

NUCLEAR REGULATORY COMMISSION

ORIGINAL

COMMISSION MEETING

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In the Matter of:

MEETING WITH REPRESENTATIVES OF SCIENTISTS AND  
ENGINEERS FOR SECURE ENERGY

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DATE: April 30, 1981      PAGES: 1 thru 73  
AT: Washington, D. C.



ALDERSON *AR* REPORTING

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1 ALSO PRESENT (Cont'd):

2 DR. CORWIN RICKARD, American Nuclear Society

3 DR. FREDERICK SEITZ, Chairman, SE2

4 DR. JOHN SUNUNU, Member, SE2

5 LESLIE DUGAN, Western Coordinator, SE2

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P R O C E E D I N G S

1  
2 CHAIRMAN HENDRIE: Let's come to order. The  
3 Commission meets this afternoon to hear from representatives of  
4 scientists and engineers for secure energy. This meeting is one  
5 of a series over which the Office of Public Affairs of the  
6 Commission has general jurisdiction and arrangement responsibi-  
7 lities, and I think what we will ask Mr. Fouchard to do is  
8 carry on the introduction from there.

9 MR. FOUCHARD: Thank you, sir.

10 As the Commission knows, and I suspect many others in  
11 the audience know, we have arranged a series of meetings with  
12 organizations representing a variety of views on the subject of  
13 the future of nuclear regulation.

14 Our last one was in February, and this organization  
15 contacted us before that meeting. Unfortunately, our table was  
16 full at that time, but we are pleased to be able to have you  
17 with us here today, and I think Mark Mills is going to introduce  
18 the representatives at the table, and so I suggest we proceed.

19 CHAIRMAN HENDRIE: We welcome you all here. Please  
20 go ahead, Mark.

21 MR. MILLS: Thank you, Mr. Chairman. I appreciate  
22 the opportunity.

23 To start off, I am, as you can see, the Director of  
24 the newly opened Washington Office of SE2, and on my right is  
25 the Executive Director from New York City, Miro Todorovich, who

1 will be presenting Dr. Frederick Seitz' statement, who  
2 unfortunately is late. I will relinquish my seat to  
3 Dr. Seitz, who is the Chairman of SE2, when he arrives. And on  
4 his right, of course, you gentlemen all know the Honorable  
5 Governor, Dixy Lee Ray, who will be representing today SE2, a  
6 brief statement. And on her right is Dr. Alfred Schneider, who  
7 is representing Dr. Lynn Weaver, who sits as the Chairman of  
8 the Energy Group of the American Association of Engineering  
9 Societies. On his right is Dr. Melvin Carter, who comes as a  
10 representative of the Health Physics Society. And on his right  
11 is Dr. Corwin Rickard, who is President elect of the American  
12 Nuclear Society, and this, gentlemen, is an intent to bring  
13 together some kind of representation of the, if you like, bi-  
14 partisan scientific community.

15 Thank you very much.

16 CHAIRMAN HENDRIE: All right. Where would you like to  
17 start?

18 DR. TODOROVICH: Mr. Chairman, before I go into the  
19 meat of the question, let me just point out with all modesty  
20 that I can gather that SE2 today will try only to be sort of a  
21 midwife. We are happy that our letter did elicit response, that  
22 at the table are people who are of longer standing in these  
23 matters from the American Nuclear Society, the Society of  
24 Engineering and Physics, and as I said, we are happy only to be  
25 a catalyzer to try to bring all these good people today here

1 for the next two hours.

2 Now, as far as SE2 is concerned, we greatly appreciate  
3 the opportunity afforded us.

4 We are approaching the Commission because the  
5 American society faces some very serious problems, in our  
6 judgment. Although there is clear evidence at every corner of  
7 our industrialized world that we have inherited the legacy of  
8 the most successful four centuries of human existence, our  
9 productive ship-of-state is, nevertheless, sailing into the  
10 doldrums and drifting almost to a halt.

11 Many voices in our nation speak out loud and clear  
12 but we build less and less. We appear to be becoming a huge  
13 debating society which lacks the mechanism to decide the winners.

14 The difficulty hinges not so much on what is  
15 desirable or what the goals should be. The great tradition of  
16 humanitarian philosophy which demands equal opportunity for all,  
17 and a better life for our offspring, has given us an attractive  
18 agenda about which very few of us will presently disagree.

19 What has brought us to the brink of paralysis in most  
20 of the cases are the procedures by which we are supposed to  
21 manage our daily affairs. To build or create anything, one  
22 first needs a goal, then a plan, the means to implement it, and  
23 a decision to proceed.

24 We are clearly not short of ideas -- in fact, some  
25 believe that we may actually be approaching a state of

1 intellectual indigestion brought on by our appetite for  
2 information and an unprecedented pursuit of scientific and  
3 technical research.

4           The means are also there. Currently, at least, they  
5 are much more abundant than during our earlier human history  
6 when we succeeded in creating the basis for our present wealth  
7 of nations from relatively untrained manpower and raw materials.  
8 Today, however, the processes for making decisions seem to  
9 entwine itself into a giant Gordian Knot at almost every level.

10           I will dispense from giving you all the examples that  
11 we found of such difficulty to come to decisions, and I hope  
12 that the full written statement will be entered into the record  
13 of this afternoon's meeting.

14           So, I would rather concentrate on those spots which  
15 deal with the matter at hand.

16           Recently, for example, a press report listed the  
17 number of unresolved safety requirements which stand in the way  
18 of the licensing of a nuclear power plant. According to an  
19 article in the April 11, 1981 edition of Newsday, the NRC has  
20 identified a total of 61 open items that must be resolved before  
21 the Long Island Lighting Company can get a license to operate  
22 its Shoreham Nuclear Power Plant. The items cover a broad range  
23 of variables, including the viability of cooling, fire  
24 protection, mechanical systems, and so on.

25           Some 35 such open items in need of resolution were

1 identified by the NRC at Commonwealth Edison's LaSalle Reactor.  
2 Another 103 were identified at Pennsylvania Power and Light's  
3 Susquehanna Plant.

4 Official spokesmen do emphasize that these unresolved  
5 items need not stand in the way of final licensing of these  
6 power plants. Yet the financial world is still alarmed enough  
7 for the San Francisco Chronicle to announce last Sunday the  
8 "Sunset of Nuclear Power."

9 Another press report described malformations in young  
10 crickets hatched from eggs exposed to synthetic fuels.  
11 Combining precedent with a little bit of imagination, one can  
12 already foresee the day when a future synthetic fuel regulatory  
13 commission will have five dozen unresolved issues impeding the  
14 licensing of a completed synthetic fuel plant.

15 The list of cases can be enlarged further, but what  
16 has been noted suffices to reveal the pattern. The regulatory  
17 decision-makers are reacting to our technological civilization  
18 which has given us such a great riches and opportunities, as if  
19 it were full of unacceptable dangers. They seem willing,  
20 therefore, to support an implicit premise that we should expend  
21 a good part of our available energies in an attempt to put the  
22 scientific and technological genie back into its bottle.

23 If Voltaire were to write his famous nove, Candide,  
24 today, he would probably concoct a story of the worst possible  
25 world, which is saved from daily imminent disaster by the



1 indefatigable dedication of legally trained regulators who are  
2 aided by cherubic intervenors.

3 The facts about our civilization are, however, quite  
4 different.

5 The life expectancy of the United States' population  
6 continues to increase, unabated. Americans live a healthier and  
7 fuller life than ever before, with education and the benefit of  
8 the arts accessible to everyone. We offer more hope and  
9 opportunities to women and our minority populations than any  
10 past society in history.

11 Nuclear technologies for the peaceful use of the atom  
12 have established a safety record second to none. Most cancer  
13 deaths are on the decline, and the U. S. ranks 21st in the  
14 cancer casualties, behind Finland, Ireland and Scotland, for  
15 example.

16 Analysis of this and other data would seem to indicate  
17 that we should employ more technology, rather than less, make  
18 greater use of the atomic nucleus rather than curtail its  
19 application. How is it, then, that to a large extent the NRC  
20 seems guided by a distinctly contrary perception?

21 In SE2's assessment, the Commission's operational  
22 impasse is a result of some very fundamental philosophical  
23 misconceptions which have led to the current, unwieldy,  
24 regulatory framework.

25 It is true that the present state of affairs has been

1 reached gradually and that the recent Sholly case lies only at  
2 the end of a long road.

3           However, it is also true that the current maze-like  
4 regulatory setup is not the cause of the NRC's attitude, but is  
5 the direct consequence of certain unscrutinized conceptual  
6 assumptions which, over the years, have crept into the  
7 Commission's way of performing its work.

8           High on the list of such original sins, if I may call  
9 it like that, was the Commission's implicit willingness to, what  
10 the philosophers call, prove the negative. Logicians have long  
11 ago considered questions akin to "Can you guarantee that an  
12 overturned truck carrying spent fuel will never cause tens of  
13 thousands of casualties?" The emphasis is on "never." One is  
14 asked to prove a negative assertion.

15           Every study of logic knows that such a task is  
16 futile because it is impossible. Every Commission staff member  
17 must know that statements such as "event A can never happen"  
18 or "this machine or procedure is completely safe" cannot be  
19 death with in a report.

20           Still, when confronted by the question, "is this  
21 power plant absolutely safe," the Commission has been willing to  
22 devote time to generating regulatory prescriptions which should  
23 make it safer. This approach caused many delays and made  
24 plants more expensive, although it did not make them, could not  
25 make them, absolutely faultless.

1           After this round, the inquisitors would again approach  
2 the Commission with the same question, "is it absolutely safe,"  
3 and the Commission would again oblige by adding further  
4 regulatory orders to attempt to achieve even greater safety,  
5 thereby adding further costs and commensurate construction  
6 deferments.

7           At present, the number of such iterations has brought  
8 construction costs and delays to the point where the U. S.  
9 nuclear industry and some of the more technologically advanced  
10 utilities are on the verge of financial collapse.

11           Even though it seems inclined to continue on this  
12 road towards achieving even greater unqualified safety, the NRC  
13 will never be able to convince vocal and doctrinaire nuclear  
14 critics that nuclear power is safe and acceptable.

15           In the process, however, the Commission may ruin the  
16 nuclear industry, as indeed could happen to any other industry  
17 or profession asked to provide absolute performance.

18           In the opinion of many experts, the NRC should raise  
19 the counter-question, "safe compared to what," establish  
20 reasonable comparative standards, and proceed expeditiously to  
21 license plants which satisfy such clearly delineated criteria  
22 of sufficiency.

23           This approach would not rule out either justifiable  
24 reviews or the incorporation in an orderly fashion of meaningful  
25 programs. It would, however, have to be based on a conscious,

1 well-articulated decision by the Commission to abandon its past  
2 quest for absolute safety or other logically impossible utopias.

3 A second fundamental error in the Commission's  
4 procedures seemed to be to allow variants of the adversarial  
5 approach, so appropriate for certain court proceedings, to  
6 become dominant in the NRC's travails.

7 Indeed, in cases where the witnesses cannot even agree  
8 on the color of the getaway car, there is a legitimate need for  
9 the process of discovery, cross-examination, vigorous  
10 presentation by prosecution and defense, and the final  
11 assessment of reasonable doubt by an impartial jury.

12 However, most matters coming before the Nuclear  
13 Regulatory Commission are technical in nature and can be  
14 resolved by objective testing. Further confirmations, if  
15 necessary, can be reached by a consortium of experts.

16 The law, of course, requires NRC to use the basic  
17 format of adjudicatory proceedings. Nevertheless, it seems  
18 that the Commission has not only permitted wholesale intrusion  
19 of the procedural preferences of the legal procession -- an  
20 apparent surrender to the habits of the mostly legally trained  
21 intervenors -- into the conduct of its affairs, but has  
22 acquiesced in the proliferation of legalistic maneuvers beyond  
23 any reasonable bounds.

24 It suffices here to quote the remarks by Senator  
25 Alan Simpson made during the last month's Senate Subcommittee on

1 Nuclear Regulations' hearings. The subcommittee met in an  
2 attempt, among other things, to grasp the full extent of the  
3 legalistic stranglehold restricting the Commission's decision-  
4 making capabilities.

5 Senator Simpson noted: "I think I was a little  
6 surprised, myself, in reviewing the rules, the procedural rules  
7 of the Commission, to find that in many cases they are more  
8 complex than the federal rules of civil procedure; they are more  
9 complex than any state rules on civil procedure. That is really  
10 extraordinary in their complexity, layering upon layering,  
11 distinction upon distinction, and that is the very essence of  
12 what often chokes off the process in this burg, and that is  
13 troublesome, and those of my profession are involved in that  
14 and that is even rather sometimes embarrassing, I must admit  
15 to you, because that -- as I see it -- is exactly where much of  
16 this difficulty has come from."

17 Senator Simpson also suggested: "One of the things  
18 that comes to me, and I hadn't really intended to delve into,  
19 but I perceive other subcommittee members of both sides of the  
20 aisle will and want to look into a retooling of the procedures,  
21 the legal procedures of this Commission. It seems to me that  
22 after practicing law for 18 years...the rules of procedure were  
23 set up to simplify an issue, and yet I look at these rules and  
24 see things about discovery and summary proceedings and hearings  
25 and appeals that are flights of fancy, in my mind, and I don't

1 know what they do to make the process work. But, I think a  
2 retooling of procedures, surely that can be done administratively,  
3 but we ought to inject perhaps a few layment into the next NRC  
4 session when they all sit down to hatch up some new rules and  
5 pick some poor soul who doesn't know a sua sponte from a  
6 whatever and see where we go from there..."

7 SE2 strongly concurs with the senator's remarks. We  
8 wonder who in this Commission, which deals with some of the  
9 most scientific and technical subject matters encountered by  
10 modern government, is considered expert, and who is considered  
11 a layman.

12 Senator Simpson may inadvertently have provided an  
13 accurate description of the current state of affairs by  
14 considering the lawyers, experts and the rest, as laymen.

15 A third departure from time tested and time honored  
16 governmental practices lies in the decision of the Commission to  
17 embrace some aspects of what is sometimes called participatory  
18 democracy in its dealings with the public.

19 According to the practitioners of this political  
20 approach, traditional forms of governance should, at most, be  
21 tolerated only as unavoidable relics of the past and, whenever  
22 possible, be used for the advancement of the views of a  
23 particular group which believes it possesses some deeper, or  
24 higher wisdom than the rest of the society.

25 Thus, social groups, which are predominantly

1 anti-nuclear in their political disposition, will go along with  
2 the procedures of the Congress, administrative agencies, and the  
3 courts as long as such procedures support the goals of delaying,  
4 and eventually halting various nuclear projects.

5 If, however, such procedures, by the inexorable nature  
6 of the rational technological argument, manage to bring the  
7 decision-making process close to a constructive resolution, such  
8 doctrinaire groups promptly resort to extra-legal means, or take  
9 to the streets, in order to reach over the head of the regular  
10 and legitimate political process.

11 This kind of participatory coercion is not an invention  
12 of the last two decades. Democratic thinkers of all times have  
13 wrestled with the difficult question of how to safeguard the  
14 voice and rights of a dissenting minority while simultaneously  
15 providing for efficient decision-making based on the will of the  
16 certifiable majority.

17 On this question, various nations have often taken  
18 indigenous approaches. There are differences between the French  
19 and American administrative procedures and also between Sweden  
20 and Germany. Yet each such procedure has been designed to  
21 secure a satisfactory degree of governmental efficiency within  
22 the democratic context.

23 Over the years, the NRC has apparently yielded to  
24 pressure on this important point and permitted the transforma-  
25 tion of its rules of order and practice to permit a series of

1 open-ended, participatory discussions with no securely  
2 ascertainable time scale for termination.

3 We have tried in the rest of this presentation to give  
4 examples of each of these kinds of being wrong in matters of  
5 principle. One of those that we approached this Commission  
6 already is the question of siting criteria, where in one of the  
7 proposed amendments the Commission was proposing to move away  
8 from the radiation concern being the dominant and metamorphosing  
9 it in one focusing on population density.

10 Again, the Commission will be asked whether the new  
11 approach is producing more safety, and again the NRC, if it  
12 implements such an approach, will try to make plants safer by  
13 relocating them in less populace areas.

14 We predict, however, that after a few iterations of  
15 this process, the Commission may discover that the critics will  
16 be satisfied and the negative proven only if the plants are  
17 located on another uninhabited planet.

18 While SE2 thus considers the new approach of the NRC  
19 to be demonstrably wrong, we sincerely hope that in its revamped  
20 state the Commission's decision-making apparatus will finally  
21 rely on an evaluation of comparative risks, and certain,  
22 reasonable and satisfactory safety criteria which reflect to a  
23 considerable degree the favorable performance record of nuclear  
24 technologies.

25 Another example of the futility of the Commission's



1 predominantly legalistic functioning was underscored during the  
2 Senate hearings on March 25th of 1981 on the case of the  
3 so-called sister power plants. Here is just a little narration  
4 by William Lee, President and Chief Operating Officer of the  
5 Duke Power:

6 "It seems ironic to me that duplicate plants can be  
7 built, maybe in the same state, or an adjoining state, where the  
8 site characteristics are the same. In the one case, there is  
9 sufficient public concern about the plant so that someone  
10 intervenes. In another case, they don't intervene. In the case  
11 of the plant where there is no intervention, there is no hearing  
12 by a hearing board and no consideration by the appeals board,  
13 and the operating license is issued and the plant generates  
14 electricity."

15 In the case of the sister plant, as often happens,  
16 they generate only issues, and one often finds that it costs  
17 much more than the costs of the others which have not been  
18 contested, and the answer is that at the end, when Senator  
19 Simpson inquired whether this added hearing time added anything  
20 to public health and safety, the answer was:

21 "Senator, I am not aware of anything substantive.  
22 There may have been one or two instances where additional  
23 surveillance frequency was required as part of a license  
24 requirement of some variable but nothing fundamental with respect  
25 to plant design or operation."

1 Well, if one reviews ---

2 COMMISSIONER GILINSKY: Whose answer was that?

3 DR. TODOROVICH: Of Mr. Lee from Duke Power.

4 We are asking here the Commission to really review its  
5 past thinking and see whether its methodology can survive  
6 serious scrutiny from many angles mentioned.

7 We only wish, in conclusion, to emphasize that in our  
8 opinion the commissioners do not need to commence a new  
9 biblical retreat into the desert in order to organize their  
10 thoughts regarding the appropriate steps to be taken by the NRC.

11 Any such procrastination would be equivalent to  
12 applying to the NRC itself the very open-ended procedures which  
13 brought the Commission's licensing processes to a virtual  
14 standstill.

15 The NRC's work has been scrutinized sufficiently by a  
16 multitude of onlookers to make it possible to design blueprints  
17 for effective revamping of the Commission's statutes and  
18 practices.

19 Let us move out of the current regulatory stagnation  
20 by underscoring the NRC's primary statutory responsibilities and  
21 facilitate the nation's safe use of nuclear technologies for the  
22 benefit of all citizens.

23 On behalf of SE2, I once again want to express our  
24 appreciation to the Nuclear Regulatory Commission for allowing  
25 us to present our views at this time.

1 CHAIRMAN HENDRIE: Very good. Vic.

2 COMMISSIONER GILINSKY: It sounds like we ought to take  
3 time out to slit our wrists.

4 COMMISSIONER AHEARNE: Vic, if that is the message  
5 that you got ---

6 CHAIRMAN HENDRIE: Dr. Ray.

7 DR. RAY: Mr. Chairman, Commissioners, I want to say  
8 thank you, again, not only on behalf of SE2 for whom I also  
9 speak, but also in a very personal way for this opportunity to  
10 visit the H Street Building and see so many old friends. It  
11 feels very good to have a chance to visit, and I must say it  
12 feels quite familiar to be on this floor, though we are in a  
13 different room, and on the opposite side of the table. It is a  
14 pleasure to be here and I appreciate the time that you are  
15 taking to listen to concerns that I am sure are felt by a  
16 great many people, not only the technological community, but  
17 throughout the country.

18 I do not have a prepared formal statement, because we  
19 felt that this would stand for the entire organization, and  
20 there are others prepared to speak, too.

21 So, I want only to say a few words in further support  
22 of what Professor Todorovich has already presented.

23 He used the term, quoting the Los Angeles Times,  
24 that we are seeing the "sunset of nuclear power." And I would  
25 like to comment briefly on that and say, for the benefit of the

1 Los Angeles Times, if there is some way to reach them, that if  
2 you look at a photograph you really can't tell whether a sun is  
3 setting or rising unless there is some indication of whether you  
4 are facing east or west. And there are many of us who believe  
5 so deeply in the ability of human beings to manage their  
6 affairs, who are really committed to education, to knowledge,  
7 and to the use of knowledge, and who recognize that despite  
8 problems we have a technology of which we are very proud and  
9 which has performed magnificently over a very long learning  
10 period.

11 It is not perfect, and no one would make such a claim.  
12 We are right back discussing in many instances the same question  
13 that we wrestled with in the old Atomic Energy Commission, how  
14 safe is safe enough.

15 There is truly no answer to that. It is very easy to  
16 try to evaluate a human life against efficient and rather  
17 economical production of electricity, but is that any way to  
18 value a human life?

19 I believe that the time has come when some would say  
20 good old fashioned common sense, to acknowledge and recognize  
21 that there are risks in everything, and that human beings are  
22 fallable, and anything human beings do is fallable, and there  
23 will always be some hazard. But that is true for all energy  
24 sources, even the oldest ones and ones with which we have the  
25 most experience.

1 Even when it comes to radiation, there are many people  
2 beginning to wonder a little bit why we go to such extents in,  
3 say, in the control of levels of exposure in nuclear power  
4 plants when the Congress of the United States occupies a building  
5 where the levels of radiation are so high that one would not be  
6 permitted inside by NRC regulations. It would not be permitted  
7 in a nuclear power plant.

8 Indeed, if you tried to put a reactor in the  
9 congressional buildings, it would be immediately in defiance of  
10 all the radiation levels.

11 COMMISSIONER GILINSKY: It would be interesting,  
12 anyway.

13 DR. RAY: It might be a good idea. It might be a  
14 better use for the building sometimes.

15 But when we come to something even, to my mind, more  
16 critical and certainly more difficult to understand, impairing  
17 the lengths taken to assure keeping within very low levels of  
18 exposure and exerting every effort to try to make things as  
19 safe as they possibly can be within all aspects of human  
20 ingenuity, at the same time the government promotes, encourages  
21 and in some instances is talking about making mandatory  
22 conservation measures that without any question increase the  
23 hazard and exposure to radiation beyond levels that would be  
24 permitted by NRC, and quite appropriately so. And I, of  
25 course, refer to energy efficient homes and buildings, and the

1 measurable and documented increase of radon gas by entrapment  
2 because of the slowing down of the ventilation process. These  
3 things don't make sense.

4 Nor does it make sense when we see 13, I believe the  
5 number is, of completed reactors or reactors in last stages of  
6 construction, all of which have been through contested hearings  
7 at the -- I think they have all been through contested hearings,  
8 certainly very careful and long drawn out hearing process at  
9 the construction permit level, and are now ready to generate  
10 electricity, and by a report which was put into the record in  
11 the subcommittee hearing that Professor Todorovich referred to,  
12 these 13 plants by reference to statements made by NRC staff  
13 will not be licensed for 90 months. That is seven and a half  
14 years. Well, they sit there costing rate payers from 30 to 40  
15 million dollars per month in replacement power and in interest  
16 charges.

17 Now, again, how can we equate public safety with an  
18 economic cost, and it is recognized that is not part of NRC's  
19 license.

20 Nevertheless, when does real concern for public  
21 safety and gross waste begin? Inasmuch as the evidence shows,  
22 little -- some would say really no substantial increase in  
23 safety through the operating license procedures, to hold up for  
24 such a long period of time at such high costs the generation of  
25 electricity has raised serious questions and serious doubts in

1 the minds of most people who are familiar with the problem.

2 So, I think the question comes down now to, is there  
3 something that can be done, how can the Commission do some  
4 restructuring of its procedures, perhaps, and at the same time  
5 fulfill its obligation to stand as the government's watchdog  
6 and protector of the public health and the public safety, the  
7 environmental safety, and so on.

8 We believe that there are ways to do that, and some  
9 approach to these have been suggested in the testimony given so  
10 far.

11 I think I would like to stop at that point and let the  
12 others speak, and then perhaps respond to questions.

13 CHAIRMAN HENDRIE: Very good. Thank you.

14 DR. SCHNEIDER: Mr. Chairman, Commissioners, the  
15 Coordinating Committee on Energy of the American Association of  
16 Engineering Societies; appreciates this opportunity to present its  
17 views on an important subject affecting present and future  
18 supplies of electric power for this nation.

19 The committee is a working group of representatives  
20 from 22 major engineering societies, having a membership of  
21 approximately one million engineers.

22 Dr. Weaver, the chairman of the coordinating committee,  
23 is unable to be here today, and he asked me to express to you  
24 his regrets.

25 In its national energy statement published in March,

1 1980, the coordinating committee concluded that "The United  
2 States cannot possibly refrain from pursuing the nuclear option  
3 vigorously."

4 The committee further recommended that "the continued  
5 utilization of nuclear fission for electric power generation  
6 should be national policy" and that "deficiencies in the present  
7 licensing process, which delay the installation of generating and  
8 transmission facilities and raise the cost of electric power,  
9 must be corrected."

10 During the past decade, the time required to complete  
11 a nuclear power plant project has nearly doubled. While many  
12 factors contributed to this situation, the general perception has  
13 been that the licensing process for nuclear facilities bears a  
14 major share of the blame.

15 These delays have added up to staggering financial  
16 burdens and have also restricted the real contribution which  
17 nuclear energy could make to the reduction in oil and gas  
18 consumption.

19 Thousands of my fellow engineers have been greatly  
20 frustrated by the endless procedural delays which prevent the  
21 timely completion of plant construction or, worse, when completed  
22 plants cannot operate because of a maze of legalistic  
23 complications, seldom related to real safety aspects.

24 Our previous and, especially, present administrations  
25 requested that this Gordian knot be cut and this sentiment has



1 been voiced unequivocally by Members of the United States  
2 Congress during the recent hearings. We hope that the actions  
3 announced by the Nuclear Regulatory Commission directed at  
4 expediting the issuance of nuclear power plant licenses are  
5 indicative of a genuine effort to remedy a highly unsatisfactory  
6 situation.

7           The engineering community has been concerned for some  
8 time with the direction taken by the licensing process. An  
9 adversary atmosphere permeates even the simplest licensing  
10 procedure and inordinate concern is shown for legalistic aspects,  
11 often at the expense of technical matters of substance.

12           It has become only too obvious that the licensing  
13 process during the past decade has spawned a caste of  
14 professional intervenors. These self-appointed representatives  
15 of the public interest, if allowed to persevere in their delaying  
16 strategies, can indeed stop a project, regardless of the merits  
17 of their case.

18           In charting a course of the future of nuclear  
19 regulation, one should examine the experience with our current  
20 system. One of the major preoccupations of the Nuclear  
21 Regulatory Commission in recent years appears to have been the  
22 issuance of a large number of detailed guides and regulations  
23 with specifications for the design and the operation of nuclear  
24 facilities.

25           With time, the conviction developed within the NRC, as

1 well as industry, that full compliance with these regulations  
2 will inevitably assure safe operations. Unfortunately, the  
3 events at Three Mile Island proved this to have been an  
4 erroneous approach.

5 We believe that one of the most important conclusions  
6 of the President's Commission on the Accident at Three Mile  
7 Island is that the most effective function of the regulator is  
8 to specify overall performance criteria for safety and to develop  
9 logical methods for assessing the degree of compliance.

10 The methodologies for risk assessment must be  
11 quantified, notwithstanding the difficulties of this task and  
12 the recognized shortcomings of some of our present methods.  
13 Probabilistic methods continue to be a promising approach and  
14 the NRC should encourage their further development, including  
15 the systematic collection of performance data which are the  
16 essential inputs for these methods.

17 Central to any regulatory system are the basic criteria  
18 of what constitutes an acceptable degree of risk or a sufficient  
19 safety margin. In the absence of these basic goals, the  
20 licensing system will continue to levitate between the pressing  
21 demands of responding to numerous problems requiring prompt  
22 actions and the idealized concept of absolute safety.

23 A ranking of safety related matters is imperative if  
24 our limited financial, technical and manpower resources are to  
25 be used in an effective manner.

1 We strongly support the suggestions by the Advisory  
2 Commission on Reactor Safeguards that probabilistic risk  
3 analyses and cost-benefit considerations be used in setting  
4 priorities in reactor safety and that performance criteria be  
5 used as a means of regulating safety.

6 We are fully aware of the complexity of such an  
7 undertaking, and we are awaiting with great interest the rule or  
8 policy statement pertaining to the setting of criteria for  
9 meeting identifiable safety goals which we understand the NRC  
10 intends to issue later this year.

11 The absence of such criteria is perceived as conducive  
12 to the endless generation of new regulations leading to costly  
13 backfitting, down time, and the perception of uncertainty in the  
14 operations of the nuclear industry.

15 We believe that effective enforcement of its  
16 regulations is central to the Commission's function, and this is  
17 confirmed by the fact that nearly one-third of its fiscal 1982  
18 budget has been allocated to inspection and enforcement  
19 programs.

20 Public hearings, public comments, public speeches,  
21 press releases and other manifestations of our democratic  
22 system cannot substitute for a reliable, dedicated and  
23 technically competent enforcement organization.

24 All of our member societies are dedicated to maintain-  
25 ing high professional standards, but we feel a particular

1 obligation in seeing to it that those of our fellow engineers  
2 who are part of the Commission's enforcement organization are  
3 properly trained for their mission and continue to uphold the  
4 ethical standards of our profession.

5 We have noticed with concern the steady erosion in the  
6 world leadership position of United States nuclear science,  
7 technology and industry. The non-proliferation policy of the  
8 recent past not only restricted domestic nuclear developments,  
9 but seriously impacted the ability of our nuclear industry to  
10 maintain its share of the international market and to retain its  
11 reputation as a reliable supplier and trading partner. The  
12 consequences of this policy for the employment opportunities of  
13 many of our members is obvious.

14 The Nuclear Regulatory Commission, often in conformance  
15 with recently enacted legislation, has found itself in a  
16 position of having to make decisions involving foreign policy  
17 and national security. This added function may have further  
18 strained its resources, at a time when its primary mission, the  
19 regulation of the domestic nuclear industry, should have  
20 received its exclusive attention.

21 This fact should be kept in mind when the organization  
22 for future nuclear regulation is being charted.

23 Throughout its existence, the NRC has devoted most of  
24 its attention to reactor safety. There has always been a  
25 considerable lag in the development of the corresponding

1 licensing and regulatory systems for other activities of the  
2 nuclear fuel cycle.

3 The enforced deferment of reprocessing since 1977 has  
4 made it impossible to close the fuel cycle and the NRC  
5 activities in this area have been cut back.

6 The stated intent of the Reagan Administration to  
7 reactivate the reprocessing of spent fuel should go a long way  
8 in solving the waste disposal problem and in developing the  
9 breeder reactor. Whether this effort succeeds will depend in  
10 no small measure on the NRC's ability to streamline the licensing  
11 and regulatory functions for the nuclear fuel cycle.

12 Members of our professional societies have actively  
13 participated in the development of standards, in the training of  
14 a highly specialized work force, in research, design,  
15 construction, operation and regulation of the nuclear industry.

16 We have a vital interest in the viability of the  
17 nuclear option, but, above all, we are very much aware of our  
18 individual responsibility in maintaining high safety standards.

19 Whether nuclear energy will eventually live up to the  
20 expectations of its developers in being a clean, reliable, safe,  
21 economical and lasting source of energy may be decided during  
22 the next decade by the success or failure of our regulatory  
23 system.

24 Thank you.

25 CHAIRMAN HENDRIE: Thank you.

1 MR. CARTER: A couple of things. I have just what  
2 you gentlemen are looking for, and that is another written  
3 statement, which I will leave with you and you can read at your  
4 leisure.

5 For the sake of time, what I would like to do, and I,  
6 by the way, am representing the Health Physics Society at this  
7 session, and am certainly very pleased on a personal basis and  
8 also on behalf of the society to be here. I am also one that  
9 spent about 30 years now on a personal basis in the arbor, I  
10 guess, of health and safety as far as radiation and radioactivity  
11 is concerned.

12 So, what I would like to do, rather than going through  
13 the statement that I have, and by the way, I have singled out a  
14 few things, some that are sort of laudatory as far as the  
15 Commission is concerned, and some that are fairly critical, and  
16 these are problems, if you will, or perceptions of problems that  
17 people have at least at some distance, and people, by the way,  
18 that are not necessarily in the pressure cooker themselves.

19 So, if you would view it from that standpoint, I  
20 would like to at least take several of these that I have put  
21 together and sort of paraphrase them, if I might. And like I  
22 say, I certainly won't cover all the material that I have in  
23 the written statement.

24 The first of these is a statement that "The Nuclear  
25 Regulatory Commission should take steps to attain primacy as the

1 American public's advocate and safeguarder in its mandated  
2 regulatory areas."

3 That would appear to me, and I think this particular  
4 session is an example of this, and I am sure you folks have had  
5 many others, the participation by public groups, professional  
6 groups, engineering groups, and so forth, agencies of the  
7 Federal Government, I think, are all part of the process.

8 Basically, all of these groups, all of these individuals  
9 to some extent, in some sort of organizational framework, are  
10 essentially vieing with the public for credibility, if you will,  
11 whether it is credibility as far as TMI is concerned,  
12 credibility as far as some regulatory problem is concerned.

13 But put yourselves now in the public's position, look  
14 at it from their point of view. What, indeed, are they to  
15 believe? In other words, who indeed represents the public in  
16 the area of nuclear regulation, for example, as it pertains to,  
17 say, nuclear power plants, if you only restrict it to that one  
18 area, and I might say one rather narrow area, although extremely  
19 important. They are all vieing for this.

20 The public, I would suggest, is sort of bewitched and  
21 bewildered by all of this, and they really don't know who to  
22 look to for guidance, and they hear very many conflicting, very  
23 many loud voices essentially saying believe me, trust me, I am  
24 the guy that you should buy your used car from.

25 I think this in itself is a problem. And I would

1 submit that as far as the NRC is concerned that you indeed could  
2 do this if you would apply a vigorous but evenhanded enforcement  
3 of a reasonable set of standards and criteria for the protection  
4 of the public and its environment.

5 This process, obviously, must be efficient, must be  
6 very timely, it must be cost effective.

7 On the other hand, I would also submit that it cannot  
8 be accomplished by attempting to reach the state of unanimity.  
9 It can't be accomplished by returning to the use of equal  
10 numbers of black and white stones. It can't be accomplished by  
11 running all issues up the flagpole of public opinion. It can't  
12 be accomplished by fighting federal turf battles with the wrong  
13 agency at the wrong time and at the wrong place. It also can't  
14 be accomplished by showboating accomplishments of a rather minor  
15 nature by dissemination and news releases, for example.

16 The other issue I would like to touch on and in  
17 several areas relates really to the process of the involvement  
18 of the public in the process of regulation, in this case of  
19 nuclear reactors, for example, and I would like to make three  
20 points, if I might. And I might say that I come to this  
21 particular process having been involved on a personal basis in  
22 this process in a number of vantage points. I also sat as a  
23 member of the NRC's GESMO panel, for example, and took a look at  
24 that side of the process. I was also a member of the group put  
25 together by the Department of Energy to look at the commercial



1 processing of high level waste, again a public participation  
2 process, other federal agencies involved, professional groups,  
3 and so forth.

4 The points I would make would be these: I would  
5 suggest that the Nuclear Regulatory Commission should call for  
6 an independent evaluation of the public involvement process.

7 This process is obviously considerably broader than  
8 the NRC and its activities. It involves a number of other  
9 federal agencies, and also other groups. I think this is  
10 extremely important. I think now we have a backlog of  
11 experience over the last few years, and I think someone indeed  
12 should look at the process.

13 Is the public being represented adequately? Who  
14 represents the public? How well is the job being done? What  
15 are the criteria, for example, that groups that would do this?  
16 Are these groups that are self-appointed, self-annointed? Do  
17 they have a certain degree of rudeness, legal expertise,  
18 assertiveness, and so forth?

19 Now, these are obviously some factors that you could  
20 look at, but there are certainly many others in a much more  
21 positive sense.

22 I think the Commission itself should assess its  
23 experience in the public participation process regarding nuclear  
24 regulations.

25 Again, a similar set of questions and others that

1 could be asked based on the last few years of accumulation of  
2 experience, and take a look at this from the standpoint of how  
3 effective the process has been. I think this in itself might be  
4 a very good exercise to go through, and I suspect very  
5 worthwhile.

6 Now, I would submit also that if you are going to  
7 involve the public in the process, then the public has to be  
8 aware to some extent of the processes involved, the technology,  
9 the goals at hand, and what is to be benefitted in the process.  
10 If they are not aware of these, I would submit that we may be  
11 causing problems for ourselves if they indeed are being sort of  
12 dragged into the process or gotten into the process too early  
13 before, indeed, they have a comprehension of what the process  
14 is all about.

15 So, these are the three parts that I would submit  
16 should be looked at. The NRC should be involved in the  
17 education of the public if the public's involvement in the  
18 regulatory process is indeed necessary and should be based on an  
19 understanding of the issues.

20 The other point I would like to make is sort of a  
21 technical point, but it affects the philosophy that you people  
22 operate under, certainly the Health Physics Society and many  
23 other groups in the radiation protection, and this is the  
24 application of the ALARA concept.

25 Now, to some extent I suppose this gives regulatory

1 people problems. I suspect it gives the engineering people  
2 problems.

3 On the other hand, if you recognize the nature of  
4 radiation as far as its biological consequences are concerned,  
5 I think that this philosophy makes an awful lot of sense.

6 So, we would certainly submit to the fact that this is  
7 a useful process. It would allow some dignity, some mature  
8 judgments, some cleverness, if you will, in doing things better,  
9 if you indeed apply it. And I would submit that the Commission  
10 indeed has applied this process for a good many years now, and I  
11 hope that you are essentially satisfied in general with the  
12 results.

13 Now, having said those things, I guess I got to  
14 thinking a little bit on the flight up here this morning, thinking  
15 about the regulation process and possibly its future, and I  
16 guess I would like to take a moment or two to tell you what I  
17 suspect bothers me on a personal basis, and I would submit a  
18 good many members not only of my society on a professional  
19 basis, but I would submit also a good cross-section of the  
20 American public.

21 And that is the accident at Three Mile Island and the  
22 present unacceptable situation of essentially either do nothing  
23 or do very little.

24 I would submit that this environment, and I am talking  
25 about the environment of Three Mile Island and its aftermath,

1 this condition, I think overshadows, influences and permeates  
2 all others in the nuclear arena. And I think it essentially  
3 will until it is satisfactorily resolved.

4 Perhaps I could illustrate succinctly by posing a  
5 question, being in the education business, with multiple choice  
6 answers, and I would like to leave you gentlemen with this, but  
7 would certainly be pleased to discuss the consequences.

8 So, the question is simply this: The current situation  
9 at TMI 2 is a classic example of and monument to our  
10 regulatory: -- and the possible solutions would be these: A,  
11 philosophy of bring me a rock; B, lack of concern; C, lack of  
12 ability; D, mismanagement; E, procrastination; F, dumbness; G,  
13 all of the above.

14 Now, I will leave it to your intellect and discretion  
15 to discern the correct answer to that question. And I am very  
16 serious in this. Obviously, this is a critical indictment, if  
17 you will, but I think it is much broader, again, than the  
18 Commission, although I would submit that the Commission plays a  
19 key role in this.

20 If you were to talk to the American public, either  
21 singly or in groups, I would submit that there is probably no  
22 one thing in the nuclear business that has either riveted their  
23 attention, focused their attention, if you will, confused and  
24 bewildered them as much as this particular thing.

25 I don't know if you could find a good analogy. I

1 probably would liken it to some extent to the kid that has gotten  
2 dirty, you know, and he needs to be bathed. And momma and daddy  
3 usually go ahead and bathe him, and, you know, instead of doing  
4 that we could call in the neighbors, we could call in our  
5 friends and relatives, we could call in the members off the  
6 street, and we could debate, does he need a bath, does he need  
7 a shower, should it be in warm water, should it be in cold,  
8 should we use soap, should we use a detergent, what color should  
9 it be, should it be scented, should it contain oil, how fluffy  
10 should the towel be, and so forth.

11 Now, I would submit that is not necessarily a good  
12 analogy, but it might illustrate the point that I am trying to  
13 make.

14 Now, with that, I guess I would like to close those  
15 comments. Like I say, I would hope perhaps we would have some  
16 discussion, depending on your schedule, and I want to again  
17 thank each of you for spending your afternoon in this form and  
18 fashion by listening to some of us that have been in the  
19 business a considerable period of time.

20 We come to this room, I am sure, from different  
21 backgrounds and different perspectives, but we come here, I  
22 would hope, in the spirit of cooperation as far as our nuclear  
23 situation, our nuclear industry, the perception of this, if you  
24 will, by the public, by professional groups, and so forth. And  
25 I thank you again for allowing me to be part of that process.

1 MR. MILLS: Dr. Rickard.

2 DR. RICKARD: I also appreciate very much this  
3 opportunity to just sit with you here, and I also have a state-  
4 ment prepared, but it is very short.

5 I never thought that I would be in a group here  
6 following by two speakers the Honorable Dixy Lee Ray. I just  
7 never thought I would have an act like that to follow ever, and  
8 so I will make this brief.

9 But speaking from the point of view of the incoming  
10 President of the American Nuclear Society, I have just a few  
11 points here that I would like to make that I believe represent  
12 views of a lot of us in the society.

13 First of all, I think that all of us in the technical  
14 societies, we look upon the prevention of undue risk to the  
15 health and safety of the public while providing the benefits of  
16 nuclear technology to society as the preeminent responsibility  
17 of all of us that are participating in the scientific and  
18 technical community. I think we look upon that as a personal  
19 responsibility.

20 The same responsibility to professionals is fully  
21 supportive of the official responsibility that you all have in  
22 the Commission, and so we don't feel at all that we are  
23 adversaries with you, but we are allies in trying to accomplish  
24 the same thing.

25 I needn't remind you at all, I know, on the ANS, but I

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1 will do it anyway. It is a non-profit, scientific and  
2 technical institution, and it has grown now to nearly 14,000  
3 members. All of these members are scientists, engineers and  
4 educators from the university, from the government, many from  
5 the NRC staff itself, from private laboratories, and industry.

6 This group of scientists and engineers have gotten  
7 together and we have provided a way to produce public policy  
8 statements which are the considered opinions and judgments of  
9 the society in matters related to nuclear science and  
10 technology. And these public policy statements are intended to  
11 provide an objective basis for weighing the facts, in reaching  
12 decisions on important issues, and several of these policy  
13 statements bear upon this discussions that we are having here  
14 today.

15 ANS members are fully aware of their professional  
16 responsibility to share their knowledge, technical knowledge,  
17 with the public and provide for an effective exchange of  
18 technical data and information in nuclear technology and related  
19 fields.

20 There is a substantial volunteer effort underway in  
21 the ANS to do just this. The NRC can and should look upon  
22 technical societies as a source of technical data and technical  
23 judgments on generic problems and issues.

24 In the ANS, the nuclear reactor safety division, a  
25 whole division of the society, the reactor operations division,

1 another full division, and the very substantial nuclear  
2 standards activity, which our standards committees carry on,  
3 bear directly upon the future of good nuclear regulation, and  
4 much that you have to do with.

5 Effective nuclear safety rests upon a matrix of  
6 scientific and engineering judgments. They are expert technical  
7 judgments but judgments nevertheless. We urge that the decisions  
8 continue to be based on technical facts and opinions, and that  
9 political pressures be avoided.

10 The judgments need to be made on a timely basis and  
11 on technical facts and scientific and engineering data after an  
12 exchange among technically knowledgeable people.

13 The NRC staff, the ACRS and the licensing boards all  
14 have many excellent technical people to draw upon to continue  
15 the excellent nuclear safety record that we have.

16 The ANS stands ready and will continue its nuclear  
17 safety activities and help to provide the forums and standards  
18 so that the expert technical judgments in nuclear safety can  
19 continue to be made.

20 The fundamental safety philosophy established in the  
21 earliest days of nuclear energy of redundancy, diversity and  
22 defense in depth has served the practice of nuclear safety very  
23 well.

24 With respect to protecting the public, and despite  
25 Three Mile Island, it has an unblemished record.



1 All of us know there is no absolute safety in any  
2 human endeavor, but that good practice in design, fabrication,  
3 construction, operation and management of nuclear energy can  
4 make it highly safe. This is not to say that nuclear energy  
5 cannot be made safer still. It will be, and new plants,  
6 advanced reactors and future operations again will be safer,  
7 even while at the present nuclear energy risks are small  
8 compared with other forms of energy production.

9 In 1979, and after Three Mile Island, the ANS in its  
10 procedures for preparing public policy statements, came out with  
11 a statement entitled "The Comparative Risk of Different Methods  
12 of Generating Electricity." The summary of that public policy  
13 statement was as follows:

14 "The risks associated with the production of electric  
15 power utilizing nuclear energy are small when compared with  
16 either the risks associated with other methods of electricity  
17 production or the societal risks to which we are exposed in our  
18 daily lives. The scientific data that support this position are  
19 well documented. The public -- upon whom ultimate energy  
20 decisions rest -- should become aware of these data.

21 "The consequence of poor decisions in the development  
22 of electric energy resources is at least an unwarranted  
23 increase in the cost of electricity, and at worst may lead to  
24 long term society-wide economic trauma.

25 "This position statement considers studies of the

1 comparative risks of several electrical energy sources, as well  
2 as other societal risks. The American Nuclear Society concludes  
3 that of all the sources that have the potential to supply large  
4 amounts of electric power, nuclear energy is as safe as or safer  
5 than the available alternatives."

6 However, both before and especially after Three Mile  
7 Island, many informed observers of our regulatory process have  
8 seriously questioned whether our present course of adding more  
9 and more detailed regulations is promoting or slowing down the  
10 gains in nuclear safety that are otherwise being made.

11 This issue, we believe, deserves examination on its  
12 own merits, and is independent of the other issues that underlie  
13 so much of the current nuclear power debate.

14 This point is referred to in Lesson 13 of the  
15 excellent article in the ANS Nuclear News, the March issue,  
16 written by Tom Pigford. The observation is made that the TMI  
17 investigation revealed an overreliance on an excessive number of  
18 detailed written regulations which do not of themselves assure  
19 nuclear safety.

20 We believe that safety is achieved by proper design,  
21 fabrication, construction, operation and management, and that  
22 the licensing process can contribute to safety only if it  
23 focuses on these areas.

24 The future of nuclear regulation must achieve a much  
25 greater degree of stability and predictability if it is to be

1 effective.

2 We in the ANS support the view that stability in a  
3 technical sense can be greatly furthered by successful  
4 establishment of quantitative safety goals. We have elaborated  
5 on this in a letter to the NRC on December 17 of last year.

6 However, establishing these quantitative safety goals  
7 for nuclear energy can probably only be done in the comparative  
8 sense with other technologies. For example, hydro or coal or  
9 solar. And here again I refer you to the ANS statement on  
10 comparative risks.

11 We favor eliminating the two step construction permit  
12 and operating license review and support the concept of  
13 certification of the power worthiness of standardized reactors,  
14 nuclear steam supplies and balance of plant designs.

15 The scientific and technical community generally looks  
16 upon probabilistic risk analysis, PRA, as a powerful  
17 methodology for organizing and structuring sound scientific and  
18 engineering judgments about plant safety.

19 We are concerned, however, that if the probabilistic  
20 risk analysis method is to assist in more rational safety  
21 regulation it must cut two ways. It must serve as a vehicle  
22 for removing excessive and costly requirements that don't  
23 contribute their share to safety while directing safety research  
24 and design activities to those areas with the greatest payoff.

25 PRA requirements and studies should not be needlessly

1 added to existing deterministic safety requirements to that  
2 paper and analyses take on a life of their own.

3 The ANS has issued several other public policy  
4 statements and offered other technical opinions that should be of  
5 interest to the Commission.

6 They are, and the most recent one is titled, "The  
7 Adequacy of Light Water Reactor Emergency Core Cooling Systems."  
8 That was just out earlier this year. "A Statement on Fuel  
9 Cycle Centers," a third one on "High Level Radioactive Waste  
10 Disposal," another one, a statement where we participated in the  
11 proposed rulemaking on the storage and disposal of radioactive  
12 waste, and another recent one, a letter to the NRC concerning  
13 the advanced notice of proposed rulemaking on the licensing of  
14 utilization facilities, consideration of degraded cores.

15 Additional public policy statements are being worked  
16 on by various committees or divisions of the ANS at the present  
17 time, and these will be forthcoming.

18 The ANS stands ready to assist the NRC in any way that  
19 this volunteer scientific and technical society can help. We  
20 want to do our part in helping to bring the benefits of nuclear  
21 energy to society with stability in the licensing process,  
22 and getting plants into operation on schedule and reasonable  
23 cost and with a high degree of safety.

24 I brought along with me, just in case there were any  
25 questions, I am accompanied by the gentleman on the ANS board

1 that you had here before, Mr. Angie Giambusso.

2 CHAIRMAN HENDRIE: Thank you. Other comments, Mark?

3 MR. MILLS: Open to questions.

4 CHAIRMAN HENDRIE: Let me ask my colleagues. Victor?

5 COMMISSIONER GILINSKY: You go ahead. You are  
6 responsible for all of this.

7 COMMISSIONER AHEARNE: No, but Vic, you were here  
8 longer.

9 CHAIRMAN HENDRIE: Well, we obviously have a lot of  
10 mutual interests and concerns here. I won't propose to  
11 represent the carefully weighted and balanced sentiment of the  
12 collegial commission in my own remarks, but on the other hand,  
13 chairmen are always slightly constrained from a totally  
14 personal statement.

15 You know, we have talked about a number of things,  
16 about the process and its difficulties, and where it is leading  
17 and so on. There are some things, obviously, that the  
18 Commission can do within its own authorities as they stand at  
19 the moment.

20 We could try to enunciate a safety goal, try to deal  
21 with the question of how safe is safe enough, and indeed we have  
22 an enterprise underway which is at least correctly titled. You  
23 know, we have a program plan for the development of a safety  
24 goal.

25 I have somewhat of a personal feeling that we may be

1 somewhat better at the development of program plans than at  
2 arriving at a safety goal, but it is certainly something that the  
3 Commission could do, and as I say, we are at least trying to do.

4           Enunciating how safe is safe enough has been a problem  
5 since the beginning, and I am not sure that we are unique. We  
6 are probably the outstanding area in American government  
7 practice, at least, where it is a real cutting question. But so  
8 far as I know, for instance, the FAA does not have a statement  
9 which says, now, airplanes ought to be as safe as follows. They  
10 go ahead and if somebody proposes a design to them, they look at  
11 it and scratch their heads and say, well, gee, we would like the  
12 wings stronger than that and the hydrolic systems redundant and  
13 so on, and they argue back and forth and eventually reach  
14 agreement on what would be an acceptable design for certifica-  
15 tion, and in due time they get one to jump up and down on, and  
16 you know they put sandbags on the wings and do all kinds of  
17 great things and finally they certify it as good. And you say,  
18 well, it must be safe enough, right, and the answer is right.  
19 But nowhere that I know of is there that clearcut a statement  
20 of what their safety goal is.

21           We have operated in very much the same way, but  
22 somehow we seem to have a lot more difficulty with our process  
23 than they do, and indeed I think I have come to the conclusion  
24 that some work on a safety goal is appropriate.

25           I must say for myself, I would suggest some caution

1 with how it ought to be used. I think we could. I have  
2 confidence that I could, okay -- let me not go beyond the  
3 individual expression -- that I could enunciate a safety goal  
4 which would be reasonable for use as an aiming point for the  
5 staff in developing requirements and as a background for  
6 discussions and arguments about particular safety issues.

7 I doubt that it is practical, at least at the present  
8 time, to enunciate a safety goal and, say, make it a condition  
9 of licensing, because the methods by which we calculate the  
10 sort of things that a safety goal would enunciate, probabilities  
11 of accident, consequences and so on, I think the arguments over  
12 those that are possible if you make the goal itself a licensing  
13 requirement are probably worse than the ones we have now.

14 Nevertheless, some sort of enunciated general level  
15 with an aiming point to be used as guidance in deciding what  
16 specific requirements ought to be for licensing, hardware  
17 requirements and operating procedure requirements and so on, I  
18 think that is practical and I would hope that the Commission can  
19 do it over the next months.

20 But it is also fair to note, you know, that we are --  
21 well, 1942, 1982, we are getting on toward 40 years from  
22 Stagg Field and haven't managed to do it yet. So, we shall see.

23 The detailed regulation comment that somebody made  
24 saying, you know, the Kemeny Commission pointed out to you and  
25 your own people, the Regovin group pointed out to you that we

1 seem to be so deep in detailed regulations that we tend to  
2 obscure the overall safety picture, perhaps, and distract  
3 attention from it.

4           Nevertheless, here we are enunciating more and more  
5 detailed requirements. And I agree both with the original  
6 criticisms and the later criticism, but I must say, I don't see  
7 an easy way to deal with it.

8           The reason is that it is easier to deal with a  
9 perceived safety requirement by saying, well, we have studied it  
10 and argued about it and we think an acceptable solution is to  
11 put three valves, two painted blue and one painted yellow, at  
12 the following point in the system, and that will then lead to  
13 the following things, and that deals with that safety problem.  
14 And people say, wait, wait, that is too detailed, why don't you  
15 enunciate the need. And we say, good heavens, you know, you mean  
16 you really want to argue on every one of 80 plants that come down  
17 the line to be licensed for operation, and every one of 70  
18 plants that are now out there for operation and may have to be  
19 backfitted, what their particular unique solution is to the  
20 generally enunciated problem. We can't stand it, and we don't  
21 think the industry can stand it.

22           So, we will tell you what, put on three valves, paint  
23 two of them blue and one of them yellow, or whatever I said the  
24 first time, and that settles it, and it is that sort of a  
25 situation that leads us toward the more detailed requirements.



1           Now, I don't know quite how to get out of that for the  
2 long run. The proposition of a power worthiness certificate is  
3 in my view a highly -- a good possibility and one we ought to  
4 look at more closely than we are. General propositions of  
5 standardization have in them, I think, the makings of ways to  
6 deal with some of these problems.

7           There are another another batch of things that you  
8 have strong concerns and worry about, and we do, too, to greater  
9 or lesser degrees, areas that if there are going to be  
10 substantial changes are going to require legislation.

11           I am sure Governor Ray recognizes very well how much  
12 we are creatures of the Congress and the laws that are laid down.  
13 We see a lot of Congress and congressmen, and get pushed this  
14 way and that, and respond in various ways.

15           One can almost trace in the Commission's regulations,  
16 looking at the times at which regulations were put in place and  
17 the way in which they were put in place, and the thrust of  
18 regulations, one can correlate those in really splendid fashion  
19 with sets of hearings on given subjects and points of view that  
20 were pressed hard by congressional committees. And, you know,  
21 I am not sure that is necessarily a bad thing. It would  
22 probably be a bad thing if the agency were utterly unresponsive  
23 to the political process. None of us would like that.

24           But we have to recognize that the agency is strongly  
25 a creature of the underlying statutes that establish us and of

1 the direction that we get from the Congress, to the extent that  
2 there is a net direction certainly.

3 The form of hearings is dictated to us to a considerable  
4 extent. Authorities like a one step licensing process, we  
5 really need legislation for those.

6 The authority and responsibility to consider in our  
7 processes in a much more explicit and reasonable way than we are  
8 able now such things as economic costs and such things as the  
9 national interest in a domestic energy source, those things, to  
10 be able to do that really decently, again we need some  
11 legislation.

12 In fact, last year Vic and I and Dick Kennedy wrote  
13 Senator Johnson and made a proposition that there ought to be an  
14 amendment to the Atomic Energy Act that said that we, in fact,  
15 could take into account in our affairs the public interest in  
16 such things as an economical and reliable electricity supply,  
17 national energy policy, and so on. It fell, so far as I know,  
18 on deaf ears up the line.

19 Well, I offer you no assurance that the Commission,  
20 you know, will snap to and remedy the problems you see and lay  
21 before us, but I can at least assure you that we have many of  
22 the same concerns and at least in some ways we are trying to get  
23 to some of them.

24 Now, why don't I shut up and see if, having waved my  
25 hands in this cloudy fashion over the subject, my colleagues

1 would like to make a comment or raise some questions. Vic?

2 COMMISSIONER GILINSKY. I don't have a lot to add. I  
3 think you covered it pretty well.

4 It is probably worth saying a little more about your  
5 suggestion about, in effect, a one step license. That really  
6 would require a change in industry practice as well. In other  
7 words, it is all very well for us to say we are ready to offer  
8 one step licenses, but we would have to be presented with, in  
9 effect, a final design of the plant, which is what you get when  
10 you are given your certificate to an airplane. And we haven't  
11 been presented with that sort of a proposition up to now.

12 In fact, the licensing process, the two stage process,  
13 is basically suited to industry practice, which was to get going  
14 on the basis of a preliminary design, and to develop the final  
15 design as you go along, and in fact particularly suited to the  
16 situation in the early days of commercial nuclear power when you  
17 were a lot less sure than you are now about what the plant was  
18 ultimately going to look like.

19 And, in fact, when the CP was granted, I think  
20 typically in days gone by, the final design was something like,  
21 I don't know, 25 or 30 percent complete. It is more than that  
22 now, because, if for no other reason, companies are finding that  
23 the further along you are with the final design, the better  
24 instructions you can give to those who are building the plant  
25 and more efficient the process is quite apart of any effect on

1 the regulatory process.

2 So, I am certainly all for getting a more definite  
3 approval at an earlier stage, but I think it needs to be  
4 recognized that this requires a change on the applicants' part  
5 too from past practice.

6 I think that goes in part to the point you were  
7 raising, Dr. Ray, why do we have operating license hearings that  
8 are so extensive.

9 Well, one reason is that that is the first time the  
10 full design is displayed. In fact, that is the reason we have a  
11 fairly extensive review in-house at that stage, because the  
12 original review was done on the basis of a preliminary design,  
13 which while it fills up 20 volumes is still basically a sketchy  
14 design.

15 DR. RAY: Is there any reason that you know of,  
16 Commissioner, that a more definitive design couldn't be  
17 available before a construction permit? There have been enough  
18 of them built now. Both the two major suppliers, GE and  
19 Westinghouse, have even had plans for essentially multiple --  
20 not with standardizing, but ---

21 CHAIRMAN HENDRIE: I don't think there is any reason  
22 with regard to the nuclear steam supplies, and, in fact, you  
23 know all of the steam supply vendors have given us standard  
24 designs on which the staff has worked through to preliminary  
25 design approval. And if things hadn't sort of come unstuck

1 here a couple of years ago, why, we would be working now on  
2 taking most of those things through to a final design approval,  
3 which would be equivalent to the staff's final safety evaluation  
4 report on the nuclear steam supply.

5 The problem is with the balance of plant, all the  
6 safety related auxiliary stuff all over the place, and the  
7 problem has always been, you remember back when we were trying  
8 to get standardization to go some years ago, the problem has  
9 really always been with the architect-engineers who by  
10 tradition wanted to provide a custom engineering service unit  
11 by unit, and were very reluctant to join in the standardization  
12 effort.

13 We have in the years since then gotten a few balance  
14 of plant standard designs. We have gotten -- well, the staff  
15 has worked through one, I guess, from Stone & Webster which  
16 would then use -- there is a version that uses the Westinghouse  
17 standard design, and I think maybe one that uses the Combustion,  
18 and I don't remember whether there is a B&W one and they were  
19 talking with GE but hadn't come to terms when the effort slowed  
20 down, and a couple of other architect-engineers have supplied  
21 balance of plant.

22 What you really need is the complete plant, because  
23 the auxiliaries are very important, and what happens in a  
24 review, we could see it occurring when we were doing those  
25 preliminary design approvals, is that if the only thing that you

1 have got in-house ahead of time that you have reviewed is the  
2 nuclear steam supply, it has got so many tenacles going out to  
3 the balance of plant that you get the balance of plant as a  
4 custom design and you don't save that much on the review time.

5 It continues to be a big operation.

6 DR. RAY: These things are a real step forward. There  
7 is blatant self-interest, I think, on the part of all of  
8 the larger companies.

9 COMMISSIONER AHEARNE: Of course. And also, for some  
10 of the smaller ones, at least their argument has been they can't  
11 afford to put the up front money to go through the design.

12 DR. RAY: When you can't even achieve standard design  
13 for school buildings, I can understand this.

14 CHAIRMAN HENDRIE: You know, there is a splendid  
15 example that goes back many years. The railroads, the prime  
16 movers on the railroads used to be steam locomotives. Each  
17 steam locomotive was a unique mechanical design.

18 DR. RAY: Incredible.

19 CHAIRMAN HENDRIE: Occasionally, a railroad would make  
20 what was called or regarded as a daring step and order two to  
21 the same set of plans, and maybe even once three. But by and  
22 large each of those steam locomotives was a unique design, and  
23 Hamilton and the other manufacturers loved it, and the railroad  
24 engineers loved it because each of them had his professional  
25 skills to be exercised.

1           Then the General Motors Company came along and said,  
2 hey, we are going to provide diesel engines for you as  
3 locomotives, and all the railroad engineering departments said,  
4 oh, that is fine, let me see your plans and we will see what  
5 would have to be done to adopt to ours, and General Motors said  
6 no. And they fought for many, many years, and finally all those  
7 engineering departments just got borne down by the weight of the  
8 economics and the General Motors Company said no, if you want  
9 to buy a model four electromotive from us, it is our model four,  
10 and you don't get to do anything on it that customizes it  
11 except paint your logo on it, you know, everything else is just  
12 the same, and that is the only way we will do it. And they were  
13 able to hang in there.

14           But, you know, that was a volume production market  
15 that they were looking for, and our plants are rather different.

16           DR. RICKARD: Could I just offer you an additional  
17 thought, though, in that regard, and it could even be expressed  
18 in connection with the schools. All schools aren't designed the  
19 same, but we do have very good standards so that the structural  
20 integrity of that school is assured. And the application of  
21 those standards into the design of a school can ensure the  
22 safety for the school children.

23           And, of course, there is very much of that in the  
24 thrust of all that we are doing in a massive effort in the  
25 societies in preparing standards for nuclear plants. So, it is

1 not necessary to have the construction drawings that go to the  
2 field to know that you have a design, if you are designing  
3 against a safe standard, for that system. You just have to  
4 guarantee that the plant is built against that safe standard.

5 And in the early days with our plants we did not have  
6 that situation, and the two step review served a very good  
7 purpose. But I think as we learn more and the standard effort  
8 matures, we certainly should be able to have standards someday  
9 that tell us how to prepare the construction drawings for a safe  
10 nuclear plant, and then it is only testing, checking to see that  
11 the plant is built to those standards.

12 CHAIRMAN HENDRIE: I agree with you as an engineer.  
13 As a somewhat experienced nuclear regulatory, I will say that if  
14 there was a school building regulatory commission of the Federal  
15 Government that reviewed those plans and was regularly braced  
16 by congressional committees who recoiled in horror when they  
17 found that the school building regulatory commission staff were  
18 not going over every line of buildings to be built and said,  
19 why aren't you doing that, you know, you are irresponsible, you  
20 are terrible and so on, pretty soon I will bet you couldn't  
21 build a school building.

22 DR. TODOROVICH: May I interject something that is  
23 relevant to this and a little bit closer to the question of  
24 when is safe safe enough.

25 There was a friend of an uncle of mine, an engineer,



1 in Belgrade who seemed to be a very wise man, but didn't really  
2 get forward as one would expect from such a wise man, until the  
3 uncle said, but, you know, he knows so much that he really  
4 doesn't know how to decide.

5           You see, we were building all those rail machines and  
6 they were building the railroads and we had industrial things  
7 and so on, and to a certain extent, I think, people who knew  
8 what they were building somehow were interacting with people  
9 from politics and emphasizing and educating what is what.

10           Let's come now to this question of when is safe safe  
11 enough. I mean, you mentioned the regulatory for aircraft. And  
12 I would say that if you come to the following sentence, planes  
13 which never fall on the ground and maim people are airworthy,  
14 or even only planes which never fall. They would say,  
15 beautiful, excellent, if we only had such planes.

16           Suppose they built some and then someone comes there  
17 and says, but what if. I am sure the commissioner would tell  
18 them to fly the kites. I mean, we don't have yet those that  
19 can never fall, and what are you talking about. But that is  
20 an answer to when is safe safe enough, in a way, if you want to  
21 call it an answer, and it is an answer. And you have here  
22 industry with essentially a better record than anything before,  
23 and we tried in some stuttering manner, but I think we had  
24 something there to point out how we could have taken that  
25 industry.

1 As I said, where some other regulatory group which also  
2 has to go to Congress, and also has to get some approvals, has  
3 somehow a way of persuading the Congress that they are  
4 acceptable, and we have troubles here.

5 CHAIRMAN HENDRIE: I see Dr. Seitz has been able to  
6 join us. Welcome.

7 DR. SEITZ: Thank you. I am sorry I couldn't be with  
8 you from the start.

9 CHAIRMAN HENDRIE: We have had a good discussion going  
10 on. Perhaps you would like to make some comments.

11 DR. SEITZ: No. As far as I can tell, you are on the  
12 track here. I will be a patient listener.

13 DR. CARTER: I would like to sort of raise a question,  
14 I guess. It may be a little bit philosophical. But you  
15 mentioned aircraft as an example of a safety problem, you know,  
16 that you certainly can compare in some regards to, say, nuclear  
17 power.

18 But I would submit there are at least several things  
19 wrong. One is when you have comparable accidents and focus  
20 attention on it, one, in terms of the aircraft the interest is  
21 not, I would submit, that intense. We don't start the debate  
22 all over again usually, are planes necessary, are we going to  
23 use them to travel and so forth and so on.

24 We do do exactly that quite often in the nuclear  
25 thing.

1           COMMISSIONER GILINSKY: There is an important reason  
2 for that.

3           DR. CARTER: It could well be. The point I would make,  
4 though, is in the timeliness, usually when you have debated the  
5 aircraft problem, for example, there is a fix, either we need  
6 some more proficiency training of the crew, we need to  
7 strengthen the wings, the rudder, or whatever. These things are  
8 usually done, I would submit, rather quickly. Maybe in the  
9 nuclear power case you cannot do this.

10           But on the other hand, it seems that a lot of things  
11 in the nuclear business seem to sort of drift, not aimlessly,  
12 but they take an awful lot of time to get fixed, if you will.

13           I would cite an example. In fact, it was in the  
14 testimony that you folks recently have made a ruling, I guess,  
15 or determination, for example, that you don't need at the  
16 present time any more regulation in the transportation of  
17 radioactive materials. I think this is a very laudatory  
18 decision. And yet that process apparently goes back to an  
19 impact statement that was written in 1976, comments and so  
20 forth, a final statement in, I guess, '77, again more discussion  
21 and so forth, and now a pronouncement going out essentially  
22 that we don't need any more at the time and thanking the people  
23 that contributed to the process.

24           I dare say, most of those people have forgotten that  
25 about 18 times over in that intervening six years or whatever.

1           So, I would see this time element, the passage of time,  
2 if you will, and quite often it is very appreciable -- we are  
3 not talking about, you know, twice as long or three times. We  
4 are talking about on a relative basis, seemingly rapid versus  
5 inordinate amounts of time. I would be interested in comments  
6 in that area.

7           COMMISSIONER GILINSKY: Well, you know, I was thinking  
8 about this point you made about the difference between the way  
9 people react to airline accidents that sometimes kill hundreds  
10 of people and the reaction to either the possibility of nuclear  
11 accidents or actual accidents.

12           It occurred to me that one important difference is  
13 that since the 1930's or whenever commercial passenger travel  
14 started, the airlines have had to develop a relationship with  
15 the public that not only involved acceptance of airline travel,  
16 but actually got people to fork over money, agree to pay to fly  
17 these things. And one way or another, you know, little by  
18 little, people at first just the brave folk, and eventually  
19 pretty much everybody has agreed to, in fact, come to like  
20 flying, even if there is some residual concern about it.

21           You didn't have that same gathering of consent,  
22 person by person, in effect, on the nuclear side. You know, the  
23 relationship is different, and I am not sure an equivalent  
24 process was possible.

25           Now, one element of that as a kind of substitute was

1 that, you know, rightly or wrongly, hearings were offered on  
2 very, very liberal terms, as some of you pointed out, more  
3 liberal than in other areas, as, in effect, a kind of substitute.  
4 And you might regard that as part of the overall bargain.

5 Now we are coming to the point where these hearings  
6 are causing, or at least they raise the possibility that plants  
7 may stay idle while such hearings are going on, and so we are  
8 rethinking the process. But I think in doing that, it is well  
9 to reflect on what the background of all this is.

10 DR. TODOROVICH: But again, if I may go to specifics,  
11 obviously there are more difficult questions, but there are  
12 some where if the Commission would take a more positive stand,  
13 it would act as kind of a reassurance that was mentioned here,  
14 the leadership that is needed to be projected to the public,  
15 because apart from industry and so on, also the perception of  
16 government is looked very much upon by the public.

17 Let's go back to this little Three Mile Island island.  
18 We have there some water, and we know that we can purify water  
19 many times over from when the astronauts fly for months and they  
20 reuse it. No doubt we can clean it up. And then we will have  
21 some residue, which is mentioned again often. But all that  
22 residue is actually coming from that reactor there in the first  
23 place, and had there been a normal turnover, that residue would  
24 be sitting probably in that pond under Three Mile Island at the  
25 site.

1           So, in a certain technical sense, while we have other  
2 concerns where it is much more difficult to pinpoint when safe  
3 is safe, the question of the Three Mile Island cleanup is, in a  
4 certain sense, a very, very straightforward question, and yet  
5 it never comes across from the press releases of the Commission  
6 or whatever that there is something, at least a small corner,  
7 which could be attacked and disposed of, and we would make a  
8 small step toward a better understanding of what is going on in  
9 the public and more confidence.

10           COMMISSIONER GILINSKY: What are you proposing that  
11 we aren't doing?

12           DR. TODOROVICH: That those recommendations that  
13 probably come from the staff, which are of the kind that are  
14 scientifically very viable, be made more visible to the public,  
15 also.

16           MR. FOUCHARD: Let me give you a couple ---

17           CHAIRMAN HENDRIE: Yes, Mr. Fouchard, why don't you  
18 do that.

19           MR. FOUCHARD: Thank you, sir.

20           We did put out a statement the other day urging  
21 Metropolitan Edison to accelerate the cleanup of Three Mile  
22 Island. The company's response was that what we need most is  
23 money. And we gave the staff freedom to deal, including  
24 cleanup of the water in the containment building.

25           DR. TODOROVICH: May I say, as a member of the public,

1 that what comes to me on the pages of the New York Times is  
2 continuously a very different picture. Let me give you a  
3 counter example.

4 There was some guy who apparently carried something  
5 in his pocket, I guess, and the story in the papers was from  
6 the press release of the NRC was it was he was gunned, he has  
7 had fatal doses. And a few months later, weeks later, there is  
8 a report from a hospital that the guy is nicely recovering, his  
9 blood count is okay. It was a little footnote on top of the  
10 New York Times and I accidentally caught it.

11 Maybe you are doing something ---

12 CHAIRMAN HENDRIE: That is a problem really beyond the  
13 can of the Commission. I make statements all the time, but my  
14 ability to see that they, in fact, get equal time with other  
15 kinds of statement in the press is zero.

16 COMMISSIONER AHEARNE: The representative on your  
17 right can well, I am sure, explain. What we put out and what  
18 we do and what gets represented in the press quite often are  
19 quite different, and we have very little control over that.  
20 And plus, there are some people, both outside and inside the  
21 agency, who will characterize things that are put out  
22 differently, and the press will be much happier to pick up that  
23 characterization than what, say, Mr. Fouchard or the Chairman  
24 might say.

25 DR. RAY: The whole question of public perception and

1 how it is influenced by press reports is something that could  
2 occupy volumes and on which I could wax very eloquent.

3           There is, for example, a perception in the State of  
4 Washington that the radioactive waste coming from Three Mile  
5 Island is different from the waste coming from anyplace else,  
6 and therefore much more to be feared. And the fact that  
7 Hanford was receiving and would continue to receive waste from  
8 Three Mile Island was the primary thing in assuring the success  
9 of an initiative which I am sure will be found to be  
10 unconstitutional, nevertheless an initiative that was passed in  
11 our state to close the site to radioactive waste from other parts  
12 of the country, except only medical waste. You know, the whole  
13 thing is very foolish.

14           But I guess I have to agree, this type of problem is  
15 beyond the capability of the Commission or any individuals  
16 really to deal with. It is a long term problem. It has its  
17 roots way back in history, and it will be a long time dealing  
18 with it.

19           I think, though, you have been referring, Professor  
20 Todorovich and others, that there are some kinds of things that  
21 we feel the Commission could do that are positive, that do  
22 project a more positive image and so on, and somehow taking  
23 steps that will facilitate licensing without, truly without  
24 giving way on what are proper safety assurances and so on, but  
25 cutting down the length of time, particularly at the operating



1 license side, could have a very beneficial effect.

2 I would be interested in some reaction, if possible,  
3 to the very unique proposal that you made to undertake an  
4 evaluation of the effectiveness of public participation in  
5 hearings, since that is one of the things which does add  
6 enormously to the length of time. And to review now on the  
7 basis of quite a bit of experience how effective that has been,  
8 how useful it is, and to review it, I think that is a great  
9 suggestion.

10 COMMISSIONER AHEARNE: We have been doing that, not in  
11 any kind of analytic detail, and of course would want to end up  
12 with, is those who feel that the process is overly lengthy or  
13 overburdened will say we can't find anything really significant  
14 that has happened, and those who feel, I think as Commissioner  
15 Gilinsky has described, that it was part of the original  
16 bargain and so it is a fundamental aspect, that it is the  
17 intangibles that must be there.

18 COMMISSIONER GILINSKY: Actually, we have spent a lot  
19 of time trying to look at the process in the last few months,  
20 and I think have made a fair bit of headway in sorting things  
21 out.

22 COMMISSIONER AHEARNE: There is a disagreement about  
23 how much headway.

24 DR. RAY: It would be nice if it would show.

25 COMMISSIONER GILINSKY: Well, I think it will show, and

1 we have, among other things, submitted a proposal to the  
2 Congress for allowing the Commission to issue interim low power  
3 licenses.

4 DR. RAY: Does that really require congressional  
5 action?

6 COMMISSIONER GILINSKY: Yes.

7 DR. RAY: I thought that could be done.

8 COMMISSIONER AHEARNE: No, because it is interim low  
9 power while a hearing is still on.

10 COMMISSIONER GILINSKY: The AEC had that authority for  
11 a short time, but it lapsed.

12 COMMISSIONER AHEARNE: Could I make a comment?

13 CHAIRMAN HENDRIE: Please do.

14 COMMISSIONER AHEARNE: I guess the one part that  
15 neither of my colleagues have answered to some of your questions  
16 is some of the issues that you raised about the legalism and  
17 overlegalism in the system. And I certainly agree entirely with  
18 you.

19 I think our system is one that has -- I agree with  
20 Vic that originally it was part of a bargain, and I don't think  
21 that it has grown completely healthy, and I believe that there  
22 is a tendency now to get enmeshed and entrapped; as one of our  
23 legal advisors once pointed out, the ultimate weapon of the NRC  
24 would be to use the hearing process, because that is the biggest  
25 threat we can make to the licensee.

1 I don't think that we have done much in the way of a  
2 fundamental reconsideration of what is the role of the hearing  
3 process and what should be the relative roles of the individuals  
4 in it, and that at the moment I think is still a question which  
5 I am afraid that the Commission is not yet ready to come to  
6 grips with.

7 DR. RAY: I guess we would be sure to urge the  
8 Commission to try with all deliberate speed to come to grips  
9 with that.

10 CHAIRMAN HENDRIE: Well, we may get some congressional  
11 direction. There seems to be a move afoot to start such an  
12 examination of the process by mandate from the Hill. So, who  
13 knows. Maybe the successor commission will find itself doing  
14 that.

15 COMMISSIONER AHEARNE: One other comment, if I could.  
16 I notice you brought someone with you, and without referring to  
17 any particular vendors, I would just point out that there is one  
18 vendor not represented here, I believe, who has made this  
19 proposal of something like an air worthiness certificate  
20 approach and has been trying to work with AE's to see whether  
21 that couldn't be a package that could be proposed, and I think  
22 it is something that the rest of the industry ought to really  
23 seriously approach.

24 MR. RICKARD: We appreciate that remark. We will do  
25 that.

1           One other thought that I had, Commissioners, was,  
2 there are other things besides the delay that we are facing  
3 where just positive statements that, if they could come out of  
4 the NRC, would be helpful. Certainly we all hear from out there  
5 on the waste issue, and I know you have the rulemaking going on  
6 on competence on the waste issue. But it is certainly the  
7 position or the concensus in the American Nuclear Society that  
8 we can store waste, liquid, solids, glass, in any way, that  
9 technically we know how to handle waste. But the public is  
10 still very unsure of that, and we are trying very hard to get  
11 that message out, and the sooner that could be accepted and  
12 confirmed by the NRC, I think that it would help all of us in  
13 that regard.

14           DR. RAY: You know, that goes back again to who is the  
15 perceived spokesman for this area. Is it Jane Fonda, or is it  
16 the NRC? And I would have to agree with you. I think the  
17 Commission could do more to put itself forward as being the  
18 ultimate authority in this field. Too many of the public  
19 believe totally unqualified people who nevertheless appeal to  
20 the press.

21           COMMISSIONER AHEARNE: In that particular area, there  
22 is one hitch, as Governor Ray well knows, which is not a  
23 technical question. It is where are you going to put it.

24           DR. RAY: Except I think we make an unnecessary  
25 problem there. It is in certain places. It is not going to be

1 taken away from those places. And there is no reason in the  
2 world why it shouldn't continue to go there. And I do, of  
3 course, refer particularly to Nevada and the State of Washington.  
4 There is ample space. And a good strong statement that just  
5 says, hey, you know, it is there, it never hurt anybody, we can  
6 do it even better, and it is going to go, I think it would  
7 simply eliminate a lot of the discussions going on. It is the  
8 uncertainty. It is the expectation on the part of some of the  
9 people, the opponents particularly, that maybe, by golly, we can  
10 put a stop to it. And you know, the uncertainty principle might  
11 be great in physics, but in this field it is just terrible.

12 DR. CARTER: Let me comment on that, if I might. I  
13 would certainly agree with what has been said on the waste  
14 management side. But if you take, for example, the recent  
15 determination relating to, you know, medical quantities in terms  
16 of measurements and so forth of carbon 14 and tritium, for  
17 example, the requirement that will allow now certain amounts to  
18 be discharged directly to the sewage system and also the  
19 certain amount that will essentially not be counted.

20 But basically, the reason it was given or emphasized  
21 when this policy was originally put out on the street was  
22 basically that we are running out of low level waste storage  
23 space and therefore we need to do this.

24 Now, I will submit that is one practical aspect of it.  
25 On the other hand, I think the emphasis should be that if we do

1 this we are not, indeed, going to create any problems.

2 COMMISSIONER AHEARNE: But as you probably recall, and  
3 in fact, as I recall, there was an exchange of letters in  
4 Science to try to make that point clear. That isn't what we  
5 said when we put it out. What we said when we put it out is  
6 that we are reviewing a lot of things and here is one area where  
7 there is no hazard, and so we are changing that regulation. We  
8 did stress that there was no hazard.

9 Now, the way it gets represented, it gets back to the  
10 same problem. We can't help really how it gets represented when  
11 we consistently try to make that point.

12 MR. FOUCHARD: But in this case, it was an eminent  
13 scientific journal, though. It was Science Magazine.

14 DR. CARTER: No. What I am talking about is in the  
15 Federal Register and in some of your own publications, not what  
16 is in Science, not what is in Health Physics, not what is in the  
17 newspaper. This was in an AEC publication. I would be happy  
18 to send you copies of those.

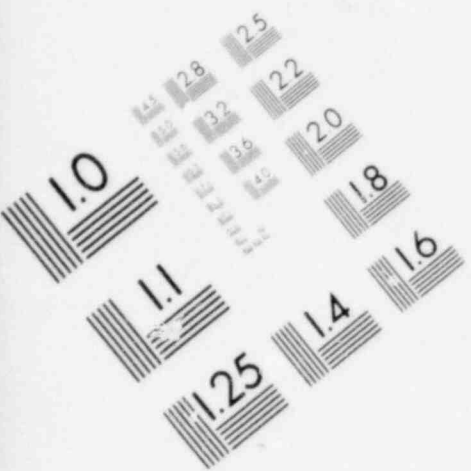
19 Let me mention one other area, if I might. It is a  
20 complete shift of gears, but it gets back to the blue valves  
21 and the red valves, Dr. Hendrie. But recently, and by recently  
22 I guess toward the end of 1980, the NRC came out -- you may not  
23 have even seen it -- with again a recently proposed enforcement  
24 action policy. I think that is the title of it. But what this  
25 thing would do, I would submit, would not be to color the valves

1 yellow or blue, but essentially to color them some kind of shade  
2 of green, because it proposes to divide violations up into  
3 severity categories. You know, you are either not a violation,  
4 you are in violation, but this would say, you know, you are a  
5 seventh violator, or No. 6, or No. 5, or whatever. And I would  
6 submit to some extent this is a shade of green, if you use my  
7 primary colors for the valves, rather than, you know, a  
8 straightforward sort of thing.

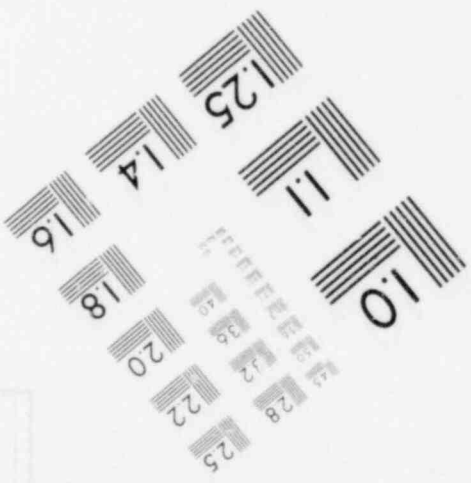
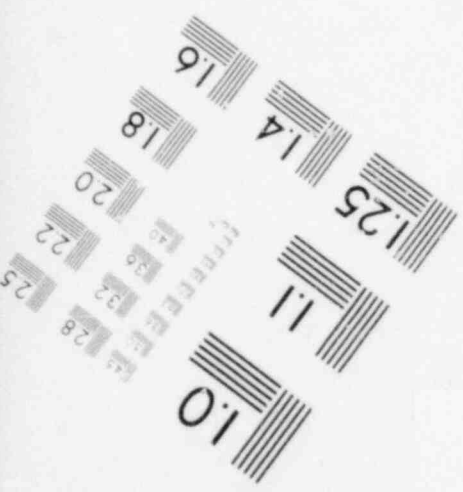
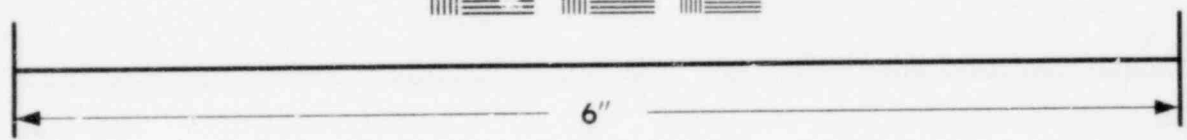
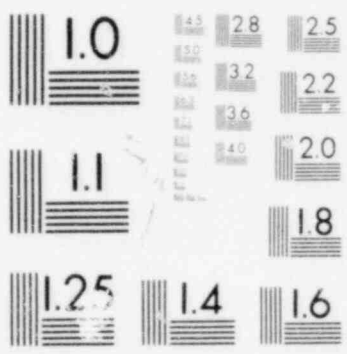
9 And I would submit, of course, in this particular  
10 case, rather than trying to get that sophisticated about  
11 something which I imagine in reality is a fairly simple, although  
12 an important part of the thing, it still really depends on the  
13 competence, the integrity and the judgment of the inspector that  
14 is out there working, rather than that formalized procedure.

15 CHAIRMAN HENDRIE: I don't recall the enforcement  
16 policy that the Commission adopted necessarily had my unqualified  
17 support and devotion in all parts. But when you try to deal with  
18 enforcement, why, there are a range of transgressions that one  
19 deals with and I think some scaling of measures that you take  
20 with the severity and a variety of other factors in mind, I  
21 think that is appropriate.

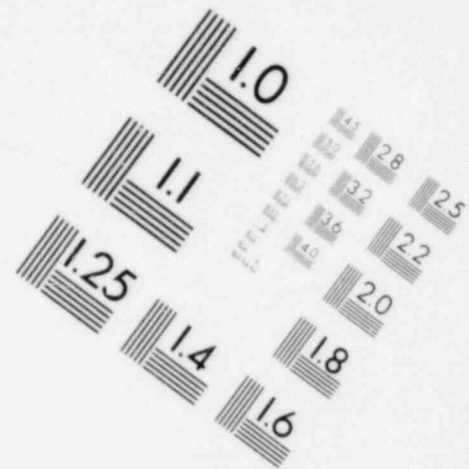
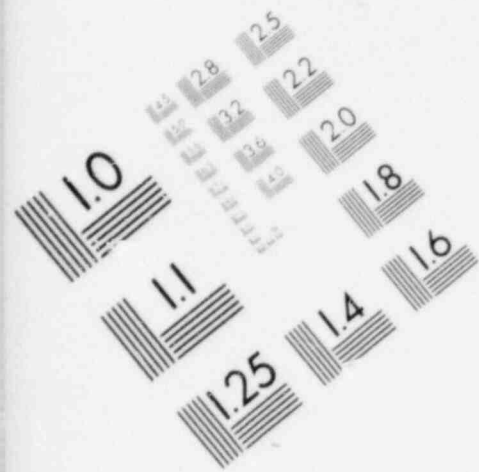
22 If you find somebody that went across a limit and  
23 didn't mean to, and hasn't been doing it regularly, and  
24 proposes things to you that will keep him from doing it in the  
25 future, why, that is one thing. If you have got somebody who is



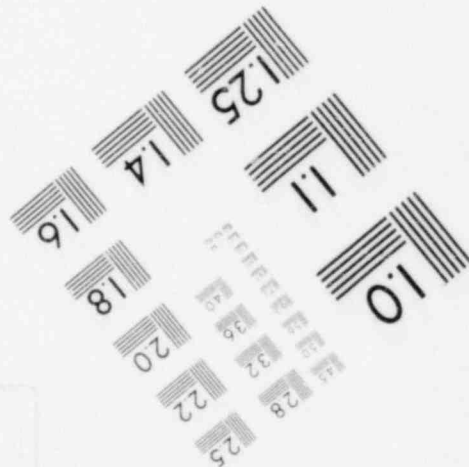
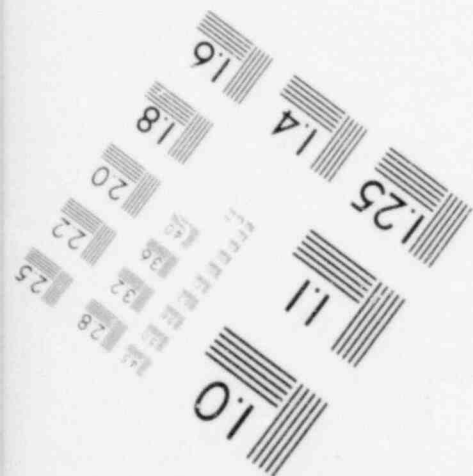
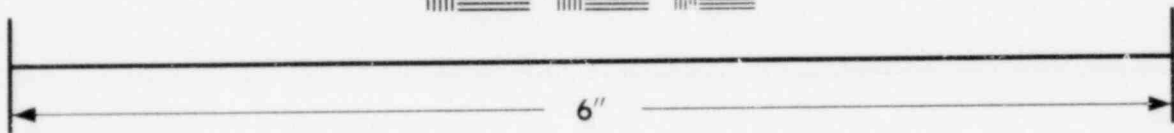
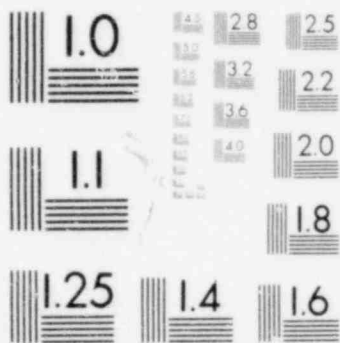
**IMAGE EVALUATION  
TEST TARGET (MT-3)**







**IMAGE EVALUATION  
TEST TARGET (MT-3)**



1 clearly from over past history marching as close to his license  
2 limit line as he possibly can and doesn't mind going across once  
3 in a while and isn't too free to tell us about it and so on,  
4 why, you have clearly got a situation in which you are going to  
5 be inclined to smack harder. And the enforcement policy has  
6 always had in it, in implicit ways, those kinds of judgments,  
7 and the effort, however it may have come out in the policy,  
8 good, bad or indifferent, the effort here was a not unreasonable  
9 one to try to provide some guidelines in advance for the  
10 enforcement staff for what ought to be done. You know, as with  
11 any given piece of regulation, why, depending on one's point of  
12 view on it, you can love it or hate it.

13 That one wasn't one I loved. I don't know that I  
14 hated it, but I sure didn't love it.

15 DR. RAY: Could I make a suggestion only half  
16 facetiously? That latest number I have seen for the total  
17 employment of the NRC is about 3,200 people. I don't know if  
18 it is an accurate figure, but it is a sizeable number.

19 CHAIRMAN HENDRIE: Substantial.

20 DR. RAY: All of those people for their livelihoods  
21 depend upon a job here which, in turn, depends upon having  
22 nuclear power plants. Now, the actions that are being taken ---

23 CHAIRMAN HENDRIE: It sounds like conflict of interest  
24 to me.

25 DR. RAY: No. It is rather I think something about the

1 working oneself out of a job. And I would just like to read a  
2 quotation published in this morning's New York Times from  
3 Mr. Arthur Houseburg, the new President of Consolidated Edison  
4 Company, and he says:

5 "Until the regulations and rules of the government  
6 change and federal policies are cleared up, there isn't going to  
7 be any more nuclear at any utility."

8 And I think he is right. And maybe it is time for  
9 the NRC staff to wonder or begin to worry a little bit about  
10 their jobs. It may be a little self interest would be in order.

11 DR. SEITZ: I wonder if I could add another perspective  
12 to the same issue you have raised, Dixy.

13 The present Minister of Science and Technology in  
14 France is an old friend of mine. I have known him about 40  
15 years. We were at a meeting together in Vienna a year ago  
16 dealing with Third World relationships. He was head of the  
17 French Delegation there. And I said to him, I see that you are  
18 going right ahead with your nuclear program. He said, yes, and  
19 you are not. And I said, well, it is unfortunate. Oh, he said,  
20 we in France look on it as a great opportunity, it looks as  
21 thought by 1990 you will be buying turnkey units from us in  
22 order to satisfy your power need at reasonable costs.

23 I think the economic issue obviously can't be put  
24 above everything else when matters of public safety are  
25 involved, but in these days when we are wondering how we are

1 going to fare in international commerce and the balance of  
2 payments, that this can't be ignored.

3 CHAIRMAN HENDRIE: I think Andre has got a good chance  
4 of being right and the thought of having to review safety  
5 analyses written in French, you know, horrifies me, because my  
6 language is not that good, but it could happen.

7 I think in view of the hour, why, I think you had the  
8 last word, Dr. Seitz.

9 I thank you very much for coming. It has been an  
10 interesting and useful discussion. We will perhaps see what its  
11 long term benefits are.

12 Thank you very much.

13 (Whereupon, at 4:05 p. m., the meeting was adjourned.)

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300 7TH STREET, S.W., REPORTERS BUILDING, WASHINGTON, D.C. 20024 (202) 564-2345

NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

NUCLEAR REGULATORY COMMISSION

in the matter of: Meeting With Representatives of Scientists and Engineers for  
Secure Energy

Date of Proceeding: Thursday, April 30, 1981

Docket Number: \_\_\_\_\_

Place of Proceeding: Room 1130, 1717 H St., N.W., Washington, D.C.

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

Marilynn M. Nations

Official Reporter (Typed)

\_\_\_\_\_  
Official Reporter (Signature)



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

March 6, 1981

Dr. Frederick Seitz, Chairman  
Scientists and Engineers for  
Secure Energy, Inc.  
1225 Nineteenth Street, N.W.  
Washington, D. C. 20036

Dear Dr. Seitz:

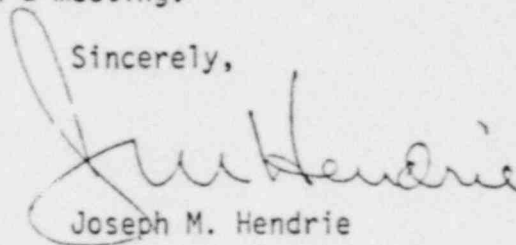
This responds to your letter of February 9, 1981 concerning the recent meetings the Commission has held with representatives of the Atomic Industrial Forum, the League of Women Voters, the Sierra Club, Critical Mass Energy Project, the National Consumers League, and the Equal Justice Foundation.

These meetings are part of an NRC effort to broaden the agency's outreach and to understand better the views of a number of organizations with a variety of perspectives on the future of nuclear regulation. As our Director of Public Affairs, Mr. Fouchard, indicated at the outset of the February 4, 1981 meeting, we have received indications of interest in meeting with the Commissioners from other organizations, including SE<sub>2</sub>.

We would be pleased to meet with SE<sub>2</sub> and the other groups from the scientific community mentioned in your letter to hear more views on the general subject of the future of nuclear regulation. It would be helpful if you could contact the other organizations you believe would be interested in joining you and suggest some dates when we could schedule such a session.

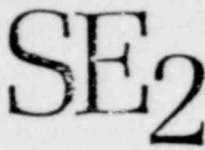
Mr. Fouchard's office will be in touch with your Washington representative to assist in the arrangements for such a meeting.

Sincerely,



Joseph M. Hendrie

Dune  
8103200061



SCIENTISTS  
AND  
ENGINEERS  
FOR  
SECURE  
ENERGY, INC.

Frederick Seitz, Chairman  
Erich Isaac, Vice Chairman  
Robert K. Adair, Vice Chairman  
Miro M. Todorovich, Executive Director

Mark P. Mills  
Scientific Representative  
Director, Washington Office

February 9, 1981

NATIONAL OFFICE  
Miro M. Todorovich  
570 Seventh Avenue  
Suite 1007  
New York, N.Y. 10018

WESTERN OFFICE  
R. Leslie Dugan  
215 Market Street  
Room 919  
San Francisco, CA 94105

MEMBERS (Partial Listing)

- Henry H. Barschall  
U of Wisconsin
- Hans A. Bethe\*  
Cornell
- Felix Bloch  
Stanford
- David Bodansky  
U of Washington
- Norris E. Bradbury  
Los Alamos
- D. Allan Bromley  
Yale
- R. Creighton Buck\*  
U of Wisconsin
- Bernard L. Cohen  
U of Pittsburgh
- Karl Cohen\*  
Stanford
- Thomas J. Connolly  
Stanford
- John D. Courtney  
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- E. H. Dicke  
Princeton
- Albert Gold\*  
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U of Minnesota
- Robert Hofstadter  
Stanford
- Behram Kusumoglu  
U of Miami
- Robert Lee  
Harvard
- Leona Libby  
UCLA
- John McCarthy\*  
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- John P. Madison  
Argonne
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U Cal, Berkeley
- Ernest C. Pollard  
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U Zurich
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ORAU
- Eugene P. Wigner\*  
Princeton
- Richard Wilson  
Harvard
- Werner Wolf  
Yale

John F. Ahearne  
Chairman of the Commission  
U.S. Nuclear Regulatory Commission  
1717 H Street, N.W.  
Washington, D.C. 20555

Re: Public Meeting with NRC Commissioners, February 4, 1981  
on "The Future of Nuclear Regulation"

Dear Chairman Ahearne:

Upon learning of the above mentioned public meeting, the Washington, D.C. office of Scientists and Engineers for Secure Energy inquired of Mr. Fouchard's office at the NRC as to the possibility of SE2 providing testimony to the Commission. SE2 was informed that apparently the Commission wanted views which it considered different from that of the Atomic Industrial Forum (in reference to testimony given by that organization on January 21, 1981); and, in particular, that the Commission wished to hear a variety of views from public interest groups opposing the use of nuclear power.

It is of great concern to the scientists, engineers and scholars of SE2 that meetings of this nature foster the impression that the public's interest is anti-nuclear. Furthermore, meetings carried out in the fashion of tacitly labeling one presentation from the industry as "pro-nuclear" and a subsequent presentation from the public interest as "anti-nuclear," contributes to greater polarization of an already excessively emotion-laden topic.

The fact that the interest of the public is not predominantly anti-nuclear has been repeatedly illustrated by numerous opinion surveys. Unfortunately, the fact is that the representatives of the 'public interest' presenting testimony on February 4 were either stridently anti-nuclear or have demonstrated by historical actions, consistent anti-nuclear sentiments and delaying tactics, rather than providing constructive input.

If it is, in fact, the Commission's task to see to the safe licensing of nuclear power plants (and clearly, by virtue of Congressional mandate, not to debate the need for nuclear power) in order to best protect the public, it is essential that the Commission also hears from public interest groups that represent the majority opinion of the public.

\* Member,  
Steering Committee

Affiliations for  
identification only

DM 8103200068

According to a public opinion poll taken by Pat Caddell, for example, at the end of last year, the public supported building more nuclear power plants by 49 to 35 percent. Indeed, with respect to licensing and regulation, a poll conducted by the Council on Environmental Quality, the Department of Agriculture, the Department of Energy, and the Environmental Protection Agency found that, at the very least, the public would support by 69 percent those nuclear plants that now exist or have been built. Clearly, this constitutes a mandate to get on with the job of licensing.

There is a plethora of genuine public interest groups whose strong statements and testimonies closely parallel that of the public interest to name only a few: Americans for Energy Independence, Citizens for Total Energy, Americans for Nuclear Energy, Concerned Citizens for Energy and Environment, Electrical Women's Roundtable, The Energy Advocates, National Council for Environmental Balance, Coordinating Committee on Energy, MVoE, National Legal Center for the Public Interest, Building and Construction Trades Department of the AFL-CIO, International Brotherhood of Electrical Workers and some 20 other labor organizations, and some 75 state-wide organizations supporting nuclear energy, for example groups like Arizonans for Jobs and Energy and Oklahomans for Jobs and Energy. It is clearly appropriate and essential to the democratic process that these types of public interest groups have their opinions appear on the public record.

Of greatest concern to SE<sub>2</sub> though, is the fact that much of the so-called public interest testimony is not only at best misinformed, but often times patently ludicrous. Assertions that are publicly aired and unchallenged are afforded unjustified credibility by virtue of an audience with the Commission. These assertions, held up as 'facts', often blatantly ignore scientific reality, reasoned arguments and exhaustive studies.

In order to educate the public and help to allay unnecessary fears, it is well worth considering the highly esteemed value of reasoned scientific testimony. A 1980 Institute for Energy Analysis report entitled "Public Attitudes and Information on the Nuclear Option" pointed out that in response to the question, "How much confidence do you have in what various people or groups say on matters concerning nuclear energy development?," "58 percent of the public responded a great deal to scientists...followed by the NRC (39 percent), the DOE (36 percent) and leading environmentalists (34 percent)."

Indeed, the Sierra Club in its February 4th presentation decried its inability to muster the weight and credibility of scientific opinion. According to the transcripts from the meeting, Ruth Caplan of the Sierra Club said that: "Another problem is in getting expert witnesses....Independent witnesses who have the technical expertise are very difficult to find.... Often the few people who are willing to testify in the public interest are absolutely inundated with requests." It is worth considering that one reason for the paucity of expert witnesses in that arena is that there are in fact very few experts, knowledgeable in energy and health matters, who could legitimately testify on behalf of such single-interest groups and manipulate available data in the manner needed to put across the points so cherished by those intervenors.



While it is not germane to the NRC's stated mandate of licensing and monitoring the operation of nuclear power plants, it appears that the Commission has submitted itself nonetheless to uninformed, selective and insubstantial pronouncements about the energy needs of the United States vis-a-vis the need for nuclear power.

It is in this arena, particularly with respect to the unconscionable and continual delays in licensing existing nuclear power plants, that SE<sub>2</sub> along with many other non-profit public interest groups, wishes to address the Commission.

As a case in point, the DOE report "Electric Power Supply and Demand for the Contiguous United States 1980-1989" stated that "to assure reliable energy supply and provide for significant reduction of fuel oil consumption, every effort should be made to maintain the current schedules for construction and licensing of the following (ten) nuclear units. All of these units are scheduled for commercial operation by the end of 1981. Diablo Canyon 1 and 2, San Onofre 2, LaSalle County 1 and 2, Farley 2, McGuire 2, Summer 1, Watts Bar and Sequoyah 2."

Yet, according to the NRC monthly report submitted on January 30, 1981 to The Honorable Tom Bevill, Chairman of the Subcommittee on Energy and Water Development, Committee on Appropriations, there will be additional delays preventing the licensing of six nuclear plants this year with, for example, Diablo Canyon facing further delays of up to 12 months!

Diablo Canyon, in fact, is a lurid example of continual and unnecessary delays that burden the ratepayers of northern California with extensive costs. In fact, in California at large -- an area in which SE<sub>2</sub> is strongly represented -- it is estimated that delays in nuclear licensing costs ratepayers more than one billion dollars a year, delays which do not add significantly to the ultimate safety of those power stations.

It is our understanding that the NRC is considering the possibility of holding further meetings of a nature similar to that of the morning of February 4, 1981.

Inasmuch as all of the foregoing points are relevant to the reasonable and expeditious regulation of nuclear power plants and, inasmuch as SE<sub>2</sub> is both a non-profit, public interest, educational group and an association of respected scientists and engineers, we would request that the Commission provide an opportunity for public testimony to be heard from SE<sub>2</sub> in concert with scientific communities, such as the: American Physical Society, American Chemical Society, American Institute of Chemical Engineers, American Institute of Mining, Metallurgical and Petroleum Engineers, American Institute of Physics, American Nuclear Society, American Society of Civil Engineers, American Society of Mechanical Engineers, Health Physics Society, Institute of Electrical and Electronics Engineers, and National Society of Professional Engineers.

# SE<sub>2</sub>

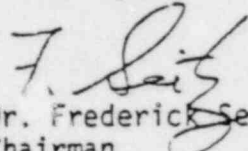
John F. Ahearne

-4-

February 9, 1981

We would hope that such testimony could provide an opportunity to mitigate the unnecessary polarization engendered by the proceedings so far this year.

Sincerely,

  
Dr. Frederick Seitz  
Chairman

FS:mst

cc: Commissioner Peter A. Bradford  
Commissioner Victor Gilinsky  
Commissioner Joseph M. Hendrie

Senator Robert Stafford  
Senator Alan K. Simpson  
Senator Gary Hart  
Senator James McClure  
Senator J. Bennett Johnston  
Senator Henry M. Jackson  
Senator Pete Domenici  
Congressman Don Fuqua  
Congressman Larry Winn  
Congresswoman Marilyn L. Bouquard  
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Congressman Carlos J. Moorhead