UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of:

BRIEFING BY AIF ON REVIEW OF
NRC ACTION PLAN

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Eleventh Floor, Room 1130
1717 H Street, N.W.
Washington, D. C.

Wednesday, April 2, 1980

The Committee met, pursuant to notice, at 2:00p.m., John F. Ahearne, Chairman of the Committee, presiding.

BEFORE:

JOSEPH M. HENDRIE, COMMISSIONER
RICHARD T. KENNEDY, COMMISSIONER
PETER A. BRADFORD, COMMISSIONER
LEONARD BICKWIT, GENERAL COUNSEL

SPEAKERS:

FRANK STASZESKY, Vice-Chairman, AIF
(Pres. Boston Edison Co.)
CARL WALSKE, President, AIF
STEPHEN HOWELL, Co-Chairman, AIF/NSAC Working Group on Action Plan Priorities & Resources
(Sr. Vice-President, Consumers Power Co.)
EDWIN ZEBROSKI - Co-Chairman AIF/NSAC Working Group on Action Plan Priorities & Resources

P R O C E E D I N G S

CHAIRMAN AHEARNE. This afternoon we continue on what seems now, many meetings, on the NRC Action Plan and, particularly this afternoon we have a group of distinguished gentlemen representing the Atomic Industrial Forum whom I believe, I am sure, would normally want to just come and heap praise upon us, but I suspect they might have a few critical words. There were one or two scattered in the midst of some of their comments.

I am not sure, given--I guess, Carlson, as the title indicates, you seem to be the ranking AIF gentleman here. Perhaps I should ask you for comments first.

MR. WALSKE. That is slightly illusory. Our Vice-Chairman is actually the-- pays part of our bills (laughter).

CHAIRMAN AHEARNE. Getting right to the numbers.

MR. WALSKE. Is, in fact, the ranking member and our leader today.

CHAIRMAN AHEARNE. All right, Frank.

MR. STASZESKY. Thank you, Mr. Chairman.

I am Frank Staszesky, the President of Boston Edison Company and here today as Vice Chairman of the Atomic Industrial Forum.

My colleagues are Carl Walske, President of AIF; Steve Howell, on my right, Senior VicePresident of Consumers

Power Company, and here in his role as Co-Chairman of the AIF/NSAC Working Group on Action Plan Priorities and Resources. And Edwin Zebroski, to our left, Director of the Nuclear Safety Analysis Center, and here also in his role as Co-Chairman of the AIF/NSAC Working Group on Action Plan Priorities and Resources.

We are pleased to be here today, Mr. Chairman, at your request to discuss our analysis and recommendations on the draft NRC Action Plans. And we shall come to that very shortly.

But I would first be remiss, as Chairman and Vice-Chairman of AIF, if I did not underscore again, as I did on January 9 of this year when we visited with you and as we expressed in our March 18, 1980 our very serious concern about the failure to pursue licensing activity.

Frankly, we feel the Nuclear Regulatory Commission has been deplorably slow in overcoming post-TMI inertia that continues to hold hostage pending construction permits and operating licenses. This, in spite of the fact that all real obstacles have been removed that would prevent the immediate return to an orderly and productive licensing process.

It is first important to recognize that the immediate lessons of TMI were applied within several days of the accident.

Of the other lessons of TMI, the most important were taken care of through the initiative of the utilities in augmenting their safety practices, in responding to bulletins and orders, and in implementing programs to address short-term lessons learned. Collectively, the industry established the Institute of Nuclear Power Operations and the Nuclear Safety Analysis Center. And I was privileged to serve on the steering committee to organize both of those groups. Both were aimed at raising the general level of safety awareness and performance. The nuclear industry has stated previously and continues to agree with the determination of the Director of Nuclear Reactor Regulation in late August 1979 that the actions underway then were sufficient for safe nuclear power plant operation and for the resumption of licensing casework.

The resources of top industry talent have been vigorously committed to fulfilling the requirements already ordered, which derive from the best insights into the TMI event. Industry and NRC reviews of the Presidential Commission Report and the NRC Special Inquiry Report have not uncovered any major safety insight not previously recognized.

After all this work and commitment to protect the public health and safety, and to assure reliable responsible operations it is, in my opinion, unresponsive to the public interest and the national security not to resume licensing

activity forthwith.

Six near-term construction permit applications are pending before the NRC in which investments now exceed a billion dollars. The project represent more than 5,000 megawatts of capacity which could be on line in the 1980's saving imported oil in accordance with national energy policy and a billion dollars a year in electric bills. These applicants as a group have been meeting with NRC staff for the past two weeks and met today with the Director of NRR to develop a basis for resumption of construction permit licensing of these projects addressing the concerns of TMI. An applicant NRC staff meeting with the ACRS TMI Subcommittee is scheduled for April 9. I urge you to encourage these efforts to very early resumption and vigorous process to a decision on these permits.

The massive Action Plan list of proposed requirements has now been thoroughly reviewed by both the NRC Staff and by the industry by way of a comprehensive assessment of an AIF/NSAC special working group, which Steve Howell will discuss in detail. This assessment, which should be extremely useful to you for planning purposes shows that a satisfactory basis for resumption of licensing exists. Moreover, several recent studies by NSAC show that there are good reasons to believe that safety margins have been significantly improved

over pre-TMI levels. And Ed Zebroski is prepared to discuss this conclusion with you in detail.

Realignment of staff resources necessary to process licensing casework vigorously and to provide action on Operating Licenses and Construction Permits should be made now. A clear NRC policy statement should outline the ground rules for licensing actions. Additionally, the policy on the disposition of Action Plan items should be decided promptly. This could remove much of the uncertainty that is now frustrating industry, the financial community, and the public in general.

In summary; the national interest could be well served by the formation of policies within NRC that recognize the high level of safety already achieved and the actions now under way to reinforce what is now in place; the importance of setting priorities on requirements so that industry and NRC resources can be used more effectively; the importance of concentrating NRC and staff resources on the granting of near-term operating licenses and near-term construction permits; the tremendous cost of construction permit and construction schedule delays ultimately paid by the consumers due to preoccupation with procedure and implementation of potentially unnecessary requirements; the importance of a balanced regulatory policy on safety goals and backfitting.

And now Steve Howell will elaborate on these points

through the perspective gained through his involvement in leading the industry review of the Action Plans. Steve.

MR. HOWELL. Publication of the NRC Action Plan, the draft of NUREG 0660 last year raised serious concern within the nuclear industry that the constructive safety efforts in motion since the Three-Mile-Island accident would be diluted by a large mix of new requirements of lesser value.

It also brought forth the prospect of extended and unnecessary delays in the resumption of the licensing process. These concerns were expressed forcefully in AIF Chairman, Roger Sherman's January 9, 1980 presentation to the NRC and in AIF President Carl Walske's January 21, 1980 letter to the Chairman.

The potential effect of these requirements extended not only to delays in receipt of operating licenses in retrofitting and down time in operating reactors, but to potentially catastrophic stretch-outs on plants in various stages of construction. To address this problem a joint AIF/NSAC Working Group on Action Plan Priorities and Resources was formed under the auspices of the AIF Policy Committee on the follow-up to the Three-Mile-Island Accident.

Their charter was to define what each Action Plan item meant, to judge its priority and to provide a resource

and cost estimate for each of these items. Barring two weeks of intensive effort by more than 45 professionals a report was completed and approved. As indicated in the cover letter of February 22nd 1980 letter from AIF Policy Committee Chairman, Byron Lee t NRR Director Harold Denton, the Working Group Report, which I notice is on the table in the rear of the room concluded; first, the large number of requirements proposed by the Action Plan can be prioritized and reduced by a responsible selection process and this process can lead to an orderly and positive increase in over-all safety.

Second, failure to reduce this number can have great impacts on plants in operation and under construction. It found that the total capital costs for all plants analyzed-- a total of 123 operating reactors and those with more than 25 percent construction complete, came to a grand total of $3.5 billion. The total cost of resulting operating plant outages was calculated at $670 million and the upper bound of costs resulting from potential construction delays, potential construction delays, could be as high as $31 billion. Though this number could be substantially reduced by eliminating a number of items that cause the greatest delay, it serves to underscore the tremendous impacts that seemingly small capital cost items could have in causing very large costs

through construction delay.

And, lastly, implementation of all the Action Plan items would require 13,000 technical man years industry-wise and this enormous requirement of effort would drain resources away from more important safety effective activities.

The report recommends that a realistic backfitting policy be developed for both operating plants and plants under construction. Further, we urged that that for those proposed requirements of secondary importance but worthy of later consideration, the NRC should first reach a judgment on the safety goal against which these additional considerations can be evaluated before they are imposed as NRC regulatory requirements. And, additionally, action should be taken to remove from consideration those items which have marginal value.

We believe that the actions taken thus far by industry combined with the actions ordered by the NRC to date, including its bulletins and orders and the implementation of the short-term lessons learned, have provided a necessary and sufficient basis for continuing safe plant operation and for resuming plant licensing.

CHAIRMAN AHEARNE. You agree with all the bulletins and orders then.

MR. HOWELL. Well, I am not going to say, "Yes"

hurriedly because in the report, as we went through, there are some details so--let's not give a blanket answer on that.

We have also reviewed the remainder of items proposed by the NRC staff as requirements for the near-term operating licenses, the NTOLs, and these items have been included as part of the Working Group prioritization process. Though we believe that none of the items we have analyzed should be implemented as prerequisites, for issuance of new licenses, we do believe some are desireable to do on a priority basis with realistic schedules.

Depending on the results of plant specific reviews commitments to complete high priority items should be made by those pending NTOL applicants and operating reactor licensees where applicable on realistic schedules which should not interfere with obtaining licenses or with continued plant operation. But it is important that any NTOL items or lists that you deem necessary be specified, be accompanied by an NRC policy statement indicated that these requirements are sufficient for licensing for a defined period, say, two years. And that the remainder of Action Plan items will not be applied to OLs, CPs or operating reactors without, one, a public review and comment period on each additional proposed requirement. And, two, not before a backfitting

policy and the safety goals established against which these new requirements would be measured and implicit in this policy statement should be recognition of the need for realistic implementation schedules for any additional items so that it would not undeuly delay construction completion or cause extended outages on operating plants.

In other words, beyond the NTOL list needed to reestablish licensing an orderly system for evauating the value impact of additional NRC requirements as aided by the material provided by our Working Group should be developed by you. We would be pleased to offer any further assistance we can toward that end.

MR. WALSKE. And now Ed Zebroski will discuss briefly the important assumptions behind our Working Group effort on the Action plans. He will also present an overview on studies relevant to this discussion which add credibility to the high level of safety in nuclear plants and justify the return to full licensing.

MR. ZEBROSKI. I don't have a formal written presentation. I would like to walk through a set of charts which you have in one of the handouts and use that as a lightening rod, perhaps, for questions.

MR. HOWELL. Ed, is this the handout?

MR. ZEBROSKI. Yes, this one. I can start out

while it is moving.

MR. HOWELL. This handout contains a lot of the details from that report.

MR. ZEBROSKI. As Steve and Frank have said, the AIF Policy Committee mobilized this activity in response to an observation we had offered that the problem of prioritizing a large number of activities was a familiar one in DOD, in inudstry, and in operating utilities. Often you have a situation which you have 50 items on your punchlist and you only have the time and resources to do 30, and how do you pick the right ones.

There is a well established discipline now of some 20 years duration thoroughly published, which had its inception, fundamental work done at Harvard and Stanford, which is called "Decision Theory." And to give it a fancy name it is Basia in Probabilistic Analysis. To give it a less fancy name it is Structured Way of Doing Common Sense.

We offered this-- WE have been using this methodology to help utilities in picking the more important items of a long list of things to be done and, as I mentioned, it is commonly used in industry and in DOD, and such cases.

To do this we mobilized a total of 47 technical people from 26 organizations, 11 utility companies, the four NSS vendors, five architect engineers and 11 NSAC staff

of supporting people and four AIF staff people.

We broke this effort into seven teams each, one of five teams taking objective-- I am now looking at about the third page of your handout.

MR. HOWELL. It is the fourth, I believe.

MR. STASZESKY. Headed "Working Group Evaluation."

MR. ZEBROSKI. "Working Group Evaluation," does everyone have that?

So we produced a draft. We circulated it for comments and sharpshooting to many organizations over weekend and did a second draft the following week which was then delivered to the Commission.

If I could make some observation on the-- We were working from Draft 2 of the Action Plan, I should say, which was at the stage that you still had 190 items from the original 245.

Those items were of a varying texture. Some were rather specific and prescriptive as in the bulletins and orders. Some were functional objectives and the kind that we like most. Some were continuing--defining a continuing study or administrative process which said, "Do things according to NUREG," thus and such. And some were actually groups of items, Item 2K (1), I believe, was the bulletin and order so it had within it, within that one action item there were

138 prior items. So you can see that prioritizing that mixed texture of items is not easily possible. So, in some cases also the scope of the item was not well defined. So we chose to do a little tampering with the scope--tempering only in the sense that if I add this definition to it I can then make some sort of an estimate of cost and schedule. Absent this degree of definition it is open-ended. No one can estimate it. So where there are differences in cost and schedule with the staff, sometimes they arise from just differences in how you cost them. But more often they arrive from a different perception of what the scope is, and I think you have a staff study which calls out some of these differences, I believe, as presented to you yesterday or the day before.

So, we noticed, however, that if you took the whole list of 190--in fact the whole list of 245 on the next page they fell neatly into five general objectives with respect to safety. I am omitting only some of those which were purely either budgetary or organizational within NRC which would be, perhaps, a sixth category.

I think these five objectives are very important and they are ones we have completely common cause between the industry, the public, the legislator, the regulator--I think everybody can agree that these objectives are noble

and desirable. Objective A making the cumulative learning process work better. You know the Rogovin Report, at least in its first draft, was 90 percent addressed to that one issue and, certainly, a very important one.

Objective B was organization and training of the operator to help them set a better environment for learning how to cope with transients and/or operational problems. This is things that you do before he actually enters the control room.

Item C is directly helping the operator while he is in the control room, while he is operating.

Item D is to prevent or to cope with degraded core conditions which is also one of the key action items.

And Item E is the prevention or evaluation or limitation, mitigation of releases of radioactivity. So I think these are all familiar objectives but the interesting thing is is that--I think we can skip the next chart. We can skip back about three charts to Action Plan Draft 2 where you see objectives A,B,C,D,E. The interesting thing is the number of items within the Action Plan which address each of these objectives, so you can see objective B, which is helping the operator be trained better and have a better working environment--had 83 distinguishable action items. So to jump ahead of my story a little bit, I think one gets

the perception when you look at how many of these have already been comitted through the bulletins and orders and through work which was already processed; that a great deal has already been accomplished toward these objectives even-- even without the question of what additional items are added to the NTOL list.

So, perhaps, one of the major differences in our prioritization exercise versus the earlier version of the staff prioritization exercises is that we took contingent benefit of a new item. Almost any of the action, task action items taken in isolation is noble, virtuous, useful, as a safety benefit. Very many of them have much decreased value in the context of the many other things that have already been done. So the contingent valuation of the NF first activity was perhaps one of the major differences between our prioritization process and the staff prioritization process.

I think that is somewhat rectified in draft 3-A if I read it--not explicit but at least as I read it I infer, at least, that the contingent valuation is now entered much more in the process and I think very constructively so.

Coming back to the process itself, you identify what are the key attributes, and the first attribute which was identified is identical with the staff process which

is, "How does this item affect actual safety?"

Is it a do-right item? Does it make the plants actually safer? So that is clearly the first attribute that you look at.

And another attribute is a contingent valuation. Another item--another difference which we had with the staff evaluation, we looked at the probability of success, simply mandating something or agreeing to implement it still leaves a certain probability that objective is not fully achieved.

CHAIRMAN AHEARNE. We have noticed.

MR. ZEBROSKI. So the valuation, the judgmental valuation of the people who have to make these things work; is that if you do this your net will only catch 80 percent of the problems, for example, I think is important thing. So you may have a noble objective but it doesn't necessarily--

And then finally, cost and schedule is not a trivial consideration but it was not a major consideration, at least, in the prioritization exercise that--

I think we identified a number of problem areas that some of the items are so open-ended that we didn't even presume to try to redefine the scope. A couple of these items have the potential of having a much bigger cost and outage operating impact on all of the rest of the Action Plans put together.

MR. HENDRIE. Will you tag those as we go by them then?

MR. ZEBROSKI. Yes; clearly the Class 9 or the core melt rulemaking is potentially in that category. The siting rulemaking which would disestablish about 40 existing sites which disestablish all of Europe and most of Asia--

CHAIRMAN AHEARNE. We don't regulate Europe and Asia.

MR. ZEBROSKI. I understand.

CHAIRMAN AHEARNE. And I haven't seen the AIF recommendation that we extend there.

MR. ZEBROSKI. I understand, but I am just making an observation. We certainly have a great deal of impact on the foreign regulatory process also by the U.S. practice.

CHAIRMAN AHEARNE. Yes, I understand.

MR. ZEBROSKI. I think that is the main points on the Action Plan and prioritization. If we can go back, I think, to page two--there is a sample of the prioritization given to some of the--the additional 13 items that were added to the Action Plan subsequent to-- These are the items not already covered by existing documentation. Perhaps, so the--the first column shows the categorization by the objective--the five objectives we are talking about.

The second column indicates the prioritization.

Priority Group 1 is one where there is a clearly--where the item meets the test that the scope is definable, is agreement you can implement it and it is a clear unarguable safety benefit. I think we have excellent agreement on those items.

The Category 2 items are ones which--there is agreement that there is probably a safety benefit there but the scope is not well defined and the means for implementation has a great deal of study to be done before you could agree that you can accomplish it on a fixed schedule.

So the item is virtuous. There is agreement that it should be on the agenda, but it should not be put on critical path. One of the problems we had with Draft 1 of the Action Plan is that everything was on critical path. Do it as fast as possible, all in parallel. That was basically unactionable, as you heard I am sure, for many utilities. Just drowns the system.

The Category 3 items are ones that fail on one of three criteria. Either the scope is so poorly defined you can't make a judgment of the safety value, or the scope is defined but the safety value is clearly low, or sometimes both of these apply. That it is not well defined but if you could define it it probably has a low safety rate.

MR. KENNEDY. By what measurement standard, Ed,

did you determine that safety value was on a very low order. That is, to put it in this category.

MR. ZEBROSKI. You look at the accident change which it impacts, either the number or the importance of it--which is--the staff did something very similar to this--and on that part of the methods we have no difference.

So, I think other than discussing the specifics of the results on the prioritization, I would like to go on to a couple of other observations which were not directly in this Action Plan review which bear on some of the questions. When you look at how many of the important action items have already been accomplished you ask yourself, "What are the real lessons learned from Three Mile Island?"

We have just recently issued--and I believe, have mailed to the Commissioners, a revised and extended version of the Three Mile Island Study, the In Site 1 document, which we sent you last July has now been extended with a number of additional appendices and a summary of lessons learned which would also be a separate document.

The seven main categories of lessons learned--the first one is clearly the surprise that seemingly well trained, qualified, certified operators could mistake the scenario they were faced with for several hours and allow a great deal of core damage to proceed. The fact that we

have 83 action items addressed at that point, many of which have already been accomplished, leads me to a completely subjective judgment that we have picked up a factor of five to 10 reduction in that probability.

I can't think of a single operator in the United States who hasn't been run through a very thorough exercise of recognizing that your core might be getting uncovered or you might even be losing coolant long before a coolant core has been recovered. They all have the saturation meters. They have all had an intense course in Moyet diagram which is the steam temperature pressure relationship. So the likelihood of that kind of misapprehension, trapping an operator, again, I think is now menacingly small. I would very pessimistically say this factor of 5 to 10; optimistically, would be much bigger.

CHAIRMAN AHEARNE. Menacingly small for the current crop of operators plus any future--or just for the current.

MR. ZEBROSKI. I would think also for the future. That is certainly one of the key roles of inflow to make sure that those criteria and standards for operator training-- As you know, Admiral Wilkinson was involved in operating the guidelines for the Navy and one of the purposes is to establish that people really know what they are supposed to know. And I think that discipline is being cranked into

to system now.

My view is the big lesson learned from Three Mile Island is this one thing on the operator. Now you can say that his confusion was compounded and added to by some inadequacies of the instrumentation and inadequacies in the control room layout. But those weren't really the fundamental causes. The plant was capable of protecting itself if the operator had kept hands off. I am sure you have heard this story--at least for quite a while. The fact he really took a counter productive action for a while, you can now understand and sympathize with him. It wasn't just ignorance. It was a conflicting, both training and procedural and regulatory situation he was faced with.

But my impression is most of that has been thoroughly untangled now and that is unlikely to happen again--with a very low probability.

Another perception I would like to put into the picture is the perception which was also continued in both the Kemeny and the Rogovin reports and is not an uncommon misperception but it is a serious misperception to this Commission.

In WASH 1400, in the Rasmussen study, the assumption that if you get high temperature in the core, specifically 2400 degrees F, that you then go to core melting, melting

through the vessel, and loss of continued integrity. That whole scenario has a cummulative probability of .99. In other words, there is no--Norman Rasmussen has discussed this many times both in a meeting two weeks ago, and with many of us personally. That was a convenient simplification taken taken--if you haven't modeled something in detail you take a pessimistic worst case picture of it.

We have done a study of the Three Mile Island accident which I think has also been mailed to the Commission litigation small grade LOCA, which simply says, "Here are the observables of many different potential scenarios involving core damage," and here are the things that the operator--here are the mitigation systems or termination systems, more accurately, which the operator has available to stop it.

If you just take hardware reliability Three Mile Island of the things actually in place and functioning you get better than 10 to the minus 3 probability that even if you had taken it to the stage of core on the floor melting, you still can terminate the accident with no damage to the containment. So there is a factor of at least 1,000 change in perception and I have discounted that a little bit in one of the papers to a factor of 100 because you can argue, too, the operator stayed confused for some more time. I

think there is a very important distinction from WASH 1400 and that also leads me to the conclusion that one of the implied lessons of Three Mile Island; that a potential very large catastrophe was narrowly averted, is a popular view in the media. Unfortunately, it is clearly popular with the population in Harrisburg, but it is not really sustained by the best analysis one can make of the situation. And, perhaps, that can be helpful in the proceeding on the licensing question, not only for critical experiments but also for power operation.

CHAIRMAN AHEARNE. Ed, you hit a very small amount of time on instrumentation. Is your conclusion that instrumentation has not been a problem?

MR. ZEBROSKI. Instrumentation has been a problem. It certainly added to the confusion of the operator, the mismalfunctioning computer, the malfunctioning alarm printer, the average of 52 alarm lights being lit under normal conditions. Those certainly are not satisfactory conditions.

However, we see a very straightforward to rectify that, that does not involve tearing down the control rooms. One of the action items, one of the Action Plan items which we categorize as priority 2, mainly because it had a very early date on it in the first draft--had a January '81 date on it--was the system state vector, the safety panel, and

we have now had a number of workshops, or several industry groups busily working on this and it appears that a fairly straightforward panel that meets that Action Plan item would cover both some of the safety needs and also a large part of the human factors needs. It gets you away from the problem of one signal being here and one signal being there--put it on one square meter panel you can-- We were impressed, or we came to that conclusion even before the Action Plan came out. We are happy to see the Action Plan. We found that the Three-Mile Island accident can be very completely described with just 27 channels of information. So the idea that you need 500 or 1,000 channels is fatuous.

We are now looking at something like 40 or 50 channels and it is very close to the number of channels that the nuclear Datalink people in the staff are looking at. And we feel that kind of a panel can address a great many of the concerns, if not all of them, that are expressed in the ~~Kemmene~~ Kemeny report.

Of course, the saturation meter everybody has done. The foul position thing everybody has done, so those are also--

MR. STASZESKY. Mr. Chairman, that completes our presentations, but we would like to respond to any questions you may have and any further discussion of anything that

we have said.

MR. KENNEDY. Would you take two or three or half a dozen of the items you believe or have indicated should be, perhaps, scrubbed from the plan altogether and give us your rationale for it--how you reached that conclusion--just illustratively?

MR. ZEBROSKI. Yes. Coming back to the second page, the second one down. The Organization and Management criteria is one that I know is strong on your agenda. I think the concern here was that structure of a management from a distance is a very archean art. Very few corporations presume to organize an operating department from a central office. Form must follow function in a utility. The idea you can do this at a distance is certainly something that people have great reserves on. The idea that a contractor, most of whose people have never been in a power plant, can give you a good view of this subject; I think ACRS has commented amply on that point already. I think the people doing this evaluation were basically in good synchronization with the comment, "You got to please the ACRS."

CHAIRMAN AHEARNE. If I read your description of your concern it is not--at least the way I read it--you say the NRC should wait and assess the industries' response through IMPO and other cooperative organizations."

You are not necessarily taking exception that changes in organizational management are needed. You are taking exception that, perhaps, the best way of going about doing it; is that correct?

MR. ZEBROSKI. Well, you give me an opening to open up a different point. I think one of the things in retrospect is misleading--perhaps not intended but surely misleading both Rogovin and the ~~Kommond~~ Kemeny Commission reports, is that nearly everything that the NRC has done and nearly everything that the industry has done has been inept or inadequate most of the time.

MR. KENNEDY. You really don't think that is true, Ed?

MR. ZEBROSKI. I really don't think that is true.

MR. KENNEDY. Neither do I.

MR. ZEBROSKI. I think, really, the system has been on a scale of something or another, 99 1/2 percent effective and we are looking for catching the occasional lapses and making a water tight system to catch those lapses. So the assumption most management structure is wrong and has to be rebuilt, I think, is a very incorrect one. So you are looking for--and I know IMMPO looked at this, just as they would in a Navy or DOD readiness review, say, "Have you got all these functions represented in your staff, and

are they at the right level of competence?"

That is a very difficult thing to do by prescription or writing down some rigid formula. You could state some general functional objectives, and I think those have already been done, that you should have an organization which up to a fair decision-making level has experience with your people.

I think that is already a requirement which has been put out and that makes sense. When you start to specify though just how you do that, without taking into account local conditions, I think there is a great deal that can be done.

Look at some others? Pilot Program for Review of Selected Emergency Procedures; again, I think the feeling here was that the incentive to do this in each utility, using its best resources, was, again-- Here is one where the objective is a nobel one, but the means for implementation which involved prescription on use of the vendor and the architect engineer in a certain way was not believed to be productive. It might be in some cases, but it could hardly be generalized in all cases.

I think the dilemma you have is a regulator. If you make a rule to catch the 1/2 percent, which hurts the 99 1/2 percent, then you get squawks from people, and rightly so.

CHAIRMAN AHEARNE. Have you had a chance to look at the North Anna Review that the staff did, in which they attempted to do that?

MR. ZEBROSKI. No.

CHAIRMAN AHEARNE. You might find it interesting, one of the things they found when they did go through that walk-through with the operators, the operators were confused at what actions to take and when to take them, and did find the procedures difficult to follows.

MR. ZEBROSKI. I am generally aware of that, but I still, still stick to my point. If you make a prescriptive rule on procedures which does not take the specific plant-- Again, you could cure the North Anna thing by a functional requirement rather than by a prescriptive one. If you make a prescriptive one, one of the problems we all know at Crystal River is the operator did well. He shut the plant down and everything went fine. But in doing so, in avoiding one risk he took a potentially much larger one. He lefted the safety valve, so he kept the high pressure injection on and, you know, that is following a prescriptive rule. But he was now on the verge of making a small break LOCO by regulation, which is not optimum.

So we need to look for optimum responses as well as nearly safe ones.

CHAIRMAN AHEARNE. But you don't take exception with the functional requirement, do you, having the procedures reviewed?

MR. ZEBROSKI. That was the first recommendation in our Crystal River report, if you look at that.

CHAIRMAN AHEARNE. Yes, I have. But my question is; you don't take exception?

MR. ZEBROSKI. Do not.

CHAIRMAN AHEARNE. Do not.

MR. KENNEDY. You also said, Ed, that cost played--cost considerations played--They were taken into account obviously, but played a relatively minor role. Describe what that means. What was a minor role? How was it taken into account?

THE WITNESS. None of the items taken by themselves are excessively costly, except perhaps these open-ended ones I mentioned.

So, if you take any item by itself, in isolation, you can say, "It looks good. Let's do it," and it is only when you look at the aggregate--the aggregate of resources, you say, "Now it is important to prioritize because some of the low value items will clearly detract from your ability to do a good job on the high value items. So I think the aggregate cost is important from the standpoint

of just capability and manpower--I think, there was an estimate on manpower that we were making an overdraft of about 5,000 capable engineers if we were to do all these items in parallel.

So, even if you don't argue on whether you should do them, but simply feasibility of sequencing, you have no choice. You would find that people-- Let's say you just mandated to do them all on a tight schedule. You would find inevitably that about a third of them would come out delinquent just because the people to execute them are not there even if you have the money resources.

So I think that is a fairly compelling reason to look at the aggregate as well as the individual items.

MR. STASZESKY. Ed, wasn't one consideration also you didn't try to do a cost benefit analysis on each one individually from the point of if it was really desirable for safety, cost was not going to rule it out into another category.

MR. ZEBROSKI. Exactly.

MR. STASZESKY. Chris Judd who worked on the task force, I think, could elaborate on this point.

MR. JUDD. Commissioners, I would like to answer your first question with respect to the importance of cost in this study. The engineers and professionals that worked on doing the safety valuations and the prioritizations of

these issues were not privy to any cost numbers at the time they did that. The costs were developed following the prioritizat process and the safety analysis so it played no part other than what intrinsic and inherent knowledge an engineer may have had about costs of a system, but it was not directly used in the evaluation.

Costs were completely laid on after this first process of safety.

MR. HENDRIE. Let's talk a little bit about the proposed degrading core rulemaking. I guess the principal reason for moving toward such an administrative procedure is the feeling that those matters--how they ought to be taken into account, whether they become part of a design basis and whatever, and what appropriatec control measures, limitation measures, are needed--the feeling is that those things are likely to get litigated if you don't conduct a generic proceding--likely to get litigated in a number of individual proceedings. In the past we have gone both ways where that has been the case. It took ECCS years ago to a generic proceeding and it turned out to be a very long and difficult one on all sides. I can recall in my own time on the staff when fuel condensification turned up as an unexpected result of operation. And we took that on a case by case basis, in fact, to litigate it--what we

ought to do on fuel densification, and a number of individual licensing actions.

It is a good question where and how you most efficiently and reasonably deal with questions like that that can apply to a number of cases. What do you see as a way, you know-- You can see great difficulty with the rulemaking. Is it the subject? And if it is how do we make the subject go away is an item of discussion in cases.

If we can't make it go away, you know, do you have a better way to deal with it or other thoughts than trying to deal with it on a generic basis and rulemaking action, rather than litigating some or all of the parts of that general area in each licensing case.

You know, years ago you could make a reasonable sort of offhand guess from your experience in the adjudicatory process that if you chose to go case by case you really end up having really tough litigations only in, I don't know, 15, 20 percent of the cases.

These days I am not sure that is a fair working assumption any more. You might have to assume--you might have to fight it tooth and nail in almost everything. So--

MR. ZEBROSKI. There are a number of industry committees addressing this subject; one, this morning, of appropriate strategy on this question. As you know, we

in NSAC have been studying the behaviour of degraded cores very extensively. One of the impressive things that comes out of those studies is the systems as they are designed now, have an enormous capability to cope with much more extreme conditions than we have given them credit for in the licensing process and I think people are trying to formulate an answer just to the question you are posing--how best to use that. We have talked about something called the design capability accident. The design capability is purely far greater than the design basis so, perhaps, the design basis does not need a redefinition but simply crediting the fact that a properly trained organization-- Actually, we think this document, for example, will be a good training tool for the degraded core cooling response that you are asking the operator to be trained for.

And it may--when that training and that knowledge is well understood by the entire community, it may be very-- I am not sure it will make UCS contentions go away, but many of them will become much easier to answer when you have that information.

But the procedural question you are asking, I cannot comment. I think there are two policy committees, at least, which are struggling with that question right now. Maybe Steve wants to comment.

MR. HENDRIE. What you are saying, in fact, in some ways inclines me, you know, inclines me more toward the view that a generic proceeding is an appropriate forum in which to get that kind of information on the record. People argue about it. You know, you get yourself cross-examined and all that stuff, and other people present other views and the staff presents their views, and then draw conclusions from that--that record, that become Commission rules that one then doesn't have to fight about in every case down the line.

It furthermore provides a basis for hearings that are trying to go forward right at the moment to say, "What do you do about challenges, for instance, to the Commission's hydrogen rule?"

In the light of Three Mile it is very hard to say that those are not legitimate challenges to the regulation, you know-- The assumption says, "Take five times what you calculate from the licensing ECCS calculation."

And there are a lot more than that at Three Mile, and if somebody wants to challenge that regulation, kind of hard to say that it is an unreasonable challenge. And then you are facing that in hearings currently underway. If you notice in your generic proceeding coming and whatever solutions are required out of that generic proceeding are

going to be laid across the Board, maybe you have a basis for saying, "Set that aside from this current proceeding. That will be dealt with by the general principles."

MR. HOWELL. I think generally we would agree with the concepts if we are going to litigate and relitigate something in each individual licensing procedure it not only is reinventing the wheel, a waste of industry manpower but also can have the effect of holding up each one of those licenses. So it seems reasonable, at least to me, that given an item of importance it would be well to tackel it on a generic basis, and a generic basis where you get all the facts out on the table and we can make our case and hopefully right will prevail--and not just accept the arbitrary institution of something with perhaps not having the whole story on the table.

Also as you point out it gives the vehicle for individual licensing cases to go forward.

I guess one concern that I would have is, did you throw everything, too much into this rulemaking arena? That, again, is going to take all the resources and capabilities not only of technical people but lawyers, so on and so forth, and it is--

MR. HENDRIE. That is certainly true and in looking back at past actions of this kind I have wondered, in fact, whether from a management standpoint--that is use of the

resources of the agency of the ECCS generic hearing was, in fact, a good idea. You know, did we--did the staff, in fact, save resources going that way rather than just sitting down and litigating case by case. I can't tell you.

MR. HOWELL. Of course, as you get more people--

MR. HENDRIE. The rulemaking does tend to inflate the proposition over its scope within any given proceeding. So there are some trade-offs. It is hard to say.

MR. HOWELL. I think there have to be some bounds and some ground rules set on the approach, or you could get into delays and expansion of discovery and cross examination and so on and so forth. It gets to be a horrendous institution. We have been through it as you point out a couple of times, and some of the ones ahead I would guess have the potential of making some of the past look like small exercises.

MR. ZEBROSKI. There is an integration problem though that some of the rulemaking is upcoming--have implicit in them some judgments on what you think class 9 means or how you might cope with it. And therefore you might implicitly prejudge what the capability to cope with such situations is. For example, in the 15-minute rule on evacuation, applies a pre-judgment. The siting rule involves a prejudgment. Certainly filtered vented containment rulemaking, if it

occurs would imply a prejudgment on the probability and consequences of such action. So in the sense that you may piecemeal, treat these issues through some of these subordinate issues, that--without really facing the basic question what is the probability of the consequences of the thing you can't manage with existing plant design. So I think in that sense it may be important to at least recognize the relationship of these issues and if you do have a generic hearing to not let a prejudgment or preemption of some part of that process occur piecemeal through siting, emergency response, odor venting containment, three or four hydrogen and a couple of others--all involve the same basic questions.

MR. HENDRIE. Yes. Noel, let me pass down to your line.

MR. BRADFORD. Let me just ask you about the proposition you began with. Did I understand you correctly to say that in your view licensing could have proceeded unabated within, did you phrase it, within a few days of the accident?

MR. STASZESKY. No, I did not say that. I said we agreed with Mr. Denton August, 1979, the issues that had been addressed, that we understood what was happening, that we had addressed the crucial issues and it was time for licensing to resume on a case by case basis.

MR. BRADFORD. What was the point you were making

about all necessary action having been taken within a few days of the accident?

MR. STASZESKY. Well, in that case I was referring specifically to, everyone had immediately reviewed their operator training procedures for getting information on a continuing basis. I realize further information developed as to the exact sequence of events. That went on at Three Mile Island until finally we received the NSAC report in January, 1979. But in a rather short period of time, we knew what had really happened out there from the point of view there was a loss of coolant accident by way of the stuck open valve and so forth. And we trained operators and advised them on that point and the point there also which I think was a confusion in operator's minds at that time was the question of keeping the core covered versus having a solid pressurizer. And that point was recognized and operators were trained in that point. These were the points that I-- It was specifically with respect to operator recognition of what was going on that I was referring to. Obviously, we had not made a number of investigations which was, I repeat from my point of view at least, as an operator of a nuclear power plant, was the July, 1979 issue which gave the first complete analysis of exactly what happened there and from that, many of us began to make conclusions

as to what adjustments needed to be made further. However, it is obvious to me that if there had been something much more intrinsic in a nuclear power plant, that we hadn't recognized, that we should have shut them all down.

And we recognize that that was not the case. And so that is really the point I was making, that we did not sit around and wait for investigations to be made.

Every nuclear operator, every utility, immediately went to work on the problem. We appointed a special task force in my company on--specifically on April 11. The Industry organized a committee which I attended on April 5. It met in Chicago on that date.

I only mention these things because I am simply saying that we were not waiting for someone else to do something. We recognized a very serious event had occurred. There were lessons to be learned and we each were anxious to learn what those lessons were at the earliest possible moment.

MR. BRADFORD. You do understand though that--what is involved, at least, in part from the Commission's point of view is the process of applying those lessons first to the operating reactors before we would even have the personnel and resources in order to adequately to fully resume the licensing process. It isn't simply a matter of setting a date by which all the lessons are learned

and then pushing a button that would start issuing licneses again. They are real people and real dollars that get spent either on implementing with regard to the operating plants or with regard to issuing licenses and then there was a period of time we simply couldn't devote the--

MR. STASZESKY. Well, I think I am suggesting the period of time is well over, Mr. Bradford.

I would remind you of President Carter's remarks. I just read from it.

"The NRC has stated that it will pause in issuing new operating licenses and construction permits in order to devote full attention to putting its house in order. The President endorsed the NRC's approach but urged the NRC to complete its work as quickly as possible and in any event, no later than six months from today. Licensing must be resumed as promptly as safety permits so that the new plants which we need to reduce our dependence on foreign oil can be built and operated," and I think that--

CHAIRMAN AHEARNE. Mr. Staszesky, that is six months from what date?

MR. STASZESKY. I think, December 7--

CHAIRMAN AHEARNE. Of 1979?

MR. STASZESKY. --which is not quite up.

CHAIRMAN AHEARNE. It is not up.

MR. STASZESKY. No, but I am urging that we don't have to wait for that full six months--

CHAIRMAN AHEARNE. You are disagreeing with what he said.

MR. WALSKE No, he didn't say you had to wait for the whole six months.

MR. STASZESKY. I am expediting what he said from the point of view--and I think this is extremely important. The AIF--and, perhaps, Chris Judd can refine the figure--but I believe they have developed a delay cost in plants that are in progress, either in the--that are fully committed, either under construction or waiting for a construction permit.

I believe he has developed a figure that is in the order of--of $700,000 a day. The figure that I have for my company is $15 million a month, somewhat less than that, but the point is that a one year's delay is an increase in cost in the order of $200 million and I think it behooves all of us--the utilities, the Commission, the system--you know, the whole system--everyone involved in it, to move as expeditiously as possible to avoid those increased costs if we believe that these plants should ever be built.

And my second point in this regard is that I am personally convinced both as a utility executive and from

my--and as an American citizen, that our national security is absolutely reliant on getting off of oil at the earliest possible time. I think we are in a very precarious situation as a nation and nuclear power offs us one way to get out of it.

CHAIRMAN AHEARNE. I would have to respond, at least to part of that, to again reiterate to what Mr. Bradford said. We are certainly mindful of the responsibility we have to act expeditiously but also mindful of the responsibility we have to act carefully and Mr. Bradford is pointing out we have a finite staff. They focused their attention on what we believed and what I continue to believe to be the most critical question of the operating plants and they are now beginning to turn their attention to the plants that are in the QS. As I am sure you know, we have been addressing some of those plants. We will continue to do that, keeping in--in our focus our responsibility on the public health and safety aspects.

MR. WALSKE. But just not to lose the point, Mr. Denton did say last August he was in position to resume the licensing process for, I presume, for both operating licenses and construction permits.

And the delay--

CHAIRMAN AHEARNE. Mr. Denton is not here, Carl,

to talk about that.

MR. BRADFORD. It is the same as the Kemmene recommended report.

MR. WALSKE. The events subsequent to August, 1979 were mixed with more than nuclear safety, in my opinion. They began to introduce considerations on the attack of the very integrity of the NRC and the way it regulates and part of the reaction has to be judged in the climate that you operated in, I understand, but nevertheless it gets to be sort of a limited-- Are you in a position today to say you are going to meet the President's maximum schedule of six months and be in a position to issue operating licenses and CPs by the sixth or seventh of June?

CHAIRMAN AHEARNE. Carl, the President urged us to act and we are certainly attempting to move forward, but we will forward with the deliberate speed making sure the health and safety responsibilities are met.

MR. WALSKE. Let me press you. What is your speed? You have been seized with the problem now for essentially a year and a few days and what is--

CHAIRMAN AHEARNE. We have all been seized with the problem. There are many-- The reviews that have gone through, Carl, as you well know, point out a lot of problems and there are a lot of debates as to how significant some

were. There are many debates on what schedule ought they to be implemented. The list you proposed, you recognize that some things do have to be done and the staff is attempting to ensure that the things that have to be done are done and done well. And we will continue on that process. And you can't say that on X date all of these things will happen. As long as things keep moving forward, that licenses will be addressed and if there are other problems that come up that turn out to say that a particular license shouldn't be issued, it won't be issued.

MR. HOWELL. I just got to talk. Really, you started off talking about the Action Plan which started out to encompass all the things on the list and it has been narrowed down. The point of the AIF incident was an attempt to look logically at this large list and to put it in the sense of some priorities, definition, and to get these things done. The thing that I am concerned about is that we don't leave everything in a state of uncertainty. I think that is the problem. If we get to the point where there are some high priority things that ought to be done and, hopefully, we are focusing on this point, all right, let's say, "These ought to be done. These others are lesser priority and need lesser investigation," and then not keep everybody on the fire drill. Get back to the process of licensing

plants, not ignoring outstanding issues that ought to be investigated at an appropriate pace.

CHAIRMAN AHEARNE. We also had a number of concerns about the size of the list of the scheduling and, as I am sure you know, in going through the redrafts the staff has been investigating that ACRS did raise some of those issues and what I hope will be the last draft as it comes up to us in the near future will have gone through that kind of a prioritization and I am sure the comments that your people made are helpful.

MR. HOWELL. I think that is extremely important to the industry, that we sort of close this chapter of all the items that are up in the air, settle on the Action Plan, close the Action Plan book and then changes over and above that, put back into a process that has some reasoning and sensible schedule to it, and not so that all of us that are trying to build or license plants live under a continual cloud that everything is going to change every day until the day which we will never reach in that situation, that you get a license. We have got to put more certainty, stability, predictability back into the system. I guess I personally believe we are at a point that that can and should be done.

MR. BRADFORD. That is, I take it, not inconsistent with the authorization granted to Sequoia. It isn't as

though the Commission had taken no steps back in that direction.

MR. HOWELL. Well, it is not inconsistent, but that action, in my opinion, is not sufficient. The action that was taken on Sequoia is really not a license and we are not into the--back into the process of licensing plants.

MR. WALSKE. Question on a reactor like Sequoia. Do you have a schedule for making further decisions so they will go into power ascension without undue delay?

Are you going to be in a position to do it, you think?

CHAIRMAN AHEARNE. I would agree that it is not a full operating license which, I am sure totally is the critical question.

MR. WALSKE. But do you have a schedule for addressing the issues?

CHAIRMAN AHEARNE. Certainly we understand many of the issues have to be addressed as does TVA and its Sequoia plant.

MR. KENNEDY. In answer to your question though, Carl, I am not aware of any such schedule. It may not have come around to me yet.

MR. HENDRIE. I think it depends a little bit on the plant, because there are some differences that get associated with the new emergency planning requirement and

that becomes very site specific, but certainly with regard to the ones we have looked at Sequoia, Hosanna recently--the anticipation is that the--certainly, with the first one, that by the time that low power regime runs out and they are ready to crank beyond that, the system will be up with it.

MR. WALSKE. Ready to make a timely decision.

MR. HENDRIE. I think so. I can't guarantee that. Nobody can guarantee that. We are trying to on all plants. As in cases where there are adjudicatory proceedings going on, they have to be closed out and a matter come up here for a little discussion, life gets a little fuzzier becuase we have to get through those proceedings and get to initial proceedings. But at least for these first several, I think we are going to keep up with them.

MR. WALSKE. In the process it seems like, collectively, the system has been very bold in continuing the operation of the operating reactors like Frank Staszesky said, and yet there seems to be a kind of timidity about the licensing of reactors which are not appreciably different, which is not consistent with that.

CHAIRMAN AHEARNE. Careful--

MR. KENNEDY. There is a thesis, if you can't get it one way, you can get it another.

MR. WALSKE. I say that in a full realization, almost I say, "I dare you to shut them down." I don't think even you can do it.

MR. HENDRIE. You know, I am not entirely sympathetic to the underlying point but you have to recognize that part of that dichotomy looking at what may be twin units on the site didn't originate here. It originated in external review boards, commissions, and one thing or another and has been one of the difficult aspects to deal with--as a result of those external enterprises. Some people--

MR. STASZESKY. I would reinforce what Steve said, Mr. Chairman. I think he made the specific point, which is uncertainty. If you recall my remarks earlier about the six construction permits which I call near-term construction permits and there is--there are meetings going forward, as I indicated in my remarks, which we hope you will give your support to, to get that implemented. I think there is a point that should be kept in mind about near-term construction permits. There are six plants with more than a billion sum. One of those is mine. We cannot go on this way.

Now what is going to happen, if we don't have some kind of assurance of system, you know--then we have to withdraw, because you can't just keep pouring money down

a rathole. And that would be extremely unfortunate. That would be a total waste.

And on the point about whether or not the Three Mile Island lessons, the Action Plan lessons are all going to be implemented--these plants are not in the ground yet. I mean, it is going to take seven years to build them. Certainly, there is plenty of time to integrate into those plants anything we don't really recognize at this moment. They should be, in a way, easier to resume than raising power on a plant while you are making your last decision at this time.

CHAIRMAN AHEARNE. Yes, but the point Mr. Bradford is making, is that still finite staff rsources even though it is seven years to build that plant, it still takes a certain amount of people to review that construction, and we really were very strapped on resources.

MR. KENNEDY. That is true, Frank, if one assumes that as one is building the plant he is not building it to a totally completed design, that there is increasing discussion of the notion that there should be complete design before even a construction permit is authorized. Those are two things may not be compatible.

MR. HOWELL. If someone decided to make that a requirement, that would be the last plant ever built. I don't think we have ever built a plan the construction was

100 percent and all the drawings issued the day you broke ground.

MR. KENNEDY. I doubt if anything was ever built that way.

MR. HOWELL. You can look at the plants going into the construction phase, but look at that, that poor plant in the construction phase but look at that, that poor plant in the construction phase with the uncertainties hanging overhead, "What am I going to put in this plant in real time?"

And that--with due respect--is even a bigger bear to handle than plants not in the ground.

MR. STASZESKY. I think we are probably running out of time, and hopefully, not with your patience but certainly your schedule. I did have--

I took a course one time in communication where the concluding advice was, "Always have a call for action at the end of your remarks."

So, if you would bear with me I have a very short call for action.

MR. KENNEDY. We thought we had already had it.

MR. STASZESKY. We request you take action to end the licensing pause by allocating necessary staff resources to produce operating licenses and construction permits; that you issue a policy statement which includes

the following:

A statement on the general sufficiency of the actions taken thus far by industry and NRC for resumption of licensing and assurance of safety of operating plants.

A defined period of applicability, perhaps two years, to accompany any end total list that you deem necessary.

Specification that the remainder of Action Plan items will not be applied to OLs, CPs, or operating reactors without; one, a public review and comment period on each additional proposed requirement. Two, not before a backfitting policy and a safety goal is established against which these new requirements can be measured.

We will be pleased to work with you on these actions.

CHAIRMAN AHEARNE. Thank you very much.

I guess the last comment I would make on behalf of Commissioner Gilinsky, I note that in your letter you sent to us of February 22nd, or to Mr. Denton, that you have accomplished something he has been trying for a long time.

You called it the Advisor Committee on Reactor Safety. Thank you.

We will now have a short affirmation session and take a couple minute break.

(Whereupon, the proceedings were briefly recessed)

AIF MEETING

Wednesday, April 2, 1980

2:00 p.m. Briefing by AIF on Review of NRC Action Plan (See 2/22/80 AIF Report)

SPEAKERS AT TABLE:

-Frank Staszesky, Vice-Chairman, AIF (Pres. Boston Edison Co.)

-Carl Walske, President, AIF

-Stephen Howell, Co-Chairman, AIF/NSAC Working Group on Action Plan Priorities & Resources (Sr. Vice-Pres., Consumers Power Co.)

-Edwin Zebroski - Co-Chairman AIF/NSAC Working Group on Action Plan Priorities & Resources (Dir., Nuc Safety Analysis Center, Palo Alto, Calif.)