NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF:

SECY-78-109

STATEMENT ON STANDARDIZATION OF NUCLEAR POWER PLANTS

Place - Washington, D. C.

Date - Wednesday, 15 March 1978 Pages 1 - 82

Telephone:
(202) 347-3700

ACE - FEDERAL REPORTERS, INC.

Official Reporters

444 North Capitol Street
Washington, D.C. 20001

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

SECY-78-109

STATEMENT ON STANDARDIZATION OF NUCLEAR POWER PLANTS

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

Wednesday, 15 March 1978

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

BEFORE:

VICTOR GILINSKY, Acting Chairman

PETER BRADFORD, Commissioner

ALSO PRESENT:

SAMUEL CHILK
JOE SCINTO
JOE RUTBERG
ED CASE
DICK DE YOUNG
BILL KANE
LEE GOSSICK
AL KENNEKE
JIM KELLEY

P R O C E E D I N G S

(2:00 p.m.)

COMMISSIONER GILINSKY: Why don't you proceed?

MR. DE YOUNG: Ed Case will be here in a few moments. I don't know where he is. We lost him.

But we have a set of slide to lead the talk. And we will use these. We have provided you with a copy of the slides. We also have the view chart.

(Slide.)

The first slide indicates the Commission statements on standardization. The first, initial, is the policy statement put out in 1972.

About a year later, the Commission indicated the Staff was prepared to implement that policy with respect to three of the four concepts of standardization; reference system concept. duplicate plant and manufacturing license.

About a year later, they said we are now prepared with replication and put out a statement on that

In June of last year, we put out the last policy statement that reaffirmed the support of the standardization policy and requested comments on proposed changes to that policy.

(Slide.)

The next slide just very briefly describes the reference system concept, which involves the submittal of an

application for approval of the design for an entire plant or a major fraction of a plant outside of the context of a license application.

The examples there -- these are the PDA applications, the preliminary design approval applications; the CESSAR NSSS application is one example, and the SWESSAR Balance of Plant application is another.

(Slide.)

The next slide is duplicate plant concept. It involves the submittal of a number of applications for construction and operation of plants of essentially the same design, to be located at different sites by one or more utility applicants.

And the example here that most of us refer to is the SNUPPS application where a group of utilities have used the same plant at different sites.

(Slide.)

The next slide is the manufacturing license concept. I think we all know what that is. We only have had one application of that, and that is the floating nuclear plant application from Offshore Power Systems.

(Slide.)

The next slide is the replicate plant concepts. It involves a submittal.

COMMISSIONER GILINSKY: It is basically tied to

the floating plant concept; isn't it?

MR. DE YOUNG: Yes, it is. We don't know of any other way we can transport a completed plant, other than --

COMMISSIONER GILINSKY: So the only other example you could have is if another manufacturer --

MR. DE YOUNG: Utilizing essentially the same concept of floating plants.

The next slide, replicate plant concept, involves the submittal of an application by a utility, where a nuclear power plant has essentially the same design as one previously reviewed and accepted by the Staff.

The example is Marble Hills which replicated the Byron plant.

(Slide.)

The next slide is in colors. The blue is the nuclear steam supply system. The red is the balance of plant. The yellow is what we call utility-related, and the white we refer to as the site.

It gives you a brief understanding of what parts of the plants are involved.

(Slide.)

The next slide shows the nuclear island concept and turbine island. The nuclear island is green and the turbine island is blue. The yellow is the same; utility-related. It is never standardized. And the white is the site.

The complete plant is composed of the green plus the blue; that is a complete standard plant.

And on the previous slide, it was the same outline that you see here. This gives you an impression of what the PDA applications usually involve.

(Slide.)

The next slide talks about the experience with standardizations: Has industry used the problem? Has the program resulted in less review manyears per CP? Overall, have we lost or gained with standardization? And last, have schedules been shortened, and if not, why not?

(Slide.)

The next slide shows that standardization has been used by the utilities.

COMMISSIONER GILINSKY: When you say: Overall; have we lost or gained anything--

MR. DE YOUNG: We will talk about that in ----

COMMISSIONER GILINSKY: -- what do you mean by that?

MR. DE YOUNG: -- the next slide.

COMMISSIONER GILINSKY: Okay.

MR. DE YOUNG: But this slide shows that standardization is being used. The last column at the very bottom shows 21 applications for 50 units have used one or more of the standardization concepts.

The first column on the left shows that the total

number of applications during that period had been 45 for 95 total units. So more than half of the units that we have received applications for since March of '73, have utilized the standardization concept. That percentage has been increasing with time.

And in my opinion, it is going to be a rare event if any application is received that does not refer to one or more of the standardization concepts.

(Slide.)

The next slide indicates the average number of questions and the average manyears for the safety review for each of the applications we receive.

The top line is the reference point. For a custom plant Construction Permit, the average number of questions is usually 700, and it takes the Staff 6.3 manyears to do that.

Duplication plant Construction Permit, has been reduced to 300 and 3.2 manyears.

Replication, 350 at 4.5 manyears.

The nuclear island concept, 260, and 4.4.

Now, in the parentheses there, is the number that would occur if we added the questions and the manyears that we used approving the standard design that the Construction Permit referenced.

So you can see that in reality, for the CESSAR Construction Permit, for example, we really asked 725 questions

on the average for the four applications that were used for this analysis.

And we really used, as a Staff, eight manyears for each of those Construction Permits. But on the application itself, for each of those applications, we only employed six manyears.

The other manyears were used approving the standard design, before we ever received the application for the Construction Permit.

COMMISSIONER GILINSKY: I didn't follow that.

Approving the standard design, you used how many manyears?

MR. DE YOUNG: For example, to approve the CESSAR, NSSS, we asked about 650 questions, and it took us about, as I recall, six-plus manyears to do. We spent that time.

Now, there were four CP applications that came in that referenced that design. If you just look at the questions we asked on those CP applications, we asked on those four CP applications an average of 570 questions.

But we had spent Staff time to approve the standard part that they merely reference.

COMMISSIONER GILINSKY: Right.

MR. DE YOUNG: If we include those questions, and divide that 600-plus by four and added that to the 570, you get 725.

COMMISSIONER GILINSKY: I see.

MR. DE YOUNG: The next slide shows whether we have lossed or gained, overall.

(Slide.)

All the questions; we have added all of the questions and all of the manyears we spent on approving standard designs and approving Construction Permits that referenced them.

And the bottom to the right there, we have the custom plant CP, the 700 and the 6.3 manyears. And right above it, you can see that we have slightly reduced the number of questions and slightly increased the number of manyears.

I think the result as far as we are concerned is that we about broke even on standardization, but the payoff, if we only had some applications coming in, would be about to be gain, because the more plants that reference these approved designs, the more benefit we will get.

So think we haven't wasted our time, but we have not made much time.

(Slide.)

The next slide talks about the review schedules. Have we shortened the review schedule? And at the bottom, again, we see the custom plant and just above it is the composite results for all the standards plants.

And you can see that we haven't shortened any of the schedules to get these Construction Permits.

(Slide.)

The next slide tell us why.

COMMISSIONER GILINSKY: Let me take a look at that again.

They are all about the same?

MR. DE YOUNG: They are all about the same, and there is a reason, which the next slide will show.

COMMISSIONER GILINSKY: Okay.

MR. DE YOUNG: Why haven't we shortened the schedules? When we do the Staff review, there are generally four general areas of review; the NSSS, the BOP, the site, and the utility.

The average number of questions we ask of the 700, in each of these, we have a good indication of. There are 200 in the NSSS, 300 in the BOP, 120 on the site and 80 to the utility; on their training plans, emergency plans, and so on. We know where the questions are..

The time it takes to review the top three is about the same, independent of one another.

MR. CASE: They are parallel paths.

MR. DE YOUNG: They are parallel paths; it takes the same amount. To have a standard NSSS does not reduce the overall review schedule, as we still need the same amount of

time to review the balance of plant and the site.

The utility matters we can do much more quickly. But even if we had a standard NSSS and a standard balance of plant, and the site was not approved, it would still take about the same amount of time to do the overall review.

COMMISSIONER GILINSKY: Now, you have 14 months down there for reviews.

MR. DE YOUNG: That is dreams.

MR. CASE: A target.

MR. DE YOUNG: Whatever number I put down there, the fourth one would be much less.

COMMISSIONER GILINSKY: But the top three would be about the same?

MR. DE YOUNG: They are about the same, and that is why we haven't reduced the overall schedule to do the reviews.

MR. CASE: And that obviously, if you had a certain mix; you got every standardized except the site, then presumably you could put more manpower on the site and reduce that time if you had a large number that were coming that way.

But with the mix that we have, I have to apportion the manpower so they often aren't the same.

MR. DE YOUNG: And the manpower is slightly different. It is geologists and hydrologists in the site area

more than it is mechanical engineers.

COMMISSIONER GILINSKY: Now, are these sites matters that could be handled earlier, if we had --

MR. DE YOUNG: Yes.

MR. CASE: Oh, yes, if you had an early site review.

COMMISSIONER GILINSKY: Yes.

MR. DE YOUNG: With the early site approval and a complete standardized plant, it is my opinion that we could complete this job in about a half year.

COMMISSIONER GILINSKY: A half a year?

MR. CASE: Would it include the hearing on that?

MR. DE YOUNG: To get to the hearing.

COMMSSIONER GILINSKY: By the way, until we get this 14 months, it seems to me we ought to have kind of realistic numbers in the charts we present.

MR. DE YOUNG: The intent of the chart was just to show the parallel paths here.

COMMISSIONER GILINSKY: Or you could just put "X."

MR. DE YOUNG: Less than "X."

MR. KENNEKE: Do the site questions include more than just Chapter two?

MR. DE YOUNG: Yes.

MR. KENNEKE: More than just seismology, geology? It includes design questions.

COMMISSIONER GILINSKY: Let me ask you something else: Is this number of questions, is that a reasonable index of what goes on?

MR. DE YOUNG: Yes.

COMMISSIONER GILINSKY: Because if we switch over to producing an early SER, as in fact we have committed ourselves to doing, at least on the next few, in effect, I guess we are not really asking any questions, or very few.

MR. CASE: Well, you would cut them down, cut down that part of the question and answer period where we go to a Position and say: What do you think about it, and --

COMMISSIONER GILINSKY: Well, a lot of this would take place after we have produced an SER, in effect?

MR. CASE: Yes; either the ACRS phase or the hearing phase.

COMMISSIONER GILNSKY: Yes.

(Slide.)

MR. DE YOUNG: The next slide, we did a little study to see: Is standardization really needed and we started to review what changes in the program should be made.

And very briefly, we took a look at all the license applications that have come in, on the next slide.

(Slide.)

And at the time in 1972 when the Commission came out with its first policy statement, the Staff was really

overloaded. The number of applications that were coming in were staggering. We couldn't even start work on some of those applications at that time.

We need a method to enable the Staff to handle a heavy workload with the same number of people. We couldn't get many more people.

The standardization was one of the things we looked at. And we thought with this number of Construction Permit applications coming in, continuing to come in at the time, as we expected, and the OLs coming in from previous years, we just couldn't it. We had to find some better way and standardization was the way to reduce the average number of manyears per application.

There was no thought about reducing the time of the Staff review. It was concentrated on enabling the Staff to handle a heavy workload within the same time span that it was accustomed to take.

This slide that you see now, we took at look at what the future held.

(Slide.)

A new policy statement, conservation of energy, utilization of coal --

COMMISSIONER GILINSKY: Let me ask you: In fact, though, it was a bit of a simple-minded approach to the problem that it took awhile to get all this going. And so

it really couldn't help out in the immediate problems that the Staff had.

MR. DE YOUNG: For a number of years.

COMMISSIONER GILINSKY: And you had to solve that by other means.

MR. DE YOUNG: We were looking to the future to get something underway, because we expected that heavy continuation of Construction Permit applications.

MR. CASE: But you see, at the time we had a heavy CP workload, but we hadn't gotten the returns from the OL workload. So we were envisioning heavy workloads in both areas that something should be done on.

COMMISSIONER GILINSKY: Or at least it was overoptimistic about how rapidly this kind of an approach could actually have an effect on activities.

MR. DE YOUNG: The same type of optimism as the 14 months; that's true.

MR. CASE: But on the other hand, if you hadn't gotten started until you worked it all out, you never would have gotten started. You always have that kind of a problem, too. If you try to think of all the possible problems and solve them first --

COMMISSIONER GILINSKY: Oh, no; I am not suggesting that we shouldn't have gone forward with it, no. But I as far as it deal with the problems --

MR. CASE: Well, I react to people that would say everybody was naive and optimistic back in those days: To some degree, yes, but they were, I think, farsighted, to get something going.

COMMISSIONER GILINSKY: Well, you can be naive and farsighted.

(Laughter.)

(Slide.)

MR. DE YOUNG: The next slide shows the results of that study we did for the number of plants we might expect, the number of applications that we might expect.

And I think the third column is key. We have taken a look at the number of two-unit nuclear plants, two units, because the average application we receive is for two units.

And I think the critical number to look at; growth percentage, is some place in between three and five.

COMMISSIONER GILINSKY: Now what is that growth percentage; electrical power?

MR. DE YOUNG: Yes; electrical power growth. It is replacement based on these percentages. These numbers are the total of replacement plus growth for these growth percentages.

COMMISSIONER GILINSKY: Assuming what kind of a mix?

MR. DE YOUNG: We took the mix as one-third of all the applications would be nuclear; two-thirds would be fos sil fuel or some other means. But one-third would be nuclear.

COMMISSIONER GILINSKY: And what are the different columns?

MR. DE YOUNG: The very first column is the 1200 megawatt units to be applied for, installation in eight years from the time they are applied for.

Replacement power; we assume that all the plants that we have now would be replaced 32 years after they were initially installed.

The growth power there was for those various percentages, for the existing power, if they grew at one percent, three percent, five, seven percent. That is the number of units that would be required to replace that power, just for that growth.

And the next column, we have added those together. That is the total of two-unit plants, and we took one-third.

And the very last column is what percentage of this might be standardized designs.

COMMISSIONER GILINSKY: Using what, a 50 percent assumption?

MR. DE YOUNG: Yes; the first part of that is about half of those would be standard designs and then after a number of years, we assume two-thirds would be standard

designs.

We just did that to get a view of what we might get.

MR. CASE: And we don't claim to be in the forecasting business, or anything. We just wanted to give at least some picture of how it would look.

MR. DE YOUNG: But these forecasts do agree. We have checked with the other forecasts from the Stanford, Gulf, The Stollar Associates, and ERDA forecasts. And they are in general agreement with the number of plants we will have installed by the year 2000.

But we did the study, and it shows that unlike the time back in 1972, the number of plants we are going to have to review for construction, the applications, are not likely to be very great. And perhaps we didn't need standardization for that reason, for the same reason we thought we needed it back in 1972.

But standardization, in our view, is the only way, in conjunction with the early site approval, that you are likely to get a significant decrease in the time, the overall time, to get a plant licensed and under construction.

And we think it is worthwhile, and for that reason, plus the reasons that we think it does increase overall safety, we think we should continue with the program.

(Slide.)

MR. GOSSICK: Dick, I believe that had to be based on a 50 percent nuclear out of the total.

MR. DE YOUNG: For the first several years, and then later on it is two-thirds, near the end of that columan it is two-thirds.

MR. GOSSICK: I see.

MR. DE YOUNG: It was a rough study, but it comes out to be about the same as --

COMMISSIONER GILINSKY: It is one-third.

MR. CASE: It is one-third nuclear, but the percent of standardization --

MR. DE YOUNG: But the percent standardization of those nuclear.

MR. CASE: -- on the total nuclear starts out at 50 and then --

MR. DE YOUNG: It starts out at 50 percent and then goes to two-thirds.

The next slide, comments on the 1977 changes. We got the Commission to put out a policy statement last June.

(Slide.)

The next slide shows very briefly what the changes we proposed last June were; replication, duplication and manufacturing licenses there were essentially none.

The recommendations for changes had to do with the PDA and the FDA concept, and the concentration was on the

FDA. We had described two types of FDAs.

(Slide.)

The next slide, just briefly reviews what these two FDA concepts were that we recommended be commented on last June.

The FDA-1 is applicable to all those plants that utilize the PDA. But it was not referenceable in new CP or a combined CP and OL application. It could only be referenced at the OL stage for those plants that were based and utilized the preliminary design approval.

The FDA-2 was referenceable in new CP applications for a period of five years. And their Regulatory Requirement Cutoff Date was the docket date for the application.

The Regulatory Requirement Cutoff Date is the date we usually use -- we have always used something, -- but near the end of our review we say: All right; the Staff is going to stop its changeds in requirements so you can finalize your design and get it approved.

Near the end of our review, we have always done this, except for that those changes that we have to make to be consistent with any changes in the regulations.

COMMISSIONER GILINSKY: How close to the end of the review is that?

MR. DE YOUNG: It is usually what we call the Q-2 time. It is about two-thirds of the way through the review,

roughly.

COMMISSIONER GILINSKY: Which review?

MR. DE YOUNG: Through the Safety Evaluation Review, from the time they docket.

MR. CASE: The Staff review.

MR. DE YOUNG: The Staff review.

MR. CASE: Now, he doesn't mean regulations; he means Regulatory Guides.

COMMISSSIONER GILINSKY: I know, but we are talking about an OL review, or CP review?

MR. DE YOUNG: CP.

COMMISSIONER GILINSKY: That is for getting the CP?

MR. CASE: Yes.

COMMISSIONER GILINSKY: But then the applicant in effect starts to run a new race.

MR. DE YOUNG: At the OL time?

COMMISSIONER GILINSKY: Yes.

MR. DE YOUNG: But that FDA-2 would be referenceable in CP applications. Even though it is a final design, it would be the one-stage type of review by the Staff. So it would be referenced in new CP applications, and the cutoff date we had made -- we said it will be the docket date of that application and not halfway through the Staff review, to enable them to conclude the final design.

COMMISSIONER GILINSKY: When you spoke about a cutoff date some where near the end of the CP review, does that -- that is the cutoff date for the final design, all the way up through the OL?

MR. CASE: It should be.

MR. DE YOUNG: Except for changes we think are so important, and we will be getting to those near the end of the presentation.

MR. CASE: Except for safety significant changes.

MR. DE YOUNG: Safety significant changes; we will be addressing that in some detail.

COMMISSIONER GILINSKY: Would those have to be in regulations, or just those you deem to be of safety significance?

MR. CASE: The latter and it is obviously an arguable tender point with the applicants and the industry.

COMMISSIONER GILINSKY: But in the FDA-2, what would the situation there be?

MR. DE YOUNG: The FDA-2, we will agree with the utility -- with the vendor that -- we know it takes time to get a -- to enable him to provide the final design, so instead of waiting for a year from the time he puts in that application, we will agree on the docket date; all requirements as of the docket date will be the regulatory requirements cutoff date for that design.

COMMISSIONER GILINSKY: Using the same sort of standard?

MR. DE YOUNG: Same sort of standard.

(Slide.)

We put out that policy statement last June, and we received comments. We requested comments and we received.

The next slide that is up now indicates where those comments were received from and generally what they were.

The four reactor system manufacturers commented, architect engineers; we received five comments from them, two utilities, and three others, including the AIF.

We did not receive any comments from the Department of Energy or anyone else. We just didn't receive anything, from intervenors or objections; just from these three.

MR. KENNEKE: What does disciplined management mean?

MR. DE YOUNG: I am going to go through them.

I think everyone who commented, even though if you look in the architect engineer groups, you don't find the term disciplined management, they also feel it very strongly.

They said in order to make standardization work, we need disciplined management, not only in their own organizations but within the Staff.

COMMISSIONER GILINSKY: Are they referring to all the participants, or --

MR. DE YOUNG: All the participants, from the individual reviewers to the individual design people on their staff. We must understand that standardization is different and it requires discipline to postpone making a change until the time for the changes come about.

Standardization is merely a change from making a change as each change comes up, or delaying the changes until you can do it in a batch process. It requires discipline to do this, both in the Staff and in the designer's group.

COMMISSIONER BRADFORD: Discipline aside, what is the relationship of this to the resolution of the various generic issues?

Supposing that you deal with them, something comes out that suggests that a change is necessary. What do you do?

MR. DE YOUNG: Again, if it is very important and significant, I think we would make a determination that it is important enough to consider backfitting that change into all plants that are in operation, approved for design or approved for construction.

That determination is made by the Staff at the highest level.

MR. CASE: Generally, we categorize changes into three categories:

One, forward looking, and only do it on new applications;

The second is of more importance; do it on a case-by-case basis, looking at the particular application and how close do they come to it and how much would it cost to come all the way;

And the third recommendation is; backfit it across-the-board.

So we generally divide them into those three categories. When we approve a change in RRRC, the so-called Regulatory Requirements Review Committee and the director of the office, approve a change in any kind of regulatory requirements, branch technical positions, Standard Review Plan, or a Regulatory Guide, each one of those is categorized within those three ways.

COMMISSIONER BRADFORD: But under standardization you have to -- don't you have sort of a fourth category; that is, of a particular type of plant that has been approved and has been licensed for some applications, and then you will expect others in the future.

MR. CASE: So you have to kind of split those categories. There are subs to that. Some, for instance, you would say: On all future applications, but for one who came in to reference a standard plant that had already been approved, it wouldn't have to be done. We would do it in a batch process.

When the term is up for that approval, we would do

it at that time. That is a benefit of standardization, as we see it, to the user.

MR. KENNEKE: Wouldn't you get multiple benefit by applying it to more than plant, though?

MR. DE YOUNG: Sure.

MR. KENNEKE: Would it be more important to implement such a change for the standard design that for the custom design.

MR. DE YOUNG: We don't think so, and we have a talk on that later as part of the discussion.

The other comments made by the reactor manufacturers were they had strong recommendations to the extent the PDA period and to make design change procedures easier; they had a request to make the FDA-1 that we had the Commission describe in its June policy statement. And they wanted to make that referenceable in new CP applications. They said: without this benefit, we will never receive an FDA-1 application.

There is no benefit to the holder of an FDA-1 of that application. If he submits an application for an FDA-1, we will ask him 700 questions. We will charge him a fee. We will take so many Staff manyears to review it. And then when he gets it, he cannot use it except for those plants that had referenced the PDA.

He might just as well put the same information

in each of the OL applications for those CPs that refer to his PDA, and let us ask the same questions utilities, who would ask them to respond and pay them for it.

They said they would never submit, we would probably never see an FDA-1 application unless they had some opportunity to reference that FDA-1 application in new CP applications.

COMMISSIONER GILINSKY: What was the thinking in indicating that FDA-1s would not be referenceable?

MR. DE YOUNG: At the time we just thought that we were providing the FDA-1 and the FDA-2 and they could develop both of those at the same time. But they have manpower problems, as well as the Staff, and they can't do both.

If they sold the plant with the PDA, they have develop that final design for that plant. They have to do that work. That is an FDA-1 type of OL development.

They can't at the same time take the same people and have them do an FDA-2 application. We thought they could.

COMMISSIONER GILINSKY: Why would you want them to?

MR. CASE: The concern would be: when you go from PDA to an FDA, you would only consider safety significant changes rather than the safety improvement type of changes.

If there were forward-referenceable; i.e., for a Construction Permit, then you have to look at the length of

years, number of years, since your PDA approval, or really the Reg Guide cutoff date before the PDa approval, in which you had not applied on an accumulative basis, these number of changes that were of and by themselves not significant, but the accumulative effect could we be..

COMMISSIIONER GILINSKY: I am a little puzzled. When you talk about referencing final designs in CP applications, are you thinking of -- are you looking forward to a combined CP-OL?

MR. DE YOUNG: One-stage licensing, yes.

COMMISSIONER GILINSKY: One-stage licensing.

So you are really saying that you looked upon these as kind of stale final designs?

MR. DE YOUNG: Yes.

MR. CASE: That might be a way of encapsulating the thought.

MR. DE YOUNG: And industry says they are not that stale, and you will never see one if you don't permit us to use --

MR. CASE: It is just not commercially viable for them if it doesn't have the forward referenceability. It is not worth the amount of time and effort they have to put into it. There wouldn't be enough applications that would reference it for the OL stage to justify its cost .

COMMISSIONER GILINSKY: Now, is this a real

problem? Are there significant changes that would -- basically you saw significant differences between what the FDA-1 would be and what your concept of the FDA-2 was?

MR. DE YOUNG: At the time. But we have changed. These are what we proposed back last year.

COMMISSIONER GILINSKY: I see.

MR. DE YOUNG: And these are the comments. We have changed.

COMMISSIONER GILINSKY: What do you think now?

MR. DE YOUNG: Well, we will be getting to that.

COMMISSIONER GILINSKY: Okay.

MR. DE YOUNG: We are just talking about the comments on the old proposal that we put out that we had you people agree to put out last year.

The architect engineers, now they had a different problem that is a pretty signficiant problem. They said: regardless of FDA-1 or FDA-2, we can't provide either one of them because of antitrust considerations that they had.

And even without the antitrust considerations, their modes of doing business are different from those of reactor vendors, and we cannot provide you with an FDA application.

We recommend that you go to another concept. They called it the standard design approval. And the standard design approval very briefly, they are saying: we will give

as much final design information as we can but that that we cannot give you, we will describe functional performance requirements rather than design details and get them approved. And then you check that the final component we select meets those requirements.

They think we can develop that, and we will have something to say about that, also, later.

But they just do not think that they can provide any final design applications of the type that we had described in the June policy statement.

The other comments were generally about the same. They were very strong, most of them, in encouraging duplication and replication, a continuation of those policies.

COMMISSIONER GILINSKY: Replication troubles me a little bit, because it seems to go against the basic concept of standardization, which is that when you review a design that may be used over and over again, we know it at the beginning, and you know enough then to put more effort on it and look a little move carefully at it because you are now committed to allowing its use for many plants.

And that isn't the case in the replication concept.

MR. DE YOUNG: Well, I think we have changed from the time that it started. I think at the time that it started, it was very true that the first standard applications

that we received, we went into great depth, we spent -- we used the best people we had and we did do a much better review, in my opinion. The number of questions were increased and so on.

But as all the applications began to be more and more standard, the general trend is that we are doing that same review regardless of whether the application is a standard application or a custom application.

We don't differentiate. You can't tell somebody to do a lesser or a greater review, because he is used to doing his review and they are doing it that way.

So that is one of the reasons I think the same concern, you know, really does not persist as it did before.

And the other thing is, that is if I am right and a custom plant application will be a rarity in the future, that concern goes away, that we really will be replicating standard plants.

So I think that the fear -- the concern, not the fear; just the concern about that, that's one of the reason, a real reason, why replication got somewhat of a bad name within the Staff and within other parts of the organization.

(Slide.)

The next slide just briefly reviews what our current requirements are, what our current practice is.

And this is what we are now saying we recommend would be our policy.

On the reference system concept -- and this is one where we expect to have most of the changes; the PDA and the FDA type of concept -- the current practice is that the PDA term for NSSS and a nuclear island design is three years. We have approved them for a period of three years.

The PDA term for balance of plant and a turbine island that mates with those three-years designs, is less than three years. We ended it with the PDa for the initial review.

And the FDA is applicable to the PDA plants.

(Slide.)

Our current recommendations would be -- after we had done the study -- our current recommendations are that the term of all future PDAs be five years, whether they be a BOP, turbine island, nuclear island or NSSS; increase them from three or slightly less than three, to five years.

The second recommendation is to extend the current balance of plant and turbine island PDA terms, to three years. We think it is unnecessary to terminate those with the mating portion of the plant.

MR. CASE: That is an ipse dixit, without any review or anything.

MR. DE YOUNG: Without any review; just extend

those. We should have done it in the beginning. We didn't do it.

The next recommendation is: extend any three-year PDA to five years upon completion of a defined extension review. So we will extend it by two years, but we will do a qualification review for that extension.

The next recommendation is the FDA-1, is referenceable in new CP and combined applications for a few years.

And the last is that the FDA-2, the Regulatory Requirements Cutoff Date be the same. We haven't changed that.

COMMISSIONER GILINSKY: What does a "few years," mean?

MR. DE YOUNG: We will talk about that briefly.

(Slide.)

The PDA extension review matters; what are these? And these are the matters to which Mr.Case referred to previously.

We have the RRRC Category 3 and 2 matters. These are matters that have been reviewed by this high level committee. And they had determined that they are significant enough in a safety sense that we should, for Categories 3s, backfit in their entirety to all plants and all designs.

And Category 2, to look at each design in each plant to determine the extent that they need to be bacfitted on a case-by-case basis.

The NRRR Category 4 matters are slightly different. You haven't heard about those, yet. They are matters that are being --

COMMISSIONER GILINSKY: I was wondering about this order, 3,2,4,1?

(Laughter.)

MR. DE YOUNG: The NRRR Category 4 matters are matters that are in preparation for RRRC review. But even during the time that they are in preparation and being reviewed by RRRC, the division director responsible for that area has deterimined that they are safety significant enough that we would want to include them in all ongoing reviews. And that is what we call a Category 4, because we would include the RRRC review --

MR. CASE: The RRRC review does take some time; paperwork --

MR. DE YOUNG: Preparation --

MR. CASE: -- discussion, and you have got to have some outlet, safety valve for things that are important that haven't got there, yet.

MR. DE YOUNG: These three matters, RRRC Category 3, Category 2 and NRR Category 4 matters, would be reviewed for a PDA extension.

The RRRC Category 1 matters are those matters that have to be met by future applications. They are not going to

be imposed on the PDA design. However, we think the PDa holder should address how his design conforms to these. We are not going to require them to conform, but many of the designers have followed these changes and have made changes, so by the virtue of previous designs, meet the requirements.

We just want to know where they differ from the improvement type changes that we have made. It will not be imposed on the designs.

MR. CASE: But there is a veiled hint there that there may be some that are important enough on an individual basis you would require it. As a general rule, they are not required.

MR. DE YOUNG: Unless there be an unusual event, but there may be one or two that we will require.

One of the other problems that we have been told about is the fees for these.

(Slide.)

According to the recent rule which becomes effective March the 23rd -- that's next week -- the PDA extension is defined as a special project. The fee will vary with the number of manyears.

For some of the latest PDAs, this may be a man-year of Staff review effort, which is $75,000, on that order.

We have received letters from vendors that hold PDAs. We have been told by some of the others that they

would like to request at this time a PDA extension. And by getting that request in before March 23rd, that they not be required to pay that fee.

The total number of PDA extensions I have down --

MR. CASE: We haven't answered that question yet.

MR. DE YOUNG: We haven't answer that. We propose to get your advice on that.

It seems reasonable. You know, we made a special policy decision at the Commission level that charge for a PDA itself, which requires about six to seven manyears, the initial charge would be $50,000. If they never sold it, that is all they would pay. As they sold it, for each unit, the additional cost for doing the Staff review would be imposed on the holder of the PDA.

It seems wrong to only charge them $50,000 for the PDA, and for the extension review which is much less, to charge them what it costs the Staff, which is probably in excess of the $50,000.

It is my personal view that we should accept this. They have gotten their requests in. They don't know what is required of a PDA extension.

MR. CASE: As long as it is free, they will get it in.

MR. KELLEY: Does that become a legal issue?

MR. CASE: I think it may. Dick properly said

that was his personal opinion.

MR. KELLEY: But you have got to read the rule, though.

MR. DE YOUNG: Yes. Well, the rule is open to interpretation.

(Laughter.)

MR. SCINTO: That is what lawyers are for.

MR. CASE: That is what lawyers are for.

MR. DE YOUNG: Now, we said we were going to permit the FDA-1 to be used in CP applications.

(Slide.)

The next slide shows the basic problem we have with one of the NSSS PDA holders, the only one we know of at this time, who intends to submit an FDA-1; that is Combustion Engineering.

This slide -- and I apologize for the roughness of it -- but it just shows the number of years there. We have a three-year PDA period. On the top it says the PDA goes out at zero time. Three years later, the PDA would terminate. But now we propose to extend it for two years. And the PDA expires at the end of five years.

The FDA docket for the only FDA application we perceive receiving right now, we expect is after about two and a half years, after the CESSAR PDA is put out, we expect to get it in June or July of this year.

We expect to get that FDA-1 out in about two years, four and a half years after the PDA was first put out.

And if that is only good for two years, or two and a half years until the FDA-1 expires, Combustion believes that they cannot submit an FDA-2 application and get it reviewed by the Staff in that time. They think they need an extra year.

We have taken a look at it and we think it is possible that because of the limited nature of the FDA-2 review, that it is not going to require a year to prepare it, and it will not require two years to review it.

And we would like to hold to the two years at this time. If we do get into difficulties with the FDA-2, we will review it at that time and report back to the Commission.

MR. KENNEKE: Where would your qualification review for the extension begin, the PDA extension.

MR. DE YOUNG: When ever they submit an application for a PDA extension.

MR.KENNEKE: Are you assuming a year for that, or something like that?

MR. DE YOUNG: We expect it should be done in something like -- the longest one, which is the earlier PDAs which require most of the review, we have been talking about on the order of eight months; nothing less. So we will

still have time.

For the ones that have been out for less time, half a year, a year or so, we should take less time to do that updating review.

(Slide.)

The next slide treats the duplicate plant concept, and there we are making a significant change. Current practice is to approve the designs for just the initial group of utilities that come in at the same time for the approvals, as SNUPPS did.

Everybody that has commented on the duplicate plant concept has very favorable comments to make. It is a good concept. It is a complete plant. As you recall, from those slides that showed the standard plant, this is the complete plant, as complete as a standard plant can be.

The Staff recommendations now are to treat it similarly to the referenced system design. Once we approve that duplicate plant design; allow other utilities to come in and utilize it, put out what we would call a PDDA instead of a PDA; Preliminary Duplicate Design Approval, and treat the duplicate plant design in the same fashion as we do the reference design.

COMMISSIONER GILINSKY: In other words, someone cannot use the present -- you are shaking your head up and down, which means --

MR. CASE: You are right.

MR. DE YOUNG: You are right; they cannot use it.

COMMISSIONER GILINSKY: They cannot use the SNUPPS PDA, in effect?

MR. CASE: That is not the way it was set up. It was just set for the original group that came in.

MR. DE YOUNG: Within a relatively short period of time.

COMMISSIONER GILINSKY: But why not? What difference does it make?

MR. DE YOUNG: That's why we are changing it.

MR. CASE: That's why we are changing it.

MR. DE YOUNG: We think that they should be able to use it.

You know, when you start something new as we did with standardization, you can't possibly think of all the things, and we haven't done it now, but we are correcting some of the things. If we had had enough sense at the time, we would have done it then.

COMMISSIONER GILINSKY: So if someone came along and wanted to use the SNUPPS system, it would be treated as replication now?

MR. DE YOUNG: Yes; right now it would be a replicated plant. In the future, for any duplicate plant design, we would permit them to duplicate that design instead

of replicating it.

It is a major change, I think. Everyone we have talked to has been in favor of something like this.

COMMISSIONER GILINSKY: What is the difference between having them duplicated or replicated?

MR. DE YOUNG: The standard design?

COMMISSIONER GILINSKY: Yes.

MR. DE YOUNG: Duplication you will get this Regulatory Requirement Cutoff Date. On replication, you may not. There is a penalty in replication. We look at certain things. The qualification review for replication, we have that as one of the last slides. They must do much more. They must -- we have to look at these Category 1s and take a look at them and see if we can accept them.

On the standard plants, the true standard plants, we accept them. We have a Regulatory Requirement Cutoff Date that we have really tried to stand by.

On replication, it is a little different. It is not as favorable toward the utility, and it permits the Staff to impose requirements that it would not require on the standard design.

COMMISSIONER GILINSKY: Why do we need a separate category of duplicate plants. Why can't we treat them on the same basis as referenced plants?

MR. DE YOUNG: Because the initial duplicate plant

design is developed generally -- the first one; SNUPPS was -- by a group of utilities. There is no one vendor. They come in and they have a submittal of a Construction Permit application. We are reviewing that design at the same time we are reviewing their Construction Permit application.

The referenced system comes in before it has even been referenced in the design.

COMMISSIONER GILINSKY: Why couldn't you do before or after, or during?

MR. DE YOUNG: You could.

COMMISSIONER GILINSKY: Just to simplify the thing--

MR. DE YOUNG: I think it would be --

MR. CASE: Well, of course, this is a larger share of the plant, but I guess that doesn't make any difference.

MR. DE YOUNG: We have the regulations in place.

It doesn't make any difference; we have the regulations in place. All of these recommended changes require no changes that occur in regulations.

MR. CASE: And there is no difference in our use of or updating of or anything of, being a duplicate plant as recommended, and a reference. Right?

MR. DE YOUNG: Right.

COMMISSIONER GILINSKY: It seems to me that if we can reduce the number of categories it simplifies thing.

MR. DE YOUNG: I think sometimes when you change

things, change terms; once you have established --

MR. CASE: Like changing the name of the ACRS.

MR. DE YOUNG: Yes.

MR. CASE: It is very difficult.

COMMISSIONER GILINSKY: I am all for that.

(Laughter.)

MR. DE YOUNG: But I think that for the next years adhering to the current four concepts will not create any problem.

MR.KENNEKE: Is the boundary between site-related aspects and what you consider referenceable clear?

MR. DE YOUNG: Yes.

MR. KENNEKE: That would have already been determined?

MR. DE YOUNG: Yes.

MR. CASE: That is a little different than it now. You have to have more interfaces if you go to this PDDA.

MR. KENNEKE: That is the difference?

MR. CASE: But it not a significant difference.

(Slide.)

MR. DE YOUNG: The next slide dwells on replicate plant concept. The current practice is the period for replication is two and a half years, about two and a half years,

after they put out the base plant, the Safety Evaluation Report.

The recommendations we now have is that period be defined as a maximum of three years.

Whenever we say "about" something, we get into arguments with people. We think we should clarify it and say three years.

But also, we have defined qualification review for replication, which I think was one of the other problems we had with replication.

(Slide.)

The manufacturing license, the current practice is to put out the manufacturing license for a specific number of units. It is a regulatory requirements. It is in the Reg Guides.

COMMISSIONER GILINSKY: Why is this one different, too? Why can't this one be handled under a referenced plant concept? And why is there a manufacturing license here when there isn't a manufacturing license for another vendor?

MR. DE YOUNG: Well, they are not going to manufacture anything until they get -- these people, once they get the manufacturing license, they can go ahead and manufacture and they intend to.

COMMISSIONER GILINSKY: Well, you don't require a license of other vendors.

MR. DE YOUNG: Combustion, for example, would not move forward and design and construct a CESSAR NSSS.

MR. CASE: I will let the lawyer answer that to you. You need a license to do certain things.

MR. SCINTO: To possess the facility, the nuclear reactor. The concept of the manufacturing license is the manufacturer was indeed going to construct and make something, even though there was no customer.

COMMISSIONER GILINSKY: When he gets close to the end, he has got a problem because he is possessing something and he has got to have a license.

MR. SCINTO: That's right.

MR. CASE: That's right.

MR. SCINTO: The referenced systems are -- the vendor produces a piece of paper before he has a customer before there is an application under the Act, to construct the facility. The only thing that exists, the only thing that is thought to exist, is a piece of paper.

Under the manufacturing license, what is thought to exist could be a reactor.

COMMISSIONER GILINSKY: But is anybody going to build one of these before they have a customer?

MR. DE YOUNG: They will start. Not right away, but --

COMMISSIONER GILINSKY: Well, what do we do with

someone who builds a small reactor? Do they have some kind of a manufacturing license.

MR. SCINTO: The licenses for the old research reactors.

MR. CASE: AGNs.

MR. SCINTO: They are in the form of Construction Permits and almost Operation Licenses. If the original notices go out talking about Construction Permits, then Operating Licenses will be granted if they are built that way.

They are very much like -- they look like completed final design applications at the CP stage.

MR. CASE: And they got a number of those at --

COMMISSIONER GILINSKY: Do they have a license to manufacture?

MR. SCINTO: They have a Construction Permit.

MR. CASE: They have a number of Construction Permits.

COMMISSIONER GILINSKY: And they then transfer this to somebody else?

MR. SCINTO: Yes.

MR. CASE: Yes.

MR. SCINTO: Someone else applies for a license for the reactor.

MR. CASE: They have got six CPs rather than one ML, is basically the difference, that will permit them to

six.

MR. SCINTO: Yes.

MR. DE YOUNG: Our recommendations with respect to the manufacturing license is to set the number of units on the basis -- what we have is a five-year period of design approval -- but the number of units will be set on the basis of a 10-year period.

At the end of five years, OPS, for example, intends to come in and get that design updated, so any design, any standard design, will be approved for a maximum five years.

And then it will be updated for this batch of new safety requirements and design changes that the designers have every five years. They would do that --

COMMISSIONER BRADFORD: Why do you care about the number of units that you can build?

MR. CASE: Because the regulation, the way it is set up now, specifies the number of units.

MR. DE YOUNG: We have to have the number of unit in there.

COMMISSIONER BRADFORD: Why did somebody think it mattered enough?

MR. CASE: We weren't that smart back in those days. What we think now is more important is the period of time for which it is effective.

COMMISSIONER GILINSKY: We don't control the number

on any of the other schemes.

MR. CASE: That is right. This is an effort to make this scheme more consistent with the other schemes.

MR. DE YOUNG: We think it does it.

MR. SCINTO: This one as distinguishable from all the others, is a license.

MR. DE YOUNG: Yes; the others are Staff approvals. This gets a --

MR. SCINTO: It might be very difficult to issue a license for an unidentified number of units.

COMMISSIONER GILINSKY: I see.

COMMISSIONER BRADFORD: But once you come from unidentified down to some number, it is hard to argue very strongly for five versus 10.

MR. CASE: That's right.

MR. SCINTO: That's right. That's why the regulation doesn't have any number in it. It says, the licensee will identify the number of units to be covered by the license.

MR. DE YOUNG: The only one application we have in is for eight units. We are proposing a limit of 10 units.

By the time we have to look again to see if this is worthwhile or whether changes should be made, it will be a number of years.

(Slide.)

The next slide, I think we can skip.

(Slide.)

The recommendations on the next slide, provides a consistent five-year approval term for all standard designs. It prohibits unintended extension of approval terms. If, for example, somebody wants to replicate a standard plant and if that approval for that standard plant is going to run out before we can get that approval out for that CP, we are not going to permit that.

And we have defined the qualifications to replicate the qualifications to duplicate and the PDA extension requirements.

(Slide.)

The bases for the changes we have made, which has extended the approval periods for these PDAs and standard designs, are that we now have fewer plants coming in.

In 1973 and '74, there were 78 units applied for. In 1976 and 1977, there were only eight units.

So even though we have extended the approval period for a given design, the use of that design in the real world will be probably less than it was when we began with this concept in the three-year PDA period.

It is just not being used. We don't have that many plants. That was one of the reasons.

Also, we think we have greater stability in the Staff requirements, this disciplined management. We have

gotten that through two things; the standard review plan that was put out in November of 1975, and the RRRC, which began in 1974.

A third thing is the industry needs. They have found and we agree with them, that the short periods of time for PDAs and so on, were not very encouraging for standardization.

But the principal bases were the stability in Staff requirements and the fewer units per year.

(Slide.)

The next slide; just briefly, I would like to say a word about Staff involvement. We have told you about the comments from the outside and what we have done.

What about the Staff? Does the Staff agree with this? And we talked to them. We talked them individually. We talked to small groups of the Staff, about 300 of the people involved in the review process last year in the fall.

We told them what we were doing; we got comments from them and so on. Since then, we have gone back and provided a report and a paper that we had provided to you, down to the branch chief level of all of the groups that are involved with our reviews.

All the division directors have indicated that they in their divisions concur with this policy.

So as far as the Staff is concerned, I think, as

with all groups, there may be some people that may disagree, that generally, the Staff is in accord with this policy proposal.

The ACRS; we also provided each ACRS member with a copy of the report that you received. I made a special request of the ACRS staff to ask the ACRS if they had any problems with this proposed policy, to please let me know so we could discuss it with them before we came down here.

The Staff informs me that they did do that at last week's ACRS meeting. And the indication was that no one on the ACRS had any qualms significant enough to delay the imposition of this proposed policy.

(Slide.)

The next slide, we talk about the antitrust matters that were raised by the balance of plant people.

And the antitrust -- and you might refer to as restraint of trade or anticompetitiveness -- it has always been a concern of standardization for basically two reasons:

One is that the information the Staff requires may influence or even dictate the use of particular vendors' components.

And the second concern was that policy should not limit participation in the standardization program.

(Slide.)

The next slide; the problems of a antitrust nature

are not likely with preliminary designs.

The requirements of Staff are such that we permit in preliminary designs criteria to be used, preliminary designs. It does not specify, our requirements are not specific enough that they dictate or influence the selection of any given component.

In final designs, problems are likely if these designs are not forward-referenceable. If final design just describes the fruition of a preliminary design; that thing has been done. There have been no antitrust problems and it is a fact that the problems are more likely when we have a final design specified that is forward-referenceable.

Our current requirements for final designs are so specific that sometimes to meet our requirements the utilities provide us with information on specific components; they describe nameplate information. Now, if they are required to do that to meet our requirements and then they say we are going to use this in new CP applications, there is a potential for an antitrust consideration.

The balance of plant people have all told us they have this concern. In their minds, it is a real concern.

The NSSS vendors, as you recall, it is a much less -- much less of the plant is involved with the NSSS. It is a much smaller portion of it.

Also, they manufacture some of the equipment they

utilized. The balance of plant architect engineers manufacture nothing. They go out on bid for everything.

The reactor vendors manufacture many of the components they utilize in their design. Therefore, because of the reduced part of the plant they are involved in, the antitrust matters are less of a concern.

And, further, because they provide some of the equipment themselves, they manufacture it, it is still less a concern.

They believe they can get an FDA application in and approved by the Staff without having any antitrust problems.

COMMISSIONER BRADFORD: I am not sure I understand why the fact that they are involved in less of the plant makes it less of a problem.

That is, if the problem stems from identifying a particular component by name, in effect committing to use that in all future plants based on that design, I should think that would apply just as much, if you are talking about a particular piece of the operation as it would if you were talking about the whole thing.

MR. DE YOUNG: To some extent, but if you just view it as there was one component --

COMMISSIONER BRADFORD: Yes, but the problem arises as to whether -- to one component or many, you have still got

an antitrust problem.

MR. DE YOUNG: Well, the chance that it will come up with one component where you may have two other vendors that provide it, they will probably be busy with some other work; they don't need the work.

But if you have 100 such components, some of those vendors are not going to be busy, and they want to participate in that job.

So the chance is, if you have a bigger --

COMMISSIONER BRADFORD: So you are defining the antitrust is the likelihood of being sued rather than as a question of whether it exists.

MR. DE YOUNG: In some ways. It exists of people say it exists, and are willing to come forward and say they have an antitrust problem. That is the proof of the pudding.

MR. KELLEY: Can I just ask a question for information.

Commission antitrust responsibilities, I am used to thinking in terms of CPs and access to plants. And it is really the end thrust considerations that obtain among utilities.

And you are talking about antitrust between GE and Westinghouse, the vendors, essentially, as I understand it.

What is this agency's responsibility to worry about

MR. DE YOUNG: That's what we were talking about.

MR.KELLEY: Do we hold proceedings, Joe, on standard designs?

MR. RUTBERG: We don't create a climate in which this sort of things can exist under our rules, of encouraging antitrust violations, or potential antitrust violations.

MR. KELLEY: I am not saying we should ignore it. I am just wondering if we have any proceedings that are addressed to this kind of problem at all.

MR. RUTBERG: It would be a licensing matter, yes.

MR. KELLEY: It would be something we would talk to the Justice Department about.

MR. RUTBERG: Yes, indeed.

MR. DE YOUNG: The next slide talks about what the experience has been to date.

(Slide.)

We have had quite a few standard designs, as you recall it, from one of those first slides.

What has the experience been? It has not been bad. We know of very few antitrust matters that have come forward.

I talked to one utility that replicated a plant. They said they had three problems that they are aware of. One had to do with tendon hardware, but as far as they are concerned, they are using the same tendon hardware as on the

base plant, but not because it was part of the replicated plant. They went out on the same bids. And they considered the bids that they received. And they chose that because in their minds, it was the best thing to do.

The other things was on freight elevators. And it was a mild thing. Someone voiced a concern, and then dropped it.

COMMISSIONER BRADFORD: These have been complaints that people have voiced.

MR. DE YOUNG: To the utility.

COMMISSIONER BRADFORD: It hasn't risen to the level of a lawsuit or a complaint to the Justice Department.

MR. DE YOUNG: No; none of them have.

The third one on that same plant was insulation for the reactor coolant piping. Again, they chose to use the same base plant reflective type of insulation. Another concern with a fiberglass pipe said they could do the same job for lower cost, and they thought the standardization policy was preventing them from doing it.

They contacted the utility and they discussed it with and they discussed it with the Staff slightly. We said there was no requirement to use the same insulation. The specifications would have to be met, but if they could meet those specifications, they were acceptable, too.

The utility said they looked into it. On review,

it has never been used. Their type of insulation has never been used before in power plant industry. It would be the first of a kind, the first of a use, type of thing. And this utility said they are not in favor of ever being the lead utility on anything.

(Laughter.)

Another matter was the vendor for the insulation had never heard of inservice inspection requirements for the primary coolant system, and the fact that this material would have to be removable and certain locations. He had never heard of it. So they weren't knowledgeable about the requirements.

And third thing was there was some concern about embrittlement of the fiberglass under radiation, that they hadn't really considered at all.

So on all of these bases, the utility said: We selected the vendor that had put the insulation on the base plant.

They also said that 20 percent of the awards to date for their replicated plant have been to non-replicate vendors. They have changed vendors. They have even received only one -- when they went out for bids -- they received only one --

COMMISSIONER BRADFORD: This is a particular utility, or this is --

MR. DE YOUNG: This is a utility.

There have only been three utilities that have replicated.

COMMISSIONER BRADFORD: Is there any reason to think the other two's experience would be much different?

MR. DE YOUNG: I don't think so.

This one utility said that 20 percent of the awards have been to non-replicate vendors. And in fact when they received only one bid for certain materials, when they put out the bid from the replicate, they called other concerns and asked them to submit bids and on some occasions they took the non-replicate vendor.

So I think they have done their job properly.

We also talked to the SNUPPS people about how they had handled the antitrust matter. And they went to the Justice Department before they even submitted the application for the SNUPPS plant. They spent quite some time with getting a preliminary review from the Justice Department on their procedures. And they got a satisfactory, favorable comment, on them.

I think another step that was taken is to provide the report that you received from us to the Department of Justice with a request to get their informal views on it.

They have had it for some time and perhaps Joe Rutberg might say a word or two about what do we expect to

get from them, and how they are doing, when we might expect some decision from them.

MR. RUTBERG: We asked for their informal advice. And the best information we have now is that it is in the process, in the chain of command, in the Department of Justice. And we should be hearing from the shortly.

MR. DE YOUNG: I think that the antitrust matters, basically, as far as we are concerned, is an applicant responsibility.

From what we have delved into, we think they are handling that responsibility well. We do intend to continue to monitor the program, the types of things that we had been doing, to make sure that we do not create a climate where antitrust matters may develop.

(Slide.)

The next subject is disciplined management. Everybody agreed it was essential for effective standardization. Even when we talked to these 300, a common voice was that we need effective discipline in this thing or it is not going to work.

And again, standardization for the design changes from the one-by-one imposition to the batch process.

COMMISSION BRADFORD: What does that mean?

MR. DE YOUNG: Without standardization, if somebody comes up with a change, they will impose it. We now do

it on a batch process with a five-year term of approval. We can hold off unless this thing is really safety significant, and we will backfit.

The exceptions I showed you. The significant additional protection, that is, the Staff; the significant improved performance of the design by the utility. They may come up with things that they think are significant improved performance. But unless they are really significant in improving performance, we will hold them off to the batch process when we will implement these things in batches.

COMMISSIONER BRADFORD: Why do we care whether the utility holds off or not, if they choose to forego the benefits.

MR. CASE: Then we have wasted our review time.

MR. DE YOUNG: We would have to do the review on that thing. And then the Staff member says: If you permit the utility to change why not mine? Why are you making me hold me off for the batch process and not them?

COMMISSIONER GILINSKY: What you are saying is they are not paying their way for the review.

MR. DE YOUNG: I think we all have to accept this disciplined management, that it is on us all, not only the designer, not only the reviewer, but both of them. We have to recognize it and we have to discipline ourselves to this procedure.

COMMISSIONER GILINSKY: Well, I think what Peter is asking -- and in any case what I am asking -- is it really for us to try to put this over or are we facilitating something that industry thinks is a pretty good idea?

In other words, is it for us to try to guide the way industry does it work? If they want to standardize, then fine; let's accommodate --

MR. DE YOUNG: We are not --

COMMISSIONER GILINSKY: -- by adjusting the review suitably as long as we can assure ourselves of the safety of the design.

But if they don't want to and they want to do it some other way, should we be impeding that in some way?

MR. DE YOUNG: Any time that we accept any application, we have to do a review, any standard application, to determine that truly they have used that approved standard design appropriately.

Now, we permit them to deviate somewhat. Those changes that they feel -- we look at it and see what the nature of these changes are. If there are few, we accept it. If there are many, we say we cannot accept that as a standard design.

We will accept the application; we will docket, but we will review it as a custom application. That Regulatory Requirement Cutoff Date no longer persists.

So we will accept some changes in the standard design; not too many because then it gets too cumbersome for the Staff to review this part of it without that part of it, and so on.

So if they choose, they can choose to do this, to change the plant significantly, to the point where we review it as a custom plant.

MR. KENNEKE: Have you done this?

MR. DE YOUNG: We did it, for example, on one case, one utility came in and they proposed to reference the nuclear island design. And they had so many changes and so many deviations in that standard design that we said we cannot accept that. We will be able to accept, because most of the changes were not in the nuclear steam supply system; you can reference that nuclear steam supply system portion of that plant as a referenced design. That's what they did.

MR. CASE: But the rest of it we consider as custom.

MR. DE YOUNG: Even though we considered it custom, we got some benefit from the standardization, because the Staff in reviewing it, where it wasn't changed too much --

COMMISSIONER GILINSKY: But it seems to me it is up to them to decide which way they want to go .

MR. DE YOUNG: That is their decision.

COMMISSIONER GILINSKY: It is not for us to tell

them how to design their reactors, except insofar as we have regulations which cover the safety of them.

MR. DE YOUNG: We agree.

The only thing is if it begins to change that safety-related thing, we can not longer go on the basis of a prior approval of a design.

COMMISSIONER GILINSKY: Sure.

MR. DE YOUNG: We have to look at it again.

And we always welcome custom designs. We have not gotten to the point where we say you cannot submit a custom design.

(Slide.)

We can talk about the experience to date, all the experience --

COMMISSIONER BRADFORD: This is the standard for exceptions as to actual changes.

What standard do you use for allowing questioning by the Staff; that is --

MR. DE YOUNG: We will get to that.

COMMISSIONER BRADFORD: You have that further on. All right.

And who makes the decisions on whether or not something is in fact significant and additional protection is needed?

MR. DE YOUNG: We will be talking about that, I

think.

If you look at the experience to date, at the CP stage, and we look at the Staff and industry experience -- we have no experience at the OL stage. We haven't received an OL application for a standard plant.

MR. KENNEKE: What is your expectation, though?

MR. DE YOUNG: Pardon?

MR. KENNEKE: Do you expect to see an advantage when an OL references standard design?

MR. DE YOUNG: We will have problems with discipline. We will have problems.

But at the CP stage, if we look at this slide and the next slide.

(Slide.)

This is for the Hartsville application. It is number of questions, where they were asked, and so on. On Hartsville, it references the nuclear island design.

In that, if you look at the reactor, there are zero Staff questions at the bottom. You will zero Staff questions on the reactor.

For the first two listing there, the 55 and the 42, generally that is about 300 for a non-standard plant.

If you look at the site, and the doses, it is 150 questions. That is the -- the average is 120. That was a new site.

On the operation, the utility, we looked at his plans for emergencies and so on, the same 80 questions for the utility.

But in the approved standard plan, it really, we had the discipline to say we are not going to ask questions on that CP application, and it worked. That is the nuclear island.

(Slide.)

The next one was Palo Verde. Again, for a PDA, the NSSS. And now if you look at the reactor, you will see 13 questions. Why isn't that zero? During the period during this review -- this is a PWR, pressurized water reactor -- we had Mr. Fluegge left the Staff, and said there were major problems with the pressurization, a problem with the pressurized water reactor system.

We decided that in view of this, we would ask certain questions of everybody, ongoing with the reviews at that time. That's why that number is 13 and not zero.

But now the number of questions in the first two columns is over 300. That is the balance of plant questions. That wasn't preapproved.

In the preapproved part of it, the Staff discipline worked.

The next one is Marble Hills, replication. And again, the Staff discipline worked at the CP stage.

(Slide.)

We were able to cut off some questions that people wanted to ask and explain to them why and they accepted it.

(Slide.)

So I think these slides, including the next one, on dupliation, SNUPPs. If you look at the last column, there were 359 questions asked on that standard plant. The next, 182, is the non-SNUPPS part of it; that is the site and the utility applicant, again, as I said, almost 200 questions.

Two columns, 205 for one of the other utilities, another site, another utility; 200 questions.

Two numbers down, 137, not as many but still we didn't reask the questions on the approved standard SNUPPS power package.

And the last one was 199.

So I think all of our evidence points out that the Staff has been able to discipline itself, at least at the Construction Permit stage.

There are some occasions when we have had some problems, but they have been minor. They have been on one or two matters. But we have had control of each review.

MR. KENNEKE: The number of questions there on site-related matters seemed much lower there than all the other cases. Is there a feedback to the site-related questions?

MR. DE YOUNG: Not --

MR. KENNEKE: With respect to SNUPPS?

MR. DE YOUNG: Not really. There is 200.

If you look at SNUPPS, it is almost the entire plant. What is left is the site-related and utility-related. As the other slides show you, the site-related and utility-related matters totals on the average 200 questions. Here they average 182, 205, 137, 199.

I think that shows that the trend is there.

MR. SCINTO: I just wanted to comment, since we have talked about how the Staff reviewed certain cases with names on them.

The success of the Staff review is the process, of being able to (inaudible) a process. We will come to the Commission for its judgment of that process, some other way.

MR. GOSSICK: Dick, there is one point here. You have got the tables crosscut in two different formats.

MR. DE YOUNG: Yes.

MR. KENNEKE: In one case, you include only Chapter two, it seemed to me, site-related. In another one, you included Chapters 11 and 12.

MR. DE YOUNG: Well, they are combined. There is not much difference. We could have provided four slides for the four --

MR. KENNEKE: Strictly the Chapter Two seemed much

MR. DE YOUNG: The site has been the same.

COMMISSIONER BRADFORD: Do those appeals in fact challenge the standardization policy itself.

MR. SCINTO: No, but there are some of these Construction Permit and the matter on appeal is a complete sua sponte review (inaudible). I am not familiar with any exception relating to the standardization aspect of it.

(Slide.)

MR.DE YOUNG: The next slide, just briefly, what are the regulatory requirements that we have a cutoff date for and we are concerned with?

The first is regulation. There is no cutoff date on regulation.

MR. CASE: It is what ever the Commission --

MR. DE YOUNG: Or what ever the regulation says it is. But usually a regulation would not require it.

The other four things are Regulatory Guides that we come up with, branch technical positions, resolved generic matters, or new regulatory requirements that will come out of that, and standard review plan interpretations.

And these essentially are in the nature of the changes in the regulatory requirements, these latter four.

(Slide.)

The next slide again shows Category 1, 2, 3 and 4 matters that we talked about. I think we talked enough.

Others are ratchets, the so-called ratchets that are unapproved.

The next thing talks about the Staff changes since March of 1974 which is the date that the first --

COMMISSIONER GILINSKY: What do you mean by ratchets aren't approved?

MR. DE YOUNG: Unapproved by upper Staff management, a ratchet to the requirements. They escape our controls.

COMMISSIONER GILINSKY: A ratchet is a perjorative term which has been used to describe all of this.

(Laughter.)

I think we oughtn't to use it that way.

You mean basically Staff members themselves?

MR. DE YOUNG: Have done this.

COMMISSIONER GILINSKY: Apply without anyone noticing?

MR. DE YOUNG: That's right.

(Slide.)

I will go through the next slides to show you what these are, how many of these there are.

From March of '74 to January of this year, we took a look.

March of '74 was the first Regulatory Requirement Cutoff Date for this standard plant.

So since that first cutoff date, we looked at the

total changes that were made to Staff requirements.

And this is preliminary. There may be some fine structure we have to do to it, but I think it is generally true.

The total changes, there were 192 total significant changes. RRRC Category 1, these are forward-fitting, not for backfitting.

COMMISSIONER GILINSKY: Can you give me examples of these changes?

MR. DE YOUNG: Yes; we have them in the report that we gave you, and we can cite the tables.

MR. CASE: Changes in Reg Guides.

MR. DE YOUNG: But we can get specific. For example, the fire --

COMMISSIONER GILINSKY: Would you give me an example of each of these categories, one of each?

MR. DE YOUNG: Let me give you an example of --

MR. CASE: IEEE G-23, 1974 was a Reg Guide, Category 1.

MR. DE YOUNG: Category 2, I know, for example, is fire protection. It is really significant safety-wise. We are going to look at each plant to determine how we should backfit our new safety requirements on that plant.

I don't think anybody has any argument at all that the backfitting requirement is going to -- for the

fire protection.

Category 1 matter, is, for example, we put out a revision to a Reg Guide that dwelt on Quality Assurance requirements for the design of nuclear power plants. We said forward-fit; don't backfit it. That is the Category 1 type of thing.

Another one, Category 1, we put out a Regulatory Guide spelling out our requirements on instrumentation set-points. We said for new plants, meet these revised requirements.

I gave you the Category 2 matter.

A Category 3 matter, is we put out a revision to a Reg Guide on emergency planning for nuclear power plants. We said: Gee; this is good and every operating plant should do this. Update your emergency planning.

COMMISSIONER GILINSKY: Well, where does the guide become mandatory. I mean, a guide is just a guide.

MR. CASE: They are always a guide.

They are guides within this context.

MR. DE YOUNG: They can provide an alternative means of meeting Staff requirements. The guide spells out one way they can do it.

There are other ways, but it is easier for most people; this is the Staff-approved way. We know it; let's go that way.

But often people do come in with alternative ways of providing equivalent protection, and we accept it.

So these are the Category 1, 2 and 3 matters that were reviewed by the RRRC. Now, the RRRC is composed of a chairman that has alwasy been Mr. Case.

The members of the committee are the division directors within NRR that report to Mr. Case, and a very high level representative from the Office of Research, the Office of Standards Development and Office of Inspection and Enforcement.

It is a high level group and they review any proposed change to our requirment and supposedly, no other changes will be approved.

So they review the 67 changes. We looked back, and there were 95 --

MR. CASE: We have value impact statements to go along with the discussion. It is a rather lively discussion.

MR. DE YOUNG: There are 95 other changes since March in 1974, that the RRRC did not review. Many of these were underway and imposed in the first version of the Standard Review Plan that was put out.

I say about half of those tend to be Regulatory Guides, for example, or of this type. They were in that, and so they received management attention.

Some of the others received management attention through the approval of the Reg Guide route. It goes through the ACRS, for example, so we think that these 95 also received management attention, but they were prior to the real RRRC implementation.

(Slide.)

The next slide shows NRR Category 4; things that are being developed for RRRC. We think about 20 of those remaining things are of that type. So management has reviewed this and approved this, interim implementation of these requirements.

The others, the 10, I think didn't receive approval. They went up partly through the management chain, perhaps at branch chief or assistant director and got into our requirements. And they really didn't receive the level of review that the others did.

I think that's quite a good achievement, to have 10 out of 200 that got by for one reason or another. In the future, I think it should be even better. But the mere fact that we received high level management attention is not stablizing the review process. Those managers, high level managers may have said backfit everything, regardless of safety significance.

(Slide.)

But I think the next slide still shows that same

crucial decisions, measures that we meet; the significant additional protection. How do we determine whether or not the fact that -- or not the fact -- into a standard design or into a non-standard design?

And it is something we need, and it is something that most of our decisions now are collective judgment by highly experienced and credentialed people. But it still is collective judgment. And that judgment may vary from week-to to-week.

COMMISSIONER GILINSKY: Is that written down anywhere, beyond the regulation, or a backfitting rule, or --

MR. DE YOUNG: No.

MR. CASE: That is what Dick is pleading for, is some better definition.

COMMISSIONER GILINSKY: Has there been any definition from the Commission, as to what the Commission thinks, or --

MR. DE YOUNG: No.

COMMISSIONER GILINSKY: Do you think you ought to be coming up with something.

MR. DE YOUNG: I am talking that the Staff should be developing this. We are talking --

COMMISSIONER GILINSKY: But who else but you?

MR. DE YOUNG: Who else but us?

We have been trying since I have been with the --

COMMISSIONER GILINSKY: And if not now; when?

MR. DE YOUNG: Right.

But we need manpower to do it. You can't just take anybody to do these things.

(Slide.)

The next slide talks about the future tasks. What do we have to do now with standardization. We request your knowledge and approval of the Staff position on the changes that we recommend, but we have other duties to do.

We have to extend the PDAs. We have to replace the obsolete guidance that we have now in WASH-1340 and 1341, that dwell on details of our standardization policy.

We have to review and look at procedures for the FDA. One is coming in in July. We have to make sure we don't --

COMMISSIONER GILINSKY: Can we go back to that earlier point? Do you have anything underway, a paper or preparing something, in the way of more explicit guidance to the Staff?

I think you should, at least to make a stab at it. It is something that ought to get a good detail of discussion, I think. It is not an easy thing to do, but I think at least by, you know, you can be more explicit by indicating some examples on how the matter was resolved.

MR. DE YOUNG: I think a primary example is the

fire protection. We had the research people do a comparative evaluation for us of the contribution of a major fire of the Browns Ferry type to the coremelt, overall probability.

They did it and they determined that the fire, a major fire of the Browns Ferry type, could contribute as much as one-fifth of the overall probability to coremelt for an operating plant.

Anybody and everybody agreed that this is significant additional protection. Do it; nobody is explaining about accepting the new requirements for fire protection.

MR. CASE: Well, I think that is a little overstating it. They all agreed something should be done but they argue about the details.

MR. KENNEKE: There are dozens of individual steps to that, and you could argue whether that is --

MR. DE YOUNG: But the need for the fire protection, I don't think anybody has really argued about. They argue about the details for a specific plant, but when we come up with something that says this matter on the basis of a reasonable calculation shows that it contributes a significant part of the overall probability for coremelting, I think that is significant additional protection, if we fix it.

COMMISSIONER GILINSKY: Well, that's right, but --

MR. DE YOUNG: But not everything --

COMMISSIONER GILINSKY: You know, how far do you go

back and what do you do with existing plants.

It seems to me that many of the sharpest differences that we have had on the Staff has tended to revolve around this question of what do we do about existing plants when we have decided that we really ought to improve protection in some areas. I mean, it is a particularly difficult area.

MR. DE YOUNG: It is difficult. It takes good people to come up with some acceptable position, other than --

COMMISSIONER GILINSKY: And I think it is one where we have to define better what it is we are trying to do, both for ourselves and for outsiders.

And I think really the Staff deserves better guidance, too.

MR. DE YOUNG: I agree, personally.

COMMISSIONER GILINSKY: At some level, I think the Commission has go to take a look at that. But I think it would be useful --

MR. CASE: I guess I am going to have to say that I think it is an impossible task except by examples.

COMMISSIONER GILINSKY: Well, maybe that is the way you will approach it.

MR. CASE: Maybe I am a pessimist. I guess I am a pessimist.

COMMISSIONER GILINSKY: Maybe it is a matter of indicating, you know, giving a number of key examples of how

issues were handled, and you know, what you think falls in one category, what you think falls in another category, and so on.

COMMISSIONER BRADFORD: The Staff was going to look at that in connection with the systematic evaluation program. Has that shown any --

MR. DE YOUNG: I don't know.

It is a critical point.

COMMISSIONER BRADFORD: Well, not in what the answer ought to be.

MR. CASE: If somebody will tell me what No undue risk" is, I can you how to match it. You can start right back there with the Atomic Energy Act; how do you define that?

COMMISSIONER GILINSKY: Well, but you can certainly go back to your practice, and in a sense, make a little more explicit what your practice is, at least by giving examples.

Now, I don't know how much further you can go, but I think it would useful to try.

MR. KENNEKE: You are giving some tacit approval to this idea of a relative comparison by mentioning the 20 percent figure, using the RSS figures.

MR. DE YOUNG: That's not -- you can't fit that to all things. We don't have the data on some things. The reason that the Rasmussen study did not consider large fires in the beginning was they didn't have any data. They didn't know what to do on it. Any many things with reactor plants,

the changes we would make, we would be faced with the same situation. We don't have data. We can't even make a relative comparison.

But many things we can, and I think we should do more of it.

MR. CASE: Here and there you do have numbers.

MR. SCINTO: Don't knock the fact that you don't have data.

MR. KENNEKE: Here and there you do have numbers, though, Dick, in the standard review plan, summary review guides. Has anybody looked at all of those different numbers to see if they are consistent with one another in terms of common approach to this problem?

MR. DE YOUNG: I think we have -- we have a group in the context most lately of the review being done on the anticipated transient without scram matter. They are looking at that, at numbers of that type.

I think to continue on this slide, if we might, the other things we have to do, I think, is to study the standard design approval type of approach.

We are going to have this one-step licensing review procedure. It doesn't appear as if the FDA route is it, because the balance of plant people can't do it. It is not the way to go.

The significant additional protection measurements

what we were talking about just now, the balance of plant design prior to an NSSS, that is something that we have to look at.

The architect engineers have said: Why can't we get a balance of plant PDA without mating up to an NSSS. We don't think it is --

MR. CASE: The kind of problem we see is working the problem backwards; you usually start at the core of the problem and work up.

MR. DE YOUNG: We might take a look at it. The other things; continue the program to monitor, review other concepts of the type that you recently heard from one of the other architect engineers, look at design procedures versus parameters, which is tied into the SDA concept.

(Slide.)

On the next slide, we took at look at what we would probably need in the way of manpower resources. We can't do these things without the resources, and we do not have an additional measure of safety, for significant additional protection number on there.

That, I think, would be a separate thing. I think it would require some senior people, some well-educated and well-experienced people.

But these are what we are talking about in the way of additional resources that we would need to do the

standardization program that we describe.

The only one we think we can do without any cost is the FDA procedures. We will do that in the context of the one FDA application that we know we are receiving.

MR. KENNEKE: If you do the SAP, would it be double, triple?

MR. DE YOUNG: I don't know.

MR. CASE: How ever long you think it will take.

MR. KENNEKE: To do your impossible dream.

MR. CASE: Right.

MR. DE YOUNG: The next slide is standardization benefits; enhanced safety. I think I am convinced after talking to a lot of people outside and inside that there is enhance safety in standardization.

The mere fact that we don't impose all these changes as they come along doesn't mean that it is unsafe. Many of the changes that we have proposed, we have looked back upon and said: That wasn't really an improvement. We thought it was.

I am sure your car, when they make a change to your car; you purchase one of these. The change that they made is not always good. They they thought it was good. They convinced themselves it was good. But in the end, it wasn't really that good.

So the mere fact that we don't impose changes as

they come about does not mean that we have a less safe plant. Perhaps it might be safer to consider them in batches.

The reduced licensing time for standardization; I think the potential is there for the one-stage licensing review.

The early site approval reviews, the reduced licensing manyears; we have done it, and it would show that there are reduced licensing manyears. There is a potential for it.

There is reduced construction time. The people that have standard designs have told us that they expect to reduce it, or if not reduce, at least meet their production schedules.

And they have all told us that there is reduced cost to the public, to the taxpayer, ratepayer from the use of standardization.

We have a few additional slides in there that I wasn't going to talk about. They are the qualification review matters for the replication concept and duplication concept.

And the last slide is a complete confusing slide for most people, that talks about the time between.

COMMISSIONER GILINSKY: Don't tell us about it.

(Laughter.)

MR. DE YOUNG: All right.

COMMISSIONER GILINSKY: That is a very good briefing. Thank you very much.

COMMISSIONER BRADFORD: In the last form that you saw the licensing bill, what difference is it going to make to all this.

MR. DE YOUNG: It is my personal view that the licensing bill will provide one thing we do not have now, and that is administrative backing, of the need for these things

COMMISSIONER GILINSKY: You mean administrative or administration?

MR. DE YOUNG: Administration backing, for the need for these things. I think a policy statement by the Commission on standardization, for example, does something for standardization, even though it doesn't change any of the requirements or how the Staff does it.

The mere fact that you have expressed your support of that and your interest in it does help us. And I think the administration, if they come out with new licensing things, it will help, I think. I haven't looked at the revised --

COMMISSIONER BRADFORD: But it is that general sort of cheerleader, symbolic help?

MR. DE YOUNG: Yes, in my view.

COMMISSIONER BRADFORD: It doesn't change anything that you have told us as far as the interworkings of the program?

MR. DE YOUNG: In my view, it does not.

MR. CASE: I think they are completely consistent. In fact, we had five years here, and I think that in at least the latest version bill that I saw.

MR. DE YOUNG: I might close by saying that since we have provided this paper to you, there are certain changes of a minor nature that we would make in the proposed statement; editorial, some other minor changes.

If we could receive comments from individual Commissioners for changes that they might recommend, we could do it and be back to you with a revised policy statement that has the final wording in it.

But the changes we are --

COMMISSIONER BRADFORD: How long does the policy statement have to be good for?

COMMISSIONER GILINSKY: Well, thank you very much. I am sure Joe is going to be very much interested, and Commissioner Kennedy.

That was a very good briefing. Thank you.

(Whereupon, at 3:45 p.m., the hearing in the above-entitled matter was adjourned.)