portion of the utility -- something like TVA or Duke or other electric power -- is involved in the writing of the procedures originally.

DR. ZUDANS: Well, wouldn't you want to make sure that in every single case the AE is involved in procedure writing?

DR. MATTSON: That might be a decent compromise between the two positions.

DR. ZUDANS: It has to be that because who is going to be able to handle the systems interactions.

DR. MATTSON: You could say that NSSS vendor would be required to conduct this review of procedures unless the architect engineer had not been involved in the writing of the procedures originally, in which case both the NSSS vendor and the architect engineer were required.

DR. ZUDANS: No. You don't have to make that complicated. You can say simply that the procedures for operating have to be written with the participation of

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of all the elements. That the engineer supplies procedure guidelines. They don't -- until now that's all they need to ask. I assume they did not review the procedure that is enumerated on that.

Now, if you leave it at that, the engineer supplies his guidelines. The AE supplies its guidelines. And the utility with or without AE writes the procedure.

DR. MATTSON: Now you're confusing the short-term -- near term OL requirement -- if we're trying to summarize here -- and the longer term how do you write the procedures better in the future. We're going to get to later when we've gotten through Chapter One.

DR. ZUDANS: Of course, I did make that distinction. I didn't make that distinction.

DR. MATTSON: I think we've reached the point of diminishing returns on this .

CHAIRMAN ETHERINGTON: Yes. Excepting I'd like to know where we're going from here. Is the purpose of this discussion to try to get the committee to change its views or --

DR. MATTSON: No. It's to try to give you a flavor of how we responded to your last letter before we go about the tasks of developing your next letter.

CHAIRMAN ETHERINGTON: And where does that leave

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us? You go ahead on your own views, or --

DR. MATTSON: No. The Commission will have to resolve that.

CHAIRMAN ETHERINGTON: Will have to resolve that.

DR. MATTSON: Yes.

CHAIRMAN ETHERINGTON: And if there were a middle ground, this would be a useful resolution?

DR. MATTSON: Yes. If there is a middle ground I think it would be useful for us to try to propose it to the Commission as they go about considering this letter.

CHAIRMAN ETHERINGTON: Of course, we're now commenting on a committee letter as a sub-committee. Do you have any comment on that?

MR. SEISS: Not to do with writing it.

CHAIRMAN ETHERINGTON: No. But do you think the middle ground would be useful to explore?

MR. SEISS: I think we need to look at the response in a little more detail, and have had time to -- I don't think we're that far different.

CHAIRMAN ETHERINGTON: No, I think not.

MR. SEISS: As to what is in the near term.

DR. ZUDANS: I'll accept for the fact that we have known that the procedures already should have been written by now.

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CHAIRMAN ETHERINGTON: Well, perhaps we should go through this rather quickly -- the rest of this.

DR. MATTSON: We're talking review now.

DR. ZUDANS: Okay. That means that all I personally would be concerned with is making sure that they have their finger in it. That's the extent of it. Because he's the only one that knows the rest of the systems. In fact, you know --

CHAIRMAN ETHERINGTON: I think this is the major thinking -- an adequate finger, a whole hand --

MR. SIESS: I guess I don't put it that way. If I wanted to state what I think is a minimum, I'd want to say that whoever reviews the procedures have detailed familiarity with the balance of plant as well as with the NSSS.

Now, I don't care whether it's the NSSS vendor or the utility or the AE that's reviewing it --

DR. ZUDANS: I agree with that statement.

MR. SIESS: But he has to have the whole picture, and he can't have it in general.

CHAIRMAN ETHERINGTON: Well, you might say the utilities --

MR. SIESS: If it gets down to turn valve 2V3 well, you darn well better know what valve 2V3 is and

whether there's another valve right next door to it that you'd want to paint a different color.

CHAIRMAN ETHERINGTON: Well, I think we probably should move along rather rapidly on this, Roger.

DR. MATTSON: Well, I think we've talked about both three and four.

CHAIRMAN ETHERINGTON: Yes.

DR. MATTSON: Item Number Five is series of comments "a" through "e" on some of the steps taken by the Bulletins and Orders Task Force, or recommended by the Bulletins and Orders Task Force.

We agree with your comments on some of them; disagree on others. Let me summarize them quickly. For the criteria for early reactor coolant proposal, we agree that that should use some further study. We're going to revise Table C-3 to say finish the study; then decide whether to implement an automatic pump trip and put off the implementation for a period of one year.

In the meantime, of course, the current criteria for manual pump trip will continue to apply unless there is shown by the analysis between now and the end of this year to be in error.

And the second point: the criteria for high pressure system injection termination -- we think that

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we've done as much analysis as we're capable of doing. We think that the NSSS vendor has done as much analysis as they are capable of doing.

It is from those analyses that the current criteria were developed. We don't know of anyone who says those criteria aren't the best we can do today. We don't propose to do anymore analysis at this point or to change the criterion.

DR. ZUDANS: Is this the case where 50 degrees of cooling was one of the items?

CHAIRMAN ETHERINGTON: Yes, it was.

DR. ZUDANS: I think it was Andy Bates that thought you may not be able to achieve that unless you throttle down the HPI injection. It's some PWR condition. Have you received that memo?

CHAIRMAN ETHERINGTON: Well, I think that's an internal memo. I think the committee would probably want to review that before they released it.

DR. ZUDANS: Okay. That's my question. But then the question still remains, and if that situation --

MR. SIESS: It's one we better look at.

CHAIRMAN ETHERINGTON: I think it's wrong.

MR. SIESS: We'll take a look at that one.

DR. MATTSON: Okay. The third point has to do

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with the automatic isolation of the PORV. You said to make sure if that's the right thing to do. We agreed that it doesn't make much sense to do it the way Table C-3 currently says. That is study it and implement it simultaneously.

We've changed the implementation date so we study it first, make a decision, then implement it.

MR. SIESS: Well "b" and "c" together can you get into a problem, can't it?

DR. MATTSON: Yeah.

MR. SIESS: Like Crystal River.

DR. MATTSON: Yes. Item (d) concerning the frequency of SCRAMS, we agree that the SCRAM frequency in B & W plants has been increased by changes made since Three Mile Island. It's close to and slightly in excess of the SCRAM frequency for Westinghouse plants. Recognize however it's based on a pretty limited data set.

But we are tracking it, keeping track of it as we go along. You know we have another activity underway, another Te Descho task force, if you will, looking at the design sensitivity of B & W reactors. That is having learned everything we've learned about B & W reactors including the Crystal River experience, what more ought we to be doing than what the actual plan says, if anything?

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Mr. TeDescho his due to report to one or another subcommittee of the ACRS this week or next, and the full committee next week. We think that we have the SCRAM frequency problem in hand. We don't think it's the safety problem that your letter implies.

That is it hasn't become one yet although we'll continue to watch it. Furthermore, we've told B & W than when they feel they've got the PORV set point under control -- that is the ICS interaction, control protection engineer safety feature interaction question back in hand, and they want to suggest revision of the PORV set point we're open to those suggestions.

We feel that the ball is in their court on revising the PORV set point and decreasing the number of SCRAMS.

DR. ZUDANS: The current SCRAM rate as a result of the change in section-- does it threaten to shorten the life of the plant?

DR. MATTSON: No, it's within the design frequency assumed in the original design of the plant. Somebody said those numbers to me yesterday. I won't be held to them. They are something like the following.

The design number is ten per year; the Westinghouse number through the past four or five years

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has been seven to eight SCRAMS a year; the CE slightly lower that that; and B & W the lowest out of the four, five, six range per year.

Changes made to B & W plants since Three Mile Island put them up in the eight plus SCRAMS per year range, but recognize that we've only measured that over an effective period of less than a year at this point so that's -- we'll have to keep watching it closely to make sure that it isn't higher than what the numbers so far say.

MR. MATHIS: But Roger, one of the big problems we had with this is that if you go back to TMI, one of the problems was that you had no good indication as to whether or not the valve was open. Now, that supposedly is being corrected.

DR. MATTSON: That will be fixed by the end of this year.

MR. MATHIS: All right. And the second thing is that if you've got a means and you know that you can close the blocked valve so that you can isolate, you've got to know that the valve is going to work -- if you have those two things, then it seems to me, and this is what we've discussed a lot, is that a set point can go back to where it was to avoid SCRAMing the reactor as

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often because SCRAMing a reactor is a very serious kind of thing.

DR. MATTSON: There are a number of people who agreed with that line of reasoning. There's a complicating factor that's thrown into it, and that has to do with the allowable, unreliability of the primary coolant boundary and whether it's reasonable to allow a PORV that has a failure rate significantly in excess of what we otherwise thought the small break probability to be all of these years, independent of whether it can be blocked or not.

And when you get into that other line of reasoning that it becomes more complicated. What we're saying at this point is we agreed with the line of reasoning that you're offering now. And that questions about reliability and interaction have to be solved with the integrated control system and the interaction between control and safety systems on the B & W plant generally, in light of its sensitivity to upset the conditions in the secondary plant before we want to move to the kind of change that you're talking about.

But while those things are going on, we will not move to automatically block the PORV. And we will not change the set point until we've taken time to do those studies and understand those complexities because the

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SCRAM frequency that we're experiencing is okay. It's higher, but it's still okay. We're carrying water on both shoulders on this question. We probably will continue to do that through the remainder of this year unless the TeDescho study that's about to report says that there are more far reaching changes to the operation of B & W that ought to be considered.

MR. SIESS: But you want to be sure you don't impose some procedures that guarantee the safety is going to open. It seems to me that if you don't want the PORV to open, there's a whole lot less you don't want the safeties to open that you can't block.

DR. MATTSON: That's another complicating feature.

The last one -- the business of sub-cooling meters versus the void meters, we think sub-cooling meters are better because they tell you what you're aiming at in addition to when you've gotten there as opposed to void meters that really only tell you when you've gotten there. And then on a sort of averaging basis.

Remember we said we wanted to do some things quickly to improve the understanding in the control room of deteriorating conditions in the primary coolant system. The best thing we could do with available instruments was

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sub-cooling meter, and that's been done. The more difficult thing was the general indicator of inadequate core cooling or the vessel level indicator if that turns out to be the way in the primary coolant system.

Now, that may be a void meter. That may be a differential pressure meter. People are still discussing that question. We thought that we had an understanding with the committee that sub-cooling meters was the way to go in the short-term, and the vessel level indicator was the way to go in the long-term. I guess we were surprised by all of this talk about void meters at this point. I thought you understood what we were doing, and there wasn't any debate.

MR. CATTON: The saturation meter doesn't tell you anything about the condition of the core in particular.

MR. MATHIS: Well, the only thing that really you're interested in is keep the core covered. Keep the core cool.

DR. MATTSON: With cool water.

MR. CATTON: Because your saturation doesn't tell you that.

MR. MATHIS: Well, let it sometime be a boiling water reactor.

DR. MATTSON: Then you need a level sensor.

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MR. SIESS: Yes, you do.

DR. MATTSON: Yes. I really don't want to argue the point with you. We've already discussed it. We've been through it for damn near a year now. Why can't we just agree that we've got a short-term thing, and that's sub-cooling meters. And we've got a long-term thing, and that's a level indicator.

DR. ZUDANS: It doesn't do any harm. That I would say. I was curious about other thing. Did you now -- many facilities provide duel scales and saturation listed, and the pressure guage at saturation temperature as a secondary scale of this same instrument? It wouldn't be the very perspective because then --

DR. MATTSON: Well, but that's why we have put a sub-cooling meter on so that they didn't have to carry --

DR. ZUDANS: Yeah. But a sub-cooling meter that interpolates to heat tables and temperatures. But if you have a temperature, a thermometer here, and a pressure guage here -- close to each other -- a duel scale on each of them. You'd have the same information.

DR. MATTSON: That's another possibility.

DR. ZUDANS: And it's very cheap because all you have to is paint another scale. I understood that McQuire had it. That somebody said something about that.

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DR. MATTSON: I'm not familiar with those details. You know -- we've said to these people we're going to modify control rooms. We're going to improve synthesis of information for operators, and make sure everything is in its place.

And there are a bunch of things in the action plan that do that. When they come to solving the details of specific instruments and specific process variables to try and communicate with an operator so he can make judgments, we'll make a number of choices we'll try and propose.

One that was very important -- people who viewed the accident, quickly -- or in the short-term record was that PWR operators apparently were not provided with sufficient information to make rapid decisions on the sub-cooling or the approach to saturation of the primary coolant system.

The sub-cooling meter was discussed at length, and the way to do that without upsetting a lot of other safety instrumentation; without significant modification in the control room and retraining, it was easy to tell people what it meant. Decisions were made by this hearing room; by NRR; by this committee to move ahead with something.

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DR. ZUDANS: Now, I have no disagreement with sub-cooling at all. I would only be very curious to find out how many instruments have you here?

MR. SIESS: Good point.

CHAIRMAN ETHERINGTON: I think we should proceed on to the next one.

DR. MATTSON: Okay. Item Number 6 is really a collection of things. You said in the NG-OL letter refer to our B & O letter so we referred to your B & O letter, and 6(a), 6(b), 6(c), d, e, f -- all up to page six are point by point response to the B & O letter.

6(a) is the reactor coolant pump trip high pressure injection which we've already discussed. 6(b) is feed and bleed and whether we're going to rely on it. And if we're going to rely on it, ought we to test it or analyze it more than we have in the past.

We agreed that we ought to add an item to the action plan to give more deliberate further study to the feed and bleed motor cooling.

We've already participated in a sub-committee meeting on feed and bleed. We're prepared to look forward with you to reason out what ought to be the right thing to do with feed and bleed coolant. I think that's about we can say on it at this point.

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It is in the action -- it was in the action before and as far as Davis Bese was concerned. This response here says we will broaden it. Challengers to PORV and B & W plant -- we've already discussed that. And that's what this response says.

Potential unreviewed safety questions on automatic initiation of all feed water systems. We recognize that. The plan recognizes that. It's already in there along with 2-E12. People with that problem have been required to respond to that continuously on review safety question.

6E -- business of small break analysis on certain of these and conservatism and making the various revisions and calculation methods and so forth mesh with one another and have the right timing. A good point -- we think the plant already does it, and it reports how we think it does it.

"F" says -- I guess the bottom line -- scheduled for implementation of the B & O recommendations ought to be more flexible. It looks like it was too much too fast in that.

The steering group had already reached that conclusion before your March meeting and had changed the implementation dates in Table C-3 by some considerable

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amount relative to the dates recommended in the B & O final reports. Further changes are being made as we look at the relevant priorities and importance of these matters and the resource exercise that we're going through now.

So there has been quite a lot of attention paid to that problem. Item seven, control room habitability, we agree with you. TMI said that the current requirements may not be good enough. We want to take it in two bites.

The first bite is implement current requirements on all plants. Then, in parallel, study whether changes ought to be made to the plant requirements. And then make a decision whether the fact that those changes -- and the reason we feel we can take the time that's given in the action plan for the second bite is because one of the short-term lessons learned has already required all operating plants to go out and look at where radiation could be present and restrict access of people following an accident. That includes the control room.

And one of the short-term -- another of the short-term lessons learned required them to have iodine measurement or discrimination capability in the control room so they knew when they had iodine instead of -- like they thought at Three Mile -- they had iodine. They only had some gases.

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We think that the plant as currently written accommodates that ACRS comment. Number eight is one we've already dealt with up above: dedicated containment penetrations. This is the question of whether the recombiner inlet ought to be at points where hydrogen would naturally accumulate.

We choose not to address this point at this time on the basis that the recombiners that are there can't cope with large amounts of hydrogen generated rapidly anyhow which is the only thing you're really worried about accumulating because smaller amounts generated more slowly are going to be distributed by systems inside a containment so that the distribution is fairly uninform for the recombiner -- at the recombiner.

MR. CATTON: How does this fit with the data that's coming out of Catell. That says at 10 degrees, C stratification can cause a great deal of hydrogen concentration?

MR. MINNERS: Well, in a reactor, isn't the gradient the proper way.

MR. CATTON: What gradient? What are you talking about?

MR. MINNERS: Are you referring to the test?

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MR. CATTON: Yeah.

MR. MINNERS: Well, I thought their problem was that when they brought a lot of cold water into the vessel, they kept -- to get the gradient -- the temperature gradient goes toward the vessel because they don't have any contained heater movements.

They're going to tend to get things in the reactor compartment as well. But there are containments when you have heat removal systems in the containments. You're going to get things going from the reactor out. And you're going to tend to get --

So if you don't have containment heat removal system -- you have -- it could be a problem where you would --

MR. CATTON: They don't have continued heat removal procedure.

MR. MINNERS: I don't believe they have safety grade --

MR. CATTON: I'm in no position to respond. I just heard that ten degrees C-stratification and containment environment led to a great deal of hydrogen concentration, and I didn't know whether that --

DR. MATTSON: Ten degree C-stratification with coolers going and all the things --

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MR. MINNERS: You might want to bring that subject up tomorrow after -- on the emergency because we'll have some of the same people here --

MR. CATTON: I will. I would like to find out more about the test. I just heard about them yesterday.

MR. MINNERS: Talk to Bill Mistead. Maybe at lunchtime you could give him a call or something.

MR. CATTON: Will he be here tomorrow?

MR. MINNERS: I don't know.

DR. MATTSON: In any event, we propose that this is a subject that has to be looked at as we move to the question of design bases in excess of five percent metal water reaction. That turns out in the case -- there's a ruling on core melt accidents and put this matter in that context.

The role of NRC in emergency preparedness -- comment number 10 -- we think this issue has been closed and in accord the ACRS advice, and there's a second paper, 80-35 that Don -- you may want to hand to the committee if they no longer have a copy.

As we read your comments, inclosure of this issue in the action plan is consistent with your comment. We've taken some steps to followup on things that Dave pointed us to in the last meeting, and they

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are summarized in this response. The 12th one has to do with IREP and how much licensees would be involved in the initial IREP, Integrated Reliability Evaluation Program, analyses.

We've revised the plan; actually we didn't have to do too much revision because it was intended to be with this way. But we made it clear that in parallel with the initial IREP program, the initial six plant study, we will begin to meet with licensees and owner groups, or the AIF, whatever it turns out to be the correct forum, perhaps NSAC, to develop an approach for industry/licensee involvement in these sorts of analysis.

We've already got one licensee to come in and volunteer that he'd like to do one in lieu of a lot of short-term lessons learned to prove that they are not necessary for his unique, somewhat older design.

Other people in industry have expressed an interest in getting involved. We'll work that in parallel with the initial six-plant study which should yield decision quicker in initiation of the studies in industry sooner than the year that's currently estimated in the action plan.

The next one said -- the next comment said we ought to get licensees to study hydrogen control and

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filter designs post-haste rather than waiting for some kind of rule making to be concluded. Now, as it says in the action plan, we're considering requiring in the immediately effective portion of this two-step rule making, requiring that licensees develop designs for both hydrogen control measures and filtered bending. That is conceptual designs for realistically evaluating instability and such things.

We think that's responsive to your comment. The next one you said, as you have said for some months, that we take a broad perspective on the things that we learned from Three Mile Island, and that we also be careful not to interrupt work that was otherwise ongoing and important to safety by things that have the appeal of the Three Mile Island action class that might be less safety significant. We think that's what this research prioritizing is all about.

And having reached page ten from this document I'm about ready to give you some other papers which show you more about research prioritizing and how we're addressing the implications of some of the things we've had to defer or reprogram in order to do the more important Three Mile Island thing.

If you have any other comments on this letter

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I'll confirm for you later today when it is signed, and then I'll await your feedback as to whether you want to discuss it more tomorrow in advance of the full committee meeting next week when you may want to have some comment on it.

CHAIRMAN ETHERINGTON: The next item on the agenda is the staff response to AIF study.

DR. MATTSON: Yes.

CHAIRMAN ETHERINGTON: I would like to feed this in as we go along in our review of Table 1. Is that all right?

DR. MATTSON: All I want to do at this point, Harold, is hand you a piece of paper which is a point by point 20 page accounting of how we are responding to the AIF comments either in Draft Three which has already been published or further response in Draft Four which is still under development. So this will give you at least a picture current to today of how we responded to the AIF stuff.

CHAIRMAN ETHERINGTON: All right.

DR. ZUDANS: Would that of necessity cover all items in Table 1?

DR. MATTSON: No, the AIF addressed 51 action items. There are 177 in the action plans. It does not

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address all. I believe we have arranged here in numerical order. Do we not? Yeah. These are all arranged in numerical order so you should be able to follow along as we go through the action plan.

CHAIRMAN ETHERINGTON: Good.

DR. MATTSON: Follow along with these comments. And in the left-hand column we talk about how we agreed or disagreed with the AIF on the description of the task. In the middle column, we talk about how we agree or disagree on the implementation of the action. And in the third column, how we agree or disagree on the estimate of the resources required to accomplish the task.

CHAIRMAN ETHERINGTON: All right. We'll hold this as a reference then.

DR. MATTSON: Yes. I do not intend to bring it out as we go through. You can eyeball it, and if you read this and you find things that you don't understand why we did one or another on it, you can bring it up yourselves.

I want to interject one thing that's not on the agenda. We had said the last couple of months there needs to be some kind of understanding or policy on how items in the action plant that are not contained in the near term OL requirements list -- how those things will eventually

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be implemented. We call this an implementation policy for future requirements developed in accord with activities described in the action plan.

For example, there are activities in there which have not produced criteria yet, but which will produce criteria in the next six months, in the next year or the next two years: the control room design, procedures, further upgrading of the qualifications of operators and so forth.

What I just handed you is a two-and-a-half page proposed statement of implementation policy which the steering group intends to include in the final draft of the action plan.

And what this policy proposal boils down to the is that because we have acted with some urgency in the past year in the implementation of short-term requirements flowing from Three Mile Island and now with some urgency on the application of the near-term OL list for new reactors that having acted in that way for the past year, we now can afford to be a bit more deliberate with the implementation of future requirements.

Now, there's a parallel argument that says having done all the things we've done in the past year, we've used up a lot of the qualified resources and we better slow down a little bit or we'll be causing changes

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to occur without taking time to study them enough because there are a lot of people busily engaged doing the things we've already decided upon. That's another reason for the kind of implementation policy that we have laid out here.

It has four ingredients. I won't read them to you. They start on the bottom of page two. We would like you to take a look at this two-and-a-half pages, ask any questions you may have in the course of the next two days, and put it on your agenda for discussion with the full committee next week because we'd like the committee's advice on this implementation policy for future requirements coming out of the action plan and related to TMI, not intended to be a replacement of the old RRRC ratchet committee criteria for back fit of regulatory guides.

This isn't intended to be the Commission's general back fit policy. It's intended to be an implementation policy for those things in the TMI action plan which come after the near term OL requirements.

That's another item if you have questions over the next two days, I'll leave it up to you to bring the questions to me at the close of today or tomorrow. But we would like to see it on the full committee discussion next week, if we could.

CHAIRMAN ETHERINGTON: Many of these items will be covered in Table 1, won't they? I mean you have a schedule in Table 1 that is not NTOL -- only NTOL.

DR. MATTSON: That's right. Good point. If this policy is eventually approved based on our argument for it and your comments on it, and the Commission's consideration of it, then it would govern the implementation dates shown in Table 1 for all of those matters that are not NTOL matters.

So insofar as it might disagree with those dates, those dates would be changed. For example, if there is a date there that says implemented a complete -- or change out of all control rooms by 19 -- by June of 1980 -- I'll pick something that's obviously ludicrous, right? This policy would say -- wait a minute -- that's a not on the NTOL list. I have to select implementation deadlines for such additional matters since I've already done the short term things that buy me some time in a more leisurely or deliberate manner so I can make sure I do them right, and so that I reduce the cost. Therefore, increase the value impact ratio of these additional changes.

And June 1980 is too soon for something of that magnitude. I'll pick something that can be reasonably accomplished, and without additional shut-downs and without

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delay in start-up of new machines. So that's a good point, Harold. Those interact with those dates in Table 1.

Okay. last thing I wanted to summarize --

MR. SIES: But the dates for the NTOL items you consider history?

DR. MATTSON: Yes. History except that the Commission has to consider this letter that we've just reviewed summarizing how we reacted to your comments, make some decision on the NTOL list, decide that it's necessary and sufficient, and then the issue will have been decided.

Okay. Resources. You referred to a letter that we sent to the office director -- we, the steering group of the action plan -- sent to the office director and said please comment on Draft Three, give us your concurrence or your changes you would suggest in order for you to concur in Draft Three of the Action Plan; and tell us how you would implement using the resources that you command -- the highest priority things in the action plan and what that requires you to reprogram that's in your normal operating plan.

We discussed this with the sub-committee and the full committee in March insofar as the reprogramming necessary to accomplish only the near-term OL requirements.

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Now, since then we've sent this letter -- you have a copy -- and the offices have developed their responses to that letter. Unfortunately, they are not signed, sealed and delivered. We have them in draft, however.

We have had them for several days. And the document I'm handing to you now should be thought of in a preliminary sense because the final concurrence of the office director was not available, but I expect it's pretty close.

The first couple pages are descriptions of the keys that involved. I think you can skip over those. And if you'll turn to the first tabular page, you'll find an old friend. It's Table 1 with the far right-hand column changed. The new columns indicate via "x" the year in which the lead office -- that is NRR standards, Inspection and Enforcement, whoever -- intends to initiate action given resource restriction and the safety significance of other things that have to be done with our resources.

So if you look -- thumb through the pages, you'll see there are some things that begin in Fiscal Year '80. Some things that begin in Fiscal Year '82. And very few things that begin in Fiscal Year '81. The reason for that, of course, is that there is so little time. This

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happened a year left in '80. It's saying it starts in '80 or '81 is approximately the same thing. So a check in the first two columns means it starts sometimes in the next few months, if not already ongoing.

A check in the third column means it's been deferred, and it won't be started until sometime in or beyond Fiscal Year 1980. So what this document gives you, as go through the action plan, is an indication of whether, having considered the priority of each of these matters, and having considered the priority of other responsibilities, the office directors recommend that these actions should be started now or later.

Now, you'll find -- and you'll see it in the final responses from these office directors when they're available, and I hope we're going to be able to xerox most of them late this afternoon or early tomorrow and give them to you so that you have them to read before the full committee meeting.

DR. ZUDANS: The priority group three we should expect "x" in FY '82 --

DR. MATTSON: That's what I was about to say. You will find that the officers are concentrating their resources in '80 and '81 on the priority group one matters.

DR. ZUDANS: And they are priority three here

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FY '80 --

DR. MATTSON: Let me say what I mean by that. That means that NRR will be able to initiate action on all priority group one matters in FY '80 or '81. On some priority group two matters, they will initiate action in '80 and '81. But by no means the majority.

And on practically no priority three matters will work begin in Fiscal Year '80 or '81. Now, you're looking and if you're finding some you may be finding a mistake in the table because I read Mr. Denton's note pretty closely.

DR. ZUDANS: 1D6 -- 1D6.

DR. MATTSON: That's complete.

MR. BLAHA: It's already completed.

MR. SEISS: Which one is that?

DR. MATTSON: Oh, 1B6.

MR. SIESS: Does that just meant it had a wrong priority, you see -- after they thought about it they figured they shouldn't have done it.

DR. MATTSON: No, that's not necessarily true. Remember that the high waiting in the priority system goes on safety significance. That's conflict that took something less than a half a man year for NRC to participate in its organizing with IEEE, and it brought together

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350 experts in advance electro-technology and control room for human factors from DOD and NASSA. So to begin to talk about some of these problems.

DR. ZUDANS: There are 15 priority three items that are listed here.

DR. MATTSON: You have to see whether some of those are NRR or not. I just summarized NRR. I & E will do better. It will be able with its resources to go further into some of these matters and standards will be able to be somewhat better, I think.

MR. BLAHA: So is research is going to --

DR. MATTSON: Research is basically going to do all of it.

CHAIRMAN ETHERINGTON: Is this planned as a revision of Table -- the old Table 1?

DR. MATTSON: No, this is a plan that tells you when things are going to start. It uses the same format as Table 1. We will not replace Table 1 with this one.

We'll probably have a resource appendix in the back of the Action Plan -- maybe Appendix B or something by the time we're done, and this table will probably appear in Appendix B.

MR. SIESS: What it doesn't tell us is what they're postponing in order to do these things.

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DR. MATTSON: Right. That's the next thing.

(Laughter.)

MR. SIESS: Because everything is relative.

DR. MATTSON: Now, I can't do as well here because I don't have all of the information back from the offices, but this is typical of what I am going to be receiving, or the steering group will be receiving tonight or tomorrow morning.

And let me describe this one. This one happens to be a draft of NRR 's. One beauty of being on a steering group and being the NRR representative is I can use their draft material more freely than the offices.

The left hand column says -- here's an item that is in our FY '80 operating plan. It's our budget. What we had planned to do for the action plan. You'll notice that those items are listed in the inverse priority array as they were in the summary piece of paper we gave you at our last sub-committee meeting.

The middle column says what we propose now to do with the item in the left-hand column. The right-hand column says -- and what does that mean? How serious is that? This AD or the licensing responsibilities, or what have you? Now, if you look in the middle column, you'll see after each item there is a parentheses that tells the

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person how many professional man years are saved by accomplishing that reprogramming action. Let's take the first one. The first item says in essence -- the stop work order on site review.

And what that saves is five professional man years. The only implication of that is there is only one early site review in-house. It's Carroll County, and we wouldn't do it. That's how you would read this table.

Now, the first two pages of this thing are Fiscal Year '80. The next two pages are Fiscal Year '81. And what you get when you add up the central column -- if you will look on page two. Any one professional man years that can be saved in the NRR for the remainder of Fiscal Year '80 -- that is 162 fulltime people -- professionals -- I mean engineers who can be put to work on items in the TMI action plant.

And Mr. Denton's letter will say when it's signed later today and early tomorrow, enough professional man-power to do the priority group one's, some of the two's, and I don't believe any of the three's. There may be a couple three's. Okay. The list will be available later in any event.

Similarly, in FY '81, 105 professional man years priority program action shown on the fourth page. You

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see the number at the bottom of the middle column to do the things that Mr. Denton's letter says ought to be done in FY '80 and '81.

Now, you can see those things preliminarily if you look at this first long table I handed you. All of the NRR things with an "x" in '80 or '81 are the things that he's talking about doing if those '81 professional years in remainder of Fiscal Year '80 and the 105 man years in Fiscal Year '81.

Now, when you look at the implications column, I think if you're ACRS member, you may be troubled by some of the implications, but you don't really get upset until you get to the last one.

MR. SIESS: You hope.

(Laughter.)

DR. MATTSON: When you get to the last one, you get to the technical project, the work on generic issues. You have -- I'm going to hand out -- just so you have one that you can use -- another copy of the document I handed out last month which is this listing of generic issues which shows first page, the unresolved safety issues; and then the second page, the high priority -- some work going on, but not dedicated resources like the unresolved safety issues.

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And then on subsequent pages, the remainder of the list of 133 generic issues. So again, you have a prioritized array of the kinds of things that are in difficulty from a resource standpoint because of reprogramming to accomplish high priority things in the TMI action plan.

So when you come, for example, on page two of this draft document of the NRR implications, the far right hand column of the last entry which says defer work on generic issues other than unresolved safety issues. In the far right-hand column it says this programming has been in effect since the TMI accident.

What that means is that everything other than the first place of this last handout is, in effect, not being worked on in NRR today, nor will it be worked on for the next six months, with one exception.

That exception is the adequacy of safety-related EC supplies on which there was a special meeting with Mr. Ebersole and members of the staff last week, and action and activities will continue on that matter.

MR. SIESS: Now, on the second page in the 140 group, you've got instruments to follow the course of an accident. That's Reg Guide 197. That's a TMI item.

DR. MATTSON: Right. I forgot that qualifying.

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It won't go on unless it finds itself also in the TMI action plan and of sufficient priority for NRR to be working on it.

MR. SIESS: Okay.

DR. MATTSON: That particular one -- I have to hedge a little bit and say there is a controvery at the moment about the use of resources to implement Reg Guide 1.97. You see these priority schemes that we've all talked about so much -- they can get you in a box.

You see, they all give weight to priors as Sibrowsky from NSAC calls it. That is if you take an action early it discounts a longer-term, more far-reaching action in the sense that it buys you time. Well, the way it buys you time puts a lower priority on that thing.

MR. CATTON: Only if the action is the correct one.

DR. MATTSON: And the difficulty is that we took quite a few actions in the short-term on your advice and ours, in the field of instruments to follow the course of an accident, and in some people's judgment that has significantly discounted the need for the priority to implement 1.97 urgently. Now, that's one school of thought.

There's another school of thought that says hog wash. We ought to get on with some more stuff of 1.97 pretty rapidly. We have to resolve that discussion

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ourselves, and we'll talk about it in a minute.

MR. SIESS: I think doing it right is more important that doing it fast.

DR. MATTSON: Yes.

MR. SIESS: And when that list gets as long as it is in Reg Guide 1.97 I think there's some suggestion to slow down and see how you're going to do it.

DR. MATTSON: Well, that might be the possible area for compromise between the two positions. I agree with you. There has been a third school of thought that suggests that's the way to go. I think I've run out of things to hand you.

MR. SIESS: On this last handout -- let's see -- there's a formal term you used: the unresolved safety issues. Are these different than those, or I forget how you would classify it now.

DR. MATTSON: I'm sorry?

MR. SIESS: These are not all the unresolved saftey issues?

DR. MATTSON: Yes, they are. Well, there's one on the next page.

MR. SIESS: Okay. What you're saying is that the first 20 items of the unresolved safety issue.

DR. MATTSON: Well, 19 of the first 20 are, and

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there's an extra one in there -- B-6, loads, load combinations are not an unresolved safety issue but does have priority to the same scale as the unresolved safety issue.

MR. SIESS: Okay. The rest of them are just plain generic items?

DR. MATTSON: Yes. Everything below the top 20 are just generic issues from the original possibilities we listed.

MR. SIESS: Including all the "D's"?

DR. MATTSON: Yes -- no, no--

MR. SIESS: No, just a few "D's" in here.

DR. MATTSON: "A, B's and C's" -- right?

MR. SIESS: Yeah. There's a couple of "D's" here.

DR. MATTSON: Okay. Do you remember -- is that all "D's"?

MR. SIESS: No, there's just a couple in there.

DR. MATTSON: There weren't many.

MR. SIESS: Through three, I guess. One, two and three.

DR. MATTSON: That may be all there were.

MR. MINNERS: I don't think the staff computed this list agreed.

DR. ZUDANS: This point here -- is this the

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same one that's used in action plans?

DR. MATTSON: No, the one in the action plan -- we took the one that was included and modified it somewhat. And this one that was done several years ago -- there was actually list assessment analysis made for each generic item. That wasn't done for the action plan. A lot of the things in the action plan weren't amenable to that kind of analysis. And these were fractured over into equipment oriented. These were 99 44/00 percent equipment oriented.

They are somewhat different. They have the same philosophical approach but different numbering system. Now, one of the tasks for the new Division of Safety Technology that Mr. Denton described earlier came up with the common scheme of prioritizing and ranking unresolved issues of one sort or another either from TMI or from generic issues list, from the new operating experience, or whatever, and putting them in a common system.

DR. ZUDANS: But these points include considerations such as cost?

DR. MATTSON: Generic issues did not, I don't think. I can get you an answer to that before the day is over.

DR. ZUDANS: Just the other one -- the costs --

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DR. MATTSON: We'll get you a copy of the description of the prioritizing scheme for these.

DR. ZUDAN: The ones that you listed --

MR. CATTON: What are the annotations in the margins mean?

DR. MATTSON: Yeah. Up on the first page, there is a code in the upper left hand.

MR. CATTON: Oh, got it. Got it.

MR. SIESS: It doesn't help, but it's there.

(Laughter.)

DR. MATTSON: It doesn't help?

MR. CATTON: When I see safety related operator actions under point total of 50 --

DR. MATTSON: Well, you know, I said this was done two years ago. You think there wasn't a lesson learned from Three Mile Island?

(Laughter.)

DR. MATTSON: Okay. We're prepared to go into Chapter One.

CHAIRMAN ETHERINGTON: Then I think we'll take a ten minute recess at this time.

(Whereupon, a short recess ensued.)

DR. MATTSON: We have chapter heads for the five chapters of the actual plant. Jim Milhoan sitting up here with me is the current chapter head for Chapter I.

Jim O'Reily, whom you may remember from earlier meetings is back at his post as regional director in Region 2. This --

CHAIRMAN ETHERINGTON: Before we start I would like to remind anyone who is present who hasn't signed the list, if they would do so. Could we just pass that around?

How should we proceed? Shall we start with Item 1A1, Operating Personnel in Scotland?

MR. MILHOAN: I think that's reasonable, but before we do that, I have all the -- I have attached managers for Chapter I and many of the line officials responsible for implementation of the actions in Item 1. We have a conflict with some of the past managers on it, and the line officials have to go down to a Commission meeting this afternoon. So, I would say in the interest of time we can go to -- in line-by-line. Some of the task managers may have leave, so I guess if there are any specific questions on Chapter 1 you would like to ask at the start in case we do not get to the individual items as we go through, we could cover those now. If not, we could start through each individual line item.

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CHAIRMAN ETHERINGTON: Do you have any -- any general reports before --

MR. MILHOAN: Okay. Let's just start line-by-line. I have --

DR. MATTSON: I feel that we --

CHAIRMAN ETHERINGTON: You may remind us briefly of the contents.

DR. MATTSON: Let me propose something. I don't think there's any need to talk about the NTOL requirements as we go through here. Would you agree to that ground rule?

CHAIRMAN ETHERINGTON: I think that some of the NTOL -- I think we should include them in our overall review even though we've commented on them previously. There may be some aspects of some of these items that were not in NTOL aspects.

MR. SIESS: How do we identify the NTOL's in --

CHAIRMAN ETHERINGTON: We have --

MR. SIESS: -- paper one?

MR. MILHOAN: I can identify them each as we go through. I will identify the NTOL's.

CHAIRMAN ETHERINGTON: Identify it on the supplementary table that you've handed out.

DR. MATTSON: Of course, Table A-1, in Appendix A tells you which ones are -- and if you look in the far

right-hand column of Table I, if you see an FL or an FP, meaning Fuel Load or Full Power, you will know right off that you're -- you have an NTOL requirement.

CHAIRMAN ETHERINGTON: Well, we can identify them as we go along.

MR. SIESS: Most of the items -- most of them are Category A items; aren't they?

MR. MINNERS: They are all Category A items.

MR. SIESS: I mean, the A helps us; doesn't it?

DR. MATTSON: It means a decision has been made.

MR. SIESS: NTOL --

DR. MATTSON: The decision group A says that the Commission has already decided that that's something that ought to be done. But there are some things that have been decided that ought to be done that aren't in the NTOL list. An NTOL list is an A by definition, but not all A's are NTOL's.

MR. MILHOAN: Let's start through and see how it goes. I'll start summarizing the -- at the subject area category as we go through the functional category that we are talking about, and then the individual items inside of there.

For example, on Item 1A1, Operating Personnel and Staffing, this concerns additions to the staffing of the

shift technical advisor of the subject of a shift supervisor administrative duties and also additional shift meaning by adding an SRO to the control room and also long-term upgrading measures.

Two of the items--shift technical advisor and shift supervisor administrative duties, we have previously discussed last summer as a part of the lesson learned report. And these requirements have been issued to the operating plants. The shift mini is also a NTOL requirement, and we've discussed that. And I propose no further discussion of those.

The long-term upgrading concerns revisions of Regulatory Guide I.A and revisions of the Commission's Regulations on shift manning and operator training and Part 55 operator qualifications.

If you have no questions on those, I will proceed to the next area. Is that the level of detail sufficient?

CHAIRMAN ETHERINGTON: I think that is good.

MR. MILHOAN: Okay.

CHAIRMAN ETHERINGTON: On the long-term upgrading, does this area involve any immediate decision, it's just to proceed with it; isn't it?

MR. MILHOAN: It's just to proceed with it -- with it the fact -- for example, the Regulatory Guide would come

before the ACRS subcommittee. And that action is underway.

The next item -- yes.

CHAIRMAN ETHERINGTON: Do you think we'll get through them all of them as fast as that one?

MR. MILHOAN: I shall proceed to go through that way, and you stop me if you want further detail..

The next area -- subject area is training and qualifications of operating personnel. Inside of this area we are talking about the immediate upgrade of RO and SRO qualifications; implementation of the recom -- of some of the recommendations of the SECY Commission Papers, SECY 79330E concerning operator qualifications.

We also have a task concerning training and qualifications of operation personnel. This item particularly concerns the need for a position task analysis for the positions at the operating stations and -- and this is an area where the AIF had a comment, you noticed, on your sheet concerning the need for involvement of IMPO in this activity. We agree with that particular comment and the action plan will be revised to address the AIF comment.

Other items in this concerns the need for upgrading of NRR auditing of training, NR participation in inspector training, the need for plant drills, both on a short-term basis through the use of walk-through plant drills and on a

longer-term basis would be studied the need for additional mechanisms for conduting the drills.

We also have the area of standard development concerning the longer-term upgrading in the area of training and qualifications of personnel. It would be through revision of Regulatory Guide I.A and revision of the Commissions' regulations.

We have two additional -- we have one additional item concerning the subject of accreditation of training instructions which would be a study item and a studying of the subject of accreditation of the training institution and the recommendation of a policy to the Commission.

DR. MATTSON: That would be, for example, IMPO?

MR. MILHOAN: IMPO would have to be addressed but not necessarily limited to IMPO. But yes, that type -- yes, that level of activity.

CHAIRMAN ETHERINGTON: I think we might give the subcommittee a chance to look at the -- in response to ARS --

MR. MILHOAN: All right.

CHAIRMAN ETHERINGTON: The A21 is the first one; isn't it?

MR. MILHOAN: If I can find my -- A1, yes.

We missed one comment on the first category

I --

CHAIRMAN ETHERINGTON: Yes, that's right.

MR. SIESS: Under 1A7, did you include the names of training institutions?

DR. ZUDANS: But this -- someplace it's stated that way.

DR. MATTSON: The Latin was intended to indicate that I thought we kind of had all along. Informal credit given to that source.

MR. MILHOAN: I think the aspect of prior Navy training is recognized in the operator license program from the point of view that credit can be given for Navy training in the shop area --

CHAIRMAN ETHERINGTON: Is that -- is that what you mean by accreditation?

MR. MILHOAN: No, no, it's not. It's not -- definitely not meant by that that --

CHAIRMAN ETHERINGTON: I doubt whether one would --

MR. MILHOAN: Oh, no, no. No, definitely that's not it. That was not the intent of that item.

If you --

DR. ZUDANS: But the education is 85?

MR. MILHOAN: In the category -- subject of

education that is going to be a long-term upgrade item that is in consideration of the need for upgrading the academic qualifications of the shift supervisor and senior reactor operator from a basis of studying the need to determine whether the shift supervisor should hold a bachelor degree in engineering; what type of technical and academic training that he would need.

DR. ZUDANS: Now, is there a distinction made between the ones in the list now to pursue that type of profession or the ones without any facilities now?

MR. MILHOAN: You're asking -- I think we're asking a question of would we address the need for grandfathering of those that are presently there. The subject has not been entirely answered. It's part of the long-term upgrade effort that would have to be addressed. But we were providing -- we were thinking of providing a five-year implementation period so that utilities would have the option of upgrading the present ones that are in the job and from the point of view that they have the experience, but providing the additional academic training or the other option of taking the people with the academic training and providing them with the necessary experience to function in the job.

MR. SIESS: It wouldn't be -- there wouldn't be a

carte blanche grandfathering?

MR. MILHOAN: No.

DR. ZUDANS: No, I didn't mean that.

MR. SIESS: It would have to be some other things that these people would have to be exposed to or past or experience before they would meet the requirements --

DR. ZUDANS: And so whatever is decided and proposed here applies both to new recruits and to ones that are --

MR. MILHOAN: Yes, that is the intent.

DR. ZUDANS: All right.

MR. SIESS: I would like to have some assurance that you don't literally equate academic training to an engineering degree.

DR. MATTSON: Well, we don't because we haven't put any requirements out yet, and I can assure that before we put such requirements out, we will study them, develop them, come down and talk to you about them, and they won't be issued for months or even a year or more in the future. And it's a long-term -- we think we are headed for more education requirements in the future. We are not sure how -- what our aiming point is because we not quite sure how academic qualifications fit in with some of these other qualifications. And it's something that we have to think

about some more.

MR. MILHOAN: I think you are going to find this subject addressed in the revision of Regulatory Guide 1.8, which will come before the ACRS Subcommittee.

DR. MATTSON: It has a lot of industry input and practical experience input to it.

MR. McKINLEY: Roger, I -- I talked to one plant superintendant, and he indicated that his interpretation of what the requirements may come down to is that his plant operators are going to have to take advance differential equations and advanced heat transfer. And this is for people who would normally have not much more than a high school diploma.

DR. MATTSON: Well, I don't know how he could draw that conclusion at this point because no such requirement for the future has been issued. Although, there are other very general words in the action plan with an end date projected somewhere in mid-1980's. That's 1185.

MR. McKINLEY: He was looking down, you know --

DR. MATTSON: I will say, though, we -- recall back to the conversation that we had about the importance of diagnosis and understanding the dynamic response of these machines. You know, we -- we discovered with you all last summer, that pressurizers on Westinghouse machines and CE

machines are susceptible to the same hangup of level that the B&W machine is. Not because it's got a funny loop seal, but because of the intricacies of counter-current two-phase flow. I've studied counter-current two-phase flow, and I think some calculus and some pretty advanced physics and some stuff like that was essential to just understanding just the phenomena -- the phenomenology of that physical mechanism that can occur in pressurized water reactors.

Now, I didn't say --

MR. MILHOAN: Can we split the part --

DR. MATTSON: -- you had to have a Ph.D. at the controls, but I did say that in agreeing with you that it was important to be able to diagnosis phenomena, especially ones that you hadn't anticipated. You've got to have some founding in the basic sciences that underlie such judgments. And I think that's more than what we've got now.

Now, shift technical advisors and special training fill a lot of holes, and we've done that very rapidly. The question of how much further do we need to go still has to be addressed.

MR. CATTON: Well, it's also a simplistic view of two-phase flow. It doesn't require all this high math.

DR. MATTSON: Any way, that -- that's true. I

agree with you.

MR. CATTON: And I think that --

DR. MATTSON: That -- that's the kind of thing we need to think about.

MR. CATTON: On the other hand, we took a look at the TMI-1 plan where they had two weeks of -- was it two weeks?

MR. LIPINSKI: I think it was about a two-week course.

MR. CATTON: At the beginning?

MR. LIPINSKI: Yeah.

MR. CATTON: It was a very heavy two weeks that had fundamentals of thermodynamic and heat transfer and fluid mechanics, and pump characteristics, and all these sorts of things thrown in, which for the remainder of the program were promptly forgotten. The rest of the program was the same. It always has been which -- what -- which switch turns on what pump? Somehow there was no coordination done.

DR. MATTSON: Paul, have you got any comment on that?

MR. COLLINS: I agree that's what happened.

DR. MATTSON: And that's a problem that we are continuing to look at or --

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MR. COLLINS: Yes, yes.

MR. CATTON: I was quite disappointed in that, and I thought -- I don't know who pressed them into putting that kind of program together.

I don't know if that fits in here actually. Actually, that isn't what I wanted to ask about.

Where under 1A2 do I find anything about in-plant training personnel? Or -- or am I looking in the wrong place?

MR. MILHOAN: 1A2?

MR. CATTON: Well, there's somebody in the plant that's responsible for the training of the operators or requalification or upgrading and keeping them on their toes. Where is there any mention of that in here?

MR. MILHOAN: In the 1A23 of the NRR audit of training program you will find in there addressed the subject of instruction -- I think they are talking about instructor qualification; are you not?

MR. CATTON: That's correct.

MR. MILHOAN: Okay. The need for qualifications of instructions both technial ability and also the ability to teach.

MR. CATTON: Right. People trained in teaching.

MR. MILHOAN: Yeah, that's all on page 1A2-5.

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MR. CATTON: 1A2-5.

MR. MILHOAN: It's item -- comes under Item 3 then.

MR. CATTON: Yes.

MR. MILHOAN: And also in the long --

MR. CATTON: Okay. Thank you.

MR. MILHOAN: Also, in the long term there will be a subject in the long term operating, 1A26. Item 6 of this one in the long term in the revision of Reg Guide 1.8, the subject of instructor qualifiacation will be addressed in that regulatory guide.

CHAIRMAN ETHERINGTON: I had a note on this -- the wording of the actual guide. It wasn't clear to me who audits what. NRR is going to be auditing. Are they doing the auditing of the program, or are they -- or the instructors?

MR. MILHOAN: It would be both. But the auditing of the program would be the primary focus.

CHAIRMAN ETHERINGTON: Program rather than the qualifications of the --

MR. MILHOAN: Oh, including -- in other words, review of the qualifications --

CHAIRMAN ETHERINGTON: Including.

MR. MILHOAN: The instructor would definitely be one part of the program.

MR. COLLINS: Make an accreditation study. As a

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part of the overall accreditation of these training institutions, one thing that's going to be addressed is the qualification of the instructor.

MR. CATTON: Will you license them?

MR. COLLINS: And if NRC goes around and audits to see that the programs meet the accreditation criteria, one of the things they are going to be looking at is the qualifications of the instructors.

DR. MATTSON: Probably not. We probably would not license the instructor directly, but come at it through some form of accreditation of an institution which guaranteed some kind of capability of the instructor. But I can't say we'd foreclose that option.

MR. COLLINS: We have a near term requirement on the instructors to subsequently pass a senior operator's examination just to demonstrate to us their technical competency to teach the various courses that they are supposed to teach.

MR. CATTON: I would think that the --

MR. COLLINS: That -- that was the near.

MR. CATTON: I would think that you would want the instructor to have a little more depth than just a senior reactor operator.

MR. COLLINS: We do eventually.

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MR. CATTON: And then you would want to guarantee that he maintains that depth.

MR. COLLINS: What we've got to do is the short term and long term.

DR. MATTSON: We agree with you. We've done so little in the past that we're going to start with SRO and start with auditing and over the long term, as you can see by some of the words in the auditing of training, we are going to look at his ability to teach and his understanding of the phenomena that he's teaching about, and the kinds of things that you are talking about.

MR. MILHOAN: I think Paul mentioned the fact when he discussed the instructors were -- they are required to hold the SRO license would be also required to participate the requalification program.

MR. CATTON: The requalification program is for the operator. I would think that you would want the instructor to have a lot more depth than that.

MR. COLLINS: Exactly. We agree with you completely. It's a matter of time. Just a matter of time.

MR. CATTON: Shouldn't he have a stiffer exam than the SRO?

CHAIRMAN ETHERINGTON: But that would be accreditation of facility.

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MR. CATTON: I think that's enough.

CHAIRMAN ETHERINGTON: Well, the plan shows a January '81 date for the this Item 1A3. What is to be accomplished by January '81?

MR. MILHOAN: 1A3. You're talking about Item 3?

CHAIRMAN ETHERINGTON: Yes, A1 -- 1A --

MR. MILHOAN: The action plan calls for development of the auditing procedure.

CHAIRMAN ETHERINGTON: That's your development of the procedure.

MR. MILHOAN: Of the -- right. In our development of the procedures.

CHAIRMAN ETHERINGTON: Okay. That's good then.

MR. MILHOAN: Now, for the instructor qualifications a letter has been issued concerning instructor qualifications, instructors required to hold an SRO's license, and to be involved requalification program. That has been issued.

MR. JORDAN: Jim, I think there's some confusion on that. The senior -- the one holding the senior's license will be sort of a permanent cadre. But when you're talking about instructors who instruct in physics or something of that nature, you go out and get the right people for that job. He may not be the one

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qualified.

MR. MILHOAN: We are not talking about technical specialists, we are talking about the instructors in --

MR. JORDAN: What I'm pointing out is, though, that the senior instru -- the instructors hold the senior's license would be a permanent cadre in charge of part of the program. But there may be other instructors within the licensee's organization they can pull from any department to bring in an instructor on a particular course. He would not have to hold a senior's license.

MR. MILHOAN: Exactly.

MR. JORDAN: But he would be qualified in the area he would instruct in.

MR. CATTON: Yes. He would be the one that would run the requalification program?

MR. JORDAN: Not run it.

MR. CATTON: And everything else?

MR. JORDON: No, not run it. That would be the one with the license.

MR. CATTONS: That's where my concern is because typically the one who -- if he just has the license sometimes there's very little respect for things beyond turning on the switches and being able to run the pump properly and may not request the proper help.

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MR. MILHOAN: We are repeating ourselves. But in the long term Reg Guide, 1.A, it's going to address the instructor qualification. It will address it in a more comprehensive nature than what we have done in the short term.

MR. CATTON: I understood you the first time. I'm just responding.

DR. ZUDANS: I would like to ask whether it is clear how this assignments are shared between NRR and I&E? Isn't there overlapping, or is there a distinct separation of conference --

MR. MILHOAN: There is overlapping. This column just designates the lead office. The other offices will have input into the -- into each one of these items. And the resources inside of the action plan, you will notice the resources from all offices for each individual item. But it's designated who has the lead office in Table 1.

DR. ZUDANS: Well, if you take a look at A -- 1A2, Item 3, NRR Audit Training, Lead Offices are NRR, not I&E?

MR. MILHOAN: Yes, that's right. NRR will -- it is envisoned that NRR would do the auditing of the training program.

DR. ZUDANS: Is there a simple way of describing distinction between the functions of NRR and I&E, something that would explain why you placed this in this context here?

A simple way of saying it?

MR. MILHOAN: Let me ask Paul. Is there a simple way of describing that? The differences between I&E and NRR on the auditing of the training program?

MR. COLLINS: NO, there isn't a simple way.

MR. MILHOAN: Okay.

CHAIRMAN ETHERINGTON: Before you proceed, I have one general question. After you've made changes as a result of AIF comments, did you discuss these item -- these changes with AIF --

DR. MATTSON: No. As I indicated, we're still considering some of these matters. Having typed this thing out and thought about the bulletins and auditors recommendations a little more, there are still some thought we want to put into that Eventually in the next week or so we'll transmit a letter to some level of the agency back to the AIF thanking them for their input and telling them of our disposition of their comments.

CHAIRMAN ETHERINGTON: Yeah. Um-hum. That will be --

DR. MATTSON: That'll be within --

CHAIRMAN ETHERINGTON: Are you receptive to any further representation by the AIF?

DR. MATTSON: I think we were able to understand

the points they were making. We have communicated at the staff level back and forth with AIF staff where we had questions of understanding their written submission. I guess I'm of the mind that it's time to make some decisions on some of these matters and not --

CHAIRMAN ETHERINGTON: I -- I understand.

DR. MATTSON: -- continue the dialogue that's gone on quite -- quite a time already.

CHAIRMAN ETHERINGTON: All right.

Do you get the impression that they're generally satisfied as they expect to be?

DR. MATTSON: Oh, I -- they haven't seen this, Harold. I don't know whether they're satisfied with this or not. We've agreed with them on some things, probably more than we've disagreed with them. So, I don't know how they will come out.

CHAIRMAN ETHERINGTON: Okay.

DR. ZUDANS: Maybe -- I would like to finish that question that -- I don't think I was very happy with the answer.

Has the I&E looked at this Table 1?

MR. MILHOAN: Yes, yes.

DR. ZUDANS: And they agree with the lead office definition?

MR. MILHOAN: As far as I know the I&E Office comments that have come back have not taken exception to the lead office designation.

DR. ZUDANS: Yes. In your own mind you don't foresee any problems in --

MR. MILHOAN: No. We've got a gentleman from I&E here.

MR. SKOHOLT: No. I'm an I&E representative. And this is a joint action -- a task action plan is joint with members from I&E and NRR, and the research and standards all involve. So, this represents a coordinated action by all of those offices.

DR. ZUDANS: This -- this Table 1?

MR. SKOHOLT: Yes.

DR. ZUDANS: Okay. Well, that's --

DR. MATTSON: Yes. We are in the lead on this particular one.

DR. ZUDANS: See, the reason I asked the second time because you couldn't simply explain to me what -- what the real function is.

MR. MILHOAN: Now, you'll notice one of the items in the action plan concerns NRR participation and I&E inspector training. In other words, part of the inspector training would be instruction from our NRR people --

DR. ZUDANS: Well, that's fine. Yeah.

MR. MILHOAN: -- on how -- on how they would need I&E feedback into their -- into their program to make decisions on requalification, relicensing.

DR. ZUDANS: Okay. I thank you. That's good enough.

MR. LIPINSKI: Task 1A2 makes reference to this document, Secretary 79-330E.

MR. MILHOAN: Yes.

MR. LIPINSKI: What is that document? I don't think we've seen that? Have we?

MR. MILHOAN: I am very sure that you have. I'm sure that ACRS has been --

MR. LIPINSKI: Have we?

MR. MILHOAN: -- provided copies of that.

MR. McKINLEY: We may have gotten in the office. It's -- I'm not clear that we've got it to you guys yet.

MR. COLLINS: Jim, do you want to get them all copies of --

MR. MILHOAN: Okay, you'll -- you'll get a copy.

Very briefly, it's the NRR -- it's an NRR paper on recommendations for changes in the operator licensing program which has been acted on by the Commission. And a letter has been sent out this last week on implementing

the Commission approved recommendations of the paper.

Okay, are we ready to --

CHAIRMAN ETHERINGTON: We are ready to proceed --

MR. MILHOAN: I -- Mr. Chairman, I have a conflict myself. I have to leave at 12:15 today. I have a summons to appear in court as a witness. So, I have to leave at 12:15 today.

Well, I was the first one to offer that excuse.

MR. SIESS: Just consider this training.

CHAIRMAN ETHERINGTON: You're going to be leaving now then?

MR. MILHOAN: I think the next one is concerning the subject of licensing and requalification of operating personnel. This area covers five task items--two of them are directly related to the Commission paper that you just mentioned about Secy 79-330E about revising the scope and criteria for exams; changing the grading of the exams; changing some of the subject areas to be covered in the exam. Another area is NRC operator licensing reforms and need for studying, for example, the need to place resident licensing examiners in the field.

Another area is the subject of operator fitness; and another area is the overall subject of licensing of additional operation as personnel, which would be a study

and a recommendation to the Commission on a policy to follow on the need for licensing of additional personnel.

And the last item in this area concerns a statement of understanding between NRC, DOE, and IMPO since there are many activities going on in the long term between IMPO and NRC which duplicate each other. And --

CHAIRMAN ETHERINGTON: The first item is an NTOL item; isn't it?

MR. MILHOAN: That's right. The first item is an NTOL item.

DR. MATTSON: You might notice from the priorities considerations, the small table says that only the first item of that entire section will be initiated in the next two years. All the rest in '82 and beyond.

CHAIRMAN ETHERINGTON: What speed will we be going?

DR. MATTSON: Well, you'll -- you'll come to some areas which will be occupying him intensely for the next 18 months I assure you. Licensing qualifications is one.

MR. MATHIS: Roger, why isn't there more immediate effort apparently put into working with IMPO and trying to develop that? It would seem to me that there's an opportunity to get in the act and --

DR. MATTSON: Well, that's how you should read some

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of these things.

MR. MATHIS: I look at Decision Group D, and there's no particular priority, and then I question that.

DR. MATTSON: Well, I think you're reading it the wrong way. You could read it in a lot of these areas where you know IMPO is going to be doing something. And if we said we were going to jump right in and do it instead of them tomorrow, then you'd probably worry about us not maximizing the utility to which those people can be put. Instead, if you see us backing off just a little bit it's not because we think they are doing a bad job, but we're giving them some range to get started and start having an effect and banking on them in a sense during the next 18 months to get something moving faster than we can probably get something moving.

MR. MATHIS: Well, I hope you would use some reign and also give --

DR. MATTSON: I think that's the tendancy --

MR. MATHIS: -- them a little whip to go with it.

DR. MATTSON: Well, we've -- we've been in touch and we --

MR. MATHIS: Okay.

DR. MATTSON: -- get reports from time to time on the progress that they're making. The Commission has

also been kept informed of the progress of IMPO.

DR. ZUDANS: I might make a comment.

DR. MATTSON: I -- I suspect with the organization change in the designation of Dr. Hanouer in the Human Factors Division that you would see a closer tie begin to develop between NRR and IMPO.

DR. ZUDANS: Well, IMPO doesn't really exist yet.

DR. MATTSON: Well, IMPO does exist.

DR. ZUDANS: How many people do they have?

DR. MATTSON: 30 -- 40 --

DR. ZUDANS: They're only to develop --

DR. MATTSON: 40.

DR. ZUDANS: Already?

DR. MATTSON: 30 or 40. Aiming towards 200. They've done a couple of side audits. They were involved in the Crystal River reports. They're not accrediting instructors yet. They're not fully training executives and all those things they want to do, but they're -- they're gathering momentum.

CHAIRMAN ETHERINGTON: I will read your comment about Mr. Benger on this subject. "Establish whether the program for training personnel is adequate. IMPO is expected to lead the operation of training effort. Their plan of action needs definition and goes much further than

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the task action plan. NRR has establish a contract with basic energy technology and to establish maintenance skills. DOE may support this effort, but commitment must be established." That's Mike's comment along these same grounds, and I think you've explained that we don't really know what IMPO is -- plans are in sufficient detail at present.

DR. MATTSON: Well, we know that they are staffing. We know the goals they have in mind. And we get progress reports from time to time of how they are doing. We need to work more closely with them than we have. We need to do a couple of things that we haven't been doing. With the progress of the action plan and the reorganization of NRR with specific missions for people in NRR to do those kinds of things, I think you will see them to begin to happen better than they have in the last few months.

CHAIRMAN ETHERINGTON: If they really take hold, would you be content at the moment with their work?

DR. MATTSON: No. No, I think we have to set minimum standards and -- and they become a mechanism by which utilities --

CHAIRMAN ETHERINGTON: Well, yes, I --

DR. MATTSON: -- meet those standards.

CHAIRMAN ETHERINGTON: -- assume that.

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DR. ZUDANS: Well, IMPO's purpose is to set up such standards. To bring up the overall conscience in utilities to what they are operating and to -- what the operations beyond the control board should be at this time. That's their objective as I understood it. There's no reason for, in my opinion, for NRC to interfere until the industries show that they can take care of themselves.

DR. MATTSON: Yes, but on the other hand, NRC cannot stand back and bet entirely that IMPO will succeed.

DR. ZUDANS: No, if it's safety-related they cannot.

DR. MATTSON: So, we will monitor and see that progress is made and when it turns out that reliance can be placed on them, we will do it. If it turns out that there are indications that reliance can't, then we will have to step in and --

DR. ZUDANS: Yes. I like your first thing where you said that if they are doing it, give them a chance to do it. We shouldn't jump into that. And I think that's appropriate.

DR. MATTSON: That's essentially what we are after then.

DR. ZUDANS: Yeah, that's fine.

CHAIRMAN ETHERINGTON: Are you running out of time?

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MR. MILHOAN: No, we've got some time.

CHAIRMAN ETHERINGTON: Go ahead then.

MR. MILHOAN: I guess if there's no further questions on that one I will proceed to the next area of simulator use and development. There -- I think there are about three areas in this one. The first area is initial simulator improvement of the -- of the immediate short term modification to simulators to provide better training. The second area is a long-term program of studying research on simulators, how good simulators are; and a longer term upgrading simulators which could be very significant from the point of view of changes to the simulator -- of long term changes to the simulators that are presently in the field. And then two additional items concerning NRC use of simulators; NRC use of an engineering computer.

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MR. SIESS: I didn't quite understand the relationship between the priorities and the statement. Of the lower priority items we got here, --

MR. MILHOAN: You do not have a replacement page. We looked at that. We have revised the priority of Item 1 to be a priority group 1 and the priority of Item 2 to be priority group 2. We've taken another look at that and there is a replacement.

MR. COLLINS: What's the difference between an NRC training stimulator and an NRC engineering computer? Don't we have CDC 7600's now?

MR. SCROGGINS: The idea on the so-called engineering computer engineering simulator was digital or high-bred type system which could, in effect, try to calculate reactor system behavior on a real-time basis.

So, in addition to being able to getter understand system behavior, one could possibly input on a real time basis various operator actions or other upset conditions, et cetera.

That is just being looked at this point as the action plan indicated, the item meaning that it's being locked at now in the context of possible recommendation as part of the fiscal '82 budget cycle to the

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Commission. And, in fact, they'll find they find a decision as to what will be proposed if anything, is still to be made within the Office of Research.

MR. COLLINS: Is that the training simulators?

MR. SCROGGINS: No, the training simulator, the idea on that item was to actually purchase some current version-type training simulators for use by the NRC staff in Washington area, and that was what the original proposal was for the training center items, and which is different than what we're talking about which is a more advanced or a longer term type engineering computer.

MR. ZUDANS: So, what you are saying, the NRC engineering computer is a sophisticated training simulator.

MR. SCROGGINS: It could be used for that purpose. The intent would be to utilize it for other purposes, just as to just better understand reactor system behavior.

MR. ZUDANS: In real time, right?

MR. SCROGGINS: It would be highly unlikely that you would utilize both. It's highly unlikely that both would go forward if --

MR. COLLINS: I think you need the transient simulator.

MR. MATTSON: If I could offer some advice here,

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on how to get through these things today.

These are category D things. Category D means that when this action plan is proved, they get no special stature as a result of proving reaction plans.

Furthermore, if you look at the long sheet reflecting resource priorities, you'll see that both of these items that are being discussed are '82 and beyond.

So, sometime in 1982, fiscal year 1982, the question of what to do about engineering similators and training -- another training simulator for NRC, and another being beyond the use that we make in the TVA simulator, will resurrect itself and somebody will start talking about it again, and in the light of that days' understanding will proceed, unless your advice is, gee, we ought to move more urgently with this.

I think that's --

MR. COLLINS: I didn't understand what NA meant?

MR. MATTSON: You better look at this one that I handed out earlier today that tells you. This one's been pushed out a ways and it gives you more information than just the NA. Didn't mean to criticize you from understanding the table.

This is new information.

MR. ZUDANS: It means the days note for particular

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need to spend time on these?

MR. MATTSON: That's right. Yeah, unless you look at them and you say, wait a minute, that's something we told you guys was important, we don't understand why you changed it, let's talk about it.

I realize there are two definitions of -- The one that Roger's given. Once in a while you'll find D items in here that are in the plan for continuity sake, but it's a D item because it was already part of an on-going program part of TMI, and while it has some signifance to TMI, it is just part of the on-going program.

MR. MATTSON: Yeah, and let me say it a different way. You all and everybody has said to this steerting group for months, prioritize, prioritize, prioritize, get them organized, get a plan. You would say, we're gonna do that, we're gonna do that. We've done it.

And if you think it's wrong, now's your chance.

MR. LIPINSKI: I'd like to back up to the operator training simulators. I heard a comment the other day that rather surprised me. I thought the simulators stimulated the plants, but when it comes to abnormal sequences, evidentally these are pre-programmed and one cannot arbitrarily go in and put in abnormalities such as a small break LOCA at any presumed point and

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respond with a typical proceedure.

MR. MATTSON: That's true.

That's why we like this concept of an engineering simulator. You could put it in a bigger room and you could play games with it, you know, it's a big engineering toy, some people would say, those that don't like it.

MR. ZUDANS: I hope to see the day that you have it.

MR. MATTSON: Well, it's a question of application of resources at this point.

MR. ZUDANS: Well, it is.

MR. MATTSON: It's a long-term development program and a fair amount of money really involved.

MR. MILHOAN: Are we ready to proceed to the next hearing?

MR. ETHERINGTON: I would like to raise the question. As long as we are reviewing TI, I would like to understand a little better my note here, where it says, D is on-going on future RC action.

MR. MATTSON: Yeah.

It's any one of those characteristics would cause an item to become a D.

MR. ETHERINGTON: The point I wanted to make is the D items can be controlled?

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MR. MATTSON: Yes, some D items are on-going and will be kept on-going.

MR. ETHERINGTON: So, you shouldn't skip a D item just because --

MR. ZUDANS: No, only because they do not relate to the decisions that are associated with approval of this plan, so they could be treated later.

MR. ETHERINGTON: Yes, that's true.

MR. ZUDANS: If a plan is approved, the items are not effective.

MR. MATTSON: Unless you want to cause a D item to become a C or a B. The only people who can cause an item to become an A are the Commissioners.

You all and us can cause items to become B's, C's, and D's, for their further consideration and action when they approve the plan.

MR. ETHERINGTON: It's because they've already approved?

MR. MATTSON: Right. Well, they could approve something outside of the context of this plan that was included in this plan and then we changed it from a C to an A or a B.

MR. MILHOAN: Management for operations?

You'd asked some questions about that this

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morning and we discussed briefly in our letter back going on your previous letter.

We have Larry Crocker here today who headed up the NRR group in developing the criteria, or the group that is developing the criteria and participated in the evaluation of the NT organizations.

I'll ask him to say a few words about that effort and you can ask him questions as you desire.

Larry?

MR. CROCKER: We sent copies of the 25-February graph to the Committee on this criteria. It was strictly for your information to let you know where we were at that point in time.

We have met with EEI, had a couple of meetings with AIF. I have a meeting scheduled tomorrow with KMC and a group of some 20 or 25 irate utility people to discuss these.

We're trying to get the industry input on an informal basis, hopefully straighten these criteria out so atleast we can all talk from the same sheet of music.

Our intent right now is to take the input we have, both from the staff and from industry, and turn this around such that we could go out for formal comments, hopefully sometime about the first of May or perhaps

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That's where it stands right now. We tried to address in there the various items that have been promised or recommended by persons or committees during the past year as a result of what happened at TMI.

I'd be happy to try and try to answer any questions you might have.

MR. MATTSON: They may be worn out, Larry. They asked me all kinds of tough questions earlier today.

MR. SIESS: This deals strictly with management of operations, right and not for design and construction?

MR. CROCKER: We have hung on the last three pages, the criteria. I do not remember right now whether you had a draft labelled the 25th of February or one labelled the 18th of February, but there was a difference of three pages onto the back end that said that if you're designing and constructing plans, you ought to have somebody on your corporate staff that knows what you're buying.

MR. SIESS: Well, what I'm wondering is, -- Some of the utilities are, in terms of design-construction, have an in-house organization, and others don't.

And, I was wondering if there was any difference -- differences in the operations management between those utilities that have the in-house design construction

C/H TAPE 5/9

operation and the -- Or, do you just draw a clear line, operations is operations, independent of how you build, design?

MR. CROCKER: What is in there right now is essentially a clear line. I don't think the --

MR. SEISS: I mean, you've looked at some plans? Have you seen a difference, say, between the TVA's management for operations and MED EDS or DPU or

MR. CROCKER: I don't think we have really looked at it from that standpoint, Dr. Siess. I'm sure TVA, for example, where they had their own design forces there and these forces have now moved over in support of the operation. MEDS EDS, DPU does not have this or the design backup, so they're forced into supplying these backups for the operation of other resources.

MR. SEISS: Well, now, how does something like southern companies fit it? Southern Services is not just a design function, is it? This operating service, they provide expertise.

MR. CROCKER: The design and operation, they've done some of their own AU work. I understand that others that have overplanned, for example, they actually have done new southern services --

MR. SEISS: But would you find the difference

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MR. SIESS: But would you find the difference in the management set up for one of the services companies as compared to say another operating company that didn't have a service organization?

MR. CROCKER: Surely would, yes. I would expect to find it, really, in-house. What I'm absolutely convinced is of there are as many organizations out here as there are utilities, and have each got unique problems.

I think whatever we come up with, there's gonna have to be in the nature of some guidelines. There could be a little subjective judgment on these.

MR. SIESS: Your approach is to try to develop some guidelines that you think will lead to an effective organization?

MR. CROCKER: That's what I hope.

MR. SIESS: The other approach is some criteria by which -- against hich you can measure the effectiveness of an organization?

MR. CROCKER: Within some limits, I think you can do that, but I really believe we're gonna have to back-off the guidelines with a real subjective judgment is to evaluate them.

MR. SIESS: Well, I would encourage us to keep our minds open, you know, because I think the experience

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of the aerospace industry and the defense industry is that you can write criteria and you can put down things that you want people to do as a matter of good management and good technical support and QA review and things like that and they've seen and measured success in doing those things.

And, I agree there's a need to be cautious, but there's a need not to be too cautious.

MR. SIESS: Well, I think guidelines may be necessary, but they're not necessarily sufficient.

MR. MATTSON: Yes.

MR. SIESS: And evaluation, you still got to be able to -- If you're gonna have the evaluation at the bottom line, then you've got to give the people some lee-way in reaching that particular state. The guidelines should not be so rigid that they can't achieve the same objective by something that may be more efficient in your guidelines.

MR. MATTSON: That's a human factor that has to be considered in arriving at those criteria. People are different and organizations are different. Parts of the country are different, jobs are different.

MR. SIESS: But you will have an evaluation step in there. You're not just gonna lay down guidelines

C/H TAPE 5/12

and say if you meet those automatically, your organization is good.

MR. CROCKER: I guess this is what I was getting at. I don't think we can sit down, for example, and say this is the ideal organization, we want you to have 3 mechanical engineers and two of these guys and 14 of somebody else out there and if you got that, we're happy.

You just can't do it that way. We can tell them what we want in the way of results and then we're gonna have to measure on an individual basis to see how they stack up against it.

MR. MATTSON: There may be very few generally applicable criteria for these plants, just like there are so many diversities in the design. There may quite a diversity in their operation, but that doesn't mean that you don't try and that you pay attention to this area of safety, very important area.

MR. SIESS: I'm not quite sure whether you know what the criteria are you want to evaluate about either?

MR. MATTSON: You know what the end result is that you want. You want to decrease the frequency and the proceedural and administrative and operative. You want to decrease the failure to detect design mistakes.

C/H TAPE 5/13

MR. SIESS: I do that by counting them, after it happens. I mean, I can tell they're bad, but I don't know how to tell they're gonna perform well in the future.

MR. MATTSON: Yeah. Well, we've done that and we know they're bad and we want to change them and we're working together with alot of people to try to effect that change.

MR. SIESS: You want to change them for the better.

MR. ZUDANS: This item implies that you will work for some criteria.

MR. MATTSON: Well, Larry's tried to say, guidelines and criteria -- guidelines are easier than criteria. You can error with both if you only do guidelines and you probably don't go far enough. If you only do criteria, you probably have made it too restrictive, and they're balancing the two, if what I heard him say.

MR. ZUDANS: But, whether it's one or the other, or a combination of both, this is what we did at first product under this action item.

MR. MATTSON: Yes.

MR. ETHERINGTON: This is a contracted item, is it, this first one?

MR. CROCKER: Partially. We have the contract

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running now with Technicron. They're coming up -- We should have the final report out on the 15th of May.

They have developed criteria on the basis areas of expertise that they feel should be available to each plant, and then against those criteria they are now evaluating the various utilities with cperating plants to see how they stack up.

MR. ZUDANS: This same company?

MR. CROCKER: They actually have another effort going on an in-house basis. It's graph criteria that you would furnish for development, it's in-house and they're now trying to modify those to take into account what has been received both from other staff members and from various industry groups.

MR. MILHOAN: Also, the draft criteria inside the plant for plant personnel is relied very heavily on the ANS, the American National Standards, three efforts in their standards.

MR. CROCKER: Oh, yes.

MR. MILOAN: It's referenced very heavily in their input on revising that standard and reflecting materials.

MR. SIESS: When you go out with the Technicron criteria, and compare it with what existing utilities

C/H TAPE 5/15

have, it'd be nice to be able to do a calibration on these criteria, wouldn't it?

I assume you got some idea that the utility acts as, oh, probably it would get a grade of A- and utility Y, you would just grade -- give him a B.

And, I'd be interesting to see whether they're agreement with the Technicron criteria would give the same --

A- in the D is pretty subjective. I'm not talking about the I&E studies, you know.

MR. MATTSON: Yeah.

MR. SIESS: -- which went this way --

MR. MATTSON: Another way to calibrate it would be to calibrate it with some operating experience.

MR. CROCKER: We could certainly do that.

MR. MATTSON: -- good cold failure rates and stuff.

MR. SIESS: Bad operating experience or both kinds?

MR. MATTSON: Bad operating experience.

MR. SIESS: Well, didn't you say that --

MR. SIESS: And good operating experience.

MR. CROCKER: I think you could certainly come up with a --

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MR. SIESS: I mean, Dav's BESSE happens to be better than TMI, wouldn't it? We keep saying the events were the same, one of them did it fine, the other one didn't.

MR. ZUDANS: Just a coincidence.

MR. MATTSON: The events weren't the same.

MR. SIESS: Well, I didn't say they were, but an awful lot of people were saying they area.

MR. MATTSON: Well, 9 percent and 100 percent are alot of difference in power.

MR. ZUDANS: Not after the shut down.

MR. MATTSON: Oh, yeah.

MR. SIESS: Could you compare Crystal River with 1,000 gallons and TMI with 600,000. You've got a qualatative measure.

MR. MATTSON: On a logrhythmic scale? Gallons of water?

MR. ETHERINGTON: I think we should move along

MR. MATTSON: Yeah, this loss of safety function item -- correlates with an I&E item in here somewhere.

Can you help me with which is the I&E item on enforcement policy, the paper that you all have?

MR. ETHERINGTON: The shutdown --

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MR. MATTSON: Yeah, I want to relate it to another requirement that's in here This is the loss of safety function limiting condition of operation. It was recommended by the -- task force in it's short-term report.

The paper has reached the Commission. It is being considered in parallel with a paper out of the Office of Inspection and Enforcement which proposes an alternative which is a more rigid enforcement policy for the agency, or --

4-A-2, Roman 4, capital A, number 2, on page 13 of table 1. The Office of Nuclear Reactor Regulation has said that it would agree with either approach.

As former chairman of the task force, I can say I think at this point I'd be in favor of trying the IE approach and have said so to my management.

So, the loss of safety function, item 1-B-1-3 is probably going to be resolved by the Commission's agreeing to do 4-A-2 on page 13, but that decision hasn't been made yet.

MR. MILHOAN: We can proceed to the next hearing if there's no further questions on the inspection of operating reactors concerns for -- for IE items rise of the Office on revising it's inspection program and placing

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resident inspectors at the operating reactor.

Item 2 was an MPOL requirement, placing resident inspectors at the operating reactors. And then the last two items concerns occasional evaluations and overview of licensing performance.

MR. COLLINS: Will there be a tour of duty for these resident inspectors here?

MR. JORDAN: We present have them scheduled for a three-year tour of duty, at which time we'll evaluate where they are with respect to objectivity and if we find it acceptable, they may continue.

We're having a problem with staffing because of this problem of moving and relocating every few years. We are taking a second look at that.

MR. COLLINS: I figured you would. It sounds a little like the Army to your post.

MR. MILHOAN: No further questions on that one, we can move on to proceedures which there are 9 -- There are 9 items on proceedures. 7 of them are NTOL requirements.

MR. SIESS: Excuse me, I'm on the resident inspector, has there been any evaluation by I&E as to the effectiveness of the resident inspector, either in what he does or in what the licensee does different as

C/H TAPE 5/11

a result of him being there, or do you plan such an evaluation?

MR. JORDON: We've had the GAO look at -- We haven't had them. I guess -- early staffing and implementation of the program, they have made some recommendations, as we might imagine, but basically, we're still in the initial roads of putting people out there.

We had found their presence to be of great value to us in terms of responding to incidents and knowing what's going on at the plants and I guess some feedback in the terms of items of noncompliance and enforcement. There is no radical change that we see from this.

MR. SIESS: I've seen 2-3 incidents -- LARS that apparently resulted from something, -- an inspector called to their attention. I don't know whether that's widespread or --

MR. JORDAN: I think just the mere act of being there and inspecting is a corrective measure and these things go on constantly.

MR. ZUDANS: Are they 24 hours there?

MR. JORDON: I'm sorry?

MR. ZUDANS: Are they 24 hours there?

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MR. JORDON: No, they're regular 40 hours, sir.

MR. ZUDANS: 40 hour week?

MR. MATTSON: But they alternate their time at the site so that they do see something on all shifts from time to time and they see major changes in the operating status of the plant.

MR. ZUDANS: Indeed they also function as the intermediate points for communications received to the headquarters?

MR. MATTSON: Are they an intermediary in the communication link between plant and headquarters?

MR. JORDON: In a sense, yes, and in a sense no. In the routine events that happen in the plant, they are. But for an accident situation or an incident situation, we have direct ties with the licensee in -- in the control room.

There they -- After they arrive, they would perhaps be in conversation with us, but our direct communication is with the licensee and the --

MR. MINNERS: But in the one incident I'm familiar-- One plant I was familiar with, the plant management liked the resident inspector for that reason because they thought that it gave a better communication link with the NRC. They could sit down with the resident

C/H TAPE 5/21

inspector, and take enough time to explain the whole problem to him rather than have some guy who was on a schedule and would take 15 minutes or a half an hour. They could really sit down with the guy, and say, yeah, it looks like this, but here's all the ins and outs of this particular problem and they -- they thought that was a positive element on having a resident inspector because they got a better communication link.

MR. SIESS: Our expert as the resident inspector, is he a QA expert or is he the equivalent of an SRO on the plant or --

MR. JORDON: He's approximately equivalent to an SRO on the plant, that's our objective. But, it's more than that too.

In general, they're the people with the operating experience numbering many years.

MR. ETHERINGTON: Gentlemen, there's an inconsistency on the agenda. It says 12:00 lunch and it says 12:00 we finish Chapter 1.

We'll change the time on the agenda.

MR. MATTSON: For when?

MR. MILHOAN: If you'll give me 15 minutes, I'll finish Chapter 1 for you.

MR. MATTSON: I think that we could move quite

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quickly through the rest of this. Alot of this we've discussed before.

MR. MILHOAN: If you want to continue, I think we could.

In operating proceedures, we've already -- 5 of the -- I'm sorry, 7 of the 9 items at NTOL requirements. Items 1, 2, 3, 4, 5, 7, and 8. Two additional items, a long-term program item 9, we discussed this morning about the proceedure development over the longer term.

That would be one of the aspects of involvement of NTOL in the long-run program. And the other items, the verification of operating activities, having licensees review their proceedures for independent verification of operating activities, both from a human verification standpoint, and the standpoint of automatic status monitoring which is covered in Item 1-B-3, so there would be two aspects of that before the installation of automatic status monitoring equipment if we decided to go that route, and also revision proceedures after the installation of the automatic status monitoring.

MR. MATTSON: If I could interject at this point. If you'll now look at your sheet of when we're gonna start things, you can get a real graphic demonstration of where NRR, atleast, is putting priorities.

C/H TAPE 5/23

The 1-B-1, 1-B-2, and 1-C have an X in fiscal year '80 for every single item. So the quality of management and the quality of technical support and the quality of onsite competance, the preparation through proceedures, that's where alot of emphasis is being put in the action plan.

Go ahead, Jim?

MR. MILHOAN: Two questions on that one. We can move to the co-room design area. I think we discussed some of these previously this morning, the efforts on the design review of the control rooms.

MR. THTERINGTON: This is already issued in this 1-B --

MR. MILHOAN: No, it's -- What you have there is a two-part area. You have an immediate requirement for the NTOL's concerning our look at the control rooms or the NTOL applicants and then you have a longer term item of 1-year design review of the control rooms and broken up into short-term modifications and long-term fixes based on the result of that design in review, so there are two areas of that item.

The other areas --- The other items in this one is safety monitor -- safety monitor console, which would have to interface with the control room design review,

C/H TAPE 5/24

Item 1, and it does interface with it.

The action plan in the next revision will be revised to better indicate the interface between these -- these two items.

MR. MATTSON: Basically what it does is require the initiation of a design review for the control room, in parallel with consideration of how much a safety monitor console would improve the diagnostic capabilities of decision-maker in the control room, with the expected conclusion, both in NRC and generally in industry, I believe, being that the safety monitor console will be decided as the preferable short-term route, said decision to occur in the course of the summer or early fall, after some further study, and that people will then get on in a rather expeditious fashion with designing and installing the safety monitor consoles and then longer term further revision of the control room tempered somewhat by having a safety monitor console.

It makes the job easier, less extensive, more leisurely for modifying other things in the control room.

MR. SIESS: There's somewhere in red guide 197 that we immigrated into this too.

MR. MATTSON: That's right.

There are three things, actually. Remember we

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put a slide up last month that said that the three major contributors to cost were the safety monitor console, the status monitoring equipment and red guide, 1.97.

They're also three things that relate very closely to what is your philosophy for commanding control information in the control room, what is your philosophy on machine indication versus human verification and human quality assurance, those are the kinds of decisions that are being studied and will be made in the course of the next 3, 4, 5 months, --- I guess by the end of the summer.

And, the implementation of 1.97 is right in the middle of it. Do you really want another 125 instruments, or is your philosophy to get down to three or four dozen key indicators of the status of core cooling and the primary coolant boundary and then a few additional instruments for doing the best you could if you had a core melt accident, and that's what instruments to follow a course of an accident is controlled by.

I don't think we know the answer yet.

MR. ZUDANS: Is it in your process of thinking in these matters room for computer-based systems status monitoring with graphics and so forth?

MR. MATTSON: There's a debate, if I understand it, correctly, between several schools of thought on the

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status monitoring equipment. One school of thought, and I'll oversimplify it, says, hard wire, discrete set of indicators, not subject to manipulation and game playing in the course of an event, and that's the thing upon which proceedures and training are keyed.

Another school of thought says take advantage of the capability to call up diverse discriptions, diverse displays, sophisticated and complicated synthesis arrangements of information and make that available to the safety console, or some milligram that says use the digital computer processing to give you the capability to change your mind from month to month or year to year as to the kind of information you'd like to have in an emergency situation.

That's another element of the on-going discussions within the industry and involving NRC people, and I don't think decisions have been made yet.

MR. ZUDANS: The conference that you ran, some time ago, remember on IEEE, an NRC meeting. The Canadian fellow stated that although reactor controls are now computer based and they use computer assistance and it sounded like something is not a good idea in general because the tecnologies are well --

MR. MATTSON: If I understand the debate here

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in this country right now, there are a couple of vendors that say it ought to be computer based and there are a couple other vendors and some other people that think that the computer guys might make it kind of gadety and you couldn't depend on it, it's too flexible to be able to train to, that it gets away from the simplification philosophy of here's a simple set of three or four dozen of indicators that we've tested against all kinds of transient events throughout the 400 years of operating history and they cover them all and they ought to be relied on.

MR. ZUDANS: But they could co-exist. There's no need to eliminate the simplistic approach.

MR. MATTSON: I don't come out on either side of the argument, I'm just aware it's going on and it's too early for me to jump in and try to resolve it.

MR. ZUDANS: I just wanted to know --

MR. MATTSON: Voss, did I overstate it one way or another?

MR. MOORE: No, I think you stated it accurately, the simplified, the hard-wired system that some people are proposing talks in terms of about 40 parameters.

Some of the more complex computer base systems talk in terms of about 400, so a factor of 10 difference

C/H TAPE 5/2B

in the amount of data fed to the system.

MR. ZUDANS: Well, of course, you would not -- the human being of information even for 40 parameters, because you can't handle fast enough, so that's already excessive.

MR. COLLINS: The computer could increase or decrease from 1 to 400.

MR. MATTSON: All the plans says a decision will be made in this area. There are gonna be all kinds of meetings, all kids of criteria, and we ought to --

MR. ZUDANS: I'm interested in where the future is. I'm interested in where you are -- I understand that you do have some actions that have to be taken, and there's nothing wrong with that.

MR. MILHOAN: In fact, we changed this item in the action plan to be part of a study and not an immediate issue in the requirements in this area.

The remainder of these items quickly concern the development of a standard on control room design and regulatory guide development, determining acceptability of the standard and the research item and also we discussed the technology trends for a conference this morning.

The next area is analysis and semination of operating experience. We've discussed this area, I think,

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concerning the establishment of the new office of analysis, AEOD, within the NRC. The items discusses the individual office program, the data analysis to be conducted, the coordination of the NRC and industry programs. It discusses the nuclear plant reliability, the data system, the interim -- the proposed notice or rule-making we have out.

It concerns review of reporting requirements in developing additional guidance and report area requirements, coordination of operating experience of foreign sources, and the research on human analysis, these are in this category.

Any -- Do you have any questions on these particular items, operating experience, evaluation? I think we covered these.

MR. ETHERINGTON: Another -- an editorial comment. It would be helpful if this table had the same general designation of the itemized unit 2. For example, 1-D-5 research -- When I look that up and I find instrumentation research, which is not more definitive than the things you have.

I think if you look all the way through, you'll find that there are changes in wording which some might lose something.

MR. SIESS: They've always used research all

C/H TAPE 5/30

by itself.

MR. ETHERINGTON: Well, but then it's a limited research in this case.

MR. SIESS: After about the third time you've seen it --

MR. MATTSON: Well, I think what you're saying is that even though it says research under control room design, it's more narrow than control room design research, it's instrumentation research.

MR. COLLINS: It could be human factors.

MR. MATTSON: Good point.

MR. LIPINSKI: It's not part of control.

MR. COLLINS: It's not part of control room design?

MR. MATTSON: That's included under 1-D-1.

MR. COLLINS: Design-review?

MR. MATTSON: Um-hum. The Human Factors Division is responsible for this whole area of control and design.

MR. COLLINS: Well, I sure would feel more comfortable if it was called up separately.

MR. MATTSON: Here's my problem. I've got 7,000 people interested in reaction plan and each one feels more comfortable if it's categorized this way than the other 6,999.

C/H TAPE 5/31

MR. ZUDANS: The probability factor, I think is very small.

MR. MILHOAN: If there's no questions on that one, we can move to the area of quality assurance. Two items on this one is development of guidance concerning the QA lists, and in this regard we're looking at changing this item in the action plan from a B item to a D item, which would be developed in the normal course of develop process on developing guidance concerning the standing QA list, -- developing guides on more detail criteria in the QA areas also in category D Item.

MR. ZUDANS: This red guide 1.97 is under 1-F-2?

MR. MATTSON: No, no.

MR. MILHOAN: No, no, no, B -- These will be covered in part of red guide.

MR. ZUDANS: I'm sorry. I'm trying to find it.

MR. MILHOAN: In the area of operations, red -- guide 1.43.

MR. ZUDANS: Okay. I jumped to page --

MR. MILHOAN: No questions on that one, we can go to the last item in chapter 1, training during low powered testing.

Item 1 is an NTOL requirement concerning the need for training during the low power testing program and

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Item 2 is an additional item concerning the review of the scope of the test program. This is a new item added to the action plan in draft 3, the need for review of the scope of the operational and start of the test program to determine whether additional guidance needs to be developed in this area.

12:15

MR. MATTSON: Mr. Scroggins is the chapterhead for Chapter 2 and he'll call upon the various managers in the room responsible for these areas to summarize them for him.

MR. SCROGGINS: Okay, or I can -- why don't we just go ahead and discuss them.

I gather we are going to use a slightly different approach on Chapter 2 and I'm going to call, as available, if not we'll take care of it -- the task managers for the various sections to briefly describe in the content, the status of these items and then respond to any questions that you might have.

The first section on siting has to do obviously with the rulemaking on the new siting policy and Dan Muller is here who will discuss it.

Dan, do you want just sit up there?

MR. SIESS: Don't talk to --

(Laughter)

MR. MULLER: There are two parts to this task. The first is siting policy rulemaking and this, in effect, is to implement either the recommendations of the siting policy task force or other recommendations that the commission may have and place this into a revised 10CFR Part 100.

The first step in this activity is an advance

notice of the -- rulemaking which would go out public and request comments of the public on both the siting policy task force recommendations, as well as others that the Commission has proposed and this will be out hopefully this month, with a draft rule published for public comment in, optimistically, October 1980.

The second part of this is a site evaluation for facilities. It's effectively, what are we going to do about plants that are currently in existence vis-a-vis the new siting policy that's developed at some point. Sort of on the assumption that some of these plants will not meet the new siting policy and have to come up with some sort of a rationalization of either the acceptability or what we'll be doing about those specific plants.

MR. SIESS: The low priorities on these items, I assume result from the fact that on the first -- and no new plants coming up real quick and not much we can do about the old ones --

MR. MULLER: Pretty much. The only priority we have Chet, is the fact that there is likely to be some sort of siting legislation that the Congress may pass one year future, which very likely will be somewhat along the lines of what we're thinking of in the revision department, part 100. We're trying to get a leg up now, a little bit on that

activity.

MR. SIESS: If I took you literally, that the site evaluation followed the site policy, it would seem to me that it would have a lower priority than the site policy, instead it had the highest.

MR. MULLER: Well, that's one thing I pointed out. In fact, I'm not -- That's one thing that I pointed out to you, that that was inconsistent.

MR. MATTSON: I'm sorry fellows --

MR. MULLER: The site evaluate has a higher priority than siting policy and it's just inconsistent really in the sequence of the way we have to do things.

MR. SIESS: Except at looking at Indian Point design, you're sort of jumping ahead of any others. The Indian Point design is the sort of thing you mean by evaluation --

MR. MULLER: Yes, that's exactly right.

MR. MATTSON: I think the difference is probably in the amount of safety improvement we expect to have occur from item 1 versus item 2 and I guess I'll say it as candidly as I know how. The siting policy rulemaking, I don't expect to have much effect on the sites that I see presently proposed and lying before this agency for decision. It's my understanding that those are all pretty good sites.

Hence, for the sites, they are of any interest at all the next few years, the siting policy rulemaking isn't going to have any safety significance.

MR. MULLER: Except that's going to input the item 2 and that's where you get the inconsistency, Rod.

MR. CATTON: Maybe they ought to say existing site evaluation --

MR. MATTSON: But item 2 deals with sites that are already approved, whether some of them might not have been as good as sites as we think today we want. Right? So there you can get a safety improvement by deciding that they are not safe enough and cancelling their approval.

MR. MULLER: Except we really need the results of item 1 to do item 2.

MR. SIESS: -- because you are presumably making, your looking -- 40 percent of the total risk over 60 operating plants -- you don't need hard rulemaking in deciding to reduce the risk somewhat.

MR. MULLER: Some of us think that that may be jumping the gun a little bit --

MR. MATTSON: 2BC, yes because most of the approach is to --

MR. SIESS: Well, I'm not interested really at arguing between the 2 and the 3 priority right now. I'm

more interested in 1 and others.

MR. MATTSON: We'll reconsider the 2 and 3.

MR. SIESS: On the numerical scores, one of them is 60 and one was 120, which maybe looks bigger than between 2 and 3.

MR. MATTSON: Well, you see, the steering group has had a little -- really battle with NRR line organization on this question. We've said that we didn't understand why item 2 couldn't be done without item 1 and I guess at this point, we lost that running battle and item 2 isn't going to be done without item 1.

MR. MULLER: If you do item 2, you die on 1.

MR. MATTSON: Yes. So I suspect we are going to change the numbers. It's probably an oversight, but the --

MR. SIESS: That may be the best way to do it.

MR. CATTON: Just put the word "existing" in front of it, in front of site.

MR. MATTSON: What are you suggesting?

MR. CATTON: You call it existing site evaluation and the 2 and the 3 are natural.

MR. MATTSON: No, I don't think that gets it for Dan.

MR. SIESS: There is still the difference in the improvement and safety.

MR. MATTSON: Right. In the currently proposed

sites, they are pretty good sites. Some of them that are already approved, aren't as good. There are some currently approved on which significant construction has not been accomplished because it's been significantly delayed, that were approved a long time ago, may not be such good sites.

Well, we'll sort out the 2 versus 3. Are there any other things that the subcommittee would like to understand about siting, while we have Dan here?

Okay, Dan, thank you.

I guess the next area is the degraded or melted core.

MR. SCROGGINS: Mr. Speis will discuss the individual items. Themis, do you want to come up and take Dan's place here. I guess I can indicate at the outset that the first four items are on the NTOL list and have been discussed at some length. The AIF did comment on number 4 and its comment really was that they essentially agreed with it. They had offered a revised scope which clarified it better what the intent was and that revision will be made in the final draft of the actual plan.

Themis, why don't you go ahead and do a brief description of the items here and sort of the status as you understand it.

MR. SPEIS: Should I start with the objective? Basically the objective is to develop and implement a phase

program to include -- consideration of core degradation and core melt oxidants beyond the present design basis. The program consists of four elements. One of them short and medium term -- for scope and -- among them are the four items that Mr. Scroggins mentioned that are being implemented now. There is a specific item for additional requirements for type of relation density sites. There is an element involving research and design status to develop additional information and finally rulemaking to establish a long term policy rules and requirements, etcetera.

If I can start with the last one, rulemaking, it involves two parts. One of them to be implemented immediately, includes some of the short term requirements that Mr. Scroggins mentioned earlier. Basically, most of them are things that we have labelled on the licenses right now and I assume that the reason we are doing it is to make it legal. Is that right, Dr. Mattson?

MR. MATTSON: No, the difference between doing it the way we've done it so far and doing it the way the interim rule does it, is that what we've done so far is not binding on -- and the staff has said to the commission that we can approach this new area of beyond Zion basis accidents, degraded cores, core melt accidents, in one of two ways basically. We do it case by case and argue it at each hearing or we can do it generically and conserve our

resources and treat it more systematically and make better use of research and industry and resources available to us, that we can control through certain rulemaking actions.

The Commission's general counsel has advised that you can't do that through a policy statement, which is what we had earlier talked about, I think in the first draft of the action plan. So we've come to this approach which says an interim immediately effective rulemaking, which would be binding on the boards if issued by the Commission.

Basically, the argument we try to make there is that having considered what we've considered so far and arrived at the conclusions we've arrived at, we would do the following things and we'd list them right now, put them in the regulations and they would give a justification for not doing more in the statement of considerations for the rule for some period of time, say two years. In that two years, you would consider what further things might need to be done by way of protecting containments or preparing containments for a degraded core accident or hydrogen control systems or -- systems or whatever is important to consider. The hearing boards would be bound by that for that two year period. They would hear evidence on how well a particular licensee had met the interim requirements, but they would not delve into the other area of what more was required, since that would be part of the generic rulemaking. It's

analagous to the approach that was taken with the emergency core cooling rulemaking in the early 1970's.

So what we've done so far is legal.

(Laughter)

MR. SPEIS: Legalize the -- our friends in the Office of STandards have drafted two pieces of paper; one of them dealing with the interim rule, covering all the items that are mentioned, spelled out on page 2B14 and are also in the process of finalizing the rulemaking itself. I'm talking about the paperwork and hopefully, both of them will be available for the commission by the end of April. Is that right?

MR. MATTSON: Yes, it's probably interesting in the context of this description -- where the GE argument fits, when they make it to you tomorrow. It's been our conclusion, the staff's conclusion that part of the interim rule ought to be a requirement to inert Mark 1 and Mark 2 containments.

It's GE's contention that that needn't be done, that that can be a consideration for the longer term rulemaking and that it's unwarranted to move to this point to a decision to inert the Mark 1's and Mark 2's which requires an amendment to 50.44, to require inerting.

CHAIRMAN ETHERINGTON: Without disagreeing with you, I would like to know what the criteria -- at some time.

MR. MATTSON: Now, what you said earlier was that you'd like NRR to be prepared to discuss that after the GE presentation tomorrow, we've arranged it for either -- after. Dick Denise and the Containment Systems Branch will be down here tomorrow for the GE presentation, then we'll --

CHAIRMAN ETHERINGTON: And your criteria do definitely make it necessary to not --

MR. MATTSON: They will be prepared to discuss how they came to that conclusion, yes.

MR. SIESS: They may be able to discuss that on a risk analysis basis. I read section 8107, I think it is, and I was just amazed to find nothing in there on a probable risk assessment approach to justify what you're doing or where you divide it.

MR. MATTSON: Well, we'll advise Mr. Denise that that will be a question you will have for him tomorrow so he can think about it overnight. I'm sure he's thought about that question before. You know, the PAS staff talked to you all some months ago about where one comes out on this question from a risk assessment point of view. If you want to go into that again tomorrow, Chet, we ought to ask Matt Taylor if he can, to step over here.

MR. SIESS: I don't recall what they said, but it just seemed to me that in a document that is presenting the basis for this commission or to us or whoever, that if those

studies have been made and there is any justification in terms of risk assessment, it would be a --

MR. MATTSON: Basically the argument goes something like the following. The PAS people said, I think, and Bob you can correct me, if I stray too far or take too much liberty here, they said it doesn't make any sense to inert because simply the generation of large amounts of hydrogen could cause pressures in excess of the design pressure for some of these small containments. So you are better off to find a way to prevent generation of that amount of hydrogen or otherwise disposing of it, so that it doesn't yield that high pressure.

The Denise argument, the Containment Systems Branch argument is, if you are willing to consider pressures beyond the design pressure, that is, talk about where you realistically expect significant leakage from the containment, then you can take large amounts of hydrogen production even in small containments without causing significant leakage. Therefore, it makes sense to inert some of the small containments, but they wouldn't move to inerting all of the little containments pending further study and where they choose to draw the line and it's on judgement, that judgement derived from the kinds of reasoning presented in the paper you referred to, they draw the line between Ikes condensors and BWR Mark 1 and Mark 2.

MR. SIESS: But I saw nothing, for example, that indicated that this would reduce the risk by 40 percent or 1 percent, a tenth of 1 percent. It's a pretty strong measure, unless you can show that it's going to be a reduction in risk --

MR. MATTSON: I'm not sure that that's --

MR. SIESS: I thought it was --

MR. MATTSON: I'm not sure you can make such an argument, that you can calculate such a number.

MR. SIESS: Wasn't there something in Washington 200 about that?

MR. BENARYOA: May I suggest, it seems like I ought to make the commitment to have Matt here tomorrow and pursue the argument then because Matt Taylor, it was an October presentation if I remember, he did try to rate the thing quantitatively.

MR. SIESS: Okay.

MR. SPEIS: But the commission paper is dealing in terms of capability of containment, in terms of pressure basically. The weakest one is the Mark 1 and 2.

MR. ZUDANS: Most of the Mark 1 and Mark 2 are operating now inerted?

MR. SPEIS: Except 2.

MR. ZUDANS: All but two? So the contention is removing that requirement, rather than enforcing the

remaining two or remaining one.

MR. MATTSON: The regulations as presently written, based on a revision of 50.44 of about two years ago, requires that a BWR either uses its design basis 5 percent metal water reaction or 5 times the amount calculated in the -- K calculation. And if plants choose to take the second alternate, as Vermont Yankee and Hatch chose to do, then they're capable of showing for less than 5 percent metal water reaction that they can keep the plant within the design pressure of the containment and needn't inert.

The other plants have that option, but none of them have exercised it. Now, what the proposal is in the action plan, is to remove that option and to require all Mark 1's and Mark 2's to be inert.

MR. ZUDANS: So really the question about two plans being --

MR. MATTSON: Well, it's more than two. It would be any new Mark 2's licensed before the rulemaking was concluded and there are three that will be licensed within the next year or so.

MR. SPEIS: Two are the operating --

MR. MATTSON: Two operating, three about to be licensed.

MR. ZUDANS: I see. Now, the -- hydrogen -- is not being considered in these plans or are they?

MR. MATTSON: -- combiners, the current thinking is to require in the interim rule that there be a recombiner capability at all operating plants.

MR. ZUDANS: In addition to inerting or in lieu of?

MR. MATTSON: In addition to inerting. That's the current requirement, except for some 40 units which were grandfathered from that requirement when it was promulgated several years ago. So the thinking for the interim rule is to remove the grandfather clause on recombiners.

MR. CATTON: Are there any requirements with respect to where the recombiner intakes are located?

MR. MATTSON: No.

MR. CATTON: Will there be?

MR. MATTSON: No.

MR. CATTON: Will anybody even look at it?

MR. MATTSON: Not until we've decided what our design basis is for large amounts of hydrogen?

MR. MINNERS: Well, we have looked at it. We have looked at installations and that's been looked at. It is not ignored.

MR. MATTSON: Which I made this morning in response to the committee's comment in its March letter about that point, was that for large amounts of hydrogen quickly generated, it makes a difference. For small amounts of hydrogen generated by a radiolysis over a long period of

time, which is the only thing the present recombiners can deal with, it doesn't make much difference. There is a distribution of air inside a containment.

MR. CATTON: I just keep thinking about TMI where you have the air conditioner intake. THey are on a ring that has about 120 foot diameter and there is a dome that sticks 30 feet above it and intakes are off the air conditioning system. But if you had a release from the reactor and it was at all warm, you would have a -- that would rise to the top and I don't think you'd get the mixing even if the amounts were small. I think it's almost a plant by plant assessment that's needed.

MR. MATTSON: We don't agree with you because of the small amounts that these things are designed to accommodate and they are not designed to accommodate metal water reaction beyond that experience for a loss of cooling oxidant that needs 2200 degrees Fahrenheit plus the amount by radiolysis over the long term. That's the design basis for these recombiners and you can't make a silk purse out of a sow's ear. If you want to put degraded core oxidants, it is much more than their intake that you need to be concerned with.

MR. ZUDANS: That is if you use current technology, right?

MR. MATTSON: That's right.

MR. ZUDANS: But it does not preclude to develop something that will take care of any amount --

MR. MATTSON: And that we're going to work on. That, everybody agrees we are going to work on in the course of this rulemaking, but to go back and cause a whole bunch of engineers to make a whole bunch of changes in the intake for recombiners that can't deal with an oxidant, doesn't make any sense and the priority -- it's all the scheme of things.

MR. ZUDANS: It's reasonable. I'm not saying it's not reasonable.

MR. SIESS: You don't even mention recombiners --

MR. MATTSON: No, not in that paper. In fact, it's not mentioned in the action plan by oversight. It is being included in the interim rule.

MR. CATTON: ARe you requiring sensors? Are you requiring hydrogen sensors?

MR. MATTSON: Yes, we are.

MR. CATTON: Where are you going to put them?

MR. MINNERS: I forget what the proposed rule says--

MR. MATTSON: Well, those are part of the short term lessons learned. They are already being implemented. What have we done with that? The hydrogen monitor and containment, have we said anything about its location?

MR. MINNERS: I don't remember whether that's that

or the radiation monitor.

MR. SPEIS: It is in the action plan.

MR. MATTSON: The argument I am giving doesn't hold for that. That one has to have an answer to your question. I don't know what the answer is, but we'll get it for you.

MR. MINNERS: Would you like a copy of the proposed rule?

MR. CATTON: Yes, please. Thank you.

MR. ZUDANS: One more question just for me to understand it better. The GE subjection which you will hear probably about tomorrow is mainly related to the time it takes to purge , the containment or what other reason?

MR. MATTSON: Accessability during operations.

MR. ZUDANS: But mainly when they are refueling cases, when they have to shut it down, it takes more time to purge it --

MR. MATTSON: No, I think the Tech specs allow him to start unpurging in advance of shutdown, so that they don't have --

MR. ZUDANS: Loss of time, yes.

MR. MATTSON: -- loss of power generation capability because of inerting. It's access during operations. They will also probably make a safety argument that there is the risk of harm to people who go into

containment, even after it's purged because of --

MR. ZUDANS: Yes, that I read in the GE report.

MR. SIESS: The Vermont Yankee Board decision, the Board speaks for the Commission, right?

MR. MATTSON: Unless it is overruled, yep.

MR. SIESS: So that stands as a Commission position, and you take rulemaking then to change it.

MR. MATTSON: No, after the Vermont Yankee decision, the staff and the Commission agreed that there ought to be rulemaking to firmly establish Commission policy on inerting and dealing with hydrogen, So the amendment to 50.44 occurred after the Vermont Yankee decision.

MR. SIESS: That didn't change Vermont Yankee.

MR. MATTSON: It did not overrule the Vermont Yankee decision, no, but the governing regulation is 50.44 rather than the Vermont Yankee precedent.

MR. SIESS: I should keep out of legal questions. I'm sorry.

(Laughter)

MR. SPEIS: The action plan also includes the explicit consideration for heights, size , what type of relation, density. We've discussed this with the sub-committee and the full committee last month. Basically, we're attacking the problem of Zion intake point and see if something can be done prior to the completion of the

rulemaking.

CHAIRMAN ETHERINGTON: Core attention is one of the things being considered, is it?

MR. SPEIS: Yes, we're considering explicitly --

CHAIRMAN ETHERINGTON: Yes, I knew that -- I wanted to concentrate on the core attention. Are you thinking in terms of any particular -- core attention to this -- Indian Point is catching in a pool of water, isn't it?

MR. SPEIS: Well, this is one proposal from the licensee. When we talk about core attention, it has to be put into the framework of the containment integrity. So it does -- the material that exists below the reactor vessel -- to fail to containment -- to being able to prevent that penetration of the molten core. So it is a more broader question that has to be --

MR. ZUDANS: Very site specific anyway.

CHAIRMAN ETHERINGTON: One of the things I was interested in is the different approach being used by FMP -- is it under consideration by Indian Point? Do these originate within the Commission or not?

MR. SPEIS: Well, the FMP was a separate question. You have a --

CHAIRMAN ETHERINGTON: It was separate?

MR. SPEIS: Totally separate. It came up in the

environmental review and the question there was whether the differences in consequences to the liquid -- and came up with the conclusion that you could delay melt through and get the consequences to be more equal between one and the other and we came up with the requirement of replacing the 4 feet concrete -- some sacrificial material that will delay melt through and also contribute less gaswise to the containment atmosphere. But these are two separate questions.

CHAIRMAN ETHERINGTON: I didn't really ask a question. I'm just a little bit wondering, a little inclined to wonder whether NRC is getting into a position of telling people how to design. Did they -- Apparently, the Indian Point system, if it works at all, would work very -- and then it would not really delay. It would retain.

MR. CATTON: Harold, there is a big difference in that. At Indian Point and Zion there will be water below the vessel, whereas in FMP they deliberately keep it out.

CHAIRMAN ETHERINGTON: I know, but they could have let water -- I'm wondering why the two --

MR. CATTON: Then we get into another problem with the sump water being so messy when it got into the tidal basin, there was a big radiation -- associated with it.

CHAIRMAN ETHERINGTON: It wouldn't get in at all

if it were --

MR. SPEIS: If we go back to the NCRS deliberations, the NCRS said, you know, is there anything that can be done to prevent a melt through and of course, when you are -- in order to answer that question, you have to look at a number of scenarios, okay. And also there are -- areas where you don't have water or you are not going to have fragmentation and your melting core will be in a molten stage and if that is the case, in a molten pool. If that's the case, then you are going to have a rapid penetration.

One way of preventing rapid penetration under those -- scenarios is to replace the concrete with some other material and that was the direction that we went and these were the type of NCRS questions --

MR. SIESS: But it is correct, isn't it, that the core ladel in the FMP is essentially designed by the NRC staff?

MR. SPEIS: No, that's not true.

MR. SIESS: They told them what to do, how thick to make it and what material to make it out of. They left the details up to them.

MR. SPEIS: But there were constraints, you know.

MR. SIESS: I know.

MR. SPEIS: You couldn't put more than 4 feet. You had to go ahead and --

MR. SIESS: But NRC said how much to put in and what material to use and a few other things. In contrast, the proposal to use the water underneath the reactor vessel in Indian Point, that came strictly from the licensee; did it not?

MR. SPEIS: Well, the licensee thinks that he can have water there and --

MR. SIESS: You didn't suggest it?

MR. SPEIS: No, no.

CHAIRMAN ETHERINGTON: That answers the question, yes, but it doesn't answer my concern. I'm a little concerned about --

(Laughter)

MR. SCROGGINGS: Do you have any further questions on --

MR. SIESS: Yes, I'm just curious in item 1, 2 and 3, which are NTOL items, turn out that the only priority 2, does that mean that these have already been -- with NTOL items and referred them down the line?

MR. MATTSON: No, I guess I just spoke --

MR. SIESS: There are a few other instances like that.

MR. MATTSON: I tried to speak in shorthand this morning by saying that only the priority group 1's, plus a few exceptions would be done by NRR. All the priority

group 1's, all the NTOL's, a few 2's and a few 3's, is what NRR is able to work on. If you look at 2B in this sheet, it shows that all of those things will be an issue --

MR. SIESS: No, that is not really my question. I thought the NTOL items were, you know, such obvious items that they were imposed immediately, you know, no argument, a little from ACRS, none from the Commissioners. Then it turns out that NTOL items come out as priority 2.

MR. MATTSON: No, we showed you a distribution of the NTOL things a month ago that showed you that there were -- that the NTOL items were all priority group 1 or 2. There were more 1's than 2's, but there were some 2's.

MR. SIESS: What drops them down to 2?

MR. MATTSON: Well, the priority classification occurs from how many points it gets in our priority classification system. But our priority classification system doesn't give any special increase of weight, if it's the first action of a kind in an area which needs action or any decrease in weight, if it's the second, third, fourth and fifth action in an area needing a treatment. NSAC and their priority system calls that priors. They give weight to the first action in an area in which there is a consensus that action is needed and then they discount weight for subsequent actions.

So these 2's, I think you'll generally find,

although their significance, the potential risk reduction associated with them in particular, might not be as high as some other areas, hence they are a 2 instead of a 1. They are the only or the first action possible in an area, which in our judgement deserves treatment and separation for degraded core is an area that we haven't done anything in except these procedural and training activities. By themselves, they don't have a high risk reduction capability, only medium,hence they come out 2's. But we think they ought to be done because they improve the capability to make the most out of what you got, while you're deciding whether you ought to have more.

MR. SIESS: Expedient, although not a major --

MR. ZUDANS: Is the containment under this heading or someplace else?

MR. SPEIS: It is under rulemaking.

MR. ZUDANS: Wouldn't that be strongly related to this degraded core activity?

MR. MATTSON: That's 2B8. It's under the rulemaking, 2B8 is where we make the consideration of whether to filtered plant containment.

MR. ZUDANS: But that is considered as addition or in lieu of core retention devices?

MR. SPEIS: That's part of it. The whole area will be --

MR. MATTSON: Part of it.

MR. ZUDANS: Part of it, yes.

MR. MATTSON: Well, we don't know whether to do both or neither or one or the other and that is what the rulemaking is for, to decide that.

MR. ZUDANS: Yes, preventing delays, the process of releases and gives you enough time to do what you have to do, you may be able to get away without core retention devices.

MR. MATTSON: Yes.

MR. ZUDANS: That's the thinking.

MR. MATTSON: And in some containments you may be able to do without venting.

MR. ZUDANS: If the soil is appropriate or whatever else is --

MR. SPEIS: The other thing at -- I do is prevent containment failure. In -- 1400 and subsequent studies, the interaction of molten core with the concrete low contributes to containment failure.

MR. ZUDANS: Yes, there are lots of reaction --

MR. SPEIS: -- 40 percent of -- CO_2 hydrogen to finish off the containment. So we have listed a number of items and rulemaking that should be considered carefully to see if they will contribute or beneficial from a safety -- positively or negatively or whatever. The rulemaking will

bring all this thing up.

MR. ZUDANS: Although it's not related to this subject. What happened to FFTF, does it have a --

MR. SPEIS: No, it doesn't. It has a filter, then a containment.

MR. ZUDANS: Is there a hole underneath the --

MR. SEISS: They filled up the ACRS.

MR. SPEIS: They filled up the ACRS hole with concrete.

(Laughter)

MR. ZUDANS: They did fill it with the concrete.

DR. SIESS: I got a couple of questions about SECY-8107, can I ask personally?

DR. SPEIS: Which one is that?

DR. MATTSON: That would be Denise and Butler?

DR. SPEIS: Denise and Butler.

MR. SCROGGINS: Okay, the next area is the reliability.

The task manager for the -- Bob Bernero, director of the PAS group in research and actually, the primary item under Section 2C is the IREP program.

Bob can sort of bring you up to date of where we stand on that. The Draft 3A as you saw, is different from Draft 2 and I fully expect Draft 4 to be different from Draft 3A as it is an evolving program. Bob can sort of give you an idea of where we are going on that.

MR. BERNERO: Excuse me, if I look a little apprehensive, it is because I have to go give a speech pretty soon, I may be relieved half way through this, by Frank Rowsome, my deputy.

This task 2C reliability engineering and risk assessment gets three elements, all of which are attempts, complimentary attempts for more orderly and methodical analysis of safety. The IREP, the systems interaction work, and ultimately we hope, reliability engineering.

The IREP program is one of the more fluid of these elements. It is already underway as systems interaction. I believe in our last conversation on this downtown, we were still in the Crystal River study at the time we covered it and we have reached the milestone in the Crystal River study that is a very interesting one because the event happened, the Crystal River event of February 26, and we were doing out cue and the angel Gabriel came and did his share.

DR. SIESS: You don't think there was any connection, do you?

MR. BERNERO: I asked for it, I prayed that night, and said do something for us. Boy, it was a good test.

What it showed, we had identified a number of expected problems in this first IREP study, namely poor documentation, you know, when you get people that know what they are doing, they don't write down what they are doing.

That we expected. But, we had independently discovered and discussed with the ACRS non-nuclear bus failure questions, in fact, Frank gave a presentation related to Congressman Udall's question, I believe it was, about the light bulb incident in Davis-Bessie. This was

not an explicit discovery of the IREP, the Crystal River IREP, it was independently identified from the Davis-Bessie incident, but this is a signal deficiency in that first IREP, that it didn't have a fine mesh to pick up that.

So, we have gone back on Crystal River to amend and improve that study and we are trying to start the 6 plant study, if you recall, that is described in the action plan. Here we have a little fluid situation.

Remember for the moment, we have got 3 objectives, with IREP, 3 principal objectives. One is to identify outliers, the second is to train people to use the techniques, the risk assessment technique for safety analysis, and the third is to establish a starting point for plants further analysis. You can't do it all in an IREP but you can get the base of information and the base of models to be able to further review that plant to understand design modifications and to see them. Am I really knocking down a risk contributor, or am I just wasting time with the design change or requirement?

We want, very much, to have NRR personnel involved in the 6 plant study, the resources required by this action plan, of course, are a severe demand on Harold Denton and we are in the midst of negotiating with him on how people we can have and when we can have them,

and his objective is starting at 0 and working up to a few, and our objective is starting at quite a few and haggling downwards. We don't have an agreed position yet.

DR. MATTSON: Well, Harold's position is not 0, Bob.

MR. BERNERO: I know, that is not fair, I agree. I have to get that in.

DR. MATTSON: NRR believes in IREP, is going to continue to IREP, the question is what can we afford, and give us some other responsibilities we have in the next year.

MR. BERNERO: In all likelihood, we will stagger the 6 plant studies but go forward with whatever resources are available and at least do the contractor parts, which we can undertake very shortly and try to get the NRR Staff and our own people into it as quickly as possible.

DR. MATTSON: We look forward to assigning something on the scale of 6 people within the next few weeks to IREP.

Once some resource priorities have been sorted out and confirm what we think at this point about those priorities we would expect a half a dozen people to be assigned full time to this program.

DR. SIESS: You are going to divide into 2

items here, different decision categories which you have no control over and different priorities.

Now assigning the lower priority to the continuation, does that mean you won't know until you finish the 6 whether it is worthwhile?

MR. BERNERO: Well, Dr. Siess, let me just point out the thing is evolving. We had from the outset said, let us do one plant to learn how to do 6 plants and use the 6 plant study as a screenboard to decide to do them all or to do half of them or have the industry do the rest or just turn around and tell the industry here is a format, go do it.

In the meanwhile, we are working on it. The industry has undertaken a number of things. There is activity Zion, Commonwealth Edison is having a risk assessment. The Big Rock Point has recently, that is consumers power, they have recently said look we have got this old plant Big Rock Point that is a mile of long, a very costly thing, let us do an IREP from scratch and then decide it is a package, whether to fix the plant or not.

So, we are cooperating with that kind of effort. What is happening, as we go forward with the 6 plant, the industry is moving to do many of the plants on their own, and I suspect about half way through the 6 plant studies,

a much clearer pattern of further action will be apparent. You really can't make a judgment, at this time, on what we ought to do about it.

We see the 6 plant is a secure thing to do, beyond that point it is rather vague.

DR. SIESS: It seemed to me that the next level, or maybe the first level, would have been the SEP punches where you have to have dozens of decisions to make on backfitting. That is the object of SEP, right? Certainly, IRF or something like that, would be extremely helpful to the Staff in saying what you are going to do on the SEP plants in an area where they do not meet the criteria.

MR. BERNERO: Yes, there was that --

DR. SIESS: Big Rock is obviously --

MR. BERNERO: Yes, Big Rock or any of the ones. However, the SEP plants are, what shall I say, the least representative, and you loose that aspect. If you do Big Rock Point, you know, you have got a duel cycle, BWR, that is rather small and a much earlier design. You aren't getting as crucial an evaluation as you would get say, from Calvert Clips, or --

DR. SIESS: From total risk.

MR. BERNERO: Yes.

Total risk and commonality with other plants

not yet done. One thing, we can look at WASH-1400 and say, we now know all we need to know about the principal contributors to risk and we won't want it anymore.

But, on the other hand, if we do IREP's we might discover 2 or 3 more principal contributors to risk not yet appreciated. That is why there is a strong tendency on our part to go to the later plants.

Another thing, too, to do an IREP on one of the earlier plants is a lot harder because of documentation. You say, show me your FSAR and documentation is no where near as complete.

DR. SIESS: I would think the SEP plants would be pretty well up to date now.

MR. BERNERO: Well, earlier when it was discussed, they are having a hard time structurally going back in, and by the way, I should add, the IREP is consciously not trying to develop the siesmic risk part of it and in the earlier plants that is probably a singular contributor, because you have got the uniform building code and so forth, that distinction. That is another factor I should mention.

DR. MATTSON: Anyway, there is another aspect to IREP, that I guess I might as well lay on the table, that bothers me a little bit, at this point. I am afraid that a person could do a bunch of IREP's and not learn

anymore than we already know about the dominant contributors to risk. That might be good to get more people used to using reliability techniques, probabalistic risk assessment techniques, and so on, I wonder if we hadn't ought to do a little more thought about how many resources we are going to spend on IREP's, many reactor safety studies if you will.

Bob's qualifiers on his words allow for that. He says, we are not certain where we are going beyond the 6 plant study and we won't really be able to shape our thinking definitively until we get around half way through, so he is leaving room for that kind of consideration.

The difficulty is there is another consideration that the Committee keeps hammering on us about and that is, when are you guys going to get the licensees to do it and 1 or 2, Bob, are doing them, but that isn't going to be satisfying to the Committee. The Committee wants to see more people doing it now, if I read your past letters correctly.

I think we ought to put those 2 questions in the hopper together and decide whether there are other probabalistic risk assessment, reliability studies, better oriented towards identifying safety problems before they happen that we could work together with the industry

to develop methods and approaches to discovering these problems, either IREP has presently construed which I am a little bit afraid of at this point, or something else.

Frank has got some ideas, I think probably there are some ideas as NRR as to how to go about that.

The way we have chosen to handle that as a steering group in the action plan is to say somewhere in an appropriate place in here, that we will have to study of how to proceed in the future, not wait until the conclusion of the 6 plant study. We will start it in parallel and we will start meeting with whoever the right people are in industry, probably talking to whoever the right people are at the ACRS, and try to move these two open questions to some kind of conclusion, rather quickly within the next couple of months.

I don't think we are going to do it in the time frame of interest to this action plan, in other words, I don't think we are going to have a final answer that you people are going to be willing to bless at the next ACRS meeting.

I think we can agree with you, this is an area we have got to keep concentrating on, we have got to magnify the reach of probabalistic risk assessment, we have got to increase the capability within the Staff, we have got to analyze a bunch of operating reactors as

an overlay to the deterministic criteria. All those good things we have talked about.

I am just indicating that I don't think that we have finalized on our approach yet, as draft 3 of the action plan appeared to indicate. I think we are going to have to leave it a little more open in draft 4.

MR. BERNERO: I wonder I could add one little element, perhaps not so little. Just this morning I had a phone call from one of our important contributors, a contractor, and the uncertainty about who does the quantitative risk assessment, NRC, or the industry, is a very real factor to these job shot contractors, who have to decide, will I go for the industry business, or will I go for the NRC business? But, he is working for us now, and he is really wondering.

DR. ZUDANS: That's a good point.

MR. BERNERO: Yes, so it is very important for us to get that sense of direction in the not too distant future.

DR. SIESS: When the ACRS has suggested that the licensees make these analyses, I think the reason behind that has been that they will be done more rapidly, and then, if the NRC makes them. would be as given. I don't know if the licensee is going to make them anymore than you are going to make them. Either one is going

to contract them out.

You know who is going to pay for it in the longrun.

DR. ZUDANS: You mentioned that IREP is not trying to develop seismic risk. In that context, what is the definition of integrated reliability?

MR. BERNERO: The steering committee insists on calling it integrated reliability evaluation. I have consciously tried to insist that it is an interim reliability evaluation. It is overruled.

DR. ZUDANS: I think it is neither.

CHAIRMAN ETHERINGTON: Incidentally, the inference is used in the plan in at least one place.

MR. BERNERO: I keep changing it everytime I can. Integrated is misleading, because --

DR. ZUDANS: I would like to point out, that if you don't consider all the causes and factors, it is meaningless risk assessment.

MR. BERNERO: No, it is not a total job, that is the thing, we have to recognize that.

DR. MATTSON: The problem is, it isn't risk assessment.

MR. BERNERO: It is a reliability evaluation and it is a limited one.

DR. SIESS: And nobody knows what the response

aspect of it is.

DR. MATTSON: The steering group didn't want to change its name, even though we might have intellectually agreed with the task manager and the responsible manager for the program. We thought people had sort of come to know it.

But, you haven't been around to all of these meetings.

DR. ZUDANS: I am sorry it is my first meeting on this hearing.

DR. MATTSON: If you all understand it to be interim and not integrated, a rose by any other name, is still a rose, it wouldn't change its name.

DR. ZUDANS: Somebody else might point it out to you and it might not be as comfortable or casual as I am doing it.

The other question that I am concerned about, is systems interaction. Is that an integral part of your IREP, or a separate program?

DR. MATTSON: No, actually, what we see -- the systems interaction is an activity that started some time ago and it is reaching a water shed where it has to decide what further action is warranted.

One of the things we are doing in IREP, is trying to grope for ways to develop from quantitative

risk assessment analyses, some failure modes and affects analyses, or deterministic analyses that can logically be done to do efficient safety reviews.

There was a similar thing in systems interaction and we see the possible marriage of these two programs in a way that a qualitative risk assessment can develop or point systems interaction type activities.

Right now, it is too vague to pin down but we have tried to say in the action plan that we are very conscious of the need to work closely. Now, Steve Hanauer was handling this up to the reorganization, I am not sure how this is going to gel out with the new NRR organization. But, we have to work very closely between the IREP and the systems interaction so as not to just go off in parallel, you know, quantitative fault trees and qualitative fault trees.

DR. ZUDANS: That sounds fine. The last time I heard about systems interaction, it was also limited to this certain systems that relate to core melt and not included any other secondary systems or otherwise.

Is there any place a plan calling for more encompassing systems interactions studies?

MR. ROWSOME: There are elements to the systems interaction research being done in NRR which are quite apart from this. They are pursuing things like

the environmental qualification issues, systems interaction by virtue of environmental effect.

They are pursuing in some depth, systems interactions to the effect, the ability to say cold shutdown, dissipate decay heat so shutdown. Whether or not it might be risk significant or not.

Whereas the IREP effort will look at fault propogation from the support systems through front line systems as it were to the extent that they seem to matter to risk or to core melt, or to core damage. Not look at systems interactions that do not have that risk significance and will not look, at least, in the interim version that we are envisioning here.

Systems interaction mechanisms that go through environmental effect, environmental qualifications sorts of issues.

Systems interactions through hard wired dependency and through procedures, through human behavior, are going to be attended to in IREP, but not flooding, not fire, not the qualification of equipment through the blow down environment, not to pipe whip, not jet impingement. These are things we believe, well not perfectly considered in licensing and by NRR have been worked over a good deal harder than some of the more subtle but hard wired dependencies that are implicit in either the

plumbing of balance of plant support systems or through operating procedures and test of maintenance and startup testing, which we intend to focus on a little bit more heavily in IREP.

DR. ZUDANS: Is the scope of IREP and systems interaction limited in any fashion by the single failure criteria?

MR. ROWSOME: No.

MR. THADANI: I might make a comment that we have a program called ATOG, anticipated transient operator guidelines. As a result, some of the work that Bulletins and Orders task force performed last summer, they recommended fairly detailed analyses be performed, these will be best estimate calculations given the transient to draw highly detailed event trees.

These event trees would not just look at the so-called safety systems, they would look at all systems as they are required to perform their function and one part of this study is what they call, I believe, cause wheels, whereby they look at each individual system and how it could be effected by signals, conditions, environments and so on.

These would be inputs for the boundary conditions to that system in terms of its availability and they intend to do this for a large number of systems more than

so-called safety grade systems, and I think that program in itself would also identify the source of interaction that one might be concerned about.

I don't know the schedule, but I know each vendor is being supported in this investigation by various owners groups. B & W, I believe, is furthest along, they started earlier than anyone else, I beleive in a matter of the next 6 months to 8 months, they are supposed to come in with a fairly detailed evaluation of transient systems and potential interactions that may take place.

DR. ZUDANS: That sounds like a broader scope than systems interaction.

DR. MATTSON: It is a different approach. It is in the action plan. It is back on page 1C3 and it is the evolution of this third phase of the transient and accident reanalysis using realistic methodology, developing new operator guidelines, new operator procedures, training the operators in them, ecetera. They came from short term lessons learned, and Bulletins and ORders, simultaneously. We talked about it way last July or August, so far, we have we have concentrated on phases 1 and 2, we've seen a lot of things come in from that, a lot of people we trained, and a lot of procedures changed.

The methodology is starting to come together

between what we used to think on one hand, as the Appendix K analysers and on the other hand, the risk assessors. They are starting to meet.

One of the things that we did in the reorganiation was give them a place to meet inside the Staff, in Bob Bernero's branch, on the safety program evaluation function, is supposed to accomplish that.

I don't know if that is germaine to this conversation but they are coming together, is the point you ought to consider.

DR. ZUDANS: It is clear that there are lots of things being done, whether or not they are adequate I couldn't say until you get some results.

I would have -- if I did any kind of a risk assessment in this nature, I would pose myself a single question. There is a function, for example, to remove the heat from a core, and it can go very fast but eventually whatever path it takes it has to reach some endpoint.

If I would now look at the systems that are involved in that process, there would be different classifications of systems. Some are safety grade, some are assessment, and some are not. But, they are all needed, or some of them are needed, some not. If one would study the reliability of such a combination perform a specific function, I would be a lot more happy,

if that is possible. It may not be possible, I don't know.

MR. ROWSOME: In a sense, that is what IREP is attempting to do. The jumping off point of the IREP study is a very abstract and all inclusive catalog of accident scenarios leading to core damage which might be written down in two or three lines saying LOCA plus ECCS functional failure can get you to core damage.

Transients with loss of feedwater failure to scram can get you core damage. Transients with loss of feedwater and loss of all feedwater and failure to cool with ECCS will give you core damage. That kind of a broad simplisitic but pretty all inclusive collection of accidents.

These are specified,detailed and made more concrete by translating them into the systems that are actually present in the plan of the front line systems, if you will, directly affect the transport of heat from the reactor to the environment or from the containment atmosphere to the environment to give you that second stage of accident analysis involving the integrity of the containment systems after you have done some core damage.

The models that taxonomy or tapology, if you will, of accident sequences, then portrayed in what we

call event trees, essentially decision trees indicating which of the front line systems are operable and inoperable. Reliability models are then defined which develop and which indicate how those front line systems may be dependent upon support systems, like AC power/DC power, control and instrumentation, service water, instrument air, and so forth.

Crude estimates are developed for the likelihood of their failing and search is made for common mode failures, common dependency on human intervention, the likelihood that humans may misconstrue the accident in which they are dealing, and behave in a way that would be correct for their hypothesis but is incorrect with the circumstances, and so forth.

Give us some crude measure, with the help of probabilities but not with probabalistic rigor and not with completeness. The more prominent, the conspicuous, the dominant routes to major release or core damage. Allow us to go through the successive refinement analysis of what appear to be the dominant contributors to risk.

We shall not achieve completeness in a study of this scope,which is only 1 to 3 or 4 man years per planet. We couldn't hope to. To make it manageable we will leave out fires, and floods, and earthquakes.

We will attempt to have the event tree analysis, the topology of accident sequences fairly accurate, fairly complete, and generalizable in such a way that they need not be done over again when we come along to put in fires and floods and earthquakes at some later date.

The system reliability models will be only thorough enough to give us the prominent common cause failures, prominent interdependency. We are not going to attempt to do thorough reliability analysis on every conceivable scenario.

DR. MATTSON: Basically, what the action plan has done is taken this program that people had previously and only bit away at the corners of it, and didn't know how to get all the way around it, and broken it up into pieces.

So, we are not certain how all these pieces come together in the big picture over 5 or 6 years into the future, but we can see some end products a year from now that will put us in a better position of estimating where the future ought to go than we can today.

If we keep trying to nibble around the surface of this enormous big question of how to do better risk and reliability assessments, we will never get there.

That is basically how Hanauer and I came to the

first draft of what we ought to do in the action plan. Levine and Rowsome said great, we will start off with a few plants in IREP and Hanauer and I through in a few different approaches to systems interaction and we developed the one with you on Diablo Canyon and non seismic equipment failures during an SSE, then, you have got package down on the action plan of a dozen or so different approaches to the same problem. So, in a year from now we have got more practical experience on which are the ways to work best, most efficiently, and give answers that are useful.

MR. BERNERO: Excuse me. If you gentlemen will excuse me, I have to get to that committment. Frank, will cover it.

DR. MATTSON: I guess the other one that is in here that is primarily stimulated by the ACRS is the Indian Point systems interaction study.

If you don't have any other questions, I think we ought to move on to 2D.

DR. ZUDANS: You gave a very good explanation where you stand.

DR. MATTSON: We are working the problem very hard.

DR. ZUDANS: I think the problem is too difficult to solve it in one shot.

DR. MATTSON: We decided to just stop trying and break it into pieces and start accomplishing something.

Thanks Frank.

MR. SCROGGINS: The next area has to do with the requirement for testing of the reactor coolant system relief of safety valves, and Jim Richardson of research is the task manager on that.

I guess you have some backup, I don't know if you have any backup on NRR.

MR. RICHARDSON: Yes, I do.

MR. SCROGGINS: Jim?

MR. RICHARDSON: The basic objective of 2D is to demonstrate that the overpressure protection system will perform its intended safety function under all the postulated accident conditions, and also provide positive indication of valve postion.

These requirements were sent to the licensees on September 13th, 1979 to applicants on September 27, 1979 amplified by a letter from NRR of November 9, 1979, and the BWR owners group was sent these requirements on the 14th of November.

Basically, our involvment in this task is to review a generic test program that the owners group designated EPRI to institute and carry out the office of research will follow the EPRI research program and perform

any necessary independent research that might be identified to verify or supplement the EPRI results.

We can give you a very brief status of where we stand today. We have met, we being the research review group, with representation from the office of research, NRR standards, and IE, met with EPRI and the owners group on March 20th along with our contractors who contracted with INEL, EG&E, to follow the EPRI program, NRR also has Lawrence Livermore Laboratory under contract to look at the plant specific aspects of this program.

The action plan notes that the test requirements are to be finalized and agreed upon around this time period. That is not going to happen. EPRI has not submitted a final test plan. They are still going through that test plan and it is there intention to submit it sometime in the vicinity of July 1.

There intentions are to construct a facility at combustion engineering which will be their primary test facility with the possibility of supplemental testing at Wiley Narco facilites and a full fired steam plant owned by Duke Power.

The combustion engineering facility combined with the July 1, 1981 indate cannot accomodate any consideration of ATWS conditions. We asked the owners group in November to please consider the possibility of

including ATWS conditions in this test program.

The response at the current time is that ATWS cannot be accomodated in the time frame of completing the test by July of 1981.

We reviewed the construction and test schedule as presented. We don't believe it can be made. They have stated that they will complete testing by July 1, 1981, we don't believe. We don't think that is a viable date. We are in the process of alerting NRR of that fact.

They are advertising a facility completion date of January 15, 1981 with a 3 month facility checkout, and a 4 month testing period to end July 1, 1981.

It is our assessment, along with our contractors, that that is not a realistic time. The schedule will probably slip up to 6 months from that.

DR. ZUDANS: This is a testing of PORV's instead --

MR. RICHARDSON: Yes, a matrix of PORV's and safety valves that would be representative of all valves used in PWR's. That is quite an extensive test matrix, however, all valves will not be tested, it would be a matrix to cover all of the sizes and makes of valves that are found in PWR's.

DR. ZUDANS: And different flow regimes?

MR. RICHARDSON: Yes.

DR. ZUDANS: And different tail pipes?

MR. RICHARDSON: Well, that is another question that we are negotiating with EPRI. At the present time, they are showing a very simplified downstream piping configuration that we question whether it is sophisticated enough to really represent the phototypical downstream piping configuration such that you could extrapalate the results to other configurations.

We have some straight documents, whether their proposal is adequate.

DR. ZUDANS: Could they vary the back pressure on the discharge?

MR. RICHARDSON: Yes, they do have the capability of varying the back pressure by valving.

I might say that their combustion engineering facility is limited to about 2,900 to 3,000 Psi, maximum pressure. This is one of the limiting conditions why they said that they cannot consider ATWS testing at this time.

DR. ZUDANS: Because of a higher pressure?

MR. RICHARDSON: Because of the potentially higher pressure and really the unknown ATWS conditions.

MR. THADANI: Jim, it may be worthwhile to point out that the plants, EPRI plants are testing at pressures at no more than 2,500 pounds.

MR. RICHARDSON: Yes, that is correct.

DR. ZUDANS: Couldn't you use your analytical tools and derive new corrolations on actual full scale up to pressure in mold and forgo any high pressure?

MR. RICHARDSON: That is certainly a possibility and we want to look at that possibility and but, I think you will still face the fact as how far can you extrapalate?

DR. ZUDANS: That wouldn't be very far compared to your --

MR. RICHARDSON: Yes, that is right. We feel much better at 3,200 than at 4,000.

DR. ZUDANS: Factor of 2, from 22 to 26?

DR. CATTON: That should be no problem.

DR. ZUDANS: No problem. He is an expert, he knows.

MR. RICHARDSON: EPRI is, and I don't know if the negotiations are complete, they have been negotiating with Crystal River to perform the postmortem on the CRystal River safety valves that underwent substantial challenge.

We do not yet know the BWR valve testing program. We understand that they have already started testing at Wiley-Huntsville, but we have not made formal contact yet, with the BWR owners group, and set up what our interface

is going to be with them. We expect to meet with them sometime early this month.

CHAIRMAN ETHERINGTON: We are spending too much time on the program that is in the formative stage.

DR. ZUDANS: I think this is a good program.

MR. RICHARDSON: I think my main message for you today is the status is that the JUly 1981 completion date looks very tenuous, we don't believe it could be managed.

DR. MATTSON: It may look very tenuous, but the Commission is very insistent upon the deadlines for short term lessons learned, I hope that message is getting to you.

DR. ZUDANS: Jim, is the block while testing for capability, to close and open, included in the same program?

MR. RICHARDSON: That has not been decided yet, we have asked them the question, they have not responded.

DR. MATTSON: I was not included in the original.

MR. RICHARDSON: We have asked them to consider that and it is under consideration and we have not received an answer yet. But, it is a systems test that

includes the block valve.

Whether we will demonstrate closing the valve under pressure or not, we have asked them to please do that, they have not yet responded.

DR. MATTSON: I would be adversely inclined to stretching the July 1981 date to incorporate that.

MR. RICHARDSON: We have told them not to, by no means.

DR. MATTSON: The July 1981 date and the assurance of operability of safety and release were expected, transient conditions is a very important series of tests to get completed very soon.

MR. RICHARDSON: We understand that and that is why I want to alert everybody that in our opinion, it is not going to happen. Research is writing a letter to Denton to that effect.

DR. MATTSON: Good.

DR. ZUDANS: Is the facility the same where they have the pump facility or some other?

MR. RICHARDSON: That is a new facility.

DR. ZUDANS: A new facility?

MR. RICHARDSON: Yes, and that is the problems.

MR. SCROGGINS: I think we better move on to 2E which is a large collection of specific system type requirements. Jim Norberg is the overall task manager for

2 E and I would like

to get a quick overview of the main subject areas. The people to whom this would fall in the new NRR organization is Paul Check, back in the background.

Paul, do you want to pull a closer chair up here and engage in the conversation?

Go ahead, Jim.

MR. NORBERG: Section 2E covers several specific areas and specific safety design system where improvements in reliability or performance are needed. This is the thrust of this section. It is divided up into 6 subsections first of which is the auxiliary feedwater system.

This section includes specific actions to improve reliability and performance by the use of fault tree, event tree, and deterministic analyses to identify design weaknesses and then, to correct such weaknesses as may be appropriate.

Certain specific design changes are now being required such as automatic initiation of aux feedwater system, the flow indication of the aux feedwater, and upgrading the quality of the aux feedwater system.

These are all, I think you are quite familiar with these.

DR. ZUDANS: Is the auto initiation no longer disputed by any of the licensees?

DR. MATTSON: The auto initiation of aux feedwater is no longer disputed.

MR. MINNERS: It is, that is the case of unresolved safety mission.

DR. MATTSON: Unreviewed safety questions. It is still disputed, they came in and said that raises an unreviewed safety question, and we said you are right.

DR. ZUDANS: That's correct, that is why I asked the question.

DR. MATTSON: Review the safety question that was previously unreviewed and tell us what the answer is. They are doing that and we don't have the answer.

DR. ZUDANS: When you say they are doing that, too. Who is doing that?

DR. MATTSON: The licensees, with that unreviewed safety question.

MR. SIESS: How do you decide what you tell them when to review the safety question?

DR. MATTSON: We tell them always.

DR. ZUDANS: And you only review the review.

DR. MATTSON: That's right. They propose, we dispose. We are still in that method of regulation. We still strive for that method of regulation.

MR. SIESS: It might be on the legal end of it.

DR. MATTSON: Here is a man who knows something about it.

MR. BENAROYA: All the evaluations except from SUN and OPRI have been received. Now, we are evaluating them.

They all ask for some delay time, 2 to 5 minutes. We are looking into it.

DR. MATTSON: In other words, with the delay time, they don't have a containment problem. If it is automatic and immediate, they have got a potential payment level.

MR. BENAROYA: Both steam and aux feedwater and runouts.

CHAIRMAN ETHERINGTON: Is there a difference in the plant condition between the 22 to have adopted position and 9 that haven't?

MR. BENAROYA: No there is not.

MR. SIESS: Is there a difference in the management?

MR. BENAROYA: Architect engineers mostly and managing utilities request.

DR. ZUDANS: But, if you give a time delay that is equivalent to your making it manual.

DR. MATTSON: You can build timers pretty easy, the question is whether you can build sensing systems that will anticipate all failure modes. That is the difficulty.

DR. ZUDANS: Either way it is okay.

MR. BENAROYA: It is promised for June.

DR. MATTSON: Thank you.

MR. NORBERG: The second subtask is the ECCS

subtask, and the specific actions in this task include determination and decrease the frequency in ECCS challenges. To evaluate the capability and reliability of the

ECCS system for various break sizes and degraded plant conditions, and to identify design weaknesses, and to augment research efforts particularly related to small breaks and transients. To evaluate uncertainties in ECCS performance predictions for small break LOCAS.

The third subsection, is residual heat removal and the specific actions in this subsection include upgrading the pressurizer control to function with onsite power to perform studies to assess the reliability and capability of residual heat removal systems to identify design weaknesses in the present systems, and studies to identify and assess alternate residual heat removal concepts that could improve the overall, operational reliability.

DR. CATTON: Does the alternate concept include the dedicated heat removal?

MR. NORBERG: Yes, it does. That is a long range in research.

The third subsection is on containment, no, the

the fourth subsection is on containment design. The specific actions in this section include provisions for dedicated penetrations for external hydrogen recombiner systems, improvements in containment isolation dependability, requirements for containment integrity checks, and reassessment of requirements and restrictions on containment purging.

MR. SCROGGINS: Can I make a comment here? I should note that, for example, on 2E43, the integrity check, the AIF did comment on this and indicated that they felt that prior to putting out criteria, there should be some feasibility studies and possibly even some demonstration tests with a couple of systems to see the viability of testing modes as proposed. In effect, the steering group has agreed with the AIF comments and is going to modify the final sect draft on 2E43 to indicate the feasibility studies and work with the industry prior to putting out preliminary criteria, and what the latest schedule is like.

DR. ZUDANS: The first method was not defined in this stage?

MR. NORBERG: No, it was not. The action plan that was previously written said we are going to put out some criteria. We now are going to show them what stage

approach to --

DR. MATTSON: Well, it was pointed out that this was something that you could test, you didn't have to guess at why didn't we put in their testing the criteria on a plane? That sounded like a good idea.

DR. ZUDANS: But the containment I tested --

MR. NORBERG: It did get into this. These are short duration, low pressure tests to look for valves that are open in the containment basically.

DR. ZUDANS: Not for --

MR. NORBERG: Not for the check on heat rate. There are other ways of doing this.

DR. ZUDANS: Just a verification of systems isolation.

MR. NORBERG: Or a subatmospheric containment you could monitor how much or how often your system has to operate to keep the vacuum.

DR. MATTSON: The interest in containment integrity comes from Three Mile Island, the possibility of doing this kind of test comes from Palisades.

DR. ZUDANS: I failed to ask a question to explain what the natural circulation was about. What the Plan calls for in the 2E31.

MR. NORBERG: That relates to the upgrading of

pressurizer control system, so that it could operate with the pressurizer heaters with an independent power system.

MR. SCROGGINS: It also includes the maintenance of the reactor coolant system at hot standby with only onsite power available.

DR. MATTSON: Can I ask the chapter hand and the task manager to get us a better title for that? We are using the words natural circulation in a lot of different ways. That is a little bit misleading.

MR. NORBERG: Also, establishing procedures in training on how to do this, on how to maintain or initiate a --

MR. SCROGGINS: The text explains it, but I agree the title is too broad for what is intended.

2E5, I might mention, is the work going on that was mentioned in this morning's conversation where we talked about the scram frequency response on B & W, this is the overall study being directed by Mr. Todesko, on the B & W design sensitivity and the new item 2E6 which is included in this draft version of the plan primarily comes after this genesis a special inquiry group recommendation. What we are talking about here is insitute testing of the secondary system valve. This is separate from the

valve, relief valve test program.

It is longer, it is to be looked at but item D, as indicated, will be looked at in context with further studies later on.

CHAIRMAN ETHERINGTON: On 2E5, there is to be a subcommittee on this subject next week. It doesn't look as though you are quite ready for this.

DR. MATTSON: That is a different meeting.

That is on the stability of this.

There is a subcommittee meeting on it.

There is also time on the full Committee's calendar, I believe.

MR. MINNERS: It is still a different meeting I believe. Bob Padesco's group, I believe, is this Thursday with a special meeting with the B & W Owners.

CHAIRMAN ETHERINGTON: It is on sensitivity of B & W reactors, what phase does it cover, then?

MR. MINNERS: I believe that is something that was thought of before Padesco's group was put together. This is something that Tom Novak's branch and --

DR. MATTSON: I don't think the subjects are that different. I think they are all one subject.

MR. MINNERS: They are all tied in, of course,

meanwhile Padesco's group will be at the subcommittee next week and we can check on them.

CHAIRMAN ETHERINGTON: Okay, I just wanted to know if there was any chance of cancelling our meeting.

DR. MATTSON: We would like to press on so we could get to --

DR. ZUDANS: I have one question, it may be someplace, I just don't see it.

I am interested in knowing whether or not you people plan to do anything on interconnected systems in terms of monitoring no man's land, whether there is any specific problem that would check out such things?

For example, are there charters connected to primary coolant systems? If there are check valves involved? Is there a space or one that belongs to no one? How is it done now? What is the actual position? I know a couple of LER's that I read were.

DR. MATTSON: There is nothing in the action plan that treats that.

DR. ZUDANS: Is the question of interconnected fluids systems, or for that matter take Three Mile Island, where they check all isolated systems from control air systems. There was no, I guess, there was just one valve. There was no water that could be drained or monitored or

or otherwise.

DR. MATTSON: That is the first time I have heard the question come up, since Three Mile Island.

DR. ZUDANS: Now, we nearly made the whole section to that, right?

DR. CATTON: We have raised that question a number of times.

DR. MATTSON: Not in connection with the action plan.

DR. ZUDANS: No, not with this.

DR. MATTSON: All I am saying is there is nothing in the action plan.

DR. ZUDANS: Since you covered so completely everything you could think of, I think this is another item that you should think of.

DR. MATTSON: Well, I would hate to have it said that the action plan is everything we can think of.

DR. ZUDANS: I think it is.

DR. MATTSON: It is not everything I can think of.

MR. NORBERG: This sounds like a systems interaction problem.

DR. ZUDANS: Yes, but the systems interaction problem that contractor made a presentation to, is not

doing any such thing. They are not concerned about the --

MR. NORBERG: They are at the large side of the function. They are interested in this if you can find a valve or a system interconnected in such a way that you can take out the whole RHR function, not just one train, or not one pump or one valve, but if the whole function is taken out, that will be --

DR. ZUDANS: Granted Jim, this is correct. They do that, but they are not looking at the practical aspect, and I am asking a question about it.

What happens to that nobody's land, how is it being monitored. Its state is important.

MR. NORBERG: Yes, that is not addressed in this or any place in the action plan to my knowledge.

MR. SCROGGINS:The place to do it seems to be systems interaction.

Thank you, Jim.

The next section has to do with instrumentation control to power systems. Vic Benaryoa has been acting as the task manager for this area, and I am not sure it is probably his most knowledgable or current status, notwithstanding the NRR reorganization.

I think we have discussed a number of these and some of these came up in conversation this morning

on the NTOL items, I don't know if you were here this morning.

MR. BENAROYA: I was not.

MR. SCROGGINS: We got into the thing on the saturation meter. Why don't you just very briefly --

MR. BENAROYA: I will make it simple. There are 4 sections to the instrumentation controls 2F.

The first one is the additional acts and monitoring which includes the 5 instruments that ACRS has also recommended, they are to be implemented in January of '81 and we don't see much of a problem there.

The second one is inadequate core cooling. In this case, the saturation meters have been installed in our plants. As to the ambiguous indication of inadequate core cooling which really is vessel level, we have had inputs from the vendors, but none of them really meet all the criteria we have.

DR. MATTSON: What is the problem there, Victor?

MR. BENAROYA: Westinghouse is proposing a DP sale, and in order to be, it is good to say, yes, it is covered or no it is not covered. But, anywhere in between you have to stop all flow to have a feel as to what the density of the liquid and the gases of steam is to know how much you have level.

DR. MATTSON: Can't you just assume you have got a collapsed level and let it go at that to get an indication?

You don't need an accurate definition of density.

MR. BENAROYA: No, but you have a dynamic situation and your pressure drops on the system are going to affect your condition.

DR. MATTSON: Will the delta P's from anything with very local highly accelerated flow anywhere near as big as the system pressure is we are worried about? I don't see how they could be.

The gross flow situation would seem to yield such a small delta peak compared to the system pressures of which we are interested, that wouldn't be a problem.

I could see very local large delta P's , but that wouldn't seem to be the kind of thing these cells would pick up.

DR. CATTON: If you have a lot of flow, I don't think you are that concerned anyway.

It is only when you have very low flow and your partially uncovered, that you care. The delta P sounds fine.

MR. BENAROYA: Well, your header will be consider-

able according to what we have evaluated now.

DR. CATTON: But, if you are out on the side with a lot of flow through the core, do you care if you have an error? When you care if you have an error, is when you have no flow or little flow.

That is when it is most accurate. So the DP cells are on the right side of things.

MR. BENAROYA: Unfortunately, it sounds right, when you are looking at it from here but when you look at the calculations, you will see that your error is bigger than your level.

DR. CATTON: If I have flow, I am not sure I care.

MR JORDON: I think if you have flow and you are just about to go to the point where there is no longer on the pump, you do care.

DR. CATTON: Maybe.

CHAIRMAN ETHERINGTON: Where are you measuring them all?

MR. BENAROYA: Actually, we are proposing to measure the different conditions. One is from the hot leg, to a certain level then they go above the reactor vessel. They have some overlapping. Combustion is proposing some heated thermocouples. That would raise the

level above a certain part but read below a certain section.

DR. SIESS: Let me ask a naive question, it will probably make me look stupider than I am, but we are talking about instrumentation to measure inadequate core cooling, now I expect to hear something about temperature measurements but all I am hearing is about pressure measurements, and level measurements and thermocouples to measure level. What am I doing wrong?

MR. BENAROYA: The main thing to make sure here, is that we have a covered core.

DR. SIESS: Why? You can't cool a core if it is uncovered?

MR. BENAROYA: The problem that we have in this case, Dr. Siess, is that thermocouples welded to the fuel, they don't last at all. 2, they may block cooling and they might cause more problems than giving us information.

We don't want to see thermocouples welded to the cladding. Experience to date with them in all our test reactors before has been dismal, to say the least.

DR. CATTON: Does that include LOFT?

MR. BENAROYA: I don't know about LOFT now, but that is the way it is. We used to have all the

thermocouples in all the reactors. After a few weeks, you loose them.

MR. SCROGGINS: The LOFT fuel rods are also much thicker cladding.

MR. SIESS: Really what you are dealing with to a considerable extent is instrumentation of adequate core cooling, that is, if you are subcooling, you know your core is cooled. If you are not subcooled, you don't know the core is not cooled.

MR. BENAROYA: That's correct.

MR. SIESS: If the level is up on the top of the vessel, you know it is cooled.

MR. BENAROYA: You know it is cooled.

MR. SIESS: If the level is below that, you don't know.

MR. BENAROYA: May or may not.

MR. SIESS: So, it is really only in one direction.

DR. ZUDANS: But, if you know that was below the top of the core, you know that you have to look for something quickly.

MR. SIESS: At that point, I want to look into something else but something else isn't there, that is as far as you can go at it.

DR. ZUDANS: But your conversion is correct,

you don't know whether it is cooled or not?

MR. SIESS: It looks like we get an instrumentation that will only work as long as things are okay, that isn't going to tell us what we want to know when things aren't right.

DR. LIPINSKI: The core exit couples are functioning now, isn't that a requirement, that they be connected?

MR. BENAROYA: The core exit thermocouples are required in 197, the Reg Guide 197.

MR. SIESS: And you got those in a lot of operating reactors.

MR. BENAROYA: All operating reactors have some, all of them.

DR. MATTSON: B & O did something to the operating reactors on the core exit thermocouples, didn't you?

MR. BENAROYA: We have a list of all the thermocouples that are in operation in all the plants. If anybody wants a survey, we have a survey.

MR. SIESS: How many core exit thermocouples do you have to have working to know when the core is overheated? Not to know when it is not overheating, but to know when it is overheating.

MR. BENAROYA: In a probabalistic study we found out that we need 4 per quandran. To get a pretty good idea.

MR. SIESS: This is for reliability, or just a minimum that you need?

MR. BENAROYA: Minimum that you need.

MR. SIESS: Minimum you need was not with assuming some failure, or the minimum you need to end up with knowing that the core is not being through?

MR. BENAROYA: Let's put it this way, Dr. Siess, we will need 4 per quadran. If we have 4 per quadran we have better than 90% probably that we know the condition of that core.

MR. SIESS: All 16 are working?

MR. BENAROYA: All 16 are working, yes. Every plant has more than 16 right now. They value anywhere from 24 to 70.

MR. SIESS: Are you considering local blockage?

MR. BENAROYA: That is correct.

MR. SIESS: Not just considering the dropping water level, you are considering damage, and blockage?

MR. BENAROYA: That's correct. Now, B & W is looking at the thermocouples.

MR. SIESS: Water level measurements don't get

to the local level, do they? If you were measuring water level in the core and you had a local blockage, it wouldn't --

MR. SCROGGINS: Not necessarily.

DR. LIPINSKI: To get to your question, if you had one single quipple in the center of the core and you dropped the level on the core, that should be an indicator.

MR. MINNERS: With our local blockage it is not a problem. With PWR it would be a problem.

MR. BENAROYA: Maybe you would like to have the list of all the survey we have made.

MR. SIESS: No, I am just trying to get -- don't make the question too sophisticated.

When you talk about 16 thermocouples, not being added, you are looking for all these other things, one DP water level -- I don't quite see how one is adequate and the other one is inadequate.

MR. BENAROYA: What we are saying is that with the core thermocouples we are going to get some information under some conditions like we did at TMI. We don't get that information all the time, because if you have the core uncovered, and you get those thermocouples, they might be --

DR. SIESS: You wouldn't know it was on code?

MR. BENAROYA: You would know that they were on code but you wouldn't know to what extent.

DR. MATTSON: Chet, I am confused. What is it you --

DR. SIESS: It won't tell you to what extent --

MR. BENAROYA: That is right, that is why we have both.

DR. MATTSON: Chet, what is it you would like to see us do that we are not doing, I don't understand where you are headed?

DR. SIESS: I am just trying to see what information you are getting out of this. The water level subcooling meter won't tell you how much it is uncovered. The water level, you think, will?

MR. BENAROYA: The two together will give us pretty good information as to where we are.

DR. MATTSON: But, I don't understand, we are going to require both.

MR. MINNERS: Can I just try once, Dr. Siess, I think maybe I see your problem, if not, tell me I'm wrong.

The short term lessons learned were directed at putting on instrumentations to kind of prevent an

accident, and they were looking at it to say, hey, what could I put in to see that I was going to get into trouble, like water level, and subcooling meters, and stuff like that.

Reg Guide 197 will address the question, what I will do after I had an accident and I want to follow the course of the accident. So, the short term stuff is kind of preventive and the Reg Guide 197 is --

MR. BENAROYA: I am sorry, that is not correct, because all the instrumentation that we are talking, except for the reactor vessel is in 197, there is a reactor vessel, it is not in 197 because the charter of 197 says that instrumentation has to be available and core level is not.

We don't have an instrument today that we know that we can get by it, that is why it is only in the cover letter. It is in the prefix of the Reg Guide, we say that this is needed, but it is not in the list.

DR. LIPINSKI: Let me go back to the trend of your earlier questions, that is they are talking continuous indication, you can also get discreet indications. In the case of the sodium reactors, discreet probes gave you discreet level information by conductivity. In water systems you can use self heated thermocouples or

some other type of device.

It will give you discontinuous indicators, and so long as you know you are somewhere within 6" or 12", you have some idea that you are within a certain bend.

You don't necessarily have to go for continuous indication over 12 feet.

DR. SIESS: Really it ought to be adequate rather than inadequate.

I think that is important. The short term measures in item 2 to tell a person when it was starting to be inadequate, by not being adequate.

The only thing about it, once you get passed that would be that is item three.

MR. BENAROYA: Item 3 is Reg Guide 197 that we have discussed with you, it has gone out for public comment. We have recieved the comments and we are going to have it in short before internal review for ACRS review sometime in May or June.

DR. MATTSON: As I said this morning, this is going to be an interesting one because in essence we said last summer is we will do in an urgent fashion a small set of things like Reg Guide 197 to buy us some time to go back and look at the larger set of things that we should do with available technology and then maybe

there is some other stuff we want to study over the long term and develop some instruments.

So, we did, I don't know I haven't counted them for the last couple of months, a half a dozen to a dozen instruments to follow the course of an accident in the short term lessons learned.

MR. BENAROYA: We have 5 in one and 2 in another.

DR. MATTSON: A little over a half of a dozen. Some of them you added at the last minute, some of them we proposed.

Now, Reg Guide 197 has gone out, it has got 120 instruments, --

MR. BENAROYA: 122, I believe.

DR. MATTSON: 122 instruments in it.

MR. JORDON: Half of what you perform isn't half of what you --

DR. MATTSON: 60 instruments for a PWR and 60 for a BWR.

MR. BENAROYA: Almost all of them.

DR. MATTSON: Almost all of them exist on some plants now, but would it be fair to say that most plants don't have all 6 of them.

MR. JORDON: Most plants do not have all 60, especially most plants do not have them qualified

to the condition of accidents.

DR. MATTSON: Let me finish the thought.

DR. SIESS: ABC and D is only 60?

MR. JORDON: Yes, 60 measurements, 60 parameters to me measured. A number required redundancy which would increase the number of components involved.

DR. MATTSON: Somewhere between now and the end of the summer, the ACRS and these people and probably my new division are going to have to agree on what is the right number. 60 for a boiler, 60 for a PWR or some smaller number. First for backfit to existing plants, second for backfit for plans under construction, and I guess the lowest for new designs.

I don't know what the answer to that is, I am sure these gentlemen propose that it is what they propose, 60 per type of plant.

MR. BENAROYA: We are preparing tables for 3 different kinds, for new plants, NTOL's, and operating plants.

DR. MATTSON: We will have to make whatever judgment we make consistent with how we come out on safety monitor consoles, on roller backfits, on philosophy with the procedures, on our use of computers, how much we train individuals and what do we depend upon their

qualifications to be for the future.

A lot of things that come together, and I think the nearest thing of that mix is 197, that is the farthest along of any of the ones I have mentioned. The safety monitor console might be a close second. I don't know the answer, I am just telling you that there will be some important decisions on 197 and some of these other things in the next couple months.

MR. JORDON: One other related thing, is the nuclear data link.

DR. MATTSON: Yes.

MR. JORDON: Which is converging with 197.

MR. BENAROYA: In 197, there are 3 areas that people are objecting to, one we discussed with you, the boiling water reactor exit core thermocouples, the other one is an objection, I think, they are trying to be layers saying that those instruments should not be in Reg Guide 197 even though we need them for process and monitoring, and the third group is mainly qualification. Qualification is a big item.

DR. MATTSON: I'd like to propose, gentlemen, we try to move along.

MR. BENAROYA: The 4th item is just studies. They are studies we are going to do soon.

DR. MATTSON: That is simply stuff from the short term lessons learned that you already approved and the licensees are already implementing. The 2H says do a good job of following TMI, and to learn as much from it as you can as you go along.

MR. SCROGGINS: I guess we should indicate that the agreement between the NRC, DOE, and GPU was signed last Thursday, I believe.

DR. ZUDANS: Agreements to do what?

MR. SCROGGINS: Agreements to assist on the overall cleanup operation.

DR. MATTSON: That is 2H2, I think, contained information from the cleanup.

Mattson -- We would like to sing. We're having auditions for the Mike Douglas ...(inaudible)

Mr. Chairman, I think we are ready to go into 2J if you are ready.

CHAIRMAN ETHERINGTON: I was just wondering.... on 2H there's an evaluation of these alarmist technical reports that come out..come under your consideration at all ... an article.

DR. MATTSON:No, I'm not sure whose it does come under.

CHAIRMAN ETHERINGTON: It seems important that there should be some ....I don't know whether it's just left to chance or how its...

DR. MATTSON:I don't think we've taken that approach Dr. Edwards. Later on in the action plan there's a plan to educate the public. We've got to try to give them an objective view of nuclear power and of radiation and it's health effects, if possible but I don't think we have anything in the plan .....

CHAIRMAN ETHERINGTON: It seems as if it should be fairly high priority, if it had started a couple of years ago, we might have been better off now.

DR. MATTSON:I don't know, Mike Parsaltz in the audience has some of NRC's resident epidemiologists working for him as I recall. Is there any plan to address Sternglass's paper?

paper or any of the others that are coming out?

MR. PARSONS: We have addressed several papers... My name is Mike Parsons from Stanford. We have addressed the paper on thyroid troubles in children, several counties away from TMI, and also is infant mortality allegations. And as he had done in the past, he had selected his data to bring out his point the strongest and, it sticks out. There have been analyses of the same presentation by Sternglass and various and sundry other people and we have all of those on file that ...the sort of work that we have done. So, as for review, yes, we've done review. No for circulating them. No outside of the responding to requests from commissioners.

What do you think it is?

MR. PARSONS: That's as far as we have gone.

CHAIRMAN ETHERINGTON: You tried to get your bubble down to a level within the (inaudible) level ...general public.

MR. PARSONS: They are very understandable. The technical points are such that it is very easy to determine where the problems lie.

MR. ZULL: Where does it show up in the action plan?

MR. PARSONS: This is not specifically in the action plan as far as public information and when we get questions we answer the questions.

CHAIRMAN ETHERINGTON: Would it belong in an action plan notice?

DR. MATTSON: Well the commission since it's founding has been reluctant to go on the offensive to counter seriously held but nonetheless mistaken scientific views.

MR. ZULL: Is it in NRC's charter to promote nuclear power?

DR. MATTSON: No, it's not. That's the difficulty is that when you go out strongly and rebut the seriously held scientific views it puts you at least in the appearance of promoting. And although we analyze these things and we keep track of them, whenever they come up, because we are supposed to pay attention to those things.

CHAIRMAN ETHERINGTON: Couldn't we --

DR. MATTSON: We don't highly publicize them, we don't popularize them and we don't go on the offensive with them.

CHAIRMAN ETHERINGTON: You couldn't sponsor a study say by the National Science Foundation?

DR. MATTSON: No, we have not taken a public relations approach to safety.

CHAIRMAN ETHERINGTON: Shouldn't uh

DR. MATTSON: We don't need the National Science Foundation to review this science. Dr. Frosad just said, it's very straightforward science. It's not that sophisticated.

CHAIRMAN ETHERINGTON: Our suggestion was that you put it in

the hands of someone who wouldn't be accused of bias.

DR. ZUDANS:Seriously, I would recommend action plan --- to request change in your charter. You should be able to promote what you are regulating.

DR. MATTSON:I don't agree with that and if the committee wants to write us a letter.

MR. SCROGGINGS: There is a DOE as there is in this charter but every time it does, it gets shot up too.

DR. ZUDANS:DOE also is not allowed to promote.

MR. PURPLE:There has recently been formed by the President a Radiation Policy Council which is the head of I don't know how many federal agencies which, like the old Federal Radiation Council and one of its immediate charter tasks is to look at public information of the health risks of nuclear power, radiation, etc. and to spread the word.

DR. ZUDANS:What was the name of that council?

MR. SIESS:The Radiation Policy Council

Will it have any more credibility than the NRC.

MR. PURPLE:No.

DR. ZUDANS:I think it probably will have a little more credibility. It's headed by EPA. At least it is my view that they have a better view in the eyes of the public than NRC does.

(Inaudible)

UNIDENTIFIED SPEAKER: When you get to section 3c maybe that is a subject you will want to discuss. Because that is the public information..

RESPONSE: Yes.

DR. MATTSON: Can we move on to 2J please.

MR. SCROGGINGS: The task manager does not seem to be here but let me go over briefly the 2J. This is sort of the adjunct to the plant operation management and its related to the vendor, design and construction aspects. 2J1 is the vendor inspection program you can see they are all D items. These are planned improvements to the vendor inspection and considerations that the commission is going to take up as it goes along and includes the possibility of resident inspectors that the NSS suppliers and AEs and certain selected vendors which will be decisions made in the near future by the commission. 2J2 is a construction inspection program and the basic thrust here is to try to reorient the program to get more direct observation. To possibly have inspectors at the construction sites, prior to the current practice, currently now they do not usually go to construction sites until construction is 50% complete. This would get them in at the beginning. As to greater use of independent measurements, NDE type measurements during construction and also the thought of having resident inspectors possibly on all construction sites.

MR. SIESS: What is item 2 is that third party?

MR. SCROGGINGS: Pardon me. 2J22?

MR. SIESS: 2J22

MR. SCROGGINGS: No, no actually what is being proposed here is that the I&E Staff, in fact, this relates to certain vans, I believe they have purchased one van now which would have certain independent measurement capability and that they would actually go out and make certain tests of materials.

MR. SIESS: I thought there was some consideration of using....(inaudible due to dropped matter)

MR. SCROGGINGS: I can't answer that question correctly but I'll check into that. The 2J3...you thought there was something in the action plan?

DR. MATTSON: Third party type...

MR. SIESS: In connection with the improved inspection I thought there was some discussion of third party inspection.

DR. MATTSON: There has been discussion of third party inspection down through the years. You mean like ASME and IEEE has been discussed as a potential third party. Not in connection with the action plan that I re' '..

MR. SIESS: You're using it in some aces.

DR. MATTSON: Yes.

MR. SIESS: Why won't it work?

DR. MATTSON: A question would be why are all these

other ongoing improvements of inspection enforcement included in the plan and not that one. Leo?

MR. HIGGENBOTHAM: We do use it there are some resources in that particular action...At this particular Let me go back to what this action is and then I'll try to answer your question. We presently use in other parts of the program, we use mobil type vans and mobil laboratories equipment to do specific types of test on site. This is an expansion of that safeguard program. This is an expansion of that technique to make other types of nondestructive vans at the site. --structural parts at inspection. And this is the purchase of one van and to try other ones.

MR. SIESS:On an audit basis? You are not talking about getting into doing all of the NDT type things.

MR. HIGGENBOTHAM: No not all of them. This is kind of a sampling check on certain things performed by the licensee. It's a technique, as I said that we use in the safeguards program , rheological safety, measurements of effluents. This is an expansion of that technique. This is a pilot program. One van. And in addition to that a fairly small contract with a sweeper to do some independent checks. Now the other, to answer the other question, I do know, I'm not in that part of the program, but I do know that they have researched studied the use of third party inspections

----------and certain parts. I don't know to what extent the expansion of this program is doing to the construction inspection program. Things are factored in and have been factored in and are still being factored in...

MR. SIESS: Do you have any idea how effective they have been in the other areas such as improving the quality?

MR. HIGGENBOTHAM: It would be the independent measurements type of factor? Yes. They have been very effective.

MR. SIESS: What is your measure of that?

MR. HIGGENBOTHAM: Well, what we've done is take a look at actually the results we've been able to obtain over a number of years. We started in this area in doing independent measurements and quality checks and licensing measurements of waste effluent samples, stack samples and that sort of thing about nearly 8 years ago. We have a system or a measure of agreement. Let me put it that way. We take a sample, we split that with the licensee and we have him measure it and we measure it. We either measure a split of the same sample or we measure the same sample. Nothing is going to get built without the space. I'm not a conformist I don't care what it is. Now what is your measure of the work? You can't take the number of nonconformances discovered and use that as a measure of those that are not discovered. Ob-

viously the only nonconformances that we are concerned about are those that we don't find. Right? We don't care about the mistakes we find. It's the mistakes we don't find. If the licensee on the average is finding a lot of nonconformances does that mean there are very few left that he didn't find or does that mean there is a large number left that he didn't find? You can argue both ways. There is no way of knowing. So, I don't know how you measure. You can go out with your crew and you detect some nonconformances that we didn't. There must be some quantitative measure where it is working.

DR. MATTSON: There is an analog in the licensing process of course. You go to line drawings of the INC system and you find one violation of the single failure criteria, and then you find two and then you find three and you quit. Now, you quit on the basis of deciding that there aren't any more or that there are much more than you have looked at and depending on which conclusion you come to you either require the licensee to do more or you don't require him to do more. Why is it any different in construction deficiencies?

MR. SIESS: I don't think it is but what have you accomplished in the first case if you haven't got them all?

DR. MATTSON: Well you have some basis for making a judgment and it is judgment.

MR. SIESS:The man who designed that looked in the checking system. He found 40 examples and corrected them. Now you found three more and corrected them.

DR. MATTSON:Did both of them look at the whole system?

MR. SIESS:You rechecked everything that he did. He found 40 and corrected it and you found three and corrected it. How many are left? So what do you do? Don't you design that plant so that if there is something left that still works right, you cannot design the plant based on the assumption that everything is perfect.

DR. MATTSON:That's right. That's why design criteria are what the design criteria are. I don't understand your point.

MR. SIESS:You'd be better off with 43 controls than with 40?

DR. MATTSON:Sure. Three.

MR. SIESS:Haven't you got his design so it is ridiculous?

DR. MATTSON:Oh, but that says that you can do a shoddy job on all levels of defense and depth and that's

MR. SIESS:I don't say 40 is shoddy ... 40 out of 40,000 and that's not bad. Well what bothers me is that I keep seeing an attitude in a number of places in the NRC that things ought to be perfect. That it is possible to develop

some means of inspection so that there are no mistakes left.

DR. MATTSON: I don t think that is fair Chet. I think you see ..you're misreading an attitude that you see at NRC. The attitude if I see it correctly at NRC is that we look at a lot of systems that ought to be good and they are not even close. Environmental qualifications and things like that have been very disappointing to the staff in the last couple of years.

MR. SIESS: Worries about sampling and things of that sort that indicate that if you did more you'd get hurt.

DR. MATTSON: I don't think our goal is perfect but our goal is awful good. And awful good takes a lot of time and a lot of attention to detail.

MR. SIESS: alibration to cover those mistakes.

DR. MATTSON: But we've got a design philosophy that allows some mistakes to be made

MR. SIESS: But you have no way of knowing whether you are allowing the proper number or not because you don't have enough experience behind you.

DR. MATTSON: True.

MR. SIESS: So you've got to aim to get as good as you can but I don't know when you stop. You get one van that goes out and checks NVT, that's not going to be enough. Two, three, four, one at every site isn't going to be able to check

out. How are you going to know when you have gone far enough? You don't have judgment because you don't exercise it.

DR. ZUDANS: Chet, isn't that true that this is only audit function that there is no way that NRC could measure or check everything? That's why the manufacturers--fabricators-- do that?

DR. MATTSON: I think that is too cynical an outlook I think we do exercise judgment. I think hearing boards have respected that technical judgment down through the years and been willing to rely upon it. Now recent experience may tell us that we drew the line at the wrong point and so the pendulum is swinging a little at the moment and we are seeking a little more assurance than we did a year ago and I'm not so cynical as to believe that we can't define a new level of assurance and stick to it.

MR. SIESS: Well, I think you could perhaps do it but only if you are conscious of what you are trying to do. Whether you call it an audit function now and then somebody else wants you to step it up. We are using a third part, and we don't know how well it works.

MR. MINNERS: But there are two things to look at. One thing is to actually achieve safety and that's what you are talking about--correcting mistakes. But I think the

agency also has a mission to assure that it is safe and I think you have to have orderly inspection programs to be able to say to the public... Yeah, I have a pretty good idea of what the level of safety is and I'm assured that it is good.

MR. SIESS: Warren, you don't have to find all the mistakes to achieve safety. You have to find nearly all of them in this business because we don't have enough experience. And when we get enough experience we will be able to calibrate on that experience as to what level of imperfection would still give us the same function.

MR. MINNERS: I still say that there are two things that you look at. One is correcting mistakes to whatever degree toward zero defects you want to go and the other is that this inspection program as part of the other side of the issue is to show people that you are doing a regulatory auditing function and can demonstrate to the public that you have some idea about what level of safety is being achieved. Not just saying Ihave a certain standard but I don't know if anyone is meeting it.

MR. SIESS: You give another reason. You are being responsive to the Congress and the GAO.

MR. MINNERS: Surely

MR. SIESS: Who wants more inspection

MR. MINNERS: And the public

MR. SIESS: And the public. But more inspection and fewer nonconformances, fewer mistakes, does not necessarily equate with more safety. I don't know what residual number of mistakes you could have and still be safe in this business.

MR. MINNERS: I agree with you. That's where sometimes we don't exercise judgment in setting a standard and saying if you are better than that standard you are all right and if you are not up to that standard you are not all right. We tend to optimize and I don't think the agency has figured out whether it wants to optimize or whether it wants to regulate to a standard. I think there are a lot of dichotomies in..

DR. ZUDANS: Could I add something? The analysis of operating experience actually should give you a handle of how well this task went before. And I am just wondering, we went that way this morning.

MR. SCROGGINGS: You will see in that 2J section that one of the things we are going to look into and review is the LERs and the analyses offering to help ,pinpoint where they should be putting emphasis and effort in inspection.

DR. ZUDANS: You mean interaction between the main office Michaelson etc. and other groups well defined at this stage?

DR. MATTSON: No, but I understand we have a subcommittee meeting later in April where we are going to talk about that. By that time its supposed to be better.

MR. SCROGGINGS: Should we in the interest of time possibly get onto our favorite subject?

CHAIRMAN ETHERINGTON: Yes, but I have one question. I believe in one of the committee s that is strongly on the I&E report, the committee recommended that the measures be considered to enforce the intensity of our 21. Does that appear in the action plan?

MR. MINNERS: I think before 1 and 2 ...

CHAIRMAN ETHERINGTON: We'll wait until we get there.

MR. SCROGGINGS: I have BillKane here who comes to represent the B&O task force. We have two options here. We have the possibility of going iter by item or 126 items. I propose however, another solution And that is that I think to a large degree, the discussion this morning, on our response to the ACRS's letter of March 11 regarding the NTOL item which included both 2K1 and 2K3 where we highlighted the major concerns being raised by the ACRS full committee and our proposed response to them would show some changes occurring, both within the bulletins and B&O task force recommendations. Possibly for this discussion suffices. However, clearly Bill is here and if you have any additional questions that you might want to ask of Bill or us we would be happy to answer them. But I do think we pretty well covered most of what I think are the committee's main concerns in this area.

DR. MATTSON: Let me try to say essentially the same thing Ron did but in a little different language. We took what we thought working with Bill and others from the Bulletins and Orders task force were the discreet requirements generated either in the original bulletins and the subsequent shutdown orders and in the final generic reports of the task force which worked with those things in the course of the nine months following TMI...all of those discreet requirements and listed them so that they could be understood and discussed on their own merits...item by item just as the other actions are in the plan. That was accomplished several months ago. We then undertook to say, of these items, these discreet items which are already treated elsewhere in the plan or superceded by something else in the plan, so for example if one of the items said make sure procedures have some narrow thing done to them, we said, the general revisions of procedures could cover that and we needn't do the narrow when we are doing the broad one. I don't know if there was ever one like that but that was the conceptual framework for the way we worked. We summarized that stuff in Table C1, C2, and C3, according to whether the review items came from the bulletins, the orders or the final generic reports for the bulletins and orders task force.

Now simultaneously with that work by the steering

group the AIF undertook to review essentially the same list of requirements -- discreet requirements for bulletins, orders, and generic reports. And they included their comments on those discreet issues in their letter from Byron Lee to Harold Benton. The steering group then iterated by taking the AIF comments and you can see this in the draft response to the AIF input and you will see in detail how we have responded to what the AIF thought should be done with each of the discreet bulletins and orders recommendations. That led us to change some of our earlier conclusions and those changes indicated in the documents you have in front of you will appear in draft form -- the final draft of the action. The other thing we have done in the bulletins and orders recommendations, we summarized for you this morning when we talked about the letter that the executive director is sending to the chairman with the staff response to the ACRSs March 11 letter on the NTOL's which referenced your March 11 letter bulletins and orders recommendation. So we iterated again on what the bulletins and orders recommendations were. And that has led us to again make some changes, to study some things more before we again set them in concrete, if I can paraphrase the advice of the committee last month. We think that having done those things to these discreet recommendations and requirements of the bulletins and orders task force

that they are properly assimilated in the action plan. What that means is that some of them won't be done at all bec ause there are a lot of things in the action plan that cover them but some of them will be done as discreet action items, some of which apply to near term OL's and some of which don't. Now at this point in time it is very difficult to figure out which do and which don't because we are midway between draft 3 and draft 4. But in draft 3 you can see which ones do apply and which ones are superceded by other items in the action plan and you can see which are fuel load and which are full power requirements and which are neither. And you have got the information from where we say what we have done about the forum's comments and you've got the information about what we say we think we ought to do as a result of your related comments. The kind of advice we need from you now is are there additional kinds of review that the committee thinks ought to be done to the bulletins and requirements to meld them into the action plan or have we generally done enough review or iterated on those reviews to give you some confidence that we can judge which of these are important. An alternative for you reaching that kind of decision would be for you to go line by line through all of the bulletins and orders requirements with this steering group and Bill Mathis is shaking his head because he chaired the subcommittee that has been doing

that for the past six months. I'd kind of argue that you don't need to do that at this juncture.

MR. MATHIS: No, I don't think ..there's a lot of items that came out of the bulletin but until somebody gives us some more plus or minus or whatever, I don't think any more item by item study is going to be worth much.

DR. MATTSON: And so it would probably suffice for you to look at the letter that we talk about this morning that says how we think the comments on B&O affect the NTOL. ANd I think Bill is writing another letter which comments on B&O generally or is such a letter not necessary now?

MR. MATHIS: No such a letter is not necessary now.

DR. MATTSON: So that means you only look at one letter. the one we talked about this morning. If you think that satisfies concerns that the committee had with the B&O recommendation then there is no need to discuss any more of the details about the B&O recommendation. The only uncertainty that I would have about that is that in your letter of March 11, you gave some examples and said that you thought there might be other things. We didn't know what those other things might be that you were concerned about so we only addressed your example. If you could fill in the etc. we would be glad to address them. That includes item 2K

CHAIRMAN ETHERINGTON: Been suggested at this time that we take a

10 minute break.

CHAIRMAN ETHERINGTON: We will begin on Chapter 3 and if things go along nicely, then, I would like to finish Chapter 4 today, to take the heat off tomorrow.

MR. PURPLE: That may be a problem but we will --

We may have to do that without the direct Staff, ordinarily we involve them, I am not sure we can get them rounded up in here.

CHAIRMAN ETHERINGTON: All right.

MR. PURPLE: Chapter 3 deals with emergency preparedness and radiation protection with public information.

3A1 has to do with short term improvements in the licensees emergency preparedness. 3A2 has to do with long term licensee emergency preparedness. I would like to skip by temporarily 3A3 which has to do with fixing up NRC's capability to respond. We will come back to it.

3B is emergency preparedness of state and local governments. 301, A2, and 3B are kind of interwoven and intertwined and they involve 2 people on the Staff who have been closely involved and will be in the future, so I have them both at the table. I will ask them to start off and go through 3A1, A2, and 3B as a group, then, we will come back to 3A3 which is the NRC portion.

Mr. Grimes and Mr. Perkins would take the floor, please?

MR. GRIMES: Okay, I think we will just briefly go through these areas and then entertain your questions.

I would first say that on April 22, we have a full half day scheduled with Dr. Muller's subcommittee on the subject of the proposed rule on emergency preparedness and criteria, the joint FEMA NRC criteria on emergency preparedness, NUREG-0654. So, there will be a very detailed discussion of the actual requirements. I think today we can expect to discuss more program that will be implemented at various meetings implemented at the present time.

Task 3A1 prove licensee emergency preparedness shortterm. What we are doing here is sending teams out to view all operating plants and plants which are nearing completion and which will be asking for operating licenses decision in the near future.

This involves NRC people and consultants and NRC contingent, its team leader from nuclear reactor regulations. Then support staff from nuclear reactor regulation and inspection enforcement and consultant from the PNL organization.

We have to date, as of this week, we will have completed 38 of the 50 sites in team visits. Team visits

are then followed by upgrading plans onsite and offsite and this summer there will be interim safety evaluation in case you run off some plans, indicating that where we think they are, where improvements are required, and what we think of the schedules for implementation. Of course, this is all in advance of the requirements that they propose yearly on emergency preparedness which puts conditions on likenesses starting January 1, 1981.

If upgraded plans are not implemented by that time. This is an effor to get a prompt improvement in emergency preparedness and it will be then codified in the regulations.

The proposed rule which is, I can't remember the numbers.

MR. PURPLE: 3A21.

MR. GRIMES: 3A21, thank you. It was up for comment the period ended in February, there were also workshops held around the Country. The Office of Standard Development is not represented here today, but I understand they expect to go back to the Commission with a final version sometime in May. The Commission will then consider this and perhaps a final rule will be on the street by June.

There have been extensive comments, many related to 15 node offsite emergency preparedness to the utility

license. I expect that will continue to be a condition of the final rule, although, the way in which it is approaching the rule may very slightly be made instead of a concurrence to the rule, they go to some general objectives to the offsite clients.

DR. ZUDANS: Did this emergency preparedness plan in any way connect with other sources of emergency and if so, would the state take the leading role on these things?

Nuclear is just one aspect of need to have emergency but --

MR. GRIMES: Yes, in fact, we encourage the plans that are developed in response to these requirements to the extent possible, that these facilities and resources be used for other emergencies as well. Partly for the efficiency of the use of the resources but partly, also, it seems to me to assure that things will be used inoperable if they are used for the organizations that are active in other emergencies which occur more often in the nulcear emergency.

The states, indeed, feel they have an obligation to protect the health and safety of the public, their public, against a variety of things. They all have some sort of emergency organizations. Some are much less defined or have less resources than would be required

I think they are being proposed requirements of nuclear hazards.

DR. SIESS: In a recent newspaper article, in which you were quoted at length, you stated that the NRC wants the applicant to take the responsibility of notifying people within some distance in the event of an emergency, whether or not the local officials want to do anything about it.

The local officials don't want to do it so we are going to place the responsibility on the applicant.

MR. GRIMES: No, that is not correct.

Maybe the newspaper article said that, but --

DR. SIESS: I didn't say they quoted you correctly.

Am I correct, under the present emergency plans, the licensee has the obligation to notify the local official, right?

MR. GRIMES: Yes.

DR. SIESS: And up to the Federal level, he has got to notify you?

MR. GRIMES: Yes. We view the decision and action to notify the public to be a state and local responsibility. What we have said is that there should be a capability to quickly notify the public.

We have found that we have asked for evacuation

time estimates at operating plants. We have found, typically, that it takes a door to door notification. It takes 2 or 3 hours, and perhaps some case where there are towns involved, up to 5 or 6 hours from door to door to notify people.

This is about the same amount of time as has taken actually moving people. So, by taking some kind of a system to notify people to turn on the radios, you essentially cut the response time about in half, in most areas.

The proposed rule currently says it is essentially have the capability to essentially complete notification of public within 15 minutes. This is specifically for state and local authorities, they would be the ones that would make the decision and push the button to set up a siren system or some other notification system.

However, the proposed rule indicates that we believe it is the licensees responsibility to make sure that the resources to do that are available.

DR. SIESS: In other words, he should pay for the sirens?

MR. GRIMES: Yes.

DR. SIESS: Was there also some mention of some special hook ups to telephones that would ring?

MR. GRIMES: Yes, there are several devices that

could be used, one of them is sirens such as the civil defense siren system to provide a general warning and alert to turn on a radio.

Other systems that are viable, are tone alert systems, where individuals have units in their homes similar to the weather radio systems that could be in a way a national weather alert system such as is used in the Mid West or could be off the emergency broadcast sytem.

In addition to that, there is one other and that is the device on telephones which is set off by a pulse through the telephone system.

DR. SIESS: Now, the licensee might think that they bear the initial cost of this, but it eventually the people in his service area, will pay for it.

MR. GRIMES: Well, the people in his service area pay for it through their rates.

DR. SIESS: That's right, and everybody is going to pay for something that protects a few, and protects them only against nuclear incidents. It won't be bump the tornados, or floods.

MR. GRIMES: There is nothing to prevent these systems from also being used to tell people to turn on the radios for other events.

DR. SIESS: Yet, the utility has to pay for that?

MR. GRIMES: Yes, because it is a requirement for the nuclear hazard.

DR. SIESS: The people can't decide for themselves whether they want to pay for these extra precautions in nuclear plants when they don't want to pay for it --

MR. GRIMES: Well, I suppose you could say that they should vote on all the engineered safety features for the time.

DR. SIESS: No, I said they should vote on the civil defense programs which they do from time to time, where I live, they voted to reduce the taxes they put into civil defense,until something happens, then, they maybe they will put it back up.

It is easy to say the utility is going to pay for it, if he wanted to put a nuclear plant there, he has got to do this. But, the cost gets passed on to the people. They are paying for their own protection involuntarily.

MR. GRIMES: The cost of producing the electricity by nuclear power, that is probably, in my view, appropriately internalized to that power production cost.

DR. ZUDANS: The point is that the cost should be in proportion to the hazards on one or the other

industry. Rather than placing it all on the utility.

MR. GRIMES: You could make that argument for any part of the nuclear plant.

DR. MATTSON: That is a practical and logical and scientific response to the problem, but that is not where it is at on nuclear power today.

DR. SIESS: In the newspaper article I read it indicated a number of local officials got you into this. They didn't want their people aroused unnecessarily, they wanted to have some control over it.

Now, they are wrong. Now, the Nuclear Regulatory Commission is going to tell the people what is good for them instead of their local official. Most people don't like anybody what to tell them what is good for them, but the farther away you get from where they are, the less they like it. It just seems a little strange to me.

When I look at these hazards in relation to other hazards, I look at the time element in relation to others, I know that a tornado, that the dams to worry about, there but a half a mile away, I have got no way of getting notified on that if they have trouble at Kent, I will probably get notified a heck of a lot quicker than is still on the railroad.

MR. GRIMES: Maybe I can go back to the

statement of consideration.

DR. SIESS: How far will you go on that? 10 miles out?

DR. ZUDANS: Isn't that disputed, that number? Somewhat much further out than that?

MR. GRIMES: Let me get at one other response first, then, I will give the size of the zone.

MR. GRIMES: I expect that probably --

DR. SIESS: They are not supposed to leave when they hear a siren, they are supposed to turn on the radio.

MR. GRIMES: Right, and if this is used for other hazards as well as nuclear, that is a more likely response.

I should go back to the statement of consideration which are associated with the proposed rule, where the Commission indicated that in the past the principal decision concerning the license was based on onsite safety features.

Features associated with plant design. Since the Three Mile Island, of course, those are being operated from what they learned passed. But, in addition to that, the Commission has said an equivalent way or an equal way to offsite preparedness should be considered as a component in the decision of whether or not to grant a license.

All of these requirements which bear on offsite

preparedness and flow from that decision to weight more heavily in the offsite preparedness in the decision process.

With respect to the size of the zone, the Commission in October endorsed a 10 mile planning concept for the direct hazard to the public and a 50-mile zone for the gestion pathway. This is based on a joint NRC and EPA task force report, which I was Co-Chairman, which was published in December of 1978, and issued for comment and the comment period was extended until after the Three Mile Island accident.

The basis for that 10-mile zone has given NUREG-0396, which is the report of the task force, the zone does not cover the area which actions might be required in the worst possible accident, it covers the area where actions might be required for any design basis accident and also for most most core melt accidents.

For the very worst core melt accidents, two considerations came into play. One, they were very low likelihood, and action 3 consideration. The second, the 10-mile zone was big enough to form a response base which could be extended on an ad hoc basis. And third, the 10-mile zone was the area in which immediate fatalities would be of concern for even worse case accident.

DR. SIESS: If you are doing this, could you really think people want to be notified of nuclear incident and that is a lot different in their minds than any other thing, then, it is not the distance out to which people are at risk, but it is the distance out to which people perceive themselves, with need of risk, that is important.

For Three Mile, that was a lot farther than 10-miles because people evacuated out at 50-miles, according to the report I read.

MR. GRIMES: Nothing would prevent them from doing that based on the subsequent news reports, but what we are concerned about is immediate need to take immediate action based on an actual hazard, not a perceived hazard, but a hazard which might cause exposures in excess of EPA protective action guidelines.

DR. SIESS: What kind of criteria would there be for this sytem? The same thing as any offsite emergency, like now, when you notify the local authorities?

MR. GRIMES: No.

DR. SIESS: Beyond an offsite emergency at which they would start the sirens going?

MR. GRIMES: Yes.

DR. SIESS: You mean the licensee would start the sirens?

MR. GRIMES: No, the licensee never starts the sirens.

DR. SIESS: He never starts the sirens. This is entirely up to the local official?

MR. GRIMES: Yes, but based on pre-agreed accident classes and those are given in NUREG-0610 --

DR. SIESS: What makes them -- well, that is besides the point. They can obviously press that button however they darn please.

MR. GRIMES: The local people?

DR. SIESS: Yes. Nothing you or the utility say is going to make any difference.

MR. GRIMES: That's right.

DR. SIESS: They could do it early or they could do it late.

MR. GRIMES: However, if we have pre-agreed emergency plans, we find that there is a general equality by the state and local response organization.

If later on in the event, --

DR. SIESS: It wasn't at TMI, optimistic as to what is going to happen next, but it will be different.

MR. GRIMES: I am sure it will, we haven't done our job if it isn't.

DR. SIESS: It will probably be a lot earlier at the next one.

MR. GRIMES: Later on in the event, the state may well second guess what the utilities recommended, but early in the event, we try to emphasize that there is really no choice except to have pre-agreed action levels based on inplant conditions which indicate various accident severities.

CHAIRMAN ETHERINGTON: Are they failure specific or is there a good deal of judgment involved?

MR. GRIMES: No, we are trying to make them very specific and associate with particular parameters.

NUREG-610 gives example of initiating conditions in asking that the utility identifies specific grammar values associated with each node.

DR. SIESS: You mentioned the maximum phenomena design basis, do we have any experience trying to explain the design basis accident to the public now, when they show calculations at 25 rem, and 300 rem and everybody got excited at TMI when they were dealing with milrem? When you referred to the environmental report which gives lower values?

MR. GRIMES: I guess I haven't had the problem so far, it has been a while since we issued safety

evaluation.

DR. SIESS: Just like the public hearings now, when somebody sees .5 rems in an SER, that is not something that the public has to be inaquated for.

MR. GRIMES: Yes, indeed, it is. Under the EPA protective action guide, there guidelines are 1 to 5 rem or 5 to 25 --

DR. SIESS: We got it down to 1 to 5, I think, do you think milirem in a public hearing would be bold?

MR. GRIMES: Well, some people certainly would be upset at any amount of radiation have been shown very plainly at a number of public meetings.

DR. SIESS: Your realistic estimates are no where near there?

MR. GRIMES: It depends on the severity of the accident.

DR. SIESS: Once you put in your environmental are they comparable to what went out at Three Mile Island, at least in terms of doses. I think environmental impact statement for Three Mile estimated 3 or 4 thousand manrem or plasade accident.

There may be a hundred milirem per individual. Pretty much the same as what happened.

DR. ZUDANS: What ultimate role will NRC have

in this emergency preparedness? Are you going to review how they are planning recreation, which routes they take, where they send people in each particular case, or is that left all to the state?.

MR. GRIMES: That is involved with our relationship with the Federal Emergency Management Agency. They will be the initial review then we must make a final determination in the licening process. Perhaps, this is a good time to discuss that, it is part of the task 3B.

MR. SCROGGINS: That really comes under task 3B.

DR. ZUDANS: That's fine, I will just listen.

MR. SCROGGINS: I think we are ready for that.

DR. MATTSON: I'm ready.

MR. PERKINS: As you are aware, the President issued a directive of December 7, that assigned FEMA, Federal Emergency Management Agency, lead responsibility for offsite preparedness around nuclear power plants.

Immediately upon his assignment to FEMA, we began negotiating with them and entered into a memoranda of understanding so as to insure a smooth transition of that responsibility from ourselves to FEMA.

As part of that transitional arrangement, we agreed to detail the inhouse expertise that we had in

state programs, that had been reviewing offsite emergency plans to FEMA that involved some 12 professional staff that have been and are currently detailed to FEMA.

The purpose of these people being assigned to FEMA was to focus or concert the efforts of both agencies in conducting assessments of offsite preparedness and to provide an opportunity for our people who had this expertise to provide some on the job training to FEMA personnel.

DR. ZUDANS: How quickly this FEMA got into action after December 7. What time did it take them to grow up or be creative?

MR. PERKINS: Well, FEMA was created prior to that time, this task was assigned to them.

CHAIRMAN ETHERINGTON: They have the anomoly of priorities and chronologies, did you say?

MR. PERKINS: I am not sure I know what you are referring to.

CHAIRMAN ETHERINGTON: Item 1 transfer is called for responsibility, too, the implementation is one.

DR. MATTSON: We changed that, Harold.

MR. GRIMES: They are both one, we have a statement on the table. If you look in your long

version that you got this morning about when things start, it is fixed in there.

MR. PERKINS: Also, as part of the transitional effort, it was agreed that we would assist FEMA in developing exercise scenarios that could be used to exercise or test the state of preparedness around state and local governments around the nuclear power plants.

Then, the memorandum understanding also addressed the longer term working relationship. How each agency would implement its roles. The arrangement that we have agreed upon is that FEMA will, Fema has a developmental role, and that is, through their regional offices they are working with State and local government in assisting those governments to develop emergency plans to develop emergency plans around nuclear power plants.

Those plans are brought to FEMA headquarters where they make findings and determinations of the adequacy of the offsite preparedness around nuclear power plants.

They make that set of findings by comparing those plans to a set of criteria that FEMA and we have jointly published.

We, then, the NRC, review the licensees onsite emergency preparedness and make a determination of the

adequacy of the onsite plans and review the FEMA findings for offsite preparedness and then make a decision on the adequacy of the overall state of preparedness which then becomes part of our licensing decision.

DR. ZUDANS: You take the FEMA offsite and review them and compared to your review results on onsite?

MR. PERKINS: Onsite to insure that the two onsite and offsite are integrated and that there is an overall, inadequate overall state of emergency preparedness.

DR. SIESS: At licensing?

MR. PERKINS: At licensing, but then we will conduct exercises later to insure that the state of preparedness is maintained.

DR. SIESS: NRC will?

MR. PERKINS: NRC and FEMA.

DR. SIESS: And FEMA.

MR. PERKINS: Correct.

DR. ZUDANS: This continuity check is done only by you or by both? By FEMA and NRC, or just NRC?

The continuity check for preparedness procedures --

MR. PERKINS: The interface is just NRC.

DR. ZUDANS: Just NRC.

MR. PERKINS: That's correct.

FEMA has the need for offsite, we are using their offsite work as our Staff work, and we make the decisions as to whether there is an overall adequate overall state of emergency preparedness.

MR. GRIMES: I should also interject that under our current statutes we can not completely delegate this responsibility to FEMA. We must make the determination in the licensee process. We can use them as consultants. As we would use other federal agencies in the USDS, and use their work in our licensing process. We can't completely delegate that.

DR. ZUDANS: What can you accept? I didn't quite understand. I thought they would delegate the responsibility for it.

MR. GRIMES, But must make the final decision in the licensing process. We still have the licensing decision to make.

DR. SIESS: The law just told them they got to do it.

MR. PERKINS: FEMA's relationship is with the State and local governments.

DR. SIESS: FEMA has no contact at all with

applicant utility of the licensee.

MR. GRIMES: Except that during the development of the state and local plans, there would likely be meetings with the licensee.

DR. SIESS: Do you tell them what to do?

MR. GRIMES: No.

DR. SIESS: They tell them they don't have to do it, you tell them they have to do it.

MR. GRIMES: Yes we have the licensee.

DR. ZUDANS: An interesting situation, what if you disagree with what FEMA did on the offsite?

DR. SIESS: You don't give them a license.

MR. PERKINS: That's correct.

DR. ZUDANS: What does the utility have to do, it is offsite?

Not fair.

MR. PURPLE: Are there any other questions on emergency preparedness?

DR. ZUDANS: I have one question. Since you have done lots of studies, what does it take to evacuate the 10-mile radius in terms of depending how people there are, as a function of people, time-wise?

MR. GRIMES: Time-wise, it varies from 2 to 3 hours, in the typical remote site, up to around 10

10 hours in a highly populated site for the general population and perhaps longer than that for all the institutions in that area.

We have asked all operating plants for time estimates, in that regard. Some of them came in very sophisticated transportation analyses and I think I show what I just described. That excludes the notification time, that assumes that there is a notification system in place that might take a similar amount of time to notify people if there were no notifications systems.

DR. ZUDANS: Then, accidents that you analyzed which have a release in that particular zone much sooner than that. In some cases, yes, there would be a release before one could evacuate the people, in that case.

MR. PERKINS: First of all, the important thing is to know what the options are in each case for protective measures. In some cases, that may be sheltering rather than evacuation. Rather than put someone out underneath a plume, it may be more advisable to tell them to stay indoors.

Certain sites such as Indian POint and Zion we have taken further measures of asking them to try to decrease the amounts and increase the time involved in core melt accident releases.

That is the filler gun at containment. There are special problems at a site like that. We would likely go to the filler gun at containment concept to try to increase the available reaction times and to decrease the amounts of activity that would be released even with the bad core melt accidents.

DR. ZUDANS: In addition to this vented and filtered containment concept, what are the other things that you could do to diminish or minimize the impact?

MR. GRIMES: Well, there are a variety of things that can be done to improve the chances of coping with the accident but I think once you have an accident, the color vented containment is probably by far the thing that helps most at the risk.

DR. ZUDANS: The blocking age, I read in the newspaper that British held blocking agent iodine, blocking agent in a ten-mile radius.

MR. PERKINS: Yes, I didn't cover that, we are doing a cost benefit study right now at Sandia Laboratories on that problem and we expect in the next month to report to the Commission, the initial results of that study. I have made regard that its cost per effective void are very high.

Several hundred thousand dollars for not voided

if you used the WASH-1400 core melt probabilities for closed in distances and several million dollars further for the module operation avoided farther compliant.

I think our immediate recommendations will have fills for emergency workers onsite and offsite, perhaps, also for institutions where it can be controlled in but I think we want to study further.

We recommend extensive use of blocking agent for the general population.

CHAIRMAN ETHERINGTON: I think we should move on more rapidly, I think we might assume that the Subcommittee has read the plan and don't try to cover the entire scope just a few words to remind us what it is about.

MR. GRIMES: We have covered 3A and 3B. The NRC part --

CHAIRMAN ETHERINGTON: Then, I would say the same to yours, excessive.

MR. PURPLE: I'd like to turn now to 3A3 which is the NRC emergency preparedness improvement.

Bernie Weiss from IE will cover that briefly.

MR. WEISS: I will just try to cover the items that are in here and basically what I am going to be talking about are the things that NRC is doing to improve

his response to an incident.

ONe of the first things on this list is looking into the NRC goal and responding to nuclear emergencies.

There have been several discussions with the Commission on that and think that is getting a little better handle on the basic problems more or less what the Commissioners role is, themselves, will be in an accident.

There is a study that is going on now that Mida corporation is conducting for us. We go in a little more detail with regard to the role and what each of the various roles and the spectrum of roles the NRC will have to conduct, will mean in terms of resources, risks, liabilities, legislative needs, and so forth.

We are also in the process now of trying to upgrade the operations centers to support our activities in a major accident. Obviously, the response to TMI indicated that the operations center that we have now was, the operation was wholey inadequate the response was much greater than we had anticipated. We need to upgrade that considerably.

In addition, upgrade the regional operations

centers.

We are also looking in one of the most serious problems. A question of communications. We have already installed one dedicated telephone line to the control rooms which is basically for operations. This is a dedicated line which would provide immediate notification and hope in a continuous line and would have high priority for restoration if anything had ever happened to it.

CHAIRMAN ETHERINGTON: If time were mentioned, would it be profitable for the Subcommittee to look towards an operations in there?

DR. MATTSON: You certainly can, you are welcome to see it. It is not much to look at.

It is only 5 minutes away. It is down the street.

MR. WEISS: There is a second line, which has been installed on all the facilities. There are a few last remaining problems before AT&T turns it over to us. This is a health physics network to the separate, essentially, long lines intercome network in which it is not used for immediate notifications but it is a second system to be used for the health physics people.

That is located at the health physics offices,

at the near site emergency operations facility, with the health physics and environmental people would tend to congregate.

That is essential to it now, if there were an incident we could use it although that really couldn't be turned over to us.

We are also considering the needs for short-ranged radios, VHF radios that people could use once they get to the site, specifications have actually been written before TMI and we are still trying to obtain them.

We also are looking at the availability as we use the TMI in obtaining shortranged radios and other communication services from other federal agencies. There is a lot of communications and networks out there trying to arrange and make sure we can get that assistance from other federal agencies.

We are also looking at getting more information on meteorlogical stuff from Noah. I am working with FEMA on that also. We have a pilot program now, in which we will be putting into the operation center an arague terminal, which is a Lawrence Livermore system, that will also be installed at Zion and at Indian Point and in New York and Illinois, so that we will try that on a pilot basis to see how that works.

DR. ZUDANS: What is that?

MR. WEISS: It is a very sophisticated prediction of dose prediction system in which they can simulate terrain but they need the input from the individual facilities. We are trying on a pilot basis. It is rather expensive. So, we want to see whether this is a way to go.

DR. ZUDANS: It may lead to predict the methodological conditions.

MR. WEISS: Right, whether we need such a sophisticated system or we could use something less sophisticated.

The last item that we have on there is the nuclear data lane. We are now having Sandia look into the question of concepts and costs of the nuclear data length, cost benefits, all of these entail in connecting us directly to a facility so that we would have direct access to certain operating parameters before an incident and during an incident.

The Commission, we should be presenting a paper to the Commission sometime this month for them to make a decision to whether we want to go forward with that project. This report should be here within the next couple of days.

DR. SIESS: I don't understand what you are saying. I have a copy of a letter to all operating nuclear plants they are transmitting the Sandia report asking all the operating utilities to operating a survey, sounds like this thing is practically settled on, then, it is handed down to the Commissioners in category 3 priority.

DR. MATTSON: Category C isn't priority, Chet, be careful.

DR. SIESS: I said category 3 priority and I don't remember where it is on your list of-- you say you are working on it.

DR. MATTSON: Right, now, it says --

It says now, working on it now.

DR. SIESS: You are working on it now?

MR. WEISS: Yes, we have discussed it with the Commission and the Commission has said more forward in developing the concept at a final decision as to implementation, it is obviously the expensive part of it.

DR. CATTON: Why is it so expensive? Aren't you just going to plug into their data system and hard wire it into your system?

MR. WEISS: Not quite that simple because we have got essentially 70, right now 70 different beasts

out there and it is a matter of getting that data and sorting it our either there or here.

DR. CATTON: Are you going to be getting continuous transmission from all of these 70 plants, or is it an emergency where you suddenly fire it out?

MR. WEISS: One of the things that we are certainly looking to get is the data, the A priority data, just before the incident.

DR. CATTON: One way you do that is you record it, say an hours worth of data and every half hour, dump the first half hour. So, you have got a half hour.

DR. CATTON: I'm wondering because J.C. Penney does this with their cash registers.

MR. WEISS: They got uniform cash registers out there, with all the same cash registers.

The system we have out there are not.

DR. CATTON: They transferred the information into a parallel set of computers for reliability, they are more interested in not losing the data than maybe you are.

DR. MATTSON: The man is not saying that it is a difficult system to do, it is expensive.

DR. CATTON: It is expensive and I am wondering why it is expensive.

DR. SIESS: This lawyer sounds like it is already inproved and it says the results of this survey finalized the specifications, an immediate objective would be to select lead plans and data, to insure early and meaningful operation of different data. A subsequent action by licensees would be to operate their capability and it doesn't say any impression that this is something that is just being considered.

DR. MATTSON: Well, I think it is fair to say that the estimation in this will be approved and implemented. I think that is what that letter implies.

DR. SIESS: Then, category 3 doesn't really mean much, does it?

DR. MATTSON: Well, it is a priority 3 because it doesn't have high safety significance, that is, the steering groups estimation, the likelihood that the nuclear dats link would cause NRC to do something the licensee wouldn't otherwise do to protect the health and safety is low.

MR. MATHIS: Why do you need it?

DR. CATTON: Curiousity.

DR. MATTSON: We are studying it, estimating what it costs, before they get in front of our decision makers for deciding whether it is needed, fufill their

other responsibility.

DR. ZUDANS: It is not intended to exercise any control function, just to monitor.

DR. MATTSON: That's right.

It is something to start out with 380 parameters and it has worked its way down to 115.

MR. WEISS: Yes, it is about 100 now, 60 operating parameters and 40 meteorlogical.

DR. ZUDANS: It is not a big number, anyway.

DR. CATTON: What is the sampling rate for each parameter?

MR. WEISS: Were talking about 1 a minute now, again, we don't have that final containment.

DR. CATTON: If they transfer the whole set of a hundred, each --

MR. WEISS: Right.

DR. CATTON: That is a fairly low sampling rate, too.

MR. WEISS: We would be able, probably wouldn't be able to get transients.

DR. MATTSON: Somebody is whispering in the background the nuclear data is faster. There is no technology limitations and the amount of information that can be transmitted. It is a question of what use

are you going to put it to, that sort of thing. How are you going to display it, how do you set criteria that can be applied to 70 different designs?

MR. WEISS: And to display it in a uniform manner so it will make sense to the people that are looking at it.

MR. LIPINSKI: Were video cameras in the control room consistent?

Was that a consideration as one method of getting data?

MR. WEISS: I don't believe we had considered this. No.

DR. MATTSON: They are being considered for the onsite technical support center in the control room.

MR. WEISS: Okay, the other item that we had discussed in here was the need to continue tests and exercises and drills so that as we make changes and change the physical within the operations under them stay up to date. The last item had to do with interaction with the NRC and other agencies having to deal with other countries, in particular, Canada and making special arrangements with them and continuing our arrangements with all the other federal agencies. We have some concern here. So, that we can interact with them in any

future incidents and state and local governments.

CHAIRMAN ETHERINGTON: Have you had any problems with any of those areas?

MR. WEISS: It is just slow. Do you mean with other agencies or with all the things that I am talking about?

CHAIRMAN ETHERINGTON: You mentioned international too.

MR. WEISS: I haven't personally been involved with that. I had some contact with people in Canada. We are staying in touch with them. We haven't had detailed arrangements but we know each other and we know who to call and let them know.

Later on we will probably go to more formal.

MR. PURPLE: Any other questions under 3A3?

The next in order would be 3C public information, I think it is important that our office of public affairs be represented and Frank Ingram from that office has been tied up with the Commissioners. He assures me that he can be here at 8:30 tomorrow morning.

I would like to move to 3D, Bill Kreger, will cover essentially most of that with one or two exceptions.

MR. KREGER: 3D is the section on radiation

protection. I have in the audience people who can address detailed responses to questions for the 3D area.

The findings of various study groups and permissions regarding Three Mile Island identified some deficiencies in the area of radiation protection both with regard to licensee programs and with regard to NRC activities.

They can be lumped into several broad categories. We did that in order to try to more effectively address the deficiencies by the action plans. These broad categories worked. First of all, what could be called licensee and NRC under emphasis of the importance of worker radiation protection.

That very particularly with regard to accident conditions, since in the past, most of them are activities in worker radiation protection and the licensee activity had stressed the normal operation and anticipated occurrence situations but had not put much emphasis on the accident condition.

The second main category, we categorize is inadequate qualification of radiation protection personnel. That, in spite of the fact that our regulatory guidance treated to some extent the qualifications required.

The third category, inadequate training for

radiation protection, and this again primarily related to the accident condition of Three Mile Island 11 was a very vivid example of the lack of preparation by the radiation protection staff for the accident condition.

In spite of that lack of protection, there were only a very few worker overexposures in the course of the event.

The forth main category, was design and equipment. The efficiencies were accomodating again to accident conditions and this related both the radioactive source control and to the radiation protection program.

Now, the 3D action plans compliment action plans in other parts of the document in particular, 2H8, I believe, which is a rule making which will investigate design requirements, additional design requirements for the accident condition.

Also, 3E action plans compliment the short term lessons learned which document has in it several items that relate to the radiation protection area. Both design for radiation protection, equipment for radiation protection, and plans and procedures for radiation protection.

We separated the action plans in the 3D area into 3 main subsections. The first of those 3D1 was

for inplant source control and also control of releases. It relates that the separate items of which they are about 5, relate to recognizing that sources will be in places that we hadn't previously anticipated and attempts to make sure that both were worker protection and for public protection. Those sources can be better contained after an accident than they were either for the Three Mile event or for other events which now we can anticipate of a similar nature.

The first subset 3D1, is what we characterize as source control or radiation source control.

The second subset 3D2, public protection, adds a few items to already many items that the staff implements in the licensing implements for control of effluence and also for the determination in terms of F1's are getting to people are there are effluence of significance. There are items in that section for further capability for F1 monitoring, additional capability for determining the dose that may be resulting from the effluence that may exist and be monitored.

A liquid pathway interdiction item because of in the past the staff has not had prior to the prairie consideration for the floating nuclear plants, the staff had not spend very much consideration of

radioactive effluence into the liquid pathway and that was primarily because most of the conjectured accidents did not quit radioactivity effluence in the liquid pathway.

Then, in addition, to 3D2 there are some additional requirements for measurement of offsite radiation doses and an item on the ability to rapidly determine offsite doses from radioactivity release by both the combination of meteorlogical and hydrological measurements so that population decisions can be made quickly.

The 3D3 items are all related to worker protection improvement. Once the 3D1 items are further implemented and source is better controlled, and releases are better controlled and measured, it was assumed that we would have presumably a great deal more radioactivity in plan after the accidents that might have occurred at Three Mile. Although, in plant radiation sources have been a very signficant problem for the whole process of putting up a decontamination.

So, in the worker protection improvements area of 3D3, we have about 5 subsets of plans which relate to improving the radiation protection of plans of licensee and improving our nuclear reactor regulation overview of those plans and review of those plans during the licensing process.

It includes a number of health physics improvements that are primarily the office of standards development implemented in terms of regulatory guidance and criteria for health physics instrumentation and health physics activity in the plant.

There is an additional bunch of activities in 3D3.3 on inplant radiation monitoring, which add to the monitoring required by the short term lessons learned and these are both monitoring for radioactivity levels in the plant and particularly in the auxiliary building as a result of accident sources on the auxiliary building.

Then, more locations for such monitoring, again, because of the identification of the much broader range of source locations than we have previously predicted.

There is an item in 3D3 on control room habitability. Three Mile Island identified the potential ingress of radioactivity from the accident throughout the plant in ways that hadn't been anticipated by the previous control room habitability requirements which should have controlled ingressive radioactivity into, for example, one control room because of an accident in unit 2 and visa versa. In addition, that particular plan requires the implementation of a couple of regulatory guidance guides on other toxic materials problems on

control room habitability.

Finally, there is an item on this one on radiation and worker exposure data base which is primarily a study to try to determine whether or not the NRC should improve its or should increase its requirements on the licensees for requireing radiation exposure information on the health status on workers for potential eventual use in epidemialogical studies.

THat is a broad view of the treaty items and they are a little bit on their relationship to both short term lessons learned and other items in the earlier parts of the action plans.

MR. MATHIS: Could we move back up to 3D2 item 5? I guess I should be familiar with it, what is the content of that dose calculation manual?

MR. KREGER: This is a proposed dose calculation manual that would be of a similar nature to our Reg tour Guide 1.109 which tells licensees how to calculate dose for normal operations. This was a proposed manual that would put a new kind of manual out on the street which tell people how to calculate for an accident condition so that we don' t have every, it would give each licensee the guidance as to how we believe the dose can be calculated quickly and effectively using the

effluent release data and the short term meteorlogical information so there aren't a whole lot of different people calculating dose differently and one person in a given accident saying we think there are 20 rem at the site boundary, and antoher group saying we think there is two rem at the site boundary and another group saying we think there is a half a rem at the site boundary.

CHAIRMAN ETHERINGTON: Do the 3 regulatory guides at present not do that?

How many are there?

DR. MATTSON: For normal operations.

MR. KREGER: Primarily for normal operation.

DR. ZUDANS: The data base would be the actual results measured, not any calculations either by best estimate or by evaluation model.

MR. KREGER: Let's have Frank Congel who will be the author of the set manual tell us.

MR. CONGELL: What I envisioned in the manual were several procedures or options being available depending on what the circumstances are.

If there are effluent data available, then there would be a section that shows an acceptable , reasonable procedure to go from the effluent data using local wind conditions to estimated doses at various points offsite.

If in the case similar to TMI occurs where you don't have good effluent data, it would be a procedure for making estimates based on either helocoptor measurements, on site surveys, or combinations of both.

Recognize that part of our plans do try to address the problem not having effluent data. If all the plans are implemented, there should not be a case in the future where the effluent monitoring equipment goes off scale.

CHAIRMAN ETHERINGTON: My recollection must be completely wrong then. Don't the regulatory guides give accident releases, they get two out periods, 8 out periods, 24 out periods?

DR. MATTSON: 1.3 and 1.4. But, that is the conservative methodology for siding calculations for the side boundary doses and the --

DR. ZUDANS: Is this the best estimate you are getting at?

DR. MATTSON: This is best estimate.

MR. KREGER: This is best real estimate, using data that are available at the time the occurrence is taking place.

DR. ZUDANS: That means you just don't want to scare people unnecessarily?

MR. KREGER: You don't want them having 3 or 4 numbers, either.

DR. ZUDANS: That is fine.

MR. MATHIS: Well, if you had an accident tomorrow this would be kind of important to have. Why is it so late on the schedule? 6/81 is way down the road.

Does it take that long to put it together?

MR. MINNERS: I think it is nice to have, but as far as safety significance goes, I think that is why the safety significance is down.

MR. KREGER: We are in a much better condition today to go to a site or to get information from a site in our emergency response center and to get numbers than we were at Three Mile Island.

The effluent data and numbers were obtained later on by interperlation of devices that are in all plants and I think now, we know the questions to ask at the plant, about what certain things are reading even though some of the new requirements will not have been implemented tomorrow or next week.

MR. MATHIS: From a public relations standpoint, it seems to me you run the same risk of having conflicting data that existed in the past if you don't get this place.

It is a risk, how important it is, I don't know, but from a public relation and embarassing standpoint, it seems to me it has a reasonably high priority. That is my opinion.

DR. MATTSON: I will use Dr. Congell here as a good example of the kind of choices we have to make. This man is very valuable to this agency. He had performed in some extraordinary feats in the last year. Is it better for Mr. Denton to spend Frank Congell right in the guide that really solves a PR problem or to spend him on work that really makes a safety difference?

In the minds of this steering group, which is helping set priorities, I would rather use Frank on some safety stuff than PR stuff.

MR. MATHIS: Why don't you put Harold on PR work, that is all he is doing.

DR. MATTSON: That is the kind of choice we are making on him.

MR. PURPLE: Are there any other questions on 3D?

CHAIRMAN ETHERINGTON: There are one of two things we can do, we can go into a short executive session to determine what we want to do about Mr. Thorpe. Let me do that anyway, in addition.

(Discussion is helf off the record.

CHAIRMAN ETHERINGTON: The meeting is adjourned until 8: 30 tomorrow morning.

(Whereupon the meeting was adjourned at 5:15 p.m.)