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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

PUBLIC MEETING

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

SUBCOMMITTEE ON REACTOR SAFETY RESEARCH

- - -

Nuclear Regulatory Commission
Room 1046
1717 H Street, N.W.
Washington, D.C.

Tuesday, June 3, 1980

The Committee met, pursuant to notice, at 8:40 a.m.

BEFORE:

DR. DAVID OKRENT, Presiding

DR. CHESTER P. SIESS

DR. STEPHEN LAWROSKI

DR. DADE W. MOELLER

WILLIAM M. MATHIS

ALSO PRESENT:

SAM DURAIWAMY

DR. THOMAS G. MC CRELESS

NRC
AC
6/3/80
Parker
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P R O C E E D I N G S

1 DR. OKRENT: The meeting will now come to order. This
2 is the meeting of the Advisory Committee on Reactor Safeguards,
3 Subcommittee meeting on reactor safety research. I am David
4 Okrent, subcommittee chairman.
5

6 The other ACRS members present today are Chester Siess,
7 Dade Moeller, and William Mathis. Other members may come in
8 later.

9 The purpose of this meeting is to review portions of
10 the FY-1982 research budget and other related items. It may be
11 necessary to close one or more sessions of this meeting in order
12 to protect predecisional budgetary information. I asked that
13 Dr. Budnitz identify those portions that must be closed.

14 I hope that we can keep much of this meeting open to
15 the public. This meeting is being conducted in accordance with
16 the provisions of the Federal Advisory Committee Act and the
17 Government in the Sunshine Act.

18 Dr. McCreless is the designated federal employee for
19 the meeting. The rules for participation in today's meeting
20 have been announced as part of the notice of this meeting,
21 previously published in the Federal Register on Tuesday, May 20,
22 1980.

23 A transcript of the meeting is being kept. Copies of
24 the transcript of the open sessions will be made available as
25 stated in the Federal Register notice. It is requested that

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1 each speaker first identify himself and speak with sufficient
2 clarity and volume so that he can readily be heard.

3 We have received no written comments or requests for
4 time to make oral statements from members of the public. We will
5 proceed with the meeting. I call upon Dr. Siess to explain
6 his plan of action for today's review.

7 DR. SIESS: Thank you. I think today we will have a
8 mixture of form and substance.

9 (Laughter.)

10 One of my principal concerns as editor of the report
11 has to do with form. We have received from the staff -- and they
12 will present today their budget in terms of a completely new and
13 different and differently ordered and grouped decision units.

14 There are eight decision units, which means there will
15 be eight chapters in the report -- eight sections in the report
16 to keep from confusing the Commissioners.

17 So, one problem we will have is to assign those sections
18 to appropriate subcommittee chairmen so that they can prepare
19 time for next month. They are not going to fall into nice
20 pigeon-holes, corresponding one-to-one on subcommittees, except
21 in a few cases.

22 The new decision units we have at the moment, only
23 by titles, so some of the discussion -- at least I will try to
24 interject from time to time -- questions about what is included
25 in the decision unit and how it relates to the decision units we

1 dealt with last year so we can get the proper assignments.

2 We will expect the staff to explain those things to
3 us. By the end of the meeting, I hope to have the assignments
4 for the chapter authors, with the sub-authors, as necessary.

5 That is the form part. The substance part I will leave
6 chiefly to Dade. That is what is in there: What are you doing
7 and why?

8 One thing I would like to have the staff address is
9 the mission or the objectives of research as "defined" in the
10 PPG -- what do you call it? G -- what is the G -- policy program
11 planning guidance.

12 I read it. I was confused. I was not very well guided.
13 Having some ideas of my own as to what the mission is of
14 research, I could find that in there, but I'm sure anybody else
15 could find just about what they wanted.

16 I would like to get the staff's interpretation of the
17 direction they have received from the Commission on policy,
18 program, and planning.

19 Also, I want to commend the research staff on having
20 issued an RFP to look at volcano hazards of the northwest United
21 States.

22 (Laughter.)

23 It is very timely.

24 MR. MATHIS: I brought a small sample of ash.

25 (Laughter.)

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1 DR. SIESS: Has everybody got a copy of the agenda?

2 DR. BUDNITZ: On that last section, Tom Murley spent
3 last July on top of that mountain. I didn't remember that. He
4 is the last one in the room who has been on top of that place.
5 They have lost 1600 feet off of the top of the thing.

6 (Laughter.)

7 Chet, I will start by talking about the decision unit
8 realignment because if I do not do that, the logic of a lot of
9 the rest will not be quite so clear. The reason for realigning
10 the decision units was because the existing ones were giving
11 us all sorts of difficulty in a number of ways, ways that you
12 identify in your own review.

13 Ways that really are our own and don't impact the
14 way you view us. The first vu-graph shows the purpose for the
15 realignment. If anybody tries to pin me down, as Frank
16 Arsenault attempts to do, as to which of these are most important,
17 I will be darned if I know.

18 They are all comparably significant. The first -- it
19 says more representative grouping of related research areas. Now
20 why would you want a group research product in a decision unit
21 structure that is more closely related to or more closely
22 representative?

23 The reason for that is the concept is it is supposed to
24 be a decision unit. That is, people like OMB or Congressional
25 staff people ought to be able to look at a unit and say "We are

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1 going to be able to make a decision on that unit."

2 The decision then ought to be made in substantial
3 part based on the relevance of the regulatory process which we
4 support. So, that is the first one.

5 The second is to highlight Lessons Learned from Three
6 Mile Island and so on. They would have programs in '82 that
7 are significant and '83 and '84 more significant; that we would
8 like the OMB and our own Commission and Congressional people to
9 make decisions about that were miniscule in, for example, FY '79
10 and are now very large.

11 Third, we want to stress program areas and not organiza-
12 tions. We made an explicit decision that we were going to try to
13 get away from the idea that the X, Y, Z branch would have the
14 X, Y, Z decision in it that belongs to them. Where a branch
15 chief -- this was true of four or five of our decision units --
16 he felt he controlled the money and it was under his own purview.

17 That notion of mixing our organizational and program-
18 matic approaches underlie some of the decisions we make here.
19 Not all of them, but some of them.

20 Finally, to get some flexibility. Flexibility is
21 really important. For example, when we were trying to find some
22 more money this year to fund IREP or something else in this
23 assessment, I guess we were trying to find money to pay back the
24 money that PAS had spent on the Rogovin requirement.

25 They way the Congressional restrictions had been set

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1 down, the only place we could look for that money was either in
 2 the seismic and site decision units, or in waste management,
 3 because we were constrained by everything else. We could easily
 4 reprogram from either of those two into risk assessment, but not
 5 from anything else.

6 We are always going to be left with some of that be-
 7 cause of the way Congress is going to delineate things. It sure
 8 does not make sense that waste management is the only easy -- or
 9 the other one being site and seismic stuff -- are the only easy
 10 places to administratively find money for extra risk assessment.
 11 That is nuts.

12 DR. OKRENT: If I understand the logic then, in the
 13 new decision units, you scrambled everything so you can always
 14 go from one to another.

15 (Laughter.)

16 DR. BUDNITZ: If the world were best, we would only
 17 have one decision unit and we would be able to play with it.

18 (Laughter.)

19 They won't let us get away with that. We did specifi-
 20 cally try to have some of that so we can move stuff around. That,
 21 by the way, is not a trivial point. It is a major point.

22 Sometimes you are trying to move around \$300,000 in a
 23 program that is, after all, \$200 million. It is like a tenth of
 24 a percent motion. Our hands are tied.

25 Our hands are certainly tied when it gets over \$500,000

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1 because then you have to go all the way to Congress; \$500,000 is,
2 after all, a quarter of a percent, or something.

3 So, it is nuts.

4 (Slide.)

5 Now, I will show you a chart with the new decision
6 units on them. You have probably seen some of this. That
7 chart is not as useful as the one I am about to show, which I
8 drew last night because it shows that there are eight -- the
9 program direction and support pays for my salary and Mr.
10 Scroggins in the mail room and stuff like that. John Larkins
11 and stuff like that.

12 This is the chart that I want you to look at for a
13 minute.

14 (Slide.)

15 DR. SIESS: That is more what I expected.

16 (Laughter.)

17 DR. BUDNITZ: It is not as confusing as it looks when
18 I lead you through it, if I can find a pointer. In order not
19 to -- I drew that line from LOFT to LOFT and it confused
20 everything else. So, I cut it off.

21 Systems engineering has gone into two places, mostly
22 into this new place, the LOCA and transient reserach. LOCA and
23 transient research collects all code development. What that is
24 is the sort of LOCA and transient research -- it is for the small
25 breaks in transients, the disciplines that were collected in the

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1 large LOCA program of the last decade, including fuel behavior
2 work that is related to it.

3 That goes into this first decision unit. Most of
4 systems engineering code development and fuel behavior, that is
5 that is in here. That is our largest decision unit by far.

6 As you will see, it is the one that is shrinking most
7 rapidly. It is planned for increasing reduction; more and more
8 reductions in the next couple of years.

9 Left is LOFT. Okay. LOFT supports that in important
10 ways. It addresses many of the same questions.

11 DR. SIESS: Your code development all ends up in LOCA
12 and transient research. What about fuel codes?

13 DR. BUDNITZ: No, no. That is the old coded develop-
14 ment decision unit.

15 DR. SIESS: That is not fuel codes?

16 DR. BUDNITZ: Some of the fuel code work; in fact, most
17 of it was in the fuel behavior decision unit. That, that is
18 related to the LOCA and transient work ends up here.

19 (Indicating.)

20 So, here we now have all of the code work that is
21 related to LOCA and transients; whether or not it is fuel codes
22 or not.

23 DR. SIESS: What fuel code research is not related to
24 LOCA and transients?

25 DR. BUDNITZ: That which is the next one. The severe

bfml0
1 accident phenomenon mitigation. That is codes that look at the
2 way fuel behaves, or moves from the stable operating condition
3 to --

4 DR. SIESS: Core melt?

5 DR. BUDNITZ: Fuel damage and core melt.

6 DR. SIESS: But codes that deal with clad burst and
7 flow blockage, et cetera, are in LOCA and transient research and
8 codes that deal with fuel melt are down in severe accidents.

9 DR. BUDNITZ: Right.

10 DR. SIESS: I think I understand.

11 DR. BUDNITZ: The other one that is related to that,
12 then, is the plant operational safety. The plant operational
13 safety is our new large decision unit. It is the second largest
14 one. It collects a lot of work that was doing on in different
15 places.

16 There is part of systems engineering, for example,
17 that in the past was held in systems engineering that is now
18 going in there. Some of it had to do with human factors and
19 some of them had to do with operating, environmental questions,
20 and so on.

21 Plant operational safety also gets all of the PSI,
22 primary system integrity decision unit. It all goes in there.
23 In the seismic engineering and site safety, what goes in there
24 is the engineering part.

25 What I mean by that is basically all of the area

1 that Larry Shell and his branch chief look after more or less
2 is in there. Richardson's branch work is in there.

3 So, you can see that plant operational safety collects
4 not only some of systems engineering, some primary system integrity
5 and some seismic -- the engineering part of the old seismic
6 engineering and site decision units, but it has in it the human
7 factors work, which is new. It has in it some I & EC work,
8 instrumentation and electrical controls work, which is new.

9 By new, there may have been bits and pieces, but it is
10 basically a new area that we will come to. It collects there.

11 Things that are operationally up -- operationally
12 oriented. Now, the other important one for the reactor safety
13 side is the severe accident phenomenon and mitigation. What
14 this collects is new programs and some reorientation of existing
15 programs in the area of phenomena of accidents that proceed into
16 core melt.

17 Then, the phenomena of what happens after core melt and
18 interacts with base matter, gasses evolve or whatever. You notice
19 that it has part of the fuel behavior decision unit in it. That
20 is perhaps maybe a quarter of it. I do not remember the numbers,
21 but I have them here.

22 Anyway, that part of the fuel behavior decision unit
23 of the past that examines fuel and core behavior beyond when it
24 starts to lose structural integrity goes in there. All of the
25 stuff that studies not only severe accident phenomena but miti-

1 gation.

2 The containment questions and so on, containment
3 response is all in there. You notice the fast breeder reactor
4 and advance converter reactor stuff goes in there. That is a
5 bit of an anomaly.

6 Much of the fast reactor stuff is, of course, related
7 to exactly these, the liquid metal reactors. A lot of it is
8 related to and reoriented toward water reactors. There is some
9 stuff that does not have anything to do with any of this stuff.

10 It is fast reactor stuff. It is under there, too. We
11 had to stick it somewhere. That's where it is.

12 So, the better title for that would be "Severe accident
13 phenomenon and mitigation and fast reactor research." That's
14 where it all is, but the title was too long. There is some
15 stuff that is special for breeders that is in there.

16 Basically, except for what happened to risk assessment
17 down here, that is the reactor safety part, the first four plus
18 the risk assessment.

19 By reactor safety, I mean reactor accidents. So that
20 is an exaggeration too, in part, because some of the siting and
21 environmental has a very strong component.

22 For example, earthquakes and floods as initiating
23 events. What we have done is we have gathered the seismic and
24 site parts of this decision unit together with the reactor
25 environmental and fuel safety environmental stuff and stuck them

1 in a decision unit that gathers together all those siting and
2 environmental research.

3 DR. SIESS: You are calling that siting and environment-
4 tal and what I guess is seismic and environmental. Have you
5 changed it?

6 DR. BUDNITZ: It is seismic.

7 DR. SIESS: Seismic?

8 DR. BUDNITZ: It is siting and environmental.

9 DR. SIESS: Okay.

10 DR. BUDNITZ: Now, what it has is from here.

11 (Indicating.)

12 For example, for earthquakes as an initiating event,
13 so that when Jerry Harber or Bob Ebby are worrying about tornadoes
14 or earthquakes as an initiating event, it is in there. The
15 reactor environmental stuff is both routine and the environmental
16 impacts of accidents. That decision unit, I think, is an
17 important logical bringing-together of a lot of programs that
18 have been scattered around, which certainly is overdue.

19 Now, you notice something else that happens there,
20 also. This crosses the divisions, primarily the RSR division has
21 these programs.

22 (Indicating.)

23 This other division has the environmental stuff in
24 it. Crossing of divisions is an important goal of that.

25 DR. SIESS: Siting and environmental involves both RSR

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1 and safety?

2 DR. BUDNITZ: Yes, it does. Now, waste management is
3 the same. There is some cross-talk here -- there is some
4 dashed lines that I could have put in in turquoise or something
5 to show little changes of a minor nature, but I have not got them
6 on this slide because it is too confusing.

7 We probably in logic should have left safeguards
8 research as its own decision unit, but it turned out it was quite
9 small and we lumped it in an illogical decision unit as two
10 things together.

11 I do not apologize for that. It is just that if we
12 left fuel cycle safety, which we have here differentiated from
13 fuel cycle environmental, if we left it as a decision unit on its
14 own, it would be 2 million, and safeguards was another four or
15 five.

16 So, we bumped them. I think we all agree that is not
17 logical. It is a way of not having a \$2 million decision unit.
18 You see, previously fuel cycle safety and environment was in
19 one decision unit.

20 We took the environment and stuck it somewhere, so we
21 had fuel cycle safety left. Whether that is closely enough
22 related to safeguards to make one logical unit is for you to
23 judge.

24 I have just told you my opinion. I do not think it is,
25 but it is a convenient way of not having another one.

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1 Now we have taken risk assessment and taken that part
2 which is waste management and put it with waste management. So,
3 now for the first time, waste management has all the waste
4 management in it, which I think is a bit of logic that was not
5 true before.

6 Those of you familiar with the program know that Mike
7 Callingford and some colleagues have been working with Sandia for
8 several years on a waste management risk assessment effort.
9 Certainly, it belongs in waste management. It is not -- it is
10 not quite so logical in risk assessment.

11 The rest of that, more or less, has gone into systems
12 and reliability analysis. Systems and reliability analysis is
13 the new title for -- because we think it is a better description
14 for used to be called risk assessment.

15 Then, I have improved reactor safety. That one we
16 have eliminated. That is a conscious policy decision in which
17 we have taken the pieces and put them where they belong.

18 For example, the improved reactor safety human factors
19 stuff is in plant operation safety. The filter vented containment
20 is in severe accident and other pieces where they go.

21 The reason for eliminating that is exactly the converse
22 of the reason why Saul Levine wanted to create it in 1903, or
23 whenever it was. I think it was four years ago. I think it was
24 created for the first time in the '78 budget cycle four years
25 ago, now this is '82.

1 The notion there was we were going to create a special
2 thing called improved reactor safety. Everybody is going to
3 pour money in it, remember?

4 DR. SIESS: They didn't.

5 DR. BUDNITZ: That happened so successfully we still
6 have \$1 million this year. We decided that there was no logic
7 in that. We are following the lead that you people took in
8 your last write-ups, the last two, in which you said that the
9 entire program, whatever its elements, ought to have both
10 confirmatory and improved and exploratory research in them.

11 So, we just mixed them up. I have insisted that is
12 in part political. Nobody expects we are going to get a lot of
13 money for that by identifying it anymore, so we are going to
14 stick it where it belongs, which is in the bits and pieces; but
15 we can identify it for you -- and we will here -- what the
16 improved safety program would look like in '82 if it were in the
17 old decision unit.

18 You will see that it has gone from \$4 1/2 million to
19 something like 12.

20 DR. SIESS: This would be the classic improved safety.
21 The items that were identified in NUREG-0603.

22 DR. BUDNITZ: And some others.

23 DR. SIESS: I think that would be helpful. There were
24 three or four identified. The little projects you had going
25 had been moved various places. You have others.

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1 DR. BUDNITZ: I have to insist that that is a policy
2 decision and if you want to comment on that, we would like to
3 have your comments.

4 You notice, we have just a limited that not only as
5 decision unit, but as a concept for budget argument, because
6 we were getting beat on it. We thought it was a mistake. We
7 took the confirmatory exploratory and improved safety -- they
8 ought to be argued for in each area, whichever it is.

9 DR. SIESS: Personally, I agree because the previous
10 strategy did not get you any money.

11 DR. BUDNITZ: Yes. That was the point.

12 DR. SIESS: 0578 got no response from the Congress in
13 terms of dollars.

14 DR. BUDNITZ: They may have read it, but it did not
15 work two or three years later, anyway.

16 DR. OKRENT: Where does accident analysis -- I mean,
17 you know, consequences and this sort of thing that PAS used to
18 do?

19 DR. BUDNITZ: It is still in the systems and reliability
20 analysis. Part of it is in environmental. That is the analysis --
21 the consequence analysis of the sort that WASH-1400 did is here.
22 Research to provide phenomenological information to support that
23 is here.

24 (Indicating.)

25 For example, if one finds that the deposition velocity

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1 in a certain wet desert region is not understood. Arsenault's
2 SAFER program here is going to provide that information.

3 DR. SIESS: Where is the CRAC code?

4 DR. BUDNITZ: Here.

5 (Indicating.)

6 Let me describe the logic there. What we did is we
7 took all of the stuff that explores phenomenon. There was some
8 in risk assessment. For example, the various computer codes and
9 things like that. We took it out and let this analysis, systems
10 and reliability analysis. There are no phenomena in here.

11 The phenomenological research, the understanding of
12 phenomena that support these analyses is elsewhere. That is
13 a bit of logic that is different than what was done before, in
14 which the risk assessment decision unit contained a lot of stuff
15 that explored phenomena, not a lot, but significant. Anyway,
16 a few million dollars.

17 It explored phenomena that involved risk assessment.
18 We are not doing that anymore. Now, besides the major lines
19 here, I could draw -- I said in another color I could draw a lot
20 of minor lines that go all over the place that would just con-
21 fuse you; with \$.9 million going somewhere where we realigned
22 things.

23 For example, over the years, risk assessment supported
24 some steam explosion work. It clearly does not belong in risk
25 assessment or in systems and reliability. It belongs in severe

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bfml9
1 accident. That's where we put it. Okay?

2 The reason it was steam explosions there was because
3 WASH-1400 needed that information. It was felt -- done for that
4 purpose, okay?

5 Now, let me describe the details of this new decision
6 unit approach. There are a couple; that is, what is poor about
7 it.

8 Well, first as a point of logic, there is some stuff
9 in LOFT that ought to be in one of the other decision units.
10 We decided as a matter of policy to put everything about LOFT
11 in the LOFT decision unit, not just LOFT operations on the major
12 LOFT programs.

13 So that, for example, there is a bit of money under
14 the LOFT decision unit that is an improvement in the LOFT
15 control room or control system. That, if it were not LOFT would
16 be under plant operational safety. It is at LOFT. That is
17 merely in order that everything in the LOFT project be identified
18 together.

19 Secondly, there is some mixing and confusion in our
20 work on, for example, supporting the siting rulemaking. If you
21 ask me where, here, are we supporting the big and important
22 siting rulemaking or related rulemakings, I would say it is
23 kind of mixed up. We cannot identify that.

24 A lot of it is in siting and environmental research.
25 It is in systems and reliability analysis and so forth. So there

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1 are some important new thrusts or new emphases in the program
2 that are not reflected here. There are a couple of others. We
3 will probably uncover them as the day goes on.

4 Do you have any questions so far?

5 (No response.)

6 DR. MC CRELESS: Is there anyone in the audience not
7 from NRC?

8 DR. BUDNITZ: I was going to ask that myself before I
9 went any further?

10 DR. SIESS: Let me ask a couple of questions, Bob,
11 just to get myself oriented. I am looking back at the decision
12 units we dealt with last year. We had a category we called
13 reactor and environmental effects.

14 Dr. BUDNITZ: Yes.

15 DR. SIESS: It looks to me like that now ends up in
16 partly -- partly in siting and environmental, and partly --

17 DR. BUDNITZ: Safeguards and fuel cycle safety.

18 DR. SIESS: In other words, in the first part, in the
19 siting and environmental, it looks like the items that were
20 called occupational health, environmental impacts -- I'm sorry,
21 I am reading the wrong one. The physical transport and effluent
22 characteristics ends up in siting and environmental; ecological
23 processes we do not really concern ourselves with.

24 Radiation dosimetry and health effects would be in
25 siting and environmental, right?

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1 DR. BUDNITZ: Right.

2 DR. SIESS: Socio-economics and regional would be
3 there?

4 DR. BUDNITZ: In siting and environmental, that is
5 right.

6 DR. SIESS: Occupational radiation exposure?

7 DR. BUDNITZ: Yes, but let me describe the occupational
8 protection division so you will understand. The occupational
9 protection work, figuring out schemes for protecting workers is
10 in safeguards and fuel cycle safety. Even that part of the
11 occupational work that protects workers around reactors.

12 We just had to put it someplace.

13 DR. SIESS: That would be under fuel cycle facility
14 safety?

15 DR. BUDNITZ: Safeguards and fuel cycle safety.

16 DR. SIESS: I am looking at the sub-units.

17 DR. BUDNITZ: Yes.

18 DR. SIESS: That is fuel cycle facility safety?

19 DR. BUDNITZ: It is called occupational protection,
20 Chet.

21 DR. SIESS: Not on my list.

22 DR. BUDNITZ: The occupational exposure and health
23 effects stuff, though, which measures exposures and worries about
24 health effects is in siting and environmental, okay? That is
25 the difference. I have to make that difference for you, or else

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bfm22

1 you will --

2 DR. SIESS: Nothing is under safety and fuel cycle --

3 DR. BUDNITZ: Occupational protection. It is a late
4 edition, which probably not on your list.

5 DR. SIESS: It is not on any list. That we simply
6 add?

7 DR. BUDNITZ: Right.

8 DR. SIESS: What do you call it?

9 DR. BUDNITZ: Under safeguards and fuel cycle safety
10 you have the following: You have physical protection; MC & A,
11 and so forth; decommissioning and so forth. You just add
12 occupational protection.

13 DR. SIESS: All right. That includes items -- that
14 includes part of the old occupational radiation exposure?

15 DR. BUDNITZ: That's right. As I said, we have
16 separated occupational protection from operational effects,
17 health effects, and so on.

18 DR. SIESS: And part of that then ends up there, and
19 part of it ends up as occupational exposure and health effects,
20 right?

21 DR. BUDNITZ: Yes.

22 DR. SIESS: Decommissioning now ends up in?

23 DR. BUDNITZ: Safeguards and fuel cycle.

24 DR. SIESS: Safeguards and fuel cycle. Now, under the
25 old fuel cycle unit, you had effluent control which now comes

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1 under safeguards and fuel cycle; then just safety, which would
2 come under fuel cycle facility safety, I assume.

3 DR. BUDNITZ: Yes.

4 DR. SIESS: Occupational health includes some of the
5 stuff we just talked about, environmental impacts.

6 DR. BUDNITZ: That is now all under environment. Fuel
7 cycle environment is all under environment.

8 DR. SIESS: That would be under the airborne effluents
9 environmental impact and aquatic environmental impact and
10 transportation. We have decommissioning twice, but the decom-
11 missioning now includes both.

12 DR. BUDNITZ: Reactors and other facilities.

13 DR. SIESS: You have that listed under safeguards and
14 fuel cycle safety, but that decommissioning includes reactors
15 and --

16 DR. BUDNITZ: Yes. All right?

17 DR. SIESS: Those were two pretty mixed up areas. I'm
18 not sure they are better now, but at least I know where they
19 are.

20 DR. BUDNITZ: We had some stuff where we could have
21 separated reactor decommissioning from fuel cycle decommissioning,
22 but that was such a little program.

23 DR. SIESS: Okay.

24 DR. BUDNITZ: Okay. Now, I just want to then go back
25 and show you where -- the motivations here. We are trying to

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1 stress program areas, particularly the new ones.

2 We are going to stress plant operational safety. The
3 decision unit is going to be identified and argued for as a
4 unit, severe accident consequences and mitigation, then the
5 systems interaction.

6 Those are important philosophical reasons for what
7 we did. There are a lot of managerial ones as well.

8 (Thereupon, at 10:15 a.m., the Committee entered
9 into closed session.)
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end t2
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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

in the matter of: **ADVISORY COMMITTEE ON REACTOR SAFEGUARDS**
SUBCOMMITTEE ON REACTOR SAFETY RESEARCH

Date of Proceeding: June 3, 1980

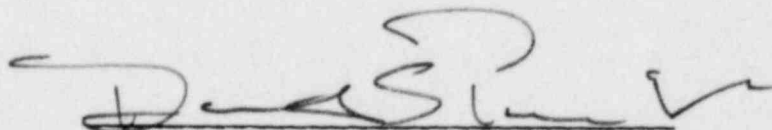
Docket Number: _____

Place of Proceeding: Washington, D. C.

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

David S. Parker

Official Reporter (Typed)

A handwritten signature in dark ink, appearing to read 'David S. Parker', written over a horizontal line.

Official Reporter (Signature)