

NUCLEAR REGULATORY COMMISSION

ORIGINAL

COMMISSION MEETING

In the Matter of: DISCUSSION AND VOTE ON FIRE PROTECTION
PROGRAM (CONTINUED)

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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Discussion and Vote on Fire Protection
Program
(Continued)

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Room 1130
1717 H Street Northwest
Washington, D.C.

Monday, October 27, 1980

The Commissioners met at 2:05 p.m., pursuant to
notice.

PRESENT:

- John Ahearne, Chairman.
- Joseph Hendrie, Commissioner.
- Victor Gilinsky, Commissioner.
- Peter Bradford, Commissioner.

ATTENDING FOR THE NRC STAFF:

- Edson Case
- William Dircks
- Howard Shapar
- Richard Vollmer
- Thomas Wambach
- Robert Ferguson

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ATTENDING FOR THE OFFICE OF GENERAL COUNSEL:

Leonard Bickwit
Marty Malsch

ATTENDING FOR THE SECRETARY OF THE COMMISSION:

John Hoyle

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P R O C E E D I N G S

1
2 CHAIRMAN AHEARNE: The Commission meets again on fire
3 protection. A long time ago, it seems, Mr. Hendrie had requested
4 we defer final action on the fire protection rule until he
5 returned. He may now regret that. But, nevertheless, we have
6 the latest bulky version, which I think, at least in my going
7 through it, seemed to meet the request that had come out of the
8 last Commission meeting, which was October 21st, and I guess,
9 Ed, you or the gentleman on your left, if you would like to make
10 any opening remarks with regard to -- Bill, did you want to say
11 something?

12 MR. DIRCKS: I hope that in this package we have
13 incorporated all of our assignments, things that you asked us to
14 do. I hope in doing that, it holds together as a comprehensive
15 package now, but I guess that's something we feel pretty sure
16 it does, although we haven't stepped back three paces to take a
look at it recently.

18 Ed, I don't know whether you have anything.

19 MR. CASE: I would just add to that whichever version
20 you approve today -- we'll be optimistic --

21 (Laughter.)

22 -- we would like 24 hours to step back and look at it
23 before we send it to the Federal Register, since we have been
24 concentrating on different alternatives, it's rather difficult
25 that way, and if you look at one, it's a lot easier, and so we

1 would like that 24 hours, if we could possibly have it.

2 MR. DIRCKS: Not too much longer than 24 hours.

3 MR. CASE: No. I could go over each one of the
4 enclosures.

5 CHAIRMAN AHEARNE: Why don't you do that? Particularly
6 it may help Commissioner Hendrie who has not had the benefit
7 of those enjoyable sessions we have had.

8 MR. CASE: First I'll talk about Enclosure 1. I'll
9 go through them in order. Enclosure 1 is the fire protection
10 rule and a statement of considerations proposed by the Staff. It
11 now includes a separate schedule for Appendix A modifications. It
12 has three steps involved.

13 The first of these steps is to compare the existing
14 license conditions with a date that you would get by applying
15 the time durations given in the rule for Appendix R items; take
16 that time duration, add it to the time that the SER was issued,
which approved that feature; compare that with the license
18 condition that exists for that feature; and take whichever of
19 those two is sooner.

20 Now the purpose of that step is -- the Appendix R
21 durations were chosen with today's information as the Staff's
22 best idea of the time schedule it would take to complete those
23 items when they are divided into three categories: shutdown,
24 nonshutdown, and administrative items.

25 The second step to remember is --

1 COMMISSIONER HENDRIE: Hold on.

2 (Laughter.)

3 The aim here is -- let's see if I understand the aim.

4 MR. CASE: Let me state it.

5 COMMISSIONER HENDRIE: Appendix R says for certain
6 plants and on certain things, do the following.

7 MR. CASE: Yes.

8 COMMISSIONER HENDRIE: Now that those things are
9 prescribed, you now allow some implementation time, times which
10 you have judged to be practicable.

11 For people who got off and running on agreed-to
12 solutions under Appendix A maybe quite a while ago --

13 MR. CASE: Yes. And not yet done.

14 COMMISSIONER HENDRIE: And not yet done, you are
15 saying, well, if they really should have gotten on with those
16 two years ago and be pretty well complete now, why, it isn't
clear to you that they should have all the time which would
18 otherwise follow from the Appendix R implementation regime. So
19 that is by saying the shorter of the two, why, you have it in
20 mind that some of those things will pull in. And, in fact,
21 there may have been some date put in the license conditions
22 which would extend out past what you would think reasonable.

23 MR. CASE: Yes, sir.

24 COMMISSIONER HENDRIE: Okay. Now the only question
25 I've got is from those who may be present on the Staff who have

1 been closely associated with the Appendix A reviews over the past
2 several years, does anybody know if that's going to result in
3 somebody getting cut off at the knees? You know, quite apart
4 from the merits of whether he's been dragging his foot on
5 something which had been agreed to, he maybe ought to have done --

6 MR. CASE: They don't get cut off at the knees, because
7 this rule would not be effective for 90 days. So they will have
8 90 days in which to assess how they come out under this scheme
9 and ask for either an extension or an exemption if they can't
10 make the date that results from this first step.

11 COMMISSIONER HENDRIE: Do you have any feeling how
12 much --

13 MR. CASE: Yes, I do.

14 COMMISSIONER HENDRIE: -- applying for exemptions
15 and extensions there is likely to be under this provision?

16 MR. CASE: Yes, sir. Right now there are 25 plants
17 with completion dates after 11/1 for Appendix A items. If we
18 take that first step, there will be -- let me make sure I get
19 this right -- 16 who do not satisfy that first step on 11/1.

20 Now if I move the date for compliance to the
21 effective date of the rule as is proposed to the 1st of
22 February, that 16 reduces to seven plants.

23 Now the provision in this proposed rule goes on to
24 say that the Director of NRR may grant an extension -- and this
25 would be applicable to those seven -- if there is good cause

1 and health and safety is maintained, to update no later than
2 applying the Appendix R template to the date the rule is published.
3 And if I assume that I can find good cause and health and safety
4 is maintained, that last date in mind, there will be three units
5 that go beyond that date.

6 One of those is San Onofre, where the present
7 technical specification says these modifications don't have to be
8 completed until the SEP program is completed.

9 COMMISSIONER HENDRIE: I see. So what's happened
10 out there? They've been waiting for the completion sort of to
11 wrap it all up with the all the SEP requirements, and then try
12 to do it all at once.

13 MR. CASE: And we have taken a contrary position in
14 subsequent units, so they would have to be brought into sync
15 with what we are doing on other SEP plants.

16 The other unit is Peach Bottom 2 and 3.

17 Explain the reason that they got in that shape. It
18 was a slipping of a refueling schedule, right, Tom?

19 MR. WAMBACH: Yeah, right. Our approvals were issued
20 very late on Peach Bottom, because of a disruption in the review
21 team, and a reassignment of personnel, and by the time we got
22 back to them, they got some late approvals.

23 COMMISSIONER HENDRIE: So what happened, they weren't
24 able to crank it through on a firm refueling, and that puts it
25 back a year and a half, or what?

1 MR. WAMBACH: Well, and then when the amendment was
2 finally issued, they were given a blanket 18 months to comply
3 with everything, and that doesn't follow the formula that we
4 have figured, based on experience with other plants.

5 COMMISSIONER HENDRIE: What are you going to do with
6 those three now?

7 MR. CASE: They would have to ask for an exemption
8 from the rule.

9 COMMISSIONER HENDRIE: Okay.

10 MR. CASE: And either the Staff could consider it on
11 its own, or the Commission could get involved, whichever you chose.

12 COMMISSIONER HENDRIE: Okay.

13 COMMISSIONER GILINSKY: These three are three of the
14 seven or --

15 MR. CASE: Yes, they are three of the seven.

16 Hopefully, having got over that, the other consideration
involved in Enclosure 1, we think that that scheduling provision
18 allows us to do two things:

19 One, to give recognition to those plants that have
20 previously agreed to do Appendix A items by this scheme, because
21 it gives them more flexibility -- let me give you an example.
22 They are doing some work with a completion date under Appendix A.
23 If Appendix R is backfit and requires more work for them, they
24 can use the provisions I have just talked about to ask for an
25 extension on their Appendix A items. The good cause in that

1 case might be they had just been given some new work under Appendix
2 R, and they only have a fixed amount of manpower, and they would
3 rather put it to this and get the extension on the Appendix A
4 work.

5 So we think this provision gives flexibility and a
6 recognition of the fact that these are licensees who have
7 cooperated with the Staff in the past.

8 And that's about all I have to say about Enclosure 1.

9 Moving on to Enclosure 2, it has all of the features
10 of Enclosure 1, except it would backfit on all plants licensed
11 to operate prior to 1/1/79 three items, three sections in Appendix
12 R.

13 Those sections are 3(g), which deals with separation
14 of safety trains and associated circuits; 3(j), emergency lighting;
15 and 3(o) oil collection systems.

16 All of the other features of Enclosure 2 are the same
17 as Enclosure 1. That is a separate schedule for Appendix A
18 items and it has the recognition provision.

19 CHAIRMAN AHEARNE: The alternate and dedicated shutdown
20 was not one of the items, is that --

21 MR. CASE: That's correct, sir.

22 Enclosure 3 has the same provisions as Enclosure 2
23 for plants licensed prior to the effective date of the new rule.
24 That is three section backfit, three sections of Appendix R
25 backfit. But it also makes Appendix R applicable in its entirety

1 as a rule to all new OLS issued after the effective date of the
2 rule.

3 The other features of Enclosure 3 are the same as
4 Enclosure 1.

5 If the Commission wishes to pursue that option any
6 more, they ought to talk to the lawyers who have been involved
7 in this on the subject of the consistency of that proposal with
8 the statement of considerations that was originally made when
9 the rule was published for comment several months ago.

10 Enclosure 4 --

11 CHAIRMAN AHEARNE: By "the lawyers," you mean Mr.
12 Shapar?

13 MR. CASE: I think both.

14 MR. SHAPAR: There are others here.

15 (Laughter.)

16 In this case, we have the same idea. The issue is
17 fairly simple, whether or not we put people on notice that this
18 class of people would be affected in this manner.

19 MR. CASE: Enclosure 4 is a mini-rule that temporarily
20 suspends license conditions or -- that is, existing license
21 conditions or technical specifications that require completion
22 of Appendix A items until the issuance date of the new rule --
23 the issuance date of this mini-rule, and the effective date of
24 the new rule. And I would like to point out that this has to
25 be made immediately effective. It could be incorporated into the

1 overall Appendix R rule, but it would have to be made immediately
2 effective there.

3 And secondly, we have at least one license issue that
4 comes due on the 30th of October, so we would like to get the
5 mini-rule out before that time.

6 CHAIRMAN AHEARNE: Now the mini-rule requires publica-
7 tion in the Federal Register; is that right?

8 MR. CASE: Yes, sir.

9 CHAIRMAN AHEARNE: If we acted today, what is the
10 soonest --

11 MR. SHAPAR: Today would all right, and I think
12 tomorrow would make it, with special treatment.

13 MR. CASE: And then briefly, Enclosure 5. Enclosure 5
14 is a way of dealing with the issue of the effective exemption
15 requests, and we do expect quite a few, particularly if you backfit
16 those three sections, on the completion schedules that are
17 specified in the rule. As both of the legal groups pointed out
18 the other day, legally there is no effect on the completion
19 schedules if one submits an exemption. But in the real world, I
20 think the fact that an exemption request has been submitted must
21 be taken into account.

22 Enclosure 5 is a way of doing it. In my view, it
23 doesn't have to be in the rule, but I would like some Commission
24 guidance on the subject.

25 CHAIRMAN AHEARNE: In the absence of the rule, in the

1 absence of that provision, would the Director of NRR have
2 the equivalent authority?

3 MR. CASE: Only through acting on an exemption
4 request.

5 MR. SHAPAR: I think the Staff has authority to grant
6 exemptions, but I think you have worked out an arrangement with
7 the Staff that they come to you and let you know before they go
8 ahead and use their authority.

9 MR. BICKWIT: And as I understand the practice, there is
10 a review conducted by the Staff before they come to you.

11 MR. CASE: Yes.

12 MR. BICKWIT: And what you're contemplating here is
13 that with the filing of the exemption request, after a very
14 quick review by the Staff, not amounting to the kind of review
15 that you bring to the Commission, you would waive the requirement?

16 MR. CASE: Yes, sir, that's what that proposes. It is
a way of handling it, but there are other ways.

18 And I think that's all I have to say.

19 CHAIRMAN AHEARNE: Joe, since you haven't had an
20 opportunity to ask as many questions as we have in the past, let
21 me start with you first.

22 COMMISSIONER HENDRIE: Well, what I was trying to
23 raise with you-all is whether we could not take up Enclosure 4
24 and hopefully come to agreement on it, and the what would clear
25 the matter of the pinching of implementation dates.

1 CHAIRMAN AHEARNE: Well, if we could clear the whole
2 rule, then we could also do Enclosure 4, and they could have
3 their 24 or 48 hours to review the whole rule and make sure
4 that things were tight, and we would also have the pinching
5 taken care of, and I'd hoped to be able to get through the whole
6 package today.

7 COMMISSIONER HENDRIE: I think that from my standpoint,
8 why, that's practical --

9 CHAIRMAN AHEARNE: I will not leave the table without
10 us taking up Enclosure 4.

11 COMMISSIONER HENDRIE: But you do want --

12 (Laughter.)

13 You do want to try to get 4 underway today, and it
14 will have to go ahead, anyway.

15 CHAIRMAN AHEARNE: Well, it doesn't have to. It
16 doesn't have to. I think, from my own view, I would like to have
it.

18 COMMISSIONER HENDRIE: Well, if they would like a day
19 or so to read the long rule and make sure that --

20 CHAIRMAN AHEARNE: Yes. Yes. What I would hope to do
21 this afternoon is to get Commission approval of the big package,
22 subject to NRR and Standards going back and reviewing the whole
23 thing to make sure, yes, it all fits together, and the right
24 sections are referenced. And if we can do that, then at the
25 same time approve a mini-rule for the federal register, then that

1 would wrap the whole thing. That's what I had hoped to be able
2 to do.

3 MR. CASE: I think it's fair to say that we are ready
4 to go to the Federal Register with a mini-rule now.

5 CHAIRMAN AHEARNE: But I would like to get to the --

6 COMMISSIONER GILINSKY: The mini-rule is Enclosure 4?

7 MR. CASE: Yes.

8 COMMISSIONER GILINSKY: But that isn't relevant unless
9 you adopt the other part --

10 MR. CASE: It buys you time, and you wouldn't have to
11 buy this particular way, given in the big rule you are dealing
12 with the subject.

13 CHAIRMAN AHEARNE: What I would like to do is to get
14 the big rule agreed to. The little one is a way of making sure
15 that --

16 COMMISSIONER HENDRIE: Well, back to the big rule.
17 Page 37, for instance. Up at the top, (c), the first item, fire
18 protection features, administrative controls, manpower, changes,
19 training, shall be implemented within 30 days after the effective
20 date, et cetera.

21 MR. CASE: Now the effective date is 90 days from now.

22 COMMISSIONER GILINSKY: Where are you reading, Joe?

23 COMMISSIONER HENDRIE: This is page 37. What I
24 was just trying to do is to get straight what the relation of the
25 30 days mentioned here for implementing administrative type things;

1 versus the effective date of the rule

2 COMMISSIONER GILINSKY: (i)?

3 COMMISSIONER HENDRIE: Yeah. The 30 days appears a
4 couple of places. I just selected this one. Okay, now, the
5 proposal is that the rule becomes effective 90 days after
6 publication or 60 days --

7 MR. CASE: No, 90.

8 COMMISSIONER HENDRIE: 90, excuse me. 90 days after
9 publication in the Federal Register. I will scan the room and
10 see if all the heads are nodding. It's a helpful mechanism
11 because you can detect the difference between a nod and a shake.

12 (Laughter.)

13 You know, I'm always interested in whether page 37 and
14 page 1 are consistent. That's one of the reasons you ask questions
15 here.

16 Okay, so 90 days to effective, and then the rule
17 says, okay, I'm now effective, now you've got 30 days to crank
18 this stuff. They, in fact, then have -- if they read the Federal
19 Register, they have got 120 days now.

20 MR. CASE: Yes, sir.

21 COMMISSIONER HENDRIE: Okay. I guess the way to put
22 it is that I am prepared to vote for Enclosure 1. I suspect a
23 discussion between us this afternoon relates less to particular
24 items, say in Enclosure 1, than to the amending of Enclosure 1
25 by Enclosure 2, et cetera.

1 I must say that I don't find a particular need to back-
2 fit those three provisions in Appendix R on places where there has
3 already been analysis of the need for fire protection in an area
4 and an agreement between the licensee, his engineers, and the
5 Staff on measures that provide for an adequate level of fire
6 protection.

7 I take it that of the three backfits of Enclosure 2,
8 that the fire barriers for safety systems and associated circuits
9 is the major difficulty, would be the largest enterprise.
10 Emergency lighting, as I understand from the transcript of
11 previous discussions, would involve some battery capacity additions
12 at some plants, but probably not a large number.

13 MR. VOLLMER: In some cases they have different modes
14 that may be acceptable by exemption. In other words, hard wiring
15 to some emergency power sources that we would consider capable.

16 COMMISSIONER HENDR^E: I see.

17 What about the oil collection systems? The provision
18 that-- are those are going to be full Category 1 oil collection
19 systems?

20 MR. VOLLMER: Well, not full Category 1. We are
21 looking for a demonstration of seismic ability, but --

22 COMMISSIONER HENDRIE: But I didn't think I found,
23 you know, the full prescription there, and I wondered --

24 MR. VOLLMER: More like an OBE than an SSE requirement.

25 COMMISSIONER HENDRIE: How much of an enterprise is

1 that?

2 Well, let me ask it a different way. Among those plants
3 that have had reviews for fire protection under the branch
4 technical position and its appendix, what, if anything, was done
5 about pump oil or lube oil systems in those reviews?

6 MR. VOLLMER: Some of them did have collection systems,
7 but some of them, I think, had fire suppression systems rather
8 than collection systems.

9 COMMISSIONER HENDRIE: I see.

10 MR. VOLLMER: And the point being --

11 COMMISSIONER HENDRIE: The fact that here then would
12 be it would be easier to require a collection system.

13 MR. VOLLMER: That's right, because the suppression
14 system for the noninerting containments is not thought to be
15 adequate in view of the flash points of the oil, and the fact
16 that the fire could spread, and so on.

17 Now there might also be certain cases, since the
18 coolant pumps themselves are not necessary for safe shutdown,
19 if the systems were adequately compartmentalized. It might not
20 have to --

21 COMMISSIONER HENDRIE: If you can shut it down in
22 spite of them burning, why, --

23 MR. VOLLMER: That's right. That would require going
24 back and --

25 COMMISSIONER HENDRIE: Do you have a feeling for how

1 many places collection systems would be backfit, where there
2 already has been a --

3 MR. VOLLMER: Excuse me. That should be on one of
4 the handouts. Tom, do you have that number?

5 COMMISSIONER HENDRIE: I'll settle for an approximation.
6 I wanted a feeling for --

7 MR. VOLLMER: I don't have that handy.

8 COMMISSIONER HENDRIE: Five, 10, 15?

9 MR. WAMBACH: Well, I have the ones where Appendix R
10 applies, you know, as Enclosure 1. With the consideration of
11 Enclosure 2, in essence what that means, we would have to go back
12 and look at the 25 plants that have been approved under Appendix A.

13 COMMISSIONER HENDRIE: Okay. And we just don't have
14 a feeling at the moment how many of those --

15 MR. FERGUSON: I would estimate that there may be five
16 plants in the category of either they don't have an oil collec-
17 tion system or a suppression system was previously approved. I
18 think it would be more like 20 to 30 that may have to look at
19 the seismic requirements of the early ones, before we could
20 even consider that.

21 However, the seismic requirement we have on there now
22 is really just Reg Guide 1.29, which is when you put something
23 in a safety area, make sure it holds together, and so forth,
24 which they should have been meeting, anyway.

25 The general feeling is that you look at the structure

1 of the thing, just the fact of holding it together and all that.
2 Meeting this shouldn't really be a problem. It would just be a
3 matter of demonstrating that --

4 MR. CASE: We don't require all the pedigree.

5 COMMISSIONER HENDRIE: I would think that would be the
6 case. Most of this stuff, if it's competently put in, will
7 stand OBE level shaking without any problems; in fact, probably a
8 good deal more than that.

9 CHAIRMAN AHEARNE: The way you have got it written in
10 here in your Enclosure 2, would that end up, though, making it
11 a full-blown Category 1 seismic qualified safety?

12 MR. VOLLMER: No, we're asking to demonstrate seismic
13 resistance, which means -- I would try to categorize it as
14 something that would hold together under an operating basis
15 earthquake.

16 COMMISSIONER HENDRIE: Okay. So the oil collection,
then, looks like half a dozen collection systems to be backfit.
18 What about the fire barriers?

19 MR. CASE: Well, we've had some discussions of that
20 in the past, and I tried to, after the meeting, discuss it with
21 the Staff so I could give a more or less approximate answer that
22 they would all agree with. It's a number --

23 VOICE: Lots of luck.

24 MR. CASE: I shall try.

25 For the 37 plants that are now closed and have been

1 reviewed under Appendix A, if you backfit --

2 COMMISSIONER HENDRIE: What do you mean, closed?
3 In cases where the issues of fire protection review has been
4 completed?

5 MR. CASE: Not necessarily completely implemented.

6 COMMISSIONER HENDRIE: Yeah, but the review completed.

7 MR. CASE: Out of that 37, a number of about 10 we
8 would expect that once even you give the exemptions, whether it
9 is 19-1/2 feet instead of 20 feet and you go through that, there
10 would be about 10 plants where changes would be required.
11 Principally those where considerable credit was given for
12 protective coatings, rather than separation.

13 Of the 33 plants which are now open on that issue,
14 that is where Appendix R would apply, we would expect that
15 another number of about 10, there would have to be some
16 significant changes in the design, either more separation or
things like that.

18 So perhaps a total of 20 plants would be significantly
19 affected by the backfit of 3(g).

20 MR. BICKWIT: Well, 10 additional; right?

21 MR. CASE: Yes, 10 additional.

22 COMMISSIONER HENDRIE: The ones that do not have
23 completed reviews pick up Appendix R, in any case.

24 MR. CASE: Yes. Yes. And that tries to reconcile
25 all previous estimates which the Commissioners --

1 COMMISSIONER HENDRIE: Well, I scanned the transcript
2 of the meeting you had last week. I found it a peculiarly
3 unenlightening transcript.

4 CHAIRMAN AHEARNE: As opposed to --

5 COMMISSIONER HENDRIE: It's just that when you read
6 the transcript, there are an awful lot of pieces of information
7 that you get, you know, that don't record in the transcript that
8 you get, that helps your understanding. People nod and shake
9 their heads, frown, all kinds of signals, that you receive, when
10 you are sitting here at the table.

11 For that group of 30 -- what is it, 37 so-called
12 closed situations under Appendix A, with regard to the fire
13 barrier provisions, how much safety do you really think you are
14 picking up backfitting Appendix R to that group?

15 MR. CASE: Well, I think there is a clear agreement
16 that the 10 you would pick up safety, where there was considerable
17 excess credit, now as we understand what kind should be given
18 to protect the coatings.

19 On the others, I think the Staff believes that it's
20 almost exclusively a paper exercise. The 27 out of the 37 will
21 be exemption requests, reviews, and conclusions in the Staff's
22 view that what they previously have done, had done and accepted,
23 remains acceptable.

24 COMMISSIONER BRADFORD: Now those were reviews that
25 you would be doing, in any case?

1 MR. CASE: Those are -- part of the transcript last
2 time, Dick indicated that we would go on a three-year review
3 program of plants already reviewed to pick up things like this,
4 and make any changes that were deemed to be necessary by the
5 Staff teams going from plant to plant. So this backfitting could
6 be considered as an alternative to the Staff site visits and
7 reviews.

8 Is that fair, Dick?

9 MR. VOLLMER: No, I think we intend on conducting
10 that, anyway, but we felt that those deficiencies that may exist
11 in the fire protection program, as well as anything that might
12 have slipped through the crack because of plant changes, for
13 example, TMI changes, and so on, we would intend on picking up
14 on a periodic review. We would concentrate on some of these
15 items as part of that three-year review, if they were not picked
16 up by backfitting specifically.

17 COMMISSIONER HENDRIE: But I think the point that
18 is being made here is that because Enclosure 1 did not contemplate
19 that on the 37, you would just never look again at these areas,
20 but in fact would look again to see if some of those didn't
21 have to have in fact -- that new knowledge didn't indicate some
22 changes. The point is being made here that there is a certain
23 body of Staff effort that sooner or later is intended to go into
24 this enterprise. I expect a three-year schedule of reviews
25 of the plant may be a little easier to handle from the Staff's

1 standpoint. I don't know, do you see much --

2 MR. VOLLMER: I suspect if we do get the -- if we are
3 requiring backfit, if that's the option chosen by the Commission,
4 then undoubtedly there will be, I would suspect, a fair number of
5 applications for exemption or new approvals to come in, which will
6 provide a fair amount of Staff burden. The three-year review
7 would be more evened out on the resources then, but I think either
8 way we could accomplish the same objective, which is that our
9 priority would be given first to implementing the Appendix R
10 plants, because those are the ones that do have outstanding items,
11 and take up the backfitting of approved items on the next priority
12 basis.

13 COMMISSIONER HENDRIE: Thanks. That runs me out for
14 the moment.

15 CHAIRMAN AHEARNE: How about No. 3? No. 4?

16 COMMISSIONER HENDRIE: No, because I don't -- you
17 know, my view is that Appendix R was not conceived to apply in a
18 forward direction, that the branch technical position provided a
19 much better basis technically for a comprehensive fire protection
20 system, and I just am totally opposed to strapping the system yet
21 more tightly than it's already bound up.

22 CHAIRMAN AHEARNE: Vic? Peter?

23 COMMISSIONER BRADFORD: Let's see. I don't have any
24 questions on matters we have already covered. I am not myself
25 inclined to go along on Enclosure 5. I think that obviously there

1 are going to be a fair number of requests for exemptions, and at
2 least some of them will be granted.

3 I am a little uneasy about a provision, though, that
4 says that a request for an exemption automatically tolls the
5 deadline. I have an element of somebody reviewing --

6 MR. CASE: Well, it does have that in there.

7 COMMISSIONER BRADFORD: Well, it says that you have
8 to assert there will be a net loss for safety if you --

9 MR. CASE: We have to review it and agree that he's
10 got a fair argument that there is a rational technical basis
11 for his conclusion, whether we agree with it or not. So that's
12 not automatic in that sense.

13 COMMISSIONER BRADFORD: That's right. And I think
14 what I'm saying is that if in fact you go through that with
15 regard to any individual request, and then grant the exemption,
16 I don't think I'd have any problem with that, but I think that
17 would be the case even if you didn't write this section into the
18 rule, and --

19 MR. CASE: I think it would probably be, but I got
20 some indication from the Commission last time that everybody
21 didn't agree with that kind of approach.

22 COMMISSIONER BRADFORD: I think the difference was --
23 maybe I just haven't read this carefully enough yet, but in the
24 case in which you review the individual application and say,
25 all right, there is a problem there, we'll grant the exemption

1 when we get it figured out -- that, I assume, is something that
2 will always go on under the rule.

3 What you are saying here is that if the request is
4 filed and it's based on an assertion of the fact that it's net
5 loss for safety, then the requirement -- the deadline need not
6 be met until the Commission has reached a determination on the
7 matter.

8 So as I am reading this, it says all the licensee
9 has to do is assert that there's a loss for safety.

10 MR. CASE: Well, upon a determination that the
11 Director of NRR -- that the licensee has provided sound technical
12 basis for such assertion that warrants further Staff review of
13 the request. That's to handle something frivolous. He's just
14 saying so, with nothing behind it.

15 What did you put there, Joe?

16 MR. SCINTO: I explained that that's a draft, so
17 it really is a finding that the licensee has made a prima facie
18 case that an exemption should be granted.

19 MR. CASE: He didn't want to put that in there,
20 because I wouldn't understand that.

21 (Laughter.)

22 MR. SCINTO: But we'd rather have it paid technical
23 attention by the Director.

24 COMMISSIONER BRADFORD: Now, Joe, how is that different
25 from the exemption process as it would work without this section?

1 MR. SCINTO: Well, if you didn't have this process,
2 the way I envision it, the only way the Staff could handle it is
3 either on a full determination -- the guy has made an exemption
4 request, and either we agree with the exemption request and
5 grant the exemption, or we just wait and continue the review.
6 It may be a fairly complex technical issue that he makes a showing
7 on, and we need time to look at it. We may want to look at it,
8 we may want to get a contractor to look at it. Without a
9 tolling provision, that time comes out of the licensee's schedule.
10 With the tolling provision, it comes out -- what you're saying,
11 suspend that.

12 COMMISSIONER GILINSKY: What I thought Ed was saying
13 that the practice was to do it just this way. Is that --

14 MR. SCINTO: The only way I could see the Staff could
15 do it would be this -- a complex -- I'm not quite sure you're
16 familiar with the complex set of release for nonexemptions
17 with respect to the in-service inspection things that we have
18 under 50.55(a)(g)(6), where there is a relief, you have
19 an exemption. That's complicated enough as it is. We could
20 probably adopt a similar practice in a two-stage kind of
21 exemption, but it's much more complicated than this.

22 COMMISSIONER BRADFORD: When you say the time comes
23 out of the licensee's schedule -- let's see. Suppose he
24 files for an exemption a day or two before the deadline would
25 otherwise have run out, then how does this work? Say the Staff

1 makes a prima facie determination, with or without this section
2 in the statute, without this section in the rule --

3 MR. CASE: Ordinarily if it were a two-day thing,
4 you'd rush around and make up your mind within the two days,
5 either you agreed with him or didn't agree.

6 COMMISSIONER BRADFORD: Not on -- supposing you just
7 thought, gee, that looks as though it's got some merit, we need
8 to think about it for a while?

9 MR. CASE: Oh, yeah, you might give him a temporary
10 waiving of the thing until you made up your mind. It's sort of
11 done on an -- I think you would have to agree with this -- it's
12 sort of on an ad hoc basis. We do give some consideration to the
13 fact that they put in an exemption request, and the kind of
14 consideration we give varies all over the lot. I don't think we
15 have a standard way of doing it. This does present a standard
16 way, and because it does, it has some advantages. Everybody
knows the rules of the game.

18 MR. BICKWIT: It keeps them out of technical violation
19 of the rule.

20 MR. CASE: Yes.

21 MR. BICKWIT: That is your practice, as I understand
22 it.

23 MR. CASE: Yes. Sometimes we let them go in technical
24 violation. I thought of putting in an provision provided the
25 request is received within 30 days prior to 60 days before the

1 thing expires, and that's all well and good, too. But I can
2 conceive of a situation where the licensee felt he didn't need
3 an exemption until the day before, and he suddenly found that
4 it was 18 feet instead of 20 feet. You've also got to give
5 consideration to that fellow who in good faith doesn't --

6 COMMISSIONER BRADFORD: Well, he's different from
7 this one, though, because this one has to be asserting that there's
8 a net loss for safety, and not simply that it's unreasonable
9 to make him go further.

10 MR. CASE: Yes. But he may just find that area in the
11 end. Somehow you have to have exceptions to everything you write
12 down, I guess is what I'm trying to say.

13 COMMISSIONER HENDRIE: You're going to have to look
14 at a lot of pieces of plant. I can see them out there scratching
15 furiously to get, you know, fire protection consulting engineers
16 who are familiar with this kind of area, and not coming so easily
17 to the definition of particular places where Appendix R, in their
18 view, will be a net loss, and so on.

19 COMMISSIONER BRADFORD: Of course, it shouldn't be
20 brand new to them by now.

21 COMMISSIONER HENDRIE: Well, for some of these people,
22 why, they will --

23 COMMISSIONER BRADFORD: The Appendix R backfit for
24 some of these people will be a new thing, but --

25 COMMISSIONER HENDRIE: You know, two years ago, they felt

1 they were all set on what they had to do, and they've been doing
2 it along, and so on, and now they've got to go running back
3 through all of that and examine all those areas to see if they
4 meet these other --

5 COMMISSIONER GILINSKY: When would you be making
6 this determination, that a sound technical basis for such a
7 decision --

8 MR. CASE: Oh, I was thinking in two weeks or so of
9 receipt, some fairly short time like that, and to set up a system
10 that would do that. Because that should be done relatively fast.

11 CHAIRMAN AHEARNE: Peter?

12 COMMISSIONER BRADFORD: No, I -- we keep talking
13 about requests for exemptions, and the need to deal with them,
14 and the fact that they'll come in at the end. I have the uneasy
15 feeling that between everything we have and everything we have
16 written in here, we may be giving a more encouraging picture
17 than I would want to, to licensees about the efficacy of coming
18 in for exemptions.

19 I recognize there are going to be situations such as
20 the ones Joe has described where the backfit of Appendix R might
21 put people in a position where they would really need an exemp-
22 tion; but I think in the majority of cases that I can think of
23 under this rule, we are dealing with people who have been on
24 notice that fire protection is a serious concern for a long time,
25 and I would hope that the next round of the fire protection story

1 wouldn't consist of our having to grant or having granted exemption
2 willy-nilly to the licensees who have been resisting hardest on
3 fire protection changes all along.

4 CHAIRMAN AHEARNE: Ed, I've got a couple of questions.
5 When you used the phrase "good cause shown," does that
6 have some particular perspective that you have in mind?

7 MR. CASE: Well, I can give you some for-examples.
8 They ordered a valve from the manufacturer, and delivery date has
9 slipped, and they can't put it in until they get the valve.
10 That's an example of good cause.

11 Can you think of others, Dick? That is one that
12 comes to mind right away.

13 CHAIRMAN AHEARNE: Is it a standard phrase?

14 MR. SHAPAR: It's found in the statutes, found in
15 regulations, it's found rather universally in other people's
16 regulations.

17 COMMISSIONER BRADFORD: When you get an assertion like
18 that, do you actually ever do a double-check to make sure that
19 in fact there is some difficulty getting that particular valve?

20 MR. CASE: The double-check is more done if there is
21 some reason not to believe them.

22 COMMISSIONER BRADFORD: No, I can understand that
23 you couldn't double-check every one, but I should think at
24 least once in a while, it would leave a desirable impression
25 to know that the NRC checked both sides of a statement like that.

1 MR. CASE: And the double-check would be just mostly
2 calling the manufacturer.

3 COMMISSIONER BRADFORD: Sure.

4 MR. CASE: Not going to his plant to look.

5 COMMISSIONER BRADFORD: I understand.

6 CHAIRMAN AHEARNE: But the question is, do you do that?

7 MR. CASE: Yes.

8 CHAIRMAN AHEARNE: You have a phrase in there
9 that talks about in some cases the allotted time may be excessive
10 for completion, and these are the cases where, for example, I
11 guess, San Onofre that you described.

12 MR. CASE: Yes.

13 CHAIRMAN AHEARNE: Now you go on to say if such
14 schedules extend beyond what would have been a reasonable
15 schedule initially. Is that implying that there could have been
16 a better estimate of what the schedule should have been?

17 This is at the top of page 8-A.

18 MR. CASE: Joe, did you do that one?

19 (Laughter.)

20 MR. SCINTO: The statement relates to the fact that
21 initially, during when initial safety evaluations were written,
22 and schedules for completion were established, there was some
23 schedule. We now, I think, after last week and the week before,
24 the Staff has indicated that they have developed, based on some
25 experience from looking at all these guys, what a reasonable

1 schedule would be implementing Appendix R. That, looking backwards
2 in some cases, the schedules which were accepted in the safety
3 evaluations, were longer than what we are now telling you is a
4 reasonable schedule to accomplish that.

5 That's what the sentence is meant to say.

6 CHAIRMAN AHEARNE: Scheduled beyond what we now believe
7 would have been a reasonable schedule?

8 MR. SCINTO: Well, that's what the sentence is intended
9 to convey.

10 CHAIRMAN AHEARNE: I notice in comparing page 18 of
11 Enclosure 1 and page 18 of Enclosure 2, it appears the main thing
12 that changed -- I assume that the fact that the including change
13 wasn't made, that's just an oversight? That's not substantive, is
14 it?

15 MR. CASE: No, it's not substantive.

16 CHAIRMAN AHEARNE: The main change is to eliminate *the*
17 footnote~~s~~.

18 MR. CASE: Yes.

19 CHAIRMAN AHEARNE: And I guess that's because you see
20 the footnote as possibly implying an acceptability of coatings
21 and Enclosure 2 essentially is no longer; is that correct?

22 MR. CASE: That's the essential reason, yes.

23 CHAIRMAN AHEARNE: On page 38 of Enclosure 1,
24 explain the significance of Section (e) which then disappears in
25 Enclosure 2.

1 MR. CASE: That must be the one. Let me make sure I
2 get the right one. On page 38 of Enclosure 1.

3 This is to take care of plants like Sequoyah and I
4 think North Anna, which have a requirement to meet GDC-3s and
5 fire protection measures to take.

6 Now they are required to implement those, if I remember
7 correctly, somewhere in between their initial license and full
8 power, and it varies from plant to plant, so this is a reference
9 to we didn't want to make them do any different than what was
10 agreed upon in their licensing.

11 CHAIRMAN AHEARNE: So you're saying in the absence of
12 that phrase, Enclosure 1 -- I don't understand. The first
13 question is, in the absence of that phrase, Enclosure 1 only
14 references plants licensed prior to January 1, 1979.

15 MR. CASE: But it has a provision that says all
16 plants must meet GDC-3 and must implement a fire protection
17 program to meet GDC-3, and then it gives schedules for specific
18 ways of implementing GDC-3, and we didn't want it read to mean
19 that those previously approved schedules for plants beyond 1/1/79
20 would be changed by his rule.

21 It does have some applicability beyond 1/1/79.

22 CHAIRMAN AHEARNE: Now you dropped that out in
23 Enclosure 2 -- 3.

24 COMMISSIONER HENDRIE: Because you're cranking
25 Appendix R forward on everything. So it just wipes out all those

1 license conditions.

2 CHAIRMAN AHEARNE: Okay. Now, Ed, you were going
3 to refer to your lawyers or our lawyers to tell me why Enclosure 3
4 was illegal.

5 MR. CASE: I didn't quite say that. I said it raised
6 inconsistencies--

7 CHAIRMAN AHEARNE: Yes, but you're learning the
8 language.

9 (Laughter.)

10 MR. BICKWIT: Try your own lawyers.

11 (Laughter.)

12 MR. SHAPAR: Well, the original notice of proposed
13 rulemaking didn't indicate that this class would be affected by
14 the rule. Basically we questioned whether or not the requirement
15 in the Administrative Procedure Act would put out a rule making it
16 effective and give the affected people the opportunity to comment

the rule that they were proposing, and I guess, in answer to
your question whether or not it would be a basis for making the
19 rule immediately effective, I haven't been able to detect any
20 reason that would kind of justify it.

21 COMMISSIONER HENDRIE: That would suggest a rule
22 with Enclosure 3 in it would need to go around for comment again?

23 MR. SHAPAR: You could try it. Nobody is telling you
24 it's illegal. We're telling you about a general legal concept
25 where the cases are running pretty hard these days. You don't want

1 put out a rule and make it effective unless you've got a pretty
2 good reason. You give the public an opportunity to comment on it.
3 And here when the proposed rule went out, nobody who read the
4 rule fairly can possibly think they would be affected by a rule
5 like what's contained in No. 3.

6 CHAIRMAN AHEARNE: Len, do you agree?

7 MR. BICKWIT: Yeah, I agree with that. I think your
8 best hope for sustaining that position would be not to say that
9 the original notice gave you notice that you might do this, but
10 rather to go out with a brand-new rule and make it effective
11 immediately and ask for comment on it. Then if you lose on making
12 it effective immediately, you haven't really lost much, because
13 you're in the middle of the comment period with respect to that
14 rule. But it is a very iffy proposition.

15 MR. DIRCKS: You could just send out this rule without
16 this, and then at the same time send out a short statement
saying that we intend to make this one apply both forward and
backward. Would you comment on that aspect of it?

19 MR. BICKWIT: That's right. But what the Chairman
20 would like to do is make that effective immediately, and I think
21 both legal officers are saying that there is some risk involved
22 in that. I think you could confine the risk so that the only
23 risk is that you would lose the case, and you would not
24 particularly risk anything else if you proposed the rule, made
25 it effective immediately, asked for comment while the rule was

1 effective immediately, than if you lost on its being effective
2 immediately. You have lost nothing else.

3 MR. SHAPAR: That's quite correct, but I think there's
4 also a policy question as well as a legal question.

5 COMMISSIONER BRADFORD: Are we expecting any plants
6 to be coming in for OLS in the future that in fact wouldn't meet
7 Appendix R?

8 Did I ask that question before?

9 MR. CASE: No. What we would use Appendix R for
10 is part of the Standard Review Plan, and require licensees to
11 justify deviations from out of this program.

12 COMMISSIONER BRADFORD: I see.

13 MR. CASE: It gives us more flexibility in applying
14 the --

15 COMMISSIONER BRADFORD: That's right. I did ask the
16 question before, and that's what you said before.

(Laughter.)

17 COMMISSIONER GILINSKY: Let's see, John. Are you keen
18 to have this applied?

19 CHAIRMAN AHEARNE: See, my uneasiness is that we now
20 are putting in a rule a fire protection set of standards for
21 plants licensed before January 1979, and we don't have in the
22 rule fire protection set of standards for plants licensed after
23 January 1979.
24

25 MR. BICKWIT: Well, you could acknowledge that you

1 hadn't provided notice on that particular feature, and
2 simply go quickly with an effort to remedy that by putting out
3 just a brand new rule and asking for comment, and announcing to
4 the public that you're going to move quickly on it.

5 MR. SHAPAR: You could also say in the statement of
6 considerations the basis to be applied to new applications.

7 CHAIRMAN AHEARNE: I guess, Ed, you are saying that
8 you have been applying and will continue to apply the basic
9 standard in the future; is that correct?

10 MR. CASE: Yes, sir.

11 CHAIRMAN AHEARNE: Well, I guess where I would then
12 be, I would certainly agree with No. 1; I obviously agree with
13 No. 2, because that's what I asked you to develop, the backfit;
14 on No. 3, I guess I would propose a modification to have a
15 separate thing going out for notice and comment to make that
16 effective for future plants and --

COMMISSIONER GILINSKY: A separate rule?

19 CHAIRMAN AHEARNE: Yes, because that would then
20 solve the problem, and since the Staff is going in that direction,
it shouldn't --

21 MR. VOLLER: A separate rule with just these items or --

22 COMMISSIONER HENDRIE: What you're then doing is to
23 institute for all future designs what you claim is a set of
24 fire protection requirements, which are not in fact a compre-
25 hensive set of fire protection requirements, but are a selected

1 subset of a detailed Staff document, and they have the difficulty
2 then that you have a rule which does not cover the ground it
3 purports to cover, and covers it in a way which will make that
4 language much too restrictive. You're much better off to leave
5 that level of detail to the Staff guidance documents.

6 CHAIRMAN AHEARNE: Well, I would have no problem
7 with when the better rule be developed, to have it replace this.
8 But it has taken so long to get anything --

9 COMMISSIONER HENDRIE: You don't want this kind of
10 detail in rule form.

11 COMMISSIONER GILINSKY: Well, do we want a ^{stripped-down} profound
12 version of this? In other words, something which doesn't get
13 to the same level of detail, but lays out some basic principles?

14 CHAIRMAN AHEARNE: What I find very difficult to
15 rationalize is why we only have a rule for backwards and nothing
16 for forwards.

17 MR. VOLLMER: Well, as we indicated before, the
18 specific items here are directed toward the operating plants,
19 and fit those categories specifically. I think there is one,
20 at least one instance of that in item (g) where I think we know
21 of situations in newer plants that we would not want to accept
22 the specific A, B, or C in item (g) as being adequate. And so,
23 therefore, we would be in a position where it would not make it
24 safe to accept that particular portion of the rule.

25 CHAIRMAN AHEARNE: Not safe, or not as safe?

1 MR. VOLLMER: Not adequate. I won't comment on safety,
2 but a particular example would be that if you took one of the
3 options in (g) for a very specific situation I have in mind,
4 the Staff does not believe he would have adequate fire protection
5 for that particular area, particularly areas carrying cables
6 for auxiliary feedwater.

7 So we would almost want the licensee to ask for
8 an exemption in that.

9 CHAIRMAN AHEARNE: Well, I believe that we must
10 generate something that will at least give us a set of requirements
11 to impose on plants licensed after January 1st, 1979. I think
12 it's just unacceptable to only have a rule that goes backwards,
13 and I'm willing to say that this is not anywhere near as good as
14 you would like for future, but I probably won't be around here
15 enough years to wait for another rule to be generated.

16 MR. VOLLMER: I understand. I agree with your
principle. I'm saying I have --

(Laughter.)

19 I agree with the principle, but the application of
20 this, in most cases, I think if we go back and look at those
21 plants that are not covered by this rule in the version of A or
22 B, we would find that I think only one, perhaps, instance of
23 these items, namely the oil collection system we have accepted
24 what we believe to be less than the rule.

25 CHAIRMAN AHEARNE: Well, I guess rather than wearing us.

1 all out, I don't detect any large sentiment to my approach, any-
2 way, so I'll have to get the Staff somehow to generate something
3 for future.

4 I am willing to accept also to going out, if we can
5 accept Enclosure 1 and Enclosure 2, then I'd be willing to also
6 go with Enclosure 4 as a quick way.

7 On No. 5, on the tolling, I don't have any real
8 problem with the language. I'm still a little puzzled by what
9 happens if it isn't there, versus what happens if it is there.
10 I gather the main significant difference is that with it there,
11 you do not have to make the complete review, and you have a
12 mechanism to formulate, to provide a period of time for a more
13 complete review.

14 MR. CASE: Yes.

15 CHAIRMAN AHEARNE: I guess I would, if we did follow
16 that, like the Director of NRR to periodically, maybe quarterly,
provide us a summary of what you have done and why.

17 COMMISSIONER BRADFORD: I think that would be useful
18 on exemption requests, not only under Enclosure 5, but exemption
19 requests on whatever basis.

20
21 CHAIRMAN AHEARNE: Before we then try to go to formal
22 votes, are there any other comments or questions?

23 COMMISSIONER GILINSKY: Well, I think it's worth --
24 (inaudible) -- the question of whether or not the rule for
25 the future and what that rule ought to look like. I assume

1 we would take the advice we have been getting, be less proscriptive
2 and less detailed. But I think there is something to be said
3 about a new rule. At least so it appears to me. I'd certainly
4 like to hear more discussion of that.

5 CHAIRMAN AHEARNE: I guess given the feelings, I
6 probably would like Bill to take the Staff back and come back to
7 us in the next two to three weeks.

8 MR. DIRCKS: What would be the elements of that?

9 COMMISSIONER HENDRIE: Well, you know, you're not
10 precisely naked under the proposed configuration. You have
11 the old Criterion 3, and then in what is proposed here, you have
12 got a Section 50.48(a), which says each plant shall have a fire
13 protection program, et cetera, et cetera, et cetera. It's just
14 one page. And what it does then is refer to the branch technical
15 positions and to the other guidance documents 76, 77, 78, so
16 that it has the same configuration as a number of regulations
do.

17 That is, they say -- you know, for instance, Part 100
18 says a cycle be acceptable in the radiological sense, as to risk,
19 footnote, asterisk, see TID 14 -844, and other documents, and
20 so on and so on, which leads back to a substantial body of
21 Staff guidance literature with considerable detail.
22

23 Now the only trouble is a question, what level of
24 detail you want to move into the regulations, and you have to
25 recognize that if you move too much in there, then you really

1 bind the system in a way that makes regulation very difficult.

2 On the other hand, of course, it's also fair to argue
3 that if you say hardly anything in the regulations and leave it
4 all to Staff guidance documents, that you have got a little less
5 well-defined system than you'd really like.

6 But my objection to Enclosure 3 as a proposition is
7 that it elevates just a sort of randomly-selected set of Staff
8 guidance items, not even documents, but items into the category of
9 rule, and it's both wrong in terms of it not being comprehensive
10 as a fire protection rule in any adequate sense at all, but also
11 that it's the wrong level of detail.

12 CHAIRMAN AHEARNE: Perhaps Bill can come back with
13 some views which would address whether we should have and what.

14 COMMISSIONER HENDRIE: Well, you might very well see,
15 you know, some level, some proscription of the general requirements
16 between the proposed paragraph under 50.48, paragraph A, under
17 50.48, and the more detailed guidance documents, maybe, but --

18 CHAIRMAN AHEARNE: Any other questions or comments?

19 Then I would propose we -- first I would propose
20 we accept Enclosure 1 and 2.

21 MR. CASE: Enclosure 1 as modified.

22 CHAIRMAN AHEARNE: As modified in Enclosure 2.

23 All in favor of that?

24 COMMISSIONER GILINSKY: Yes.

25 COMMISSIONER BRADFORD: Yes.

1 CHAIRMAN AHEARNE: Yes.

2 COMMISSIONER HENDRIE: Call for the nays.

3 CHAIRMAN AHEARNE: All opposed?

4 COMMISSIONER HENDRIE: Nay.

5 CHAIRMAN AHEARNE: I would also propose that because
6 of this timing difficulty and giving the Staff a chance to go
7 through and make sure it's put together well, I would also go
8 for Enclosure 4. That could go out immediately.

9 COMMISSIONER HENDRIE: Aye.

10 COMMISSIONER GILINSKY: Aye.

11 COMMISSIONER BRADFORD: Aye.

12 CHAIRMAN AHEARNE: Aye.

13 I would add Enclosure 5. All in favor of that?
14 Aye.

15 COMMISSIONER HENDRIE: Aye.

16 COMMISSIONER GILINSKY: Aye.

COMMISSIONER BRADFORD: Aye.

CHAIRMAN AHEARNE: Very good.

19 Len, is there anything else?

20 MR. BICKWIT: No.

21 CHAIRMAN AHEARNE: All right. Thank you very much.

22 (Whereupon, at 3:15 p.m., the meeting was
23 adjourned.)

24 * * * *

25

POOR ORIGINAL

NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the
COMMISSION MEETING

in the matter of: Discussion and Vote on Fire Protection Program
(Continued)

Date of Proceeding: October 27, 1980

Docket Number: _____

Place of Proceeding: Washington, D. C.

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

Ann Riley

Official Reporter (Typed)

Ann Riley

Official Reporter (Signature)



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

October 24, 1980

MEMORANDUM FOR: Chairman Ahearne
Commissioner Gilinsky
Commissioner Hendrie
Commissioner Bradford

THRU: William J. Dircks, Executive Director
for Operations

FROM: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

SUBJECT: FIRE PROTECTION RULE (SECY 80-428A)

Based on discussions with and requests from the Commission on October 21, the enclosed material related to the Fire Protection Rule has been prepared for your review. It consists of the following:

1. Enclosure 1 is the Fire Protection Rule and Statement of Considerations proposed by the staff. Minor editorial improvements have been incorporated, and the rule now includes a separate section (See Section 1(d) pages 37a-38) which establishes dates for completion of fire protection features previously approved by the staff pursuant to Appendix A to BTP 9.5-1. Because it would not become effective for 90 days, this Section, in combination with a proposed immediately effective rule discussed later, provides a grace period of 90 days for licensees to accommodate to these new schedules. It also provides a method by which the Director, NRR may grant extensions to these new schedules up to a specified maximum period of time which is equal to the period of time specified in the rule for completing similar Appendix R fire protection features. As requested by the Commission, this provision permits an opportunity to afford recognition to the efforts of those licensees who have previously voluntarily committed to install fire protection features that is not available to those licensees who will be required to install the features by Appendix R. It also provides control to assure that this flexibility may be used only if there is good cause shown and public health and safety is maintained.

Contact:
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492-7726

2. Enclosure 2 consists of revised pages for the Rule included in Enclosure 1 which would require the backfitting of Section III.G (fire barriers for safety systems and associated circuits), III.J (emergency lighting) and III.O (oil collection systems) on operating plants licensed prior to January 1, 1979. In addition, the revised pages modify the Statement of Considerations to reflect these backfitting provisions. The Commission requested that language be developed for this alternative for both the Rule and the Statement of Considerations.
3. Enclosure 3 consists of revised pages for the Rule portion of Enclosure 1 which would require the backfitting of Section III.G., III.J., and III.O on all currently operating plants, and would also impose Appendix R in its entirety on all new OLS. The Commission requested that language on this alternative be developed.
4. Enclosure 4 is a proposed immediately effective Rule requested by the Commission that would temporarily waive dates for completing fire protection modifications that are currently specified in licenses or technical specifications until a new fire protection rule has been issued and made effective, or other Commission action on this subject has been taken. It has been drafted as a separate Rule but could be made a part of the overall Rule by minor language changes. In either event, it must be made immediately effective to serve its intended purpose.
5. Enclosure 5 is a draft possible subsection on tolling of specified completion schedules by technical exemption requests. If time permits, I would like to discuss the pros and cons of this approach with the Commission. This subsection need not necessarily be included in the approved Rule.

The staff is prepared to discuss any or all of these matters with the Commission at the meeting scheduled on Monday, October 27.

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosures: As noted above

cc: See Next Page

The Commission

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SECY
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ENCLOSURE 1

U. S. NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

Fire Protection Program for Operating Nuclear Power Plants

AGENCY: U. S. Nuclear Regulatory Commission

ACTION: Final Rule

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to require certain provisions for fire protection in operating nuclear power plants.

EFFECTIVE DATE: [90 days following publication in the FEDERAL REGISTER]

NOTE: The Nuclear Regulatory Commission has submitted this rule to the Comptroller General for such review as may be appropriate under the Federal Reports Act, as amended, 44 U.S.C. 3512. The date on which the reporting requirement of this rule becomes effective, unless advised to the contrary, accordingly, reflects inclusion of the 45-day period which that statute allows for such review (44 U.S.C. 3512(c)(2)).

FOR FURTHER INFORMATION CONTACT: David P. Motley, Office of Standards Development, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, phone 301-443-5921 or Robert L. Ferguson, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D. C. 20555, phone 301-492-7096.

[7590-01]

SUPPLEMENTARY INFORMATION: On May 29, 1980, the Nuclear Regulatory Commission published in the Federal Register (45 FR 36082) a notice of proposed rule making inviting written suggestions or comments on the proposed rule by June 30, 1980. The notice concerned proposed amendments to 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to require certain minimum provisions for fire protection in nuclear power plants operating prior to January 1, 1979. Fifty-one comment letters were received regarding the proposed amendments. A number of the comments pertained to specific requirements in the proposed Appendix R, and these will be dealt with below. However, three substantive contentions raised were common to many of the commenters. They may be summarized as follows:

1. Most commenters stated that the 30 day comment period was too short to permit adequate detailed response and that the comment period should have been extended.

The Commission does not agree. The development of fire protection requirements by NRC is a matter that has been on-going since 1975. The NRC published comprehensive fire protection guidelines, Branch Technical Position BTP APCS 9.5-1 and its Appendix A in 1976. Licensees have compared their fire protection programs against these guidelines, and have discussed their deviations from these guidelines with the staff over the past 4 years during the NRC's fire protection reviews of operating reactors. A Safety Evaluation Report has been issued for each operating reactor. These reports describe fire protection alternatives that have been proposed by the licensee and found acceptable by the staff, as well as unresolved fire protection issues remaining between the staff and the licensee. Proposed Appendix R provides the Commission's requirements for resolving those issues. Thus, it concerns only a limited number of issues derived

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from the use of the earlier guides. The Commission believes that a 30 day comment period was adequate under these circumstances.

2. Many licensees questioned the need for backfitting all the requirements of Appendix R. They commented that they have already complied with staff fire protection recommendations in "good faith" and have committed to or completed certain modifications. They contend that the staff has properly determined that these modifications provide at least the level of fire protection described by the guidance contained in Appendix A to Branch Technical Position BTP APCS 9.5-1. They also contend that these modifications provide a level of protection at least equivalent to that contained in the proposed rule. They express the concern that the proposed rule is written in such specific language that fire protection issues that were thought closed would be reopened and new, but not necessarily better, modifications would be required. Such modifications would be accomplished only by the expenditure of considerable engineering, design and construction effort and at great undue expense. The commenters request that the requirements in the proposed rule be rewritten to specify only the general requirements of what needs to be accomplished.

These comments raise three related issues. The first relates to the need for specific requirements. The general requirements relating to fire protection are already set forth in General Design Criterion 3 of Appendix A to 10 CFR 50 and in the NRC guidance documents. These general provisions gave rise to a number of disputes over whether specific methods adequately accomplished the intended goal. The proposed rule is intended to provide sufficient specific guidance to assure satisfactory resolution of these issues. Thus, reverting to generalized guidance would not accomplish the intended purpose of the proposed rule.

Second, in reviewing the comments on the proposed rule, the staff did find some instances where the specific wording used resulted in unnecessary and unintended requirements. For example, the proposed rule called for a "fresh water" supply. For firefighting purposes brackish water is satisfactory and a "fresh" water supply is unnecessary. Similarly, the proposed rule called for an "underground" yard fire main loop. Often portions of a fire main loop run above ground in and as they enter structures. The Commission had not intended to prohibit running portions of a fire main loop above ground. Other similar changes are discussed below under "Specific Requirements."

The third issue raised by these comments relates to imposition of requirements on plants with presently installed, or with existing commitments to install, fire protection features previously determined by the staff to satisfy the guidance of Appendix A to BTP APCSB 9.5-1. The Commission generally agrees that Appendix R should not be retroactively applied to features which have been previously approved by the NRC staff as satisfying the provisions of Appendix A to BTP APCSB 9.5-1.

The NRC staff had intended, in its original proposal for Appendix R, that the requirements be applicable only for the resolution of unresolved disputed fire protection features. Thus, the staff had not intended the provisions of Appendix R to require modification of previously approved features. However, this was not clearly described in the proposed rule as published for comment.

Moreover, Appendix R addresses only a portion of the specific items contained in the more comprehensive document, Branch Technical Position BTP APCSB 9.5-1 and its Appendix A. Appendix A to BTP APCSB 9.5-1 has

been

the basic fire protection guidance used by the staff in their fire protection reviews conducted for all operating plants during the past several years. For many plants, licensees proposed systems and features which satisfactorily achieved the fire protection criteria set forth in Appendix A to BTP APCS 9.5-1 and began to promptly implement such features and systems.

Satisfactory features and systems are already in place and in operation in many plants. There is a reasonable degree of uniformity among most of these approved features for all facilities since they were reviewed against the same criteria of Appendix A to BTP APCS 9.5-1. In general, the features previously approved by the NRC staff in its reviews of fire protection using the criteria of Appendix A to BTP APCS 9.5-1 provide an equivalent level of fire protection safety to that provided under the specific provisions of Appendix R. Thus, the further benefit that might be provided by requiring that previously approved features be modified to conform to the specific language set forth in Appendix R is outweighed by the overall benefit of the early implementation of such previously approved features, which in many cases are currently being installed.

Nevertheless, as a result of its continuing review of fire protection matters the NRC staff has indicated to the Commission that there are three issues in which the protection afforded by Appendix R over and above that previously accepted may be desirable and may warrant further rulemaking. The first of these issues relates to protective coatings. Appendix A to BTP APCS 9.5-1 permits a combination of fire retardant coatings and fire detection and suppression systems to protect redundant systems (Appendix A, D.1(2)), and credit was given to such coatings in some early fire protection reviews. As a result of some special effects tests, the

staff changed its position on giving credit to protective coatings as fire barriers and subsequent plants were required to provide one-hour fire barriers for the protection of safe shutdown systems. In contrast to Appendix A, no credit for such coatings as fire barriers is allowed by Section III.G of Appendix R where at least a one-hour rated fire barrier is required. Certain fire protection tests are presently scheduled to be conducted by the Office of Nuclear Regulatory Research which will provide further information on the adequacy of protective coatings in combination with suppression systems. The results of these tests will be considered to determine whether the credit for protective coatings, previously considered as satisfactory, should be modified.

A second issue relates to associated circuits. Section III.^G of Appendix R requires that explicit consideration be given to assuring that non-safe ~~shutdown~~ circuits associated with safe ~~shutdown~~ systems will not prevent safe shutdown. This was not explicitly stated in Appendix A to BTP APCS 9.5-1. As a result of the comments received on this aspect of Appendix R, it is not clear whether adequate consideration has in fact been given to these associated circuits in reviews conducted using Appendix A to BTP APCS 9.5-1. The NRC staff plans to look into the nature of the protection actually provided to such circuits as a result of previous fire protection reviews and into the nature of potential interactions to determine whether the explicit requirements of Appendix R should be made applicable to previously approved systems.

The remaining issue relates to emergency lighting. Appendix R calls for 8-hour emergency lighting, whereas in some cases 2-hour emergency lighting had been accepted as satisfying Appendix A to BTP APCS 9.5-1. While an adequate level of safety is provided by a 2-hour system, the

added protection afforded by an 8-hour system would generally involve only a small cost. The NRC staff will assess previously approved facilities to determine whether the 2-hour systems should be upgraded.

3. Most commenters state that the implementation schedule contained in the proposed rule is impossible to meet for any of the operating plants. The commenters further stated that if the implementation schedule in the effective rule is the same as that in the proposed rule, the Commission must be prepared to either shutdown each operating nuclear power plant, or process exemption requests.

The commenters then conclude that the implementation schedule should be rewritten to allow some adequate time period for compliance. The proposed rule stated that "all fire protection and modifications identified by the staff as necessary to satisfy Criterion 3 of Appendix A to this part, whether contained in Appendix R to this part or in other staff fire protection guidance (except for alternate or dedicated shutdown capability) shall be completed by November 1, 1980 unless, for good cause shown, the Commission approves an extension," (Proposed Section 50.48 1.(c)). The Commission went on to state its intention in the Statement of Consideration to the rule that "...no plant would be allowed to continue to operate after November 1, 1980, or beyond an extended date approved by the Commission, unless all modifications (except for alternate or dedicated shutdown capability) have been implemented."

The Commission has reconsidered the implementation schedule and has determined that it should be modified for the following reasons.

- ° After reviewing the comments and the information developed as a result of our completion of fire reviews over the past 6 months, the staff has informed the Commission that the date of November 1, 1980

is not possible because the effective date of the rule will be after that date.

- The staff has informed the Commission that it would expect virtually all licensees to request exemptions if the new implementation dates do not provide an appropriate period of time for complying with the requirements of Appendix R. The time and manpower resources needed by the licensees to prepare such requests and by the staff to formulate recommendations on these requests is not warranted from the standpoint of timely fire protection improvement.
- The revised implementation schedule provides a careful balance of these considerations, calling for important fire protection features to be implemented and installed on a phased schedule which is as prompt as can be reasonably achieved.

The revised schedules distinguish between requirements imposed for the first time on the licensee by virtue of Appendix R and those requirements already imposed in license conditions or Technical Specifications issued prior to the effective date of the rule. For requirements imposed by Appendix R, the schedule provides a reasonable time after publication of the rule for completion of required modifications. For requirements already imposed by license conditions, providing for implementation after November 1, 1980, the Commission has reviewed these schedules and has found that in some instances the allotted time for completion of the required modifications may be excessive. Thus, for fire protection features other than those covered by Appendix R, although the Commission has extended the compliance dates beyond the November 1, 1980 date proposed in the proposed rule, the Commission has added a requirement

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that limits the compliance schedule in existing licenses, if such schedules extend beyond what would have been a reasonable schedule initially. Relief from such limitation may be granted by the Director of Nuclear Reactor Regulation upon a showing that there is good cause for extending such date and that public health and safety is not adversely affected by such extension.

It should also be noted that for licensees whose license conditions imposed a schedule completion date of November 1, 1980 or other date prior to the effective date of Section 50.48, the Commission has suspended such completion dates by promulgation of a temporary rule (10 CFR 50.48) which will be superseded by this rule.

To better understand the nature of the public comments received and the staff's resolution of these comments, the following section will consider each section of Appendix R to this part. In Section III, we provide a summary of the Technical Basis for each requirement, followed by a summary of the public comments and a statement of the staff's disposition of those comments.

Section I. Introduction and Scope

This section has been revised as a result of comments to include a discussion of the importance of safe shutdown capability and the distinction between requirements for "safety-related" equipment and equipment needed for "safe shutdown."

Section II. General Requirements

This section has been substantially rewritten as a result of comments to provide a concise summary of general requirements. The specific requirements were consolidated with the appropriate parts of Section III, Specific Requirements, except that the credit given for 50-foot separation has been dropped.

Section III. Specific Requirements

The requirements in this rule are based upon principles long accepted within that portion of American industry that has been classified by their insurance carriers as "Improved Risk" or "Highly Protected Risk". In each of these cases, the Commission has decided that the overall interest of public safety is best served by establishing some conservative level of protection and assuring that level of compliance at all plants which presently have outstanding issues. Following is a list of the specific technical bases and resolution of public comments for each of the specific requirements in the Appendix R.

A. Water Supplies for Fire Suppression Systems

Technical Basis

One of the basic fire protection requirements for a modern industrial site in the United States is a separate water distribution system for fire protection with dual water supplies. Two dual water

supplies are required to assure uninterrupted fire suppression capability allowing for single failures and providing for periodic maintenance and repair of vital portions of the systems. Such duplicate water supplies may consist of separate suction for fire pumps from a large body of water such as lake, river or pond, or from two water storage tanks.

For nuclear power plants the distribution system shall consist of a loop around the plant with suitable valves for isolating portions of the system for maintenance or repair without interrupting the water supply to the various fire suppression systems in the plant. Thus, with dual supplies and a loop concept, an adequate water supply can be guaranteed to each manual or automatic water suppression system throughout the plant.

A guaranteed minimum volume of water is set aside and dedicated for fire protection uses regardless of other simultaneous water uses in the plant. This water volume is dedicated for fire service by means of separate storage tanks or separate pump suction from a large body of water. When common tankage is employed for fire service needs and other water services, the fire pump suction shall be at the bottom of the tank and other water supply suction should be sufficiently above to ensure the minimum dedicated water volume set aside for fire protection needs. Administrative controls by themselves, such as locked valves to guarantee adequate water supply for fire fighting needs, are deemed unacceptable at nuclear power plants.

Comment Resolution

Many commenters stated that we were being too restrictive by stipulating an underground yard fire main loop and fresh water supplies. Our intent was only that a yard fire main loop be furnished. We have

deleted the specification for an underground loop since special conditions may dictate that part of the loop be above ground or inside safety-related buildings. Such arrangements are acceptable.

With regard to the specification for fresh water supply, the staff was attempting to avoid potential plant problems which are not associated with fire protection. From a fire protection standpoint, salt or brackish water is acceptable for fire suppression provided the fire protection system is designed and maintained for such usage. The requirement for fresh water supplies is therefore dropped. Other operational problems unrelated to fire protection that may result from the use of salt or brackish water for fire suppression activities are outside the scope of this document.

Several commenters took issue with the requirement for two separate redundant suction, stating that some plants use a single large intake structure on a lake or a river for all water requirements. The requirement for separate intake structures was not intended and the rule has been so clarified.

Several comments called for deleting the requirements for dedicated tanks or use of vertical standpipe for other water services when storage tanks are used for combined service water/fire water uses, on the basis that this is overly restrictive and other ways are available to assure dedicated supply such as weirs, suction location, etc. Two separate but related issues are involved here. The first is the requirement even for dedicated water storage tanks for fire fighting purposes. The suggestion that the requirement for dedicated tanks be deleted is rejected for the reasons stated in the preceding Technical Justification.

The other point deals with guaranteeing minimum water storage capacity for fire suppression activities when storage tanks are used for combined service water/fire water uses. The term "vertical standpipe for other water service" simply means that the suction location for other water uses in common storage tanks will be sufficiently high to guarantee the minimum water volume storage needs for fire suppression activities. If the commenters were assuming that vertical standpipe referred only to pipes inside the tank, this is not the case. In fact a standpipe exterior to the storage tank is more desirable since any leakage would be immediately evident. On an internal standpipe a leak in the pipe could actually allow depletion of the water otherwise to be reserved for fire uses. The rule has been clarified to allow physical alternatives for water supply dedication but to exclude administrative controls for this purpose.

Some commenters objected to the requirement that other water systems used as a backup water supply for fire protection should be permanently connected to the fire main system, and suggested that it would be sufficient to provide a water supply capable of being connected to the fire main system within ten minutes of the loss of normal water supply or pumps. The rule does not address backup water supplies. The requirement means that if another water system is used as one of the redundant water supplies it must satisfy all of the requirements of the fire protection water supplies. Additional backup supplies need not meet these requirements.

One commenter asked why only two hours water supply is required when the Browns Ferry Fire lasted well over two hours. All of the investigations of the Browns Ferry Fire clearly show that if water had been used

immediately, the fire would have been extinguished much earlier. Indeed once the manual fire fighting activities were started with the use of only one fire hose stream, the fire was extinguished within one-half hour. The staff would find unacceptable any condition which postulated a fire which could threaten safe shutdown capability that could not be controlled and extinguished within two hours with any combination of manual and automatic fire suppression activities. Therefore, a two hour water supply is considered adequate. It should also be noted that this minimum dedicated water volume is based on maximum flow rates. Since most fires are controlled and extinguished with much smaller flow rates, this requirement realistically represents a dedicated water volume far in excess of two hours.

B. Sectional Isolation Valves, and

C. Hydrant Isolation Valves

Technical Basis

These two requirements are similar and can be treated together. Proper valving is required to isolate portions of the water distribution system for maintenance or repair without interrupting the water supply to manual or automatic fire suppression systems inside the plant. Valves are similarly required to permit isolating outside yard hydrants from the water distribution system for maintenance or repair without interrupting water supply to fire suppression systems inside the plant. Visually indicating valves such as post indicator valves are preferred so that the position of the valve can be readily determined. However, key operated valves (commonly known as curb valves) are acceptable for these purposes where plant specific conditions warrant their use.

B. Sectional Control Valves - Comment Resolution

Many commenters stated that the requirements for "approved visually indicating" sectional control valves was overly restrictive, unnecessary, and not specific with respect to who should give the approval. The Commission has accepted this suggestion with the requirement now being that sectional control valves shall be provided to isolate portions of the fire main for maintenance or repair without shutting off the entire system, with post indicator or key operated valves mentioned as two examples of acceptable valves.

C. Hydrant Block Valves - Comment Resolution

A number of commenters made suggestions for rewording this section. This section has been clarified to state the requirement for capability to isolate hydrants from the fire main without disrupting the water supply to automatic or manual fire suppression systems in any area containing, or presenting a fire hazard to, safety-related or safe shutdown equipment.

One commenter suggested that this requirement be dropped in its entirety since it "is a new requirement which has not been subjected to the peer review process." This suggestion was rejected on the basis that the Appendix A to BTP APCSB 9.5-1 contains the following sentence: "The lateral to each hydrant from the yard main should be controlled by a visually indicating or key operated (curb) valve," and there was an opportunity to comment on this document.

D. Manual Fire Suppression**Technical Basis**

Considerable reliance is placed on automatic fire suppression systems throughout a nuclear power plant. However, manual fire fighting activities often can control and extinguish slowly developing fires

before an automatic fire suppression system is actuated. In addition, fires that are controlled or extinguished by automatic systems require a certain amount of manual response. Also, some areas of the plant do not warrant the installation of automatic fire suppression systems so that manual response is the only fire suppression available for these areas. Thus, it is important that manual fire fighting capability be present in all areas of the plant, and standpipe and hose stations are required throughout the plant. These standpipe and hose stations are to be located so that at least one effective hose stream can be brought to bear at any location in the plant containing, or presenting a hazard to, structures, systems, or components important to safety. They are to be supplied from the fire water supply system with the exception of containment where such standpipe and hose stations may be connected to other reliable water supplies if a separate penetration into containment cannot be made for fire water service needs.

Comment Resolution

Several commenters suggested adding a sentence reading "Standpipe and hose stations are not required if sufficient justification can be provided that adequate fire protection features have been provided to account for a given fire area." This suggestion is rejected on the basis that the staff has stated that the minimum requirements are for "at least one effective hose stream that will be able to reach any location that contains or could present an exposure fire hazard to the safety-related equipment." The Commission concludes that no analyses can identify hazards so carefully that this minimum requirement can be further reduced.

E: Hydrostatic Hose TestTechnical Basis

Fire hoses should be hydrostatically tested periodically to assure that they will not rupture during use. The requirement for a minimum test pressure of 300 psi comes from NFPA #196 (National Fire Protection Association Standard #196 - Standard for Fire Hose), a nationally recognized consensus standard. This standard contains other guidance for the use and care of fire hose that most industries find useful.

Comment Resolution

Many commenters pointed out the erroneous usage of the term "service pressure" rather than "operating pressure" in this requirement. The intended meaning for this requirement is that all hoses would be tested at a pressure greater than the maximum pressure found in the fire protection water distribution systems. The correct terminology is "operating pressure." The rule has been so changed. In addition, the staff added a specific minimum test pressure requirement of 300 psi to meet the NFPA suggestions.

One commenter also pointed out that hoses should be inspected for mildew, rot, cuts, or other damage. This is not an unresolved issue with any licensee so it need not be covered by this rule. In addition, such inspections are already being performed in accordance with the plant's Technical Specifications.

F: Automatic Fire DetectionTechnical Basis

The requirement for automatic fire detection systems to be installed in all areas that contain safe shutdown or safety-related systems

or components follows generally accepted fire protection practice. Installation of such fire detection capability is independent of automatic or manual fire suppression capability in an area. The purpose of such detection systems is to give early warning of fire conditions in an area that will permit prompt actions by the fire brigade to minimize fire damage within the plant.

Comment Resolution

Many commenters suggested that the words "automatic fire detection capability" be substituted for "automatic fire detection systems" on the basis that as worded the requirements are too limiting. They state that an automatic sprinkler system with appropriate alarm check valves and central alarm features provide acceptable detection/alarming capability. Several commenters claimed that a separate detection system is not needed in areas covered by sprinkler systems equipped with fusible link sprinkler heads. A fusible link has a delay time before it actuates. However, more importantly, a smoldering localized fire which could do damage may not generate enough heat to melt the fusible link. While we do not disagree that the alarm from an automatic fire suppression system serves as notification that a fire exists, we conclude that the minimum requirement for a separate fire detection system in all such areas should be retained. The fire hazards analysis may indeed call for a separate suppression system, but this would be in addition to the fire detection system.

G. Protection of Safe Shutdown Capability Technical Basis

The objective for protection of safe shutdown capability is to assure that at least one means of achieving and maintaining safe shutdown conditions will remain available during and after any postulated fire in

the plant. Because it is not possible to predict the specific conditions under which fire may occur and propagate, the design basis protective features are specified rather than the design basis fire. Three different means for protecting the safe shutdown capability outside of containment are acceptable.^{1/} The first is separation alone of redundant safe shutdown trains, ~~and~~ ^{INCLUDING} associated circuits, by means of 3-hour fire rated barriers. The second is a combination of 1-hour fire rated barrier separation of redundant safe shutdown trains, including associated circuits, and automatic fire suppression and detection capability for both redundant trains. The third alternative, which applies when redundant trains, including associated circuits, are separated by 20 feet or more of clear space, specifies the use of automatic fire suppression and detection systems in the area. An alternative or dedicated safe shutdown capability that is independent of the fire area is required if fire protection for safe shutdown capability cannot be provided as outlined above.

For cables and equipment needed for safe shutdown located inside of non-inerted containments, a lesser degree of fire protection is specified because transient exposure fires are less likely inside containment during plant operations.

Refer to Section M - Fire Barriers for the technical basis concerning the 3-hour barrier, and to Section L - Alternative and Dedicated Shutdown Capability for the technical basis concerning safe shutdown capability.

^{1/}The Commission's ongoing fire research program includes the testing of replicate fire protection configurations representing a spectrum of alternatives. The results of this program may change the acceptable alternatives. Until these tests are completed, the specification of a 1-hour fire rated barrier is, in the absence of a plant specific fire hazards analysis, substantially preferable to the use of fire retardant coatings permitted by Appendix A to BTP APCS 9.5-1.

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Comment Resolution

Many commenters suggested that the first paragraph be changed slightly and the rest of this section deleted. The basis for their contention is that the rule should state simply the requirement to protect cables or equipment of systems necessary for safe shutdown of the plant and leave specific implementation details in some other type document.

We have modified this action by removing the listing of considerations, deleting Table 1, and revising the wording to provide clarifications.

[7590-01]

H. Fire Brigade, andI. Fire Brigade TrainingTechnical Basis

Most modern industrial plants with replacement cost values approaching those of a modern nuclear powered electric generating station have a full-time, fully equipped fire department including motorized fire apparatus. Due to the reduced severity of fire hazards in a nuclear generating station as compared to a manufacturing plant, we believe that it is not necessary to mandate a fully staffed fire department. However, manual fire response capability is required at a nuclear plant and a properly equipped and fully trained fire brigade will satisfy this need. The Commission has determined that a brigade size of five persons constitutes the minimum size that would be permitted ^{for} of presently licensed plants so as to assure that sufficient manpower will be available to perform the actions which may be required by the brigade during the fire and the provide some margin for unanticipated events.^{2/} Similarly, the training requirements that have been listed are those that are considered minimum to assure that the fire brigade will be able to function as expected during any fire emergency.

The proposed rule required emergency breathing apparatus without specifying the number of such pieces of apparatus. The rule has been modified to specify the personnel for whom such apparatus is to be provided and to specify reserve air requirements.

H. Fire Brigade - Comment Resolution

Many commenters suggested reducing this requirement to a simple statement that a trained and equipped nominal size site fire brigade of

^{2/} This is discussed at length in the NRC staff's "Evaluation of Minimum Fire Brigade Shift Size", dated June 8, 1979, available from David P. Notley, Office of Standards Development.

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five people should be provided on each shift unless a lesser number is justified. These recommended changes are rejected by the Commission on the basis that the requirement as written states the minimum acceptable requirements for a fire brigade regardless of which presently licensed nuclear power facility is involved.

Some commenters objected to the exclusion of the shift supervisor from the fire brigade. The main thrust of their argument was that the shift supervisor should go to the fire and provide the benefit of his expertise and authority. This rule would not prevent this. However, the shift supervisor may have to go elsewhere during the course of a fire that adversely affects plant operation. The fire brigade leader must stay with the fire fighting effort and have no other responsibilities so long as the fire emergency exists.

I. Fire Brigade Training - Comment Resolution

Many commenters have stated that we have gone into unnecessary detail spelling out specific requirements for the classroom instruction, fire fighting practice, and fire drills. Some have looked for justification for this statement in the fact that this is much more detailed than anything the Commission has published with regard to operator training. The Commission here points out that most of the investigations of the TMI accident identified inadequately trained operators as an important factor and that work is now being done in this area. The fact seems to be not so much that the training requirements spelled out here for fire brigade are excessive when compared to training requirements for reactor operators, but simply that this fire brigade training is further along in development and training parameters have been identified which are essential to a comprehensive program.

[7590-01]

J. Emergency LightingTechnical Basis

Emergency lighting is required in all nuclear power plants. Battery powered lights with capacities of 1 1/2 - 2 hours is usually sufficient for emergency egress. However, the post fire emergency lighting requirements in a nuclear power plant are of a different kind. The need is for lighting which aids the access to equipment and components that must be manually operated by plant personnel to effect safe plant shutdown during plant emergencies. Because such activities may extend over a considerable period of time both during and after the fire, it is prudent to provide 8-hour battery emergency lighting capability to allow sufficient time for normal lighting to be restored with a margin for unanticipated events.

Comment Resolution

Many commenters have stated that the requirement for emergency lighting is overly restrictive in three specifics: first, that emergency lighting is unnecessary in many of the areas specified; second, that the requirement for sealed beam or fluorescent units is overly restrictive; third, that the requirement for individual 8-hour minimum battery power supply is excessive. There were 3 commenters who recommended a 2-hour battery power supply, 5 recommended a plant-specific power supply, and 1 recommended that there should be no permanent installation.

These suggestions have not been accepted. Lighting units with 8-hour battery supplies are to be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto. The reasoning behind the requirement for 8-hour minimum battery power supply is that there can be a great deal of other activity during

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a fire emergency such that operators involved in safe plant shutdown should not also have to be concerned with lighting in the area. The small cost differential between a minimum 2-hour supply and the substantial additional protection afforded by the 8-hour supply does not warrant reducing this requirement. In fact, as already discussed, the staff will assess whether previously approved systems should be upgraded.

K. Administrative Controls

Technical Basis

The fire protection program uses administrative controls for fire prevention and pre-fire planning. The items listed in this section are generally accepted within the fire protection community as minimum requirements for an effective administration of the fire protection program. Controls are placed on the storage and use of combustible materials to reduce the fire loading in safety-related areas, and on ignition sources to avoid careless operations. Actions to be taken by individuals who discover a fire and by the fire brigade for development of pre-planned fire fighting strategies and actual fire fighting techniques are controlled.

Comment Resolution

Many commenters stated that this requirement was much too detailed for a regulation. Some stated that the requirements should be only for areas having safe shutdown equipment. Other commenters stated that a simple statement that administrative procedures should be established to control the various fire hazards throughout the plant was sufficient and that the other details could be spelled out in a regulatory guide or some other similar document.

Minor changes have been made in the wording of this requirement for clarification. However, as with each of the other requirements in this

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Appendix R, only those levels of detail were put in that were deemed necessary to clearly specify requirements.

L. Alternative and Dedicated Shutdown Capability

Technical Basis

In some locations (such as the cable spreading room) within operating nuclear power plants that have already been built, it is not always possible and/or practicable to protect redundant safe shutdown systems against adverse effects of fire or fire suppression activities through the use only of fire protection features because of the proximity of redundant safe shutdown systems located in the given fire area. Alternative shutdown capability has been usually required to be independent of the control room, cable spreading room, switchgear rooms and cable riser areas because they contain most or all redundant systems. When plant modifications to provide alternative shutdown systems are extensive, a dedicated system may be provided which is essentially a minimum capability safe shutdown train which is independent from those already existing. This minimum capability is required to maintain the process variables within those values predicted for a loss of offsite power. The case of loss of offsite power is assumed because fires in certain circumstances (e.g., electrical distribution systems) could cause or be related to such a loss. Reactor makeup must be adequate for normal leakage, coolant shrinkage and losses due to adverse valve actions. Fire damage to cold shutdown capability is limited to that which can be repaired within 72 hours to provide a margin in achieving cold shutdown conditions. Consideration is given to associated circuits because most plants were not designed with this concept in mind. Should either the alternative or dedicated capability be required to function because of a fire, it

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must not be disabled by fire damage to associated circuits. This capability does not have to meet the single failure criterion because it is only one of several levels of defense. Seismic Category I criteria are not imposed because fires which would require the installation of alternative or dedicated shutdown capability are not seismically induced.

Comment Resolution

Many of the commenters stated that this requirement exceeded the scope of the Appendix R by defining alternative shutdown requirements. They have stated that the time requirements are excessive and should be dropped. They also contend that this regulation takes no account of the many plant reviews being conducted under the Systematic Evaluation Program (SEP).

It is generally understood that cold shutdown is the ultimate safe shutdown condition and that for each fire area different means may be used and necessary to achieve cold shutdown. Because a fire in certain areas at some plants would have the capability of disabling systems required to achieve both hot and cold shutdown, it is necessary to specify the minimum capability and time requirement for each condition necessary to achieve safe shutdown. We agree that evaluations being made under the Systematic Evaluation Program (SEP) may also call for alternative or dedicated shutdown capability for reasons other than fire protection. For example, seismic, flooding, or emergency core cooling requirements resulting from SEP may require additional modifications. Each licensee should be aware of the status of the SEP so that the requirements resulting from SEP can be effectively integrated with those relating to fire protection to the extent possible. However,

the Commission has decided that the modifications required to complete the fire protection program should not be deferred until the SEP review is completed.

H. Fire Barriers

Technical Basis

The best fire protection for redundant trains of safe shutdown systems is separation by an unpierced fire barrier - walls and/or ceiling-floor assemblies. Because these barriers are passive fire protection features, they are inherently reliable provided that they are properly installed and maintained. Fire barriers have been used successfully for many years to subdivide large potential fire losses into smaller, acceptable risks. Even fire barriers with openings have successfully interrupted the progress of many fires, provided the openings were properly protected by fire doors or other acceptable means.

Fire barriers are "rated" for fire resistance by being exposed to a "standard test fire". This standard test fire is defined by the American Society for Testing and Materials in their "Standard for Fire Resistance of Building Materials", ASTM E-119. Fire barriers are commonly rated as having a fire resistance from 1 to 8 hours. Most "Improved Risk" or "Highly Protected Risk" (so classified by insurance carriers) industrial properties in the United States require fire barriers to have resistance rating of 2 to 4 hours.

Due to the generally low fire load, but considering the serious potential consequences of fire in a nuclear power plant, 3 hours has been selected as an acceptable required fire resistance rating for fire barriers separating redundant trains for safe shutdown systems. This will give ample time for automatic and manual fire suppression activities to

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control any potential fire, and for safe shutdown activities to properly control the reactor. Many plants that are already built and operating have both trains of safe shutdown equipment located in close proximity to each other such that a single fire could damage and destroy the functional capability of both redundant trains. If specific plant conditions preclude the installation of a 3-hour fire barrier to separate the redundant trains, a 1-hour fire barrier and automatic fire suppression for each redundant train is considered equivalent to the passive protection afforded by a 3-hour barrier alone.

If the minimum protection (1-hour fire barrier and automatic fire suppression for each redundant train) cannot be provided due to plant specific conditions, alternative or dedicated shutdown capability will be required to assure safe shutdown capability. The use of a 1-hour barrier in conjunction with automatic fire suppression and detection for each redundant train of safe shutdown equipment is based on the following considerations. Automatic suppression is required to ensure a prompt, effective application of suppressant to a fire that could endanger safe shutdown capability. The detection and activation of an automatic system does require some time for the development of smoke and/or heat. Therefore, a 1-hour barrier is provided to ensure that fire damage will be limited to one train until the fire is extinguished.

These requirements have now been incorporated in Section III.G. - Fire Protection of Safety Functions.

Comment Resolution

Several commenters made a number of suggestions of an editorial nature. One suggestion was to add "or unless other fire protection features have been provided to ensure equivalent protection," in the first paragraph

where 3-hour rated fire barriers were stipulated unless a lower rating was justified by the fire hazards analysis. The Commission feels that this adds nothing in the way of clarification and the suggestion is not adopted. In the second paragraph, the requirement was made that structural steel forming a part of or supporting any fire barrier shall have fire resistance equivalent to that required of the barrier. An example was then given of metal lath and plaster covering as being one means of providing such equivalent protection. Several commenters stated that they thought this was too narrow and would be interpreted by certain people as the only acceptable method permitted. Since it seemed to be confusing and was only an example, the decision was made to drop it. Other comments that the requirement was excessively restrictive with regard to fire barrier penetrations, including ventilation systems and doors, frames, and hardware have been accepted because there were no unresolved issues relating to these requirements and those statements were deleted.

N. Fire Barrier Cable Penetration Seal Qualification

Technical Basis

Unpierced fire barriers offer the best protection for separating redundant trains of safety-related or safe shutdown equipment. However, these barriers must be pierced for both control and power cables to these very same safety-related systems. Such penetrations must be sealed to give fire resistance equivalent to that required of the barrier that is pierced. The ASTM standard E-119 is the national consensus standard for testing and rating the cable penetration seals used in such fire barriers. Since the cables conduct the heat through the barrier, and since the cable insulation is combustible, the acceptance criteria

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relating to temperature on the unexposed side must be appropriately modified.

Comment Resolution

Some commenters suggested that this entire section be deleted and replaced with the following two sentences: "Penetration seals shall provide the equivalent protection which is required of the fire barrier. Evaluation of the penetration seals based upon a design review and relevant test data or qualification tests may be made." The justification for this commenter's position is that sufficient test data are available to permit evaluation of design requirements without full scale mockup testing, and that many of the details spelled out in the regulation such as the water hose stream test, are too detailed and do not belong in such regulation. The Commission has reconsidered this issue and revised the rule to: (a) require the use of only non-combustible materials in the construction of such fire barrier penetration seals; (b) require such fire barrier penetration seals to be qualified by test; and (c) require such tests to satisfy certain acceptance criteria.

0. Fire Doors

Technical Basis

Door openings in fire walls constitute another breach which must be protected. Fire doors that have been tested and rated for certain fire exposures are installed to protect these openings. Fire doors frequently fail to protect openings they are installed in because they are not fully closed. Various means are commonly used in the better protected properties to assure that fire doors are in proper operating condition and that they will be closed during a fire. These options have been listed in Appendix R.

Comment Resolution

Many commenters have stated that this requirement is also too detailed and most of the requirements should be deleted. Minor editorial changes have been made in order to more clearly state the requirements of the staff; however, for the reasons mentioned above, essentially all of the detail remains.

P. Reactor Coolant Pump Lubrication System

Technical Basis

Each reactor coolant pump motor assembly typically contains 140 to 220 gallons of lube oil. Oil leaking from some portions of the lube oil system may come in contact with surfaces that are hot enough to ignite the oil. Therefore, an oil collection system is necessary to collect any leaking oil and to prevent it from becoming a fire hazard by draining it to a safe location. The resulting fire could be large, and access for fighting such a fire would be delayed due to the time required to enter the containment. Containment air temperature would increase, with severe localized environments in the area of the fire and generation of large amount of smoke. Such effects could affect operability of safety-related equipment inside containment. Such effects could be an random occurrence or could be seismically induced because the existing lube oil system piping and oil collection systems may not be designed to withstand a design basis seismic event.

Appendix A to BTP APCS 9.5-1 states that for operating plants, "postulated fires or fire protection system failures need not be considered concurrent with other plant accidents or the most severe natural phenomena." This was based on considering the random occurrence of a fire at the same time as some natural phenomenon. However, General Design Criterion 2 Design bases for protection against natural phenomena requires that structures, systems, and components important to safety be designed

to withstand the effects of earthquakes without loss of capability to perform their safety function. Regulatory Guide 1.29 "Seismic Design Classification," describes an acceptable method for identifying and classifying those features of light-water-cooled nuclear power plants that should be designed to withstand the effects of the Safe Shutdown Earthquake. In this guide, paragraph C.1 applies to systems that are required to remain functional to assure heat removal capability; paragraph C.2 applies to systems that do not have to remain functional for that purpose, but whose failure could reduce the functioning of those systems covered by paragraph C.1. The reactor coolant pump oil collection system is covered by paragraph C.2 because its function is required to protect safety systems rather than to perform a safety function. Because, the failure of the oil collection system for a seismically induced / reactor coolant pump oil fire should not prevent a safety system from performing its safety function (Regulatory Guide 1.29, "Seismic Design Classification," paragraph C.2). The oil collection system should be designed, / engineered, and installed so that failure will not lead to a fire affecting safety-related equipment as a result of an earthquake.

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The proposed rule permitted two alternatives - an oil collection system or an automatic fire suppression system. We have deleted the alternative of the suppression system because unacceptable damage may result to the safety systems from the burning of oil before the suppression system is actuated. In addition, these pumps are located within the biological shield inside containment, therefore, timely fire brigade action would be difficult if the suppression system malfunctions. Further, if the suppression system becomes inoperable during operation, a fire watch cannot be stationed in the area during operation.

Comment Resolution

A number of commenters again have suggested that this section is too detailed and should be substantially reduced. This requirement was changed to delete the option of protecting the reactor coolant pump lubrication system with an automatic fire suppression system. We have modified the rule to indicate that the requirement that the oil collection system be designed to provide reasonable assurance that it will withstand the safe shutdown earthquake can be met by satisfying paragraph C.2. of Regulatory Guide 1.29, "Seismic Design Classification," as described above.

Q. Associated Circuits

Technical Basis

When considering the consequences of a fire in a given fire area, in evaluating the safe shutdown capabilities of a plant, we must be able to conclude that one train of equipment that can be used immediately to bring the reactor to hot shutdown conditions remains unaffected by that fire. We must also be able to conclude that damage to one train of equipment used for achieving cold shutdown will be limited such that the equipment can be returned to an operable condition within 72 hours. (See Section III G - Protection of Safe Shutdown Capability - Technical

Basis.) In the fire hazards analysis for a plant, the equipment which will be depended upon to perform both of those functions must be identified for each fire area. It follows that any associated non-safety circuits in the fire area which could adversely affect the identified shutdown equipment by feeding back potentially disabling conditions (e.g., hot shorts or shorts to ground) to the power supplies or control circuits of that equipment must also be evaluated and such ~~disabling~~ conditions must be prevented. Otherwise, reliance on the identified safe shutdown equipment cannot be ensured.

These requirements have ~~not~~ been incorporated in Section III.G and III.L. ^f

Alternative and Dedicated Shutdown Capability.

Comment Resolution

Many commenters state that this requirement should be deleted because many older plants did not consider associated circuits in their design and this is, therefore, a new design requirement. They add that the analysis that will be required to satisfy this requirement will be both long and complicated, and the requirements should therefore be deleted.

The staff rejected these suggestions for the following reasons.

1. Virtually all of the fire protection modifications made to date have been required to correct deficiencies that resulted from lack of consideration of certain specific items during initial design and construction.

2. The Browns Ferry fire showed the necessity of divisional separation of the associated circuit of the control cable to prevent disabling of safety systems by a single fire. This has been discussed with licensees during evaluations of alternative and dedicated shutdown capability and

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is necessary to assure that safe shutdown systems will be able to function properly in the event of fire.

3. The staff considers any fire hazard analysis incomplete that does not consider the effects of fire damage to circuits that are associated with safe shutdown circuits.

As indicated above, as a result of the comments received on this issue, it is unclear that associated circuits have in fact been adequately considered by licensees in their reviews using the guidance of Appendix A to BTP APCS 9.5-1. The NRC staff will look into the nature of protection actually provided with respect to this issue as a result of previous fire protection reviews to determine whether this explicit requirement should be made applicable to previously approved plants.

General Comments Resolution:

Several commenters contended that Commission regulations mandate that an adjudicatory hearing be conducted prior to a final decision, with one commenter labeling the regulation an "order" within the meaning of the Administrative Procedure Act (5 U.S.C. §551(6)) (APA) and asserting that 10 CFR §2.204 of the Commission's regulations, "Order for Modification of License," applies to this rulemaking proceeding.

The Commission disagrees with these comments. A "rule" is defined in the APA to mean "the whole or a part of an agency statement of general or particular applicability and future effect designed to implement ... or prescribe law or policy..." (5 U.S.C. §551(4)). The agency action questioned here is clearly one which treats similarly situated licensees equally and which prescribes future conduct or requirements. For those licensees who have not already provided an equivalent level of fire protection, certain specific fire protection features are required. Various

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of these requirements would apply to approximately 40 facilities. The commenter's characterization of the rule as an order and its assertion that 10 CFR §2.204 mandates a hearing before the rule becomes final is incorrect. On its face that regulation (which does grant a hearing right) applies only to Commission orders which modify a license.^{3/} It does not apply to requirements resulting from rulemaking conducted fully in accordance with the requirements of law.

Several commenters contended that the environmental impact had not been adequately addressed, with one commenter contending that the Commission relied upon its staff's "unsupported determination that, pursuant to 10 CFR §51.5(d), an environmental impact statement, appraisal, or negative declaration is not required," citing the requirements in Section III.A of Appendix R for two water supplies and two separate redundant sections as examples of requirements involving environmental issues. The Commission has considered Section III.A., and has further considered the remaining requirements of Appendix R, and remains convinced that the regulations are non-substantive and insignificant from the standpoint of environmental impact.

One commenter suggested that all plants be required to install dedicated shutdown capability. The Commission does not agree. We believe that the Commission's overall fire protection program involving extensive plant specific fire protection modifications that are based on guidance set forth in Branch Technical Position BTP APCS 9.5-1 and its Appendix A, and the specific requirements of Appendix R to resolve disputed issues, provide adequate fire protection.

^{3/} It should also be noted that Section 2.204 is codified in Subpart B to 10 CFR Part 2. The scope of Subpart B is specifically limited to "cases initiated by the staff... to impose requirements by order on a licensee." (emphasis supplied) 10 CFR §2.200(a).

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One commenter stated that the ambiguity of the proposed regulation with regard to critical items requires that it be renoticed. The commenter referenced three portions of the proposed Appendix R as examples of such ambiguity. They were Section III.G.; Section III.N.; and Section III.Q. We have reviewed these examples.

In reference to the first example, the commenter stated that the first paragraph of Section III.G. identifies alternative shutdown capability as an optional protective feature and that paragraph III.G.2.c. then identifies alternative shutdown capability as a minimum fire protection feature. We do not agree with this statement. The first paragraph of Section III.G. identifies alternative shutdown capability as one option in a combination of fire protection features for a specific fire area. Paragraph III.G.3. indicates when this option should be used. /

In reference to the second example, the commenter stated that Section III.N. requires a pressure differential across the test specimen during the testing of fire barrier penetration seals but fails to define the pressure differential. This comment is incorrect. The pressure differential called for by the proposed provision was the maximum pressure differential that the barrier would experience in the specific plant installation. In any event, the requirement for pressure differential during such testing has been deleted since only non-combustible material is now being used for such seals.

In reference to the third example, the commenter stated that Section III.Q. is totally lacking in definition. We do not agree. Footnote 6 references Regulatory Guide 1.75 and IEEE 384-1974. The latter document is a commonly used industry standard which defines associated circuits and provides guidance for assuring such circuits do not compromise the independence of the shutdown circuits that they are associated with.

Based on the above examples, and our review of the other provisions of the proposed rule, we do not believe that the rule as proposed was ambiguous so as to require renoticing. Moreover, it should be noted that, based on other comments received on the proposed regulations, other commenters demonstrated a thorough understanding of the proposed requirements.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and Section 552 and 553 of Title 5 of the United States Code, notice is hereby given that the following amendments to Title 10, Chapter I, Code of Federal Regulations, Part 50, are published as a document subject to codification.

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PART 50 - DOMESTIC LICENSING OF
PRODUCTION AND UTILIZATION FACILITIES

1. Section 50.48 is revised in its entirety to read as follows:

§ 50.48 Fire Protection.

(a) Each operating nuclear power facility shall have a fire protection plan that satisfies Criterion 3 of Appendix A to this part. This fire protection plan shall describe the overall fire protection program for the facility, identify the various positions within the licensee's organization that are responsible for the program, state the authorities that are delegated to each of these positions to implement those responsibilities, and outline the plans for fire protection, fire detection and suppression capability, and limitation of fire damage. The plan shall also describe specific features necessary to implement the program described above, such as: administrative controls and personnel requirements for fire prevention and manual fire suppression activities; automatic and manually operated fire detection and suppression systems; and means to limit fire damage to structures, systems or components important to safety so that the capability to safely shut down the plant is ensured.^{4/}

^{4/} Basic fire protection guidance for nuclear power plants is contained in two NRC documents:

- Branch Technical Position Auxiliary Power Conversion System Branch BTP APCS 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants," - for new plants docketed after July 1, 1976, dated May 1976.
- Appendix A to BTP APCS 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976," - for plants that were operating or under various stages of design and/or construction before July 1, 1976, dated August 23, 1976.

Also see Note 5

(Continued)

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(b) Appendix R to this part establishes fire protection features required to satisfy Criterion 3 of Appendix A to this part with respect to certain generic issues for nuclear power plants licensed to operate prior to January 1, 1979. The provisions of Appendix R to this part shall not be applicable to nuclear power plants licensed to operate prior to January 1, 1979, to the extent that fire protection features proposed or implemented by the licensee have been accepted by the NRC staff as satisfying the provisions of Appendix A to Branch Technical Position BTP APCS 9.5-1 as^{5/} reflected in staff fire protection safety evaluation reports issued prior to the effective date of this rule, or to the extent that fire protection features were accepted by the staff in comprehensive fire protection safety evaluation reports issued before Appendix A to Branch Technical Position BTP APCS 9.5-1 was published in August 1976. With respect to all other fire protection features covered by Appendix R, all nuclear power plants licensed to operate prior to January 1, 1979 shall satisfy the applicable requirements of Appendix R to this part.

^{5/} Clarification and guidance with respect to permissible alternatives to satisfy Appendix A to BTP APCS 9.5-1 has been provided in four other NRC documents.

- "Supplementary Guidance on Information Needed for Fire Protection Evaluation," dated October 21, 1976.
- "Sample Technical Specification," dated May 12, 1977.
- "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Control and Quality Assurance," dated June 14, 1977.
- "Manpower Requirements for Operating Reactors," dated May 11, 1978.

A Fire Protection Safety Evaluation Report, that has been issued for each operating plant, identifies how these guidelines were applied to each facility, and open fire protection issues that will be resolved when the facility satisfies the appropriate requirements of Appendix R to this part.

(c) All fire protection modifications required of plants to satisfy the provisions of Appendix R or directly affected by such requirements shall be completed on the following schedule:

(i) Those fire protection features that involve revisions of administrative controls, manpower changes, and training, shall be implemented within 30 days after the effective date of this section and Appendix R to this part.

(ii) Those fire protection features that involve installation of modifications that do not require prior NRC approval or plant shutdown shall be implemented within 9 months after the effective date of this section and Appendix R to this part.

(iii) Those fire protection features, except for those requiring prior NRC approval by paragraph (v) of this section, that involve installation of modifications that do require plant shutdown and are so justified in the plans and schedules required by the provisions of paragraph (v) of this section shall be implemented before startup after ^{o: the} the first refueling outage, other planned outage that lasts for at least 60 days, or unplanned outage that lasts for at least 120 days, that begins at least 180 days after the effective date of this section and Appendix R to this part.

(iv) Those fire protection features that require prior NRC approval by paragraph (v) of this section, shall be implemented within the following schedule: Dedicated shutdown systems-30 months after NRC approval. Modifications requiring plant shutdown-end of first refueling outage, other planned outage that lasts for at least 60 days, or unplanned outage that lasts for at least 120 days, after NRC approval. Modifications not requiring plant shutdown-6 months after NRC approval.

(v) Licensees shall make any modifications necessary to comply with these requirements in accordance with the above schedule without prior review and approval by NRC except for modifications required by Section III.G.3 of Appendix R to this part. Licensees shall submit plans and schedules for meeting the provisions of paragraphs (ii), (iii), and (iv), within 30 days after the effective date of this section and Appendix R to this part. Licensees shall submit design descriptions of modifications needed to satisfy Section III.G.3. of Appendix R to this part within 30 days after the effective date of this section and Appendix R to this part.

(d) Fire protection features accepted by the NRC staff in Fire Protection Safety Evaluation Reports referred to in paragraph (b) of this section, and supplements to such reports, other than features covered by paragraph (c), shall be completed as soon as practicable but no later than the completion date currently specified in license conditions or technical specifications for such facility, or the date determined by subdivisions (d)(i) through (d)(iv), which ever is sooner, unless the Director of Nuclear Reactor Regulation determines, upon a showing by the licensee, that there is good cause for extending such date and that the public health and safety is not adversely affected by such extension^S. Extensions of such date shall not exceed the dates determined by subparagraphs (c)(i) through (c)(iv).

(i) Those fire protection features that involve revisions of administrative controls, manpower changes, and training shall be implemented within 4 months after the date of the NRC Staff Fire Protection Evaluation Report accepting ^{OR} requiring such features.

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(ii) Those fire protection features involving installation of modifications not requiring prior approval or plant shutdown shall be implemented within 12 months after the date of the NRC Staff Fire Protection Safety Evaluation Report accepting or requiring such features.

(iii) Those fire protection features, including alternate shutdown capability, involving installation of modifications requiring plant shutdown shall be implemented during the first refueling outage, other planned outage that lasts for at least 60 days, or unplanned outage that last for at least 120 days, that begins 9 months or more after the date of the NRC Staff Fire Protection Safety Evaluation Report accepting or requiring such features.

(iv) Those fire protection features involving dedicated shutdown capability requiring new buildings and systems shall be implemented within 30 months ^{of} NRC approval. Other modifications requiring NRC approval prior to installation shall be implemented within 6 months after NRC approval.

(e) Nuclear power facilities, ^{licensed to operate} ~~that commenced operation~~ after January 1, 1979, and before January 1, 1981, shall complete all fire protection modifications needed to satisfy Criterion 3 of Appendix A of this part in accordance with the provisions of their licenses.

2. A new Appendix R to 10 CFR Part 50 is added to read as follows:

APPENDIX R - FIRE PROTECTION PROGRAM FOR NUCLEAR POWER FACILITIES
OPERATING PRIOR TO JANUARY 1, 1979

I. INTRODUCTION AND SCOPE

This Appendix applies to licensed nuclear power electric generating stations that were operating prior to January 1, 1979, except to the extent set forth in 10 CFR §50.48(b). With respect to certain generic issues for such facilities it sets forth fire protection features required to satisfy Criterion 3 of Appendix A to this part.^{6/}

Criterion 3 of Appendix A to this part specifies that "Structures, systems, and components important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions."

When considering the effects of fire, those systems associated with achieving and maintaining safe shutdown conditions assume major importance to safety because damage to them can lead to core damage resulting from loss-of-coolant through boil-off.

The phrases "important to safety," or "safety related," will be used throughout this Appendix R as applying to all safety functions. The phrase "safe shutdown" will be used throughout this Appendix R as applying to both Hot and Cold Shutdown functions.

Because fire may affect safe shutdown systems, and because the loss of function of systems used to mitigate the consequences of design basis accidents under post-fire conditions per se does not impact public safety, the need to limit fire damage to systems required to achieve and maintain

^{6/} See footnote 4.

safe shutdown conditions is greater than the need to limit fire damage to those systems required to mitigate the consequences of design basis accidents. Three levels of fire damage limits are established according to the safety function of the structure, system or component:

<u>Safety Function</u>	<u>Fire Damage Limits</u>
Hot Shutdown	One train of equipment necessary to achieve Hot Shutdown from either the control room or emergency control station(s) must be maintained free of fire damage by a single fire, including an exposure fire.
Cold Shutdown	Both trains of equipment necessary to achieve Cold Shutdown may be damaged by a single fire, including an exposure fire, but damage must be limited so that at least one train can be repaired, or made operable, within 72 hours using on site capability.
Design Basis Accidents	Both trains of equipment necessary for mitigation of consequences following Design Basis Accidents may be damaged by a single exposure fire.

The most stringent fire damage limit shall apply for those systems that fall into more than one category. Redundant systems used to mitigate the consequences of other Design Basis Accidents but not necessary for safe shutdown may be lost to a single exposure fire. However, protection shall be provided such that a fire within only one such system will not damage the redundant system.

Exposure Fire. An exposure fire is a fire in a given area involving either insitu or transient combustibles, external to any structures, systems or components that are located in, or adjacent to, that same area. The effects of such fire (e.g., smoke, heat, or ignition) can adversely affect those structures, systems or components important to safety. Thus, a fire involving one train of safe shutdown equipment may constitute an exposure fire for the redundant train located in the same area, and a fire involving combustibles other than either redundant train may constitute an exposure fire to both redundant trains located in the same area.

This Appendix applies only to licensed nuclear power electric generating stations operating prior to January 1, 1979.

II. GENERAL REQUIREMENTS

A. Fire Protection Program

A fire protection program shall be established at each plant. The program shall establish the fire protection policy for the protection of structures, systems, and components important to safety at each plant and the procedures, equipment, and personnel required to implement the program at the plant site.

The fire protection program shall be under the direction of an individual who has been delegated authority commensurate with the responsibilities of the position, and who has available staff personnel knowledgeable in both fire protection and nuclear safety.

The fire protection program shall extend the concept of defense-in-depth to fire protection in fire areas important to safety, with the following objectives:

- to prevent fires from starting;
- to detect rapidly, control, and extinguish promptly those fires that do occur;
- to provide protection for structures, systems, and components important to safety so that a fire that is not promptly extinguished by the fire suppression activities will not prevent the safe shutdown of the plant.

B. Fire Hazards Analysis

A fire hazards analysis shall be performed by qualified fire protection and reactor systems engineers to: (1) consider potential in

situ and transient fire hazards; (2) determine the consequences of fire in any location in the plant on the ability to safely shut down the reactor or on the ability to minimize and control the release of radioactivity to the environment; and (3) specify fire protection measures for fire prevention, fire detection, suppression, and containment, and alternative shutdown capability as required for each fire area containing structures, systems and components important to safety in accordance with NRC guidelines and regulations.

C. Fire Prevention Features

Fire protection features shall meet the following general requirements for all fire areas which contain, or present a fire hazard to, structures, systems, or components important to safety.

1. In situ fire hazards shall be identified and protected.
2. Transient fire hazards associated with normal operation, maintenance, repair, or modification activities shall be identified and eliminated where possible. Those transient fire hazards that can not be eliminated shall be controlled and protected.
3. Fire detection systems, portable extinguishers, and stand-pipe and hose stations shall be installed.
4. Fire barriers and/or automatic suppression systems shall be installed to protect redundant systems or components necessary for safe shutdown.
5. A site fire brigade shall be established, trained, and equipped and shall be on site at all times.
6. Fire detection and suppression systems shall be designed, installed, maintained, and tested by personnel properly

qualified by experience and training in fire protection systems.

7. Surveillance procedures shall be established to ensure that fire barriers are in place and that fire suppression systems and components are operable.

D. Alternative or Dedicated Shutdown Capability

In areas where the fire protection features cannot ensure safe shutdown capability in the event of a fire in that area, alternative or dedicated safe shutdown capability shall be provided.

III. SPECIFIC REQUIREMENTS

A. Water Supplies for Fire Suppression Systems

Two separate water supplies shall be provided to furnish necessary water volume and pressure to the fire main loop.

Each supply shall consist of a storage tank, pump, piping, and appropriate isolation and control valves. Two separate redundant suction in one or more intake structures from a large body of water (river, lake, etc.) will satisfy the requirement for two separated water storage tanks. These supplies shall be separated so that a failure of one supply will not result in a failure of the other supply.

Each supply of the fire water distribution system shall be capable of providing for a period of 2 hours the maximum expected water demands as determined by the fire hazards analysis for safety-related areas or other areas that present a fire exposure hazard to safety-related areas.

When storage tanks are used for combined service-water/fire-water uses the minimum volume for fire uses shall be ensured by means of

dedicated tanks or by some physical means, such as a vertical standpipe for other water-service. Administrative controls/locks for tank outlet valves are unacceptable as the only means to ensure minimum water volume.

Other water systems used as one of the two fire water supplies shall be permanently connected to the fire main system and shall be capable of automatic alignment to the fire main system. Pumps, controls, and power supplies in these systems shall satisfy the requirements for the main fire pumps. The use of other water systems for fire protection shall not be incompatible with their functions required for safe plant shutdown. Failure of the other system shall not degrade the fire main system.

B. Sectional Isolation Valves

Sectional isolation valves, such as Post Indicator Valves or key operated valves, shall be installed in the fire main loop to permit isolation of portions of the fire main loop for maintenance or repair without interrupting the entire water supply.

C. Hydrant Isolation Valves

Valves shall be installed to permit isolation of outside hydrants from the fire main for maintenance or repair without interrupting the water supply to automatic or manual fire suppression systems in any area containing, or presenting a fire hazard to, safety-related or safe shutdown equipment.

D. Manual Fire Suppression

Standpipe and hose systems shall be installed so that at least one effective hose stream will be able to reach any location that contains, or presents an exposure fire hazard to, structures, systems or components important to safety.

Access to permit effective functioning of the fire brigade shall be provided to all areas that contains or presents an exposure fire hazard to structures, systems, or components important to safety.

Standpipe and hose stations shall be inside PWR containments and BWR containments that are not inerted. Standpipe and hose stations inside containment may be connected to a high quality water supply of sufficient quantity and pressure, other than the fire main loop, if particular plant specific features prevent extending the fire main supply inside containment. For BWR dry wells, standpipe and hose stations shall be placed outside the dry well with adequate lengths of hose to reach any location inside the dry well with an effective hose stream.

E. Hydrostatic Hose Tests

Fire hose shall be hydrostatically tested at a pressure of 300 psi or 50 psi above maximum fire main operating pressure, whichever is greater. Hose stored in outside hose houses shall be tested annually. Interior standpipe hose shall be tested every three years.

F. Automatic Fire Detection

Automatic fire detection systems shall be installed in all areas of the plant that contain or present an exposure fire hazard to, safe shutdown or safety-related systems or components. Such systems shall be capable of operating with or without off site power.

G. Fire Protection of Safe Shutdown Capability

1. Fire protection features shall be provided for structures, systems, and components important to safe shutdown. These features shall be capable of limiting fire damage so that:

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- (a) One train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control station(s) is free of fire damage.
- (b) Systems necessary to achieve and maintain cold shutdown from either the control room or emergency control station(s) can be repaired within 72 hours.

2. Except as provided for by paragraph G.3 of this section where cables or equipment, including associated non-safety circuits which could prevent operation or cause maloperation due to hot shorts, open circuits, or shorts to ground, of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of containment, one of the following means of assuring that one of the redundant trains is free of fire damage shall be provided:

- (a) Separation of cables and equipment, including associated non-safety circuits, of redundant trains by a fire barrier having a three-hour rating. Structural steel forming a part of, or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier; or
- (b) Separation of cables and equipment, including associated non-safety circuits, of redundant trains by horizontal distance of more than 20 feet, with no intervening combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area; or

(c) Enclosure of cable and equipment, including associated non-safety circuits, of one redundant train in a fire barrier having a one hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

Inside non-inerted containments, any one of the fire protection means specified above shall be provided. Alternatively, one of the following fire protection means shall be provided:

- (d) Separation of cables and equipment, including associated non-safety circuits, of redundant trains by a horizontal distance of more than 20 feet with no intervening combustible or fire hazards; or
- (e) Installation of fire detectors and an automatic fire suppression system in the fire area; or
- (f) Separation of cables and equipment, including associated non-safety circuits, or redundant trains by a noncombustible radiant energy shield.

3. Alternative or dedicated shutdown capability,^{8/} *And its associated circuits* independent of cables, systems or components in the area, room or zone under consideration, shall be provided:

^{8/} Alternative shutdown capability shall be provided by rerouting, relocation or modification of existing systems; or dedicated shutdown capability shall be provided by installing new structures and systems for the function of post-fire shutdown.

- (a) Where the protection of systems whose function is required for hot shutdown does not satisfy the requirements of paragraph G.2 of this section; or
- (b) Where redundant trains of systems required for hot shutdown located in the same fire area may be subject to damage from fire suppression activities, or from the rupture or inadvertent operation of fire suppression systems.

In addition, fire detectors^{and} and an ~~automatic~~^{FIXED} fire suppression system shall be installed in the area, room or zone under consideration.

H. Fire Brigade

A site fire brigade trained and equipped for firefighting shall be established to ensure adequate manual firefighting capability for all areas of the plant containing structures, systems, or components important to safety. The minimum size of the fire brigade shall be at least five members on each shift. The brigade leader and at least two brigade members shall have sufficient training or knowledge of plant safety systems to understand the effects of fire and fire suppressants on safe shutdown capability. The fire brigade members' qualifications shall include an annual physical examination for performing strenuous firefighting activity. The shift supervisor shall not be a member of the fire brigade. The brigade leader shall be competent to assess the potential safety consequences of

a fire and advise control room personnel. Such competence by the brigade leader may be evidenced by possession of an operator's license or equivalent knowledge of plant safety systems.

Equipment provided for the brigade shall consist of at least personal protective equipment such as turnout coats, boots, gloves, and hard hat; emergency communications equipment; portable lights; portable ventilation equipment; portable extinguishers; and self-contained breathing apparatus using full-face positive-pressure masks approved by NIOSH (National Institute for Occupational Safety and Health - approval formerly given by the U.S. Bureau of Mines) should be provided for fire brigade, damage control, and control room personnel. At least 10 masks shall be available for fire brigade personnel. Control room personnel may be furnished breathing air by a manifold system piped from a storage reservoir if practical. Service or rated operating life should be a minimum of one-half hour for the self-contained units.

At least two extra air bottles should be located onsite for each self-contained breathing unit. In addition, an onsite 6-hour supply of reserve air should be provided and arranged to permit quick and complete replenishment of exhausted supply air bottles as they are returned. If compressors are used as a source of breathing air, only units approved for breathing air should be used; compressors should be operable assuming a loss of offsite power. Special care must be taken to locate the compressor in areas free of dust and contaminants.

I. Fire Brigade Training

The fire brigade training program shall ensure that the capability to fight potential fires is established and maintained. The program shall consist of an initial classroom instruction program followed by periodic classroom instruction, firefighting practice, and fire drills:

1. Instruction

- (a) The initial classroom instruction shall include:
- (1) Indoctrination of the plant firefighting plan with specific identification of each individual's responsibilities.
 - (2) Identification of the type and location of fire hazards and associated types of fires that could occur in the plant.
 - (3) The toxic and corrosive characteristics of expected products of combustion.
 - (4) Identification of the location of fire fighting equipment for each fire area and familiarization with the layout of the plant, including access and egress routes to each area.
 - (5) The proper use of available fire fighting equipment and the correct method of fighting each type of fire. The types of fires covered should include fires in energized electrical equipment, fires in cables and cable trays, hydrogen fires, fires involving flammable and combustible liquids or hazardous process chemicals, fires resulting construction on modifications (welding), and record file fires.
 - (6) The proper use of communication, lighting, ventilation, and emergency breathing equipment.
 - (7) The proper method for fighting fires inside buildings and confined spaces.

- (8) The direction and coordination of the fire-fighting activities (fire brigade leaders only).
- (9) Detailed review of fire fighting strategies and procedures.
- (10) Review of the latest plant modifications and corresponding changes in fire fighting plans.

Note: Items (9) and (10) may be deleted from the training of non-operations personnel who may be assigned to the fire brigade.

- (b) The instruction shall be provided by qualified individuals who are knowledgeable, experienced, and suitably trained in fighting the types of fires that could occur in the plant and in using the types of equipment available in the nuclear power plant.
- (c) Instruction shall be provided to all fire brigade members and fire brigade leaders.
- (d) Regular planned meetings shall be held at least every 3 months for all brigade members to review changes in the fire protection program and other subjects as necessary.
- (e) Periodic refresher training sessions shall be held to repeat the classroom instruction program for all brigade members over a two year period. These sessions may be concurrent with the regular planned meetings.

2. Practice

Practice sessions shall be held for each shift fire brigade on the proper method of fighting the various types of fires that could occur in a nuclear power plant. These sessions shall provide brigade members with experience in actual fire extinguishment and the use of emergency breathing apparatus under strenuous conditions encountered in fire-fighting. These practice sessions shall be provided at least once per year for each fire brigade member.

3. Drills

(a) Fire brigade drills shall be performed in the plant so that the fire brigade can practice as a team.

(b) Drills shall be performed at regular intervals not to exceed 3 months for each shift fire brigade. Each fire brigade member should participate in each drill, but must participate in at least two drills per year.

A sufficient number of these drills, but not less than one for each shift fire brigade per year, shall be unannounced to determine the firefighting readiness of the plant fire brigade, brigade leader, and fire protection systems and equipment. Persons planning and authorizing an unannounced drill shall assure that the responding shift fire brigade members are not aware that a drill is being planned until it is begun. Unannounced drills shall not be scheduled closer than four weeks for any two shifts.

At least one drill per year shall be performed on a "back shift" for each shift fire brigade.

- (c) The drills shall be preplanned to establish the training objectives of the drill and shall be critiqued to determine how well the training objectives have been met. Unannounced drills shall be planned and critiqued by members of the management staff responsible for plant safety and fire protection. Performance deficiencies of a fire brigade or of individual fire brigade members shall be remedied by scheduling additional training for the brigade or members. Unsatisfactory drill performance shall be followed by a repeat drill within 30 days.
- (d) At 3 year intervals, a randomly selected unannounced drill shall be critiqued by qualified individuals independent of the licensee's staff. A copy of the written report from such individuals shall be available for NRC review.
- (e) Drills shall as a minimum include the following:
- (1) Assessment of fire alarm effectiveness, time required to notify and assemble fire brigade, and selection, placement and use of equipment, and firefighting strategies.
 - (2) Assessment of each brigade member's knowledge of his role in the firefighting strategy for the area assumed to contain the fire. Assessment of the brigade member's conformance with established plant firefighting procedures and

use of firefighting equipment, including self-contained emergency breathing apparatus, communication equipment, and ventilation equipment, to the extent practicable.

- (3) The simulated use of firefighting equipment required to cope with the situation and type of fire selected for the drill. The area and type of fire chosen for the drill should differ from the previous drill such that brigade members are trained in fighting fires in various plant areas. The situation selected should simulate the size and arrangement of a fire which could reasonably occur in the area selected, allowing for fire development due to the time required to respond, to obtain equipment, and organize for the fire, assuming loss of automatic suppression capability.
- (4) Assessment of brigade leader's direction of the firefighting effort, as to thoroughness, accuracy, and effectiveness.

4. Records

Individual records of training provided to each fire brigade member, including drill critiques, shall be maintained for at least 3 years to ensure that each member receives training in all parts of the training program. These records of training shall be available for NRC review. Retraining or broadened training for fire fighting within

buildings shall be scheduled for all those brigade members whose performance records show deficiencies.

J. Emergency Lighting

Emergency lighting units, with 8-hour minimum battery power supply shall be provided in all areas needed for operation of safe shut-down equipment and in access and egress routes thereto.

K. Administrative Controls

Administrative controls shall be established to minimize fire hazards in areas containing structures, systems, and components important to safety. These controls shall establish procedures to:

1. Govern the handling and limitation of the use of ordinary combustible materials, combustible and flammable gases and liquids, high efficiency particulate air and charcoal filters, dry ion exchange resins, or other combustible supplies in safety-related areas.
2. Prohibit the storage of combustibles in safety-related areas or establish designated storage areas with appropriate fire protection.
3. Govern the handling of and limit transient fire loads such as combustible and flammable liquids, wood and plastic products, or other combustible materials in buildings containing safety-related systems or equipment during all phases of operating, and especially during maintenance, modification, or refueling operations.
4. Designate the onsite staff member responsible for the in-plant fire protection review of proposed work activities to identify potential transient fire hazards

and specify required additional fire protection in the work activity procedure.

5. Govern the use of ignition sources by use of a flame permit system to control welding, flame cutting, brazing, or soldering operations. A separate permit shall be issued for each area where work is to be done. If work continues over more than one shift, the permit shall be valid for not more than 24 hours when the plant is operating or for the duration of a particular job during plant shutdown.
6. Control the removal from the area of all waste, debris, scrap, oil spills, or other combustibles resulting from the work activity immediately following completion of the activity, or at the end of each work shift, whichever comes first.
7. Maintain the periodic housekeeping inspections to ensure continued compliance with these administrative controls.
8. Control the use of specific combustibles in safety-related areas. All wood used in safety-related areas during maintenance, modification, or refueling operations (such as lay-down blocks or scaffolding) shall be treated with a flame-retardant. Equipment or supplies (such as new fuel) shipped in untreated combustible packing containers may be unpacked in safety-related areas if required for valid operating reasons. However, all combustible materials shall be removed from the area immediately following the unpacking. Combustible material shall not be left unattended during lunch breaks, shift changes, or other similar

periods. Loose combustible packing material such as wood or paper excelsior, or polyethylene sheeting shall be placed in metal containers with tight-fitting self-closing metal covers.

9. Control actions to be taken by an individual discovering a fire, such as notification of control room, attempt to extinguish fire, and actuation of local fire suppression systems.
10. Control actions to be taken by the control room operator to determine the need for brigade assistance upon report of a fire or receipt of alarm on control room annunciator panel, such as announcing location of fire over PA system, sounding fire alarms, and notifying the shift supervisor and the fire brigade leader of the type, size, and location of the fire.
11. Control actions to be taken by the fire brigade after notification by the control room operator of a fire, such as assembling in a designated location, receiving directions from the fire brigade leader, and, discharging specific fire fighting responsibilities including selection and transportation of fire fighting equipment to fire location, selection of protective equipment, use of fire suppression systems operating instructions, and use of preplanned strategies for fighting fires in specific areas.
12. Define the strategies for fighting fires in all safety-related areas and areas presenting a hazard to

safety-related equipment. These strategies shall designate:

- (a) Fire hazards in each area covered by the specific prefire plans.
- (b) Fire extinguishants best suited for controlling the fires associated with the fire hazards in that area and the nearest location of these extinguishants.
- (c) Most favorable direction from which to attack a fire in each area, in view of the ventilation direction, access hallways, stairs, and doors that are most likely to be fire free, and the best station or elevation for fighting the fire. All access and egress routes that involve locked doors should be specifically identified in the procedure with the appropriate precautions and methods for access specified.
- (d) Plant systems that should be managed to reduce the damage potential during a local fire; location of local and remote controls for such management (e.g., any hydraulic or electrical systems in the zone covered by the specific fire fighting procedure that could increase the hazards in the area because of overpressurization or electrical hazards).
- (e) Vital heat-sensitive system components that need to be kept cool while fighting a local fire. Particularly hazardous combustibles that need cooling should be designated.

- (f) Organization of firefighting brigades and the assignment of special duties according to job title so that all fire fighting functions are covered by any complete shift personnel complement. These duties include command control of the brigade, transporting fire suppression and support equipment to the fire scenes, applying the extinguishant to the fire, communication with the control room, and coordination with outside fire departments.
- (g) Potential radiological and toxic hazards in fire zones.
- (h) Ventilation system operation that ensures desired plant air distribution when the ventilation flow is modified for fire containment or smoke clearing operations.
- (i) Operations requiring control room and shift engineer coordination or authorization.
- (j) Instructions for plant operators and general plant personnel during fire.

L. Alternative and Dedicated Shutdown Capability

- 1. Alternative or dedicated shutdown capability provided for a specific fire area shall be able to achieve and maintain subcritical reactivity conditions in the reactor, maintain reactor coolant inventory, achieve and maintain hot standby^{9/} conditions for a PWR (hot shutdown^{9/} for a BWR) and achieve cold shutdown^{9/} conditions within 72 hours and

^{9/}As defined in the Standard Technical Specifications.

maintain cold shutdown conditions thereafter. During the post fire shutdown, the reactor coolant system process variables shall be maintained within those predicted for a loss of normal ac power, and the fission product boundary integrity shall not be affected; i.e., there shall be no fuel clad damage, rupture of any primary coolant boundary, or rupture of the containment boundary.

2. The performance goals for the shutdown functions shall be:
 - (a) The reactivity control function shall be capable of achieving and maintaining cold shutdown reactivity conditions.
 - (b) The reactor coolant makeup function shall be capable of maintaining the reactor coolant level above the top of the core for BWRs and be within the level indication in the pressurizer for PWRs.
 - (c) The reactor heat removal function shall be capable of achieving and maintaining decay heat removal.
 - (d) The process monitoring function shall be capable of providing direct readings of the process variables necessary to perform and control the above functions.
 - (e) The supporting functions shall be capable of providing the process cooling, lubrication, etc., necessary to permit the operation of the equipment used for safe shutdown functions.

3. The shutdown capability for specific fire areas may be unique for each such area, or it may be one unique combination of systems for all such areas. In either case, the alternative shutdown capability shall be independent of the specific fire area(s) and shall accommodate postfire conditions where offsite power is available and where offsite

power is not available for 72 hours. Procedures shall be in effect to implement this capability.

4. If the capability to achieve and maintain cold shutdown will not be available because of fire damage, the equipment and systems comprising the means to achieve and maintain hot standby or hot shut down condition shall be capable of maintaining such conditions until cold shut down can be achieved. If such equipment and systems will not be capable of being powered by both onsite and offsite electric power systems because of fire damage, an independent onsite power system shall be provided. The number of operating shift personnel, exclusive of fire brigade members, required to operate such equipment and systems shall be onsite at all times.

5. Equipment and systems comprising the means to achieve and maintain cold shut down conditions shall not be damaged by fire; or the fire damage to such equipment and systems shall be limited such that the systems can be made operable and cold shut down achieved within 72 hours. Materials for such repairs shall be readily available onsite and procedures shall be in effect to implement such repairs. If such equipment and systems used prior to 72 hours after the fire will not be capable of being powered by both onsite and offsite electric power systems because of fire damage, an independent onsite power system shall be provided. Equipment and systems used after 72 hours may be powered by offsite power only.

6. Shutdown systems installed to assure postfire shutdown capability need not be designed to meet seismic Category I criteria, single failure criteria, or other design basis accident criteria, except where required for other reasons, e.g., because of interface with or impact on

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existing safety systems, or because of adverse valve actions due to fire damage.

7. The safe shutdown equipment and systems for each fire area shall be isolated from associated non-safe ~~shutdown~~^{ty} circuits in the fire area so that hot shorts, open circuits, or shorts to ground in the associated circuits will not prevent operation or cause maloperation of the safe shutdown equipment. The separation and barriers between trays and conduits containing associated circuits of one safe shutdown division and trays and conduits containing associated circuits or safe shutdown cables from the redundant division shall be such that a postulated fire involving associated circuits will not prevent safe shutdown.^{10/}

M. Fire Barrier Cable Penetration Seal Qualification

Penetration seal designs shall utilize only noncombustible materials and shall be qualified by tests that are comparable to tests used to rate fire barriers. The acceptance criteria for the test shall include:

1. The cable fire barrier penetration seal has withstood the fire endurance test without passage of flame or ignition of cables on the unexposed side for a period of time equivalent to the fire resistance rating required of the barrier;
2. The temperature levels recorded for the unexposed side are analyzed and demonstrate that the maximum temperature is sufficiently below the cable insulation ignition temperature; and

^{10/} An acceptable method of complying with this alternative would be to meet Regulatory Guide 1.75 position 4 related to associated circuits and IEEE 384-1974 (Section 4.5) where trays from redundant safety divisions are so protected that postulated fires affect trays from only one safety division.

3. The fire barrier penetration seal remains intact and does not allow projection of water beyond the unexposed surface during the hose stream test.

N. Fire Doors

Fire doors shall be self-closing or provided with closing mechanisms and shall be inspected semiannually to verify that automatic hold-open, release, and closing mechanisms and latches are operable.

One of the following measures shall be provided to assure they will protect the opening as required in case of fire:

1. Fire doors shall be kept closed and electrically supervised at a continuously manned location; or
2. Fire doors shall be locked closed and inspected weekly to verify that the doors are in the closed position; or
3. Fire doors shall be provided with automatic hold-open and release mechanisms and inspected daily to verify that doorways are free of obstructions; or
4. Fire doors shall be kept closed and inspected daily to verify that they are in the closed position.

The fire brigade leader shall have ready access to keys for any locked fire doors.

Areas protected by automatic total flooding gas suppression systems shall have electrically supervised self-closing fire doors or shall satisfy option 1 above.

O. Oil Collection System for Reactor Coolant Pump

The reactor coolant pump shall be equipped with an oil collection system if the containment is not inerted during normal operation. The oil collection system shall be so designed, engineered, and installed

that failure will not lead to fire during normal, or design basis accident conditions, and that there is reasonable assurance that the system will withstand the Safe Shutdown Earthquake.^{11/}

Such collection systems shall be capable of collecting lube oil from all potential pressurized and unpressurized leakage sites in the reactor coolant pumps' lube oil systems. Leakage shall be collected and drained to a vented closed container that can hold the entire lube oil system inventory. A flame arrestor is required in the vent if the flash point characteristics of the oil present the hazard of fire flashback. Leakage points to be protected shall include lift pump and piping, overflow lines, lube oil cooler, oil fill and drain lines and plugs, flanged connections on oil lines and lube oil reservoirs where such features exist on the reactor coolant pumps. The drain line shall be large enough to accommodate the largest potential oil leak.

(Sec. 161b, Pub. Law 83-703, 68 Stat. 948; Sec. 201, Pub. Law 93-438, 88 Stat. 1242 (42 U.S.C. 2201(b), 5841).)

Dated at _____ this _____ day of _____ 198_.

For the Nuclear Regulatory Commission.

Samuel C. Chilk
Secretary of the Commission

^{11/} See Regulatory Guide 1.29 - "Seismic Design Classification" Paragraph C.2.

ENCLOSURE 2

Second, in reviewing the comments on the proposed rule, the staff did find some instances where the specific wording used resulted in unnecessary and unintended requirements. For example, the proposed rule called for a "fresh water" supply. For firefighting purposes brackish water is satisfactory and a "fresh" water supply is unnecessary. Similarly, the proposed rule called for an "underground" yard fire main loop. Often portions of a fire main loop run above ground in and as they enter structures. The Commission had not intended to prohibit running portions of a fire main loop above ground. Other similar changes are discussed below under "Specific Requirements."

The third issue raised by these comments relates to imposition of requirements on plants with presently installed, or with existing commitments to install, fire protection features previously determined by the staff to satisfy the guidance of Appendix A to BTP APCS 9.5-1. The Commission generally agrees that, except for three sections that will be backfitted, Appendix R should not be retroactively applied to features which have been previously approved by the NRC staff as satisfying the provisions of Appendix A to BTP APCS 9.5-1.

The NRC staff had intended, in its original proposal for Appendix R, that the requirements be applicable only for the resolution of unresolved disputed fire protection features. Thus, the staff had not intended the provisions of Appendix R to require modification of previously approved features. This was not clearly described in the proposed rule as published for comment. In fact, the Supplemental^{BY} Information published with the proposed Rule explicitly indicated that "[a]ll licensees will be expected to meet the requirements of this rule, in its effective form, including whatever changes result from public comments."

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In determining whether the specific requirements of Appendix R should be imposed on licensees with presently installed, or existing commitments to install, fire protection features previously determined to satisfy Appendix A to Branch Technical Position BTP APCSB 9.5-1, it is important to recognize that Appendix R addresses only a portion of the specific items contained in the more comprehensive document, Branch Technical Position BTP APCSB 9.5-1 and its Appendix A. Appendix A to BTP APCSB 9.5-1 has

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been the basic fire protection guidance used by the staff in their fire protection reviews conducted for all operating plants during the past several years. For many plants, licensees proposed systems and features which satisfactorily achieved the fire protection criteria set forth in Appendix A to BTP APCS 9.5-1 and began to promptly implement such features and systems.

Satisfactory features and systems are already in place and in operation in many plants. There is a reasonable degree of uniformity among most of these approved features for all facilities since they were reviewed against the same criteria of Appendix A to BTP APCS 9.5-1. In general, the features previously approved by the NRC staff in its reviews of fire protection using the criteria of Appendix A to BTP APCS 9.5-1 provide an equivalent level of fire protection safety to that provided under the specific provisions of Appendix R. Thus, the further benefit that might be provided by requiring that previously approved features be modified to conform to the specific language set forth in Appendix R is outweighed by the overall benefit of the early implementation of such previously approved features, which in many cases are currently being installed.

Nevertheless, as a result of its continuing review of fire protection matters the NRC staff has indicated to the Commission that there are requirements in three sections in which the protection afforded by Appendix R over and above that previously accepted may be desirable. The Commission has decided that these requirements should be retroactively applied to all facilities. This decision is not meant to reflect adversely on previous licensee or staff evaluations; rather its purpose is to take fully into account the increased knowledge and

Enclosure "X" 2

experience developed on fire protection matters over the last several years.

The first of these sections is related to fire protection features for assuring that systems and associated circuits used to achieve and maintain safe shutdown are free from fire damage. Appendix A to BTP APCS 9.5-1 permits a combination of fire retardant coatings and fire detection and suppression systems without specifying a physical separation distance to protect redundant systems (Appendix A, D.1(2)), and such arrangements were accepted in some early fire protection reviews. As a result of some special effects tests, the staff changed its position on this configuration and subsequent plants have been required to provide additional protection in the form of fire barriers or substantial physical separation for safe shutdown systems. No credit for such coatings as fire barriers is allowed by Section III.G of Appendix R where at least a one-hour rated fire barrier is required. Appendix A and the proposed Appendix R recognized that there were plant unique configurations that required fire protection features which are not identical to those listed in Section III.G of Appendix R. For these cases, fire protection features were developed by the licensee and described in a fire hazards analysis. Some of these arrangements were accepted by the staff as providing equivalent protection to the requirements of Section III.G to Appendix R.

Requirements that account for all of the parameters which are important to fire protection and consistent with safety requirements for all plant unique configurations have not been developed. In light of the experience gained in fire protection evaluations over the past

four years, the Commission believes that the licensees should reexamine those previously approved configurations of fire protection which do not meet the requirements as specified in Section III.G to Appendix R. Based on this reexamination the licensee must either meet the requirements to Section III.G of Appendix R or apply for an exemption which justifies alternatives by a fire hazard analysis. However, based on present information the Commission does not expect to be able to approve exemptions for fire retardant coating used as fire barriers.

The second relates to emergency lighting. Section III J of Appendix R calls for 8-hour emergency lighting, whereas in some cases less than 8-hour emergency lighting has been accepted as satisfying Appendix A to BTP APCS 9.5-1. While an adequate level of safety may be provided by less than an 8-hour supply, an 8-hour system would provide added protection and would generally involve only a small cost. The Commission therefore believes that the licensee should upgrade the previously approved facilities to satisfy the 8-hour emergency lighting requirement of Appendix R.

The third relates to protection against fires in non-inerted containments involving reactor coolant pump lubrication oil. (Section III.0 of Appendix R). The proposed rule permitted either an oil collection system or a fire suppression system. The staff has also accepted an automatic fire suppression system as an acceptable method of fire protection for this application. The Commission has concluded that fire suppression systems do not give adequate protection for fires that may be induced by seismic events. The Commission therefore believes that previously approved suppression systems should be replaced with oil collection systems that can withstand seismic events.

The technical bases on which these three sections are based are further discussed in Section III of this preamble.

3. Most commenters state that the implementation schedule contained in the proposed rule is impossible to meet for any of the operating plants. The commenters further stated that if the implementation schedule in the effective rule is the same as that in the proposed rule, the Commission must be prepared to either shutdown each operating nuclear power plant, or process exemption requests.

The commenters then conclude that the implementation schedule should be rewritten to allow some adequate time period for compliance. The proposed rule stated that "all fire protection and modifications identified by the staff as necessary to satisfy Criterion 3 of Appendix A to this part, whether contained in Appendix R to this part or in other staff fire protection guidance (except for alternate or dedicated shutdown capability) shall be completed by November 1, 1980 unless, for good cause shown, the Commission approves an extension," (Proposed Section 50.48 1.(c)). The Commission went on to state its intention in the Statement of Consideration to the rule that "...no plant would be allowed to continue to operate after November 1, 1980, or beyond an extended date approved by the Commission, unless all modifications (except for alternate or dedicated shutdown capability) have been implemented."

The Commission has reconsidered the implementation schedule and has determined that it should be modified for the following reasons.

- ° After reviewing the comments and the information developed as a result of our completion of fire reviews over the past 6 months, the staff has informed the Commission that the date of November 1, 1980

is not possible because the effective date of the rule will be after that date.

- ° The staff has informed the Commission that it would expect virtually all licensees to request exemptions if the new implementation dates do not provide an appropriate period of time for complying with the requirements of Appendix R. The time and manpower resources needed by the licensees to prepare such requests and by the staff to formulate recommendations on these requests is not warranted from the standpoint of timely fire protection improvement.
- ° The revised implementation schedule provides a careful balance of these considerations, calling for important fire protection features to be implemented and installed on a phased schedule which is as prompt as can be reasonably achieved.

The revised schedules distinguish between requirements imposed for the first time on the licensee by virtue of Appendix R and those requirements already imposed in license conditions or Technical Specifications issued prior to the effective date of the rule. For requirements imposed by Appendix R, including the items "backfit" to all plants, the schedule provides a reasonable time after publication of the rule for completion of required modifications. For requirements already imposed by license conditions, providing for implementation after November 1, 1980, the Commission has reviewed these schedules and has found that in some instances the allotted time for completion of the required modifications may be excessive. Thus, for fire protection features other than those covered by Appendix R, although the Commission has extended the compliance dates beyond the November 1, 1980 date proposed in the proposed rule, the Commission has added a requirement that limits the compliance schedule in existing licenses, if such schedules extend beyond what would have been a

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reasonable schedule initially. Relief from such limitation may be granted by the Director of Nuclear Reactor Regulation upon a showing that there is good cause for extending such date and that public health and safety is not adversely affected by such extension.

It should also be noted that for licensees whose license conditions imposed a schedule completion date of November 1, 1980 or other date prior to the effective date of Section 50.48, the Commission has suspended such completion dates by promulgation of a temporary rule (10 CFR 50.48) which will be superseded by this rule.

To better understand the nature of the public comments received and the staff's resolution of these comments, the following section will consider each section of Appendix R to this part. In Section III, we provide a summary of the Technical Basis for each requirement, followed by a summary of the public comments and a statement of the staff's disposition of those comments.

the plant. Because it is not possible to predict the specific conditions under which fire may occur and propagate, the design basis protective features are specified rather than the design basis fire. Three different means for protecting the safe shutdown capability outside of containment are acceptable. The first is separation alone of redundant safe shutdown trains and associated circuits by means of 3-hour fire rated barriers. The second is a combination of 1-hour fire rated barrier separation of redundant safe shutdown trains, including associated circuits, and automatic fire suppression and detection capability for both redundant trains. The third alternative, which applies when redundant trains, including associated circuits, are separated by 20 feet or more of clear space, specifies the use of automatic fire suppression and detection systems in the area. An alternative or dedicated safe shutdown capability independent of the fire area is required if fire protection for safe shutdown capability cannot be provided as outlined above. For cables and equipment needed for safe shutdown, located inside of non-inerted containments, a lesser degree of fire protection is specified because transient exposure fires are less likely inside containment during plant operations.

Refer to Section M - Fire Barriers for the technical basis concerning the 3-hour barrier, and to Section L - Alternative and Dedicated Shutdown Capability for the technical basis concerning safe shutdown capability.

Comment Resolution

Many commenters suggested that the first paragraph be changed slightly and the rest of this section deleted. The basis for their contention is that the rule should state simply the requirement to protect cables or equipment of systems necessary for safe shutdown of the plant and leave specific implementation details in some other type document

We have modified this action by removing the listing of considerations, deleting Table 1, and revising the wording to provide clarifications.

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a fire emergency such that operators involved in safe plant shutdown should not also have to be concerned with lighting in the area. The small cost differential between a minimum 2-hour supply and the substantial additional protection afforded by the 8-hour supply does not warrant reducing this requirement.

K. Administrative Controls

Technical Basis

The fire protection program uses administrative controls for fire prevention and pre-fire planning. The items listed in this section are generally accepted within the fire protection community as minimum requirements for an effective administration of the fire protection program. Controls are placed on the storage and use of combustible materials to reduce the fire loading in safety-related areas, and on ignition sources to avoid careless operations. Actions to be taken by individuals who discover a fire and by the fire brigade for development of pre-planned fire fighting strategies and actual fire fighting techniques are controlled.

Comment Resolution

Many commenters stated that this requirement was much too detailed for a regulation. Some stated that the requirements should be only for areas having safe shutdown equipment. Other commenters stated that a simple statement that administrative procedures should be established to control the various fire hazards throughout the plant was sufficient and that the other details could be spelled out in a regulatory guide or some other similar document.

Minor changes have been made in the wording of this requirement for clarification. However, as with each of the other requirements in this

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is necessary to assure that safe shutdown systems will be able to function properly in the event of fire..

3. The staff considers any fire hazard analysis incomplete that does not consider the effects of fire damage to circuits that are associated with safe shutdown circuits.

As indicated above, as a result of the comments received on this issue, it is unclear that associated circuits have in fact been adequately considered by licensees in their reviews using the guidance of Appendix A to BTP APCSB 9.5-1. To assure that the associated circuits are considered, all operating nuclear plants will be required to meet the requirements of Section III.G of Appendix R.

General Comments Resolution:

Several commenters contended that Commission regulations mandate that an adjudicatory hearing be conducted prior to a final decision, with one commenter labeling the regulation an "order" within the meaning of the Administrative Procedure Act (5 U.S.C. §551(6)) (APA) and asserting that 10 CFR §2.204 of the Commission's regulations, "Order for Modification of License," applies to this rulemaking proceeding.

The Commission disagrees with these comments. A "rule" is defined in the APA to mean "the whole or a part of an agency statement of general or particular applicability and future effect designed to implement ... or prescribe law or policy..." (5 U.S.C. §551(4)). The agency action questioned here is clearly one which treats similarly situated licensees equally and which prescribes future conduct or requirements. For those licensees who have not already provided an equivalent level of fire protection, certain specific fire protection features are required. Various

[7590-01]

(b) Appendix R to this part establishes fire protection features required to satisfy Criterion 3 of Appendix A to this part with respect to certain generic issues for nuclear power plants licensed to operate prior to January 1, 1979. Except for the requirements of Sections III.G, III.J and III.O, the provisions of Appendix R to this part shall not be applicable to nuclear power plants licensed to operate prior to January 1, 1979, to the extent that fire protection features proposed or implemented by the licensee have been accepted by the NRC staff as satisfying the provisions of Appendix A to Branch Technical Position BTP APCS 9.5-1 as^{5/} reflected in staff fire protection safety evaluation reports issued prior to the effective date of this rule, or to the extent that fire protection features were accepted by the staff in comprehensive fire protection safety evaluation reports issued before Appendix A to Branch Technical Position BTP APCS 9.5-1 was published in August 1976. With respect to all other fire protection features covered by Appendix R, all nuclear power plants licensed to operate prior to January 1, 1979 shall satisfy the applicable requirements of Appendix R to this part, including specifically the requirements of Sections III.G, III.J and III.O.

^{5/} Clarification and guidance with respect to permissible alternatives to satisfy Appendix A to BTP APCS 9.5-1 has been provided in four other NRC documents.

- "Supplementary Guidance on Information Needed for Fire Protection Evaluation," dated October 21, 1976.
- "Sample Technical Specification," dated May 12, 1977.
- "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Control and Quality Assurance," dated June 14, 1977.
- "Manpower Requirements for Operating Reactors," dated May 11, 1978.

A Fire Protection Safety Evaluation Report, that has been issued for each operating plant, identifies how these guidelines were applied to each facility, and open fire protection issues that will be resolved when the facility satisfies the appropriate requirements of Appendix R to this part.

ENCLOSURE 3

U. S. NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

Fire Protection Program for Operating Nuclear Power Plants

AGENCY: U. S. Nuclear Regulatory Commission

ACTION: Final Rule

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to require certain provisions for fire protection in nuclear power plants.

EFFECTIVE DATE: [90 days following publication in the FEDERAL REGISTER]

NOTE: The Nuclear Regulatory Commission has submitted this rule to the Comptroller General for such review as may be appropriate under the Federal Reports Act, as amended, 44 U.S.C. 3512. The date on which the reporting requirement of this rule becomes effective, unless advised to the contrary, accordingly, reflects inclusion of the 45-day period which that statute allows for such review (44 U.S.C. 3512(c)(2)).

FOR FURTHER INFORMATION CONTACT: David P. Notley, Office of Standards Development, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, phone 301-443-5921 or Robert L. Ferguson, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D. C. 20555, phone 301-492-7096.

H. Fire Brigade, and

I. Fire Brigade Training

Technical Basis

Most modern industrial plants with replacement cost values approaching those of a modern nuclear powered electric generating station have a full-time, fully equipped fire department including motorized fire apparatus. Due to the reduced severity of fire hazards in a nuclear generating station as compared to a manufacturing plant, we believe that it is not necessary to mandate a fully staffed fire department. However, manual fire response capability is required at a nuclear plant and a properly equipped and fully trained fire brigade will satisfy this need. The Commission has determined that a brigade size of five persons constitutes the minimum size that would be permitted

to assure that sufficient manpower will be available to perform the actions which may be required by the brigade during the fire and to provide some margin for unanticipated events.^{2/} Similarly, the training requirements that have been listed are those that are considered minimum to assure that the fire brigade will be able to function as expected during any fire emergency.

The proposed rule required emergency breathing apparatus without specifying the number of such pieces of apparatus. The rule has been modified to specify the personnel for whom such apparatus is to be provided and to specify reserve air requirements.

H. Fire Brigade - Comment Resolution

Many commenters suggested reducing this requirement to a simple statement that a trained and equipped nominal size site fire brigade of

^{2/} This is discussed at length in the NRC staff's "Evaluation of Minimum Fire Brigade Shift Size", dated June 8, 1979, available from David P. Notley, Office of Standards Development.

is necessary to assure that safe shutdown systems will be able to function properly in the event of fire.

3. The staff considers any fire hazard analysis incomplete that does not consider the effects of fire damage to circuits that are associated with safe shutdown circuits.

As indicated above, as a result of the comments received on this issue, it is unclear that associated circuits have in fact been adequately considered by licensees in their reviews using the guidance of Appendix A to BTP APCS 9.5-1. To assure that the associated circuits are considered, all nuclear power plants will be required to meet the requirements of Section III.G of Appendix R.

General Comments Resolution:

Several commenters contended that Commission regulations mandate that an adjudicatory hearing be conducted prior to a final decision, with one commenter labeling the regulation an "order" within the meaning of the Administrative Procedure Act (5 U.S.C. §551(6)) (APA) and asserting that 10 CFR §2.204 of the Commission's regulations, "Order for Modification of License," applies to this rulemaking proceeding.

The Commission disagrees with these comments. A "rule" is defined in the APA to mean "the whole or a part of an agency statement of general or particular applicability and future effect designed to implement ... or prescribe law or policy..." (5 U.S.C. §551(4)). The agency action questioned here is clearly one which treats similarly situated licensees equally and which prescribes future conduct or requirements. For those licensees who have not already provided an equivalent level of fire protection, certain specific fire protection features are required. Various

PART 50 - DOMESTIC LICENSING OF
PRODUCTION AND UTILIZATION FACILITIES

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1. Section 50.48, revised in its entirety to read as follows:
§ 50.48 Fire Protection.

(a) Each nuclear power facility shall have a fire protection plan that satisfies Criterion 3 of Appendix A to this part. This fire protection plan shall describe the overall fire protection program for the facility, identify the various positions within the licensee's organization that are responsible for the program, state the authorities that are delegated to each of these positions to implement those responsibilities, and outline the plans for fire protection, fire detection and suppression capability, and limitation of fire damage. The plan shall also describe specific features necessary to implement the program described above, such as: administrative controls and personnel requirements for fire prevention and manual fire suppression activities; automatic and manually operated fire detection and suppression systems; and means to limit fire damage to structures, systems or components important to safety so that the capability to safely shut down the plant is ensured.^{4/}

^{4/} Basic fire protection guidance for nuclear power plants is contained in two NRC documents:

- Branch Technical Position Auxiliary Power Conversion System Branch BTP APCS 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants," - for new plants docketed after July 1, 1976, dated May 1976.
- Appendix A to BTP APCS 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976," - for plants that were operating or under various stages of design and/or construction before July 1, 1976, dated August 23, 1976.

Also see Note 5

(Continued)

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(b) Appendix R to this part establishes fire protection features required to satisfy Criterion 3 of Appendix A to this part with respect to certain generic issues for nuclear power plants. Except for the requirements of Sections III.G, III.J and III.O, ~~the~~ provisions of Appendix R to this part shall not be applicable to nuclear power plants licensed to operate prior to the effective date of this section, to the extent that fire protection features proposed or implemented by the licensee have been accepted by the NRC staff as satisfying the provisions of Appendix A to Branch Technical Position BTP APCS 9.5-1 as^{S/} reflected in staff fire protection safety evaluation reports issued prior to the effective date of this rule, or to the extent that fire protection features were accepted by the staff in comprehensive fire protection safety evaluation reports issued before Appendix A to Branch Technical Position BTP APCS 9.5-1 was published in August 1976. With respect to all other fire protection features covered by Appendix R not excluded therefrom by the preceding sentence, all nuclear power plants shall satisfy the applicable requirements of Appendix R to this part, including specifically the requirements of Sections III.G, III.J, and III.O.

^{S/} Clarification and guidance with respect to permissible alternatives to satisfy Appendix A to BTP APCS 9.5-1 has been provided in four other NRC documents.

- "Supplementary Guidance on Information Needed for Fire Protection Evaluation," dated October 21, 1976.
- "Sample Technical Specification," dated May 12, 1977.
- "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Control and Quality Assurance," dated June 14, 1977.
- "Manpower Requirements for Operating Reactors," dated May 11, 1978.

A Fire Protection Safety Evaluation Report, that has been issued for each operating plant, identifies how these guidelines were applied to each facility, and open fire protection issues that will be resolved when the facility satisfies the appropriate requirements of Appendix R to this part.

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(v) Licensees and applicants shall ~~may~~^{make} any modifications necessary to comply with these requirements in accordance with the above schedule without prior review and approval by NRC except for modifications required by Section III.G.3. of Appendix R to this part. Licensees and applicants shall submit plans and schedules for meeting the provisions of paragraphs (ii), (iii), and (iv), within 30 days after the effective date of this section and Appendix R to this part. Licensees shall submit design descriptions of modifications needed to satisfy Section III.G.3. of Appendix R to this part within 30 days after the effective date of this section and Appendix R to this part.

(d) Fire protection features accepted by the NRC staff in Fire Protection Safety Evaluation Reports referred to in paragraph (b) of this section, and supplements to such reports, other than features covered by paragraph (c), shall be completed as soon as practicable but no later than the completion date currently specified in license conditions or technical specifications for such facility, or the date determined by subdivisions (d)(i) through (d)(iv), which ever is sooner, unless the Director of Nuclear Reactor Regulation determines, upon a showing by the licensee, that there is good cause for extending such date and that the public health and safety is not adversely affected by such extension^s. Extensions of such date shall not exceed the dates determined by subparagraphs (c)(i) through (c)(iv).

(i) Those fire protection features that involve revisions of administrative controls, manpower changes, and training shall be implemented within 4 months after the date of the NRC Staff Fire Protection Evaluation Report accepting ~~or~~^{OR} requiring such features.

(ii) Those fire protection features involving installation of modifications not requiring prior approval or plant shutdown shall be implemented within 12 months after the date of the NRC Staff Fire Protection Safety Evaluation Report accepting or requiring such features.

(iii) Those fire protection features, including alternate shutdown capability, involving installation of modifications requiring plant shutdown shall be implemented during the first refueling outage, other planned outage that lasts for at least 60 days or unplanned outage that last for at least 120 days, that begins 9 months or more after the date of the NRC Staff Fire Protection Safety Evaluation Report accepting or requiring such features.

(iv) Those fire protection features involving dedicated shutdown capability requiring new buildings and systems shall be implemented within 30 months ~~of~~ NRC approval. Other modifications requiring NRC approval prior to installation shall be implemented within 6 months after NRC approval.

2. A new Appendix R to 10 CFR Part 50 is added to read as follows:

APPENDIX R - FIRE PROTECTION PROGRAM FOR NUCLEAR POWER FACILITIES

I. INTRODUCTION AND SCOPE

This Appendix applies to licensed nuclear power electric generating stations. With respect to certain generic issues for such facilities it sets forth fire protection features required to satisfy Criterion 3 of Appendix A to this part.^{6/}

Criterion 3 of Appendix A to this part specifies that "Structures, systems, and components important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions."

When considering the effects of fire, those systems associated with achieving and maintaining safe shutdown conditions assume major importance to safety because damage to them can lead to core damage resulting from loss-of-coolant through boil-off.

The phrases "important to safety," or "safety related," will be used throughout this Appendix R as applying to all safety functions. The phrase "safe shutdown" will be used throughout this Appendix R as applying to both Hot and Cold Shutdown functions.

Because fire may affect safe shutdown systems, and because the loss of function of systems used to mitigate the consequences of design basis accidents under post-fire conditions per se does not impact public safety, the need to limit fire damage to systems required to achieve and maintain

^{6/} See footnote 4.

ENCLOSURE 4

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

Fire Protection Schedules for Operating Nuclear Power Plants

AGENCY: U. S. Nuclear Regulatory Commission

ACTION: Final Rule

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to temporarily suspend completion schedules for certain fire protection features in operating nuclear plants.

EFFECTIVE DATE: [Effective upon publication in the Federal Register.]

FOR FURTHER INFORMATION CONTACT: William Shields, Office of Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, phone 301-492-8696.

SUPPLEMENTARY INFORMATION: On May 29, 1980, the Commission published in the Federal Register (45 Fed. Reg. 36082) a Notice of Proposed Rulemaking entitled "Fire Protection Program for Nuclear Plants Operating Prior to January 1, 1979." The proposed rule provided that all fire protection modifications except alternate or dedicated shutdown capability would be required to be implemented by November 1, 1980, unless the Commission approved an extension for good cause. This deadline was also stated in the Commission's May 27, 1980 Memorandum and Order on the Union of Concerned Scientists Petition for Emergency and Remedial Action. 11 NRC 707, 719.

Many of the commenters on the proposed rule contended that the November 1 deadline was unachievable. Moreover, much more time than was earlier anticipated has been required to prepare a final rule on fire protection. Although the final rule is near completion, and will incorporate an

implementation schedule different from that in the proposed rule, it has not yet been published and in any event would not be effective until 90 days after publication.

Certain NRC licensees, however, are at present operating under license conditions or technical specifications thereto which include the November 1 deadline or other dates which will precede the effective date of the final rule. To the extent that these licensees have been unable to complete all of the fire protection measures to which these deadlines apply, continued operation would violate the license conditions. The violation would extend only until the final rule becomes effective, since the implementation schedule contained in the final rule will supersede inconsistent license conditions. The Commission has determined, based upon a review of the entire record in this rulemaking, that relief from these license conditions is appropriate pending promulgation of the final rule on fire protection applicable to all NRC licensees. Extensive fire protection measures have already been implemented at all operating plants. The implementation schedule of the final rule will be uniform and comprehensive, and will apply to all operating plants including those with different schedules contained in license conditions. No public health and safety interest would be served by forcing only those licensees unable to meet deadlines preceding the effectiveness of the final rule to shut down for the brief interim. To the contrary, the fire protection measures already implemented give reasonable assurance that all operating nuclear plants may continue to operate safely even though the final rule will require additional fire protection measures at many plants.

The Administrative Procedure Act provides that a rule may be effective upon publication when that rule "grants or recognizes an exception or relieves a restriction." 5 U.S.C. 553(d)(1). This rule relieves certain NRC licensees from license conditions or technical specifications thereto in regard to fire protection implementation deadlines, and will therefore be effective upon the date of publication in the Federal Register. Furthermore, as noted above, the proposed rule stated that extensions from the November 1 deadline would be considered for good cause. Extensive public comment was received to the effect that the deadline was unrealistic and should be revised. Under these circumstances the Commission believes that there is good cause for an extension of the license condition schedules pending effectiveness of the final rule on fire protection.

The rule provides that all compliance dates contained in license conditions or technical specifications for required fire protection measures are suspended pending further action by the Commission. As is clear from the above discussion, that further action will be promulgation of the final rule on fire protection. The Commission intends that licensees affected by this rule should use best efforts to complete all required measures as soon as possible despite the suspension of the deadlines for this brief period.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and Section 552 and 553 of Title 5 of the United States Code, notice is hereby given that the following amendment to Title 10, Chapter I, Code of Federal Regulations, Part 50, is published as a document subject to codification.

PART 50 - DOMESTIC LICENSING OF
PRODUCTION AND UTILIZATION FACILITIES

1. A new Section 50.48 is added to read as follows:

50.48 Fire Protection Schedules

To the extent that any facility's license conditions or technical specifications incorporate compliance dates for modifications necessary to provide fire protection features proposed by a licensee and accepted by the NRC staff as satisfying the provisions of Appendix A to Branch Technical Position BTP/APCSB 9.5-1 and reflected in NRC staff Fire Protection Safety Evaluation Reports issued prior to the effective date of this rule, those dates are hereby suspended pending further action by the Commission.

(Sec. 161b, Pub. Law 83-703, 68 Stat. 948; Sec. 201, Pub. Law 93-438, 88 stat. 1242 (42 U.S.C. 2201(b), 5841).)

Dated at _____ this _____ day of _____ 198_.

For the Nuclear Regulatory Commission.

Samuel C. Chilk
Secretary of the Commission

ENCLOSURE 5

Possibly add as Subsection (c)(vi) on page 37a

TOLLING OF COMPLETION SCHEDULE

In the event of a request for exemption from the requirement to comply with one or more of the provisions of Appendix R filed within 30 days of the effective date of this rule that is based on an assertion by the licensee that such required modifications would not enhance fire protection safety in the facility, or that such modifications may be detrimental to overall facility safety, the schedule requirements of paragraph (c) shall be tolled until final Commission action on the exemption request upon a determination by the Director of Nuclear Reactor Regulation that the licensee has provided a sound technical basis for such assertion that warrants further staff review of the request.