

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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THREAT REEVALUATION

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NUCLEAR REGULATORY COMMISSION

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BRIEFING ON STATUS OF DESIGN BASIS
THREAT REEVALUATION

- - - -

PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland

Thursday, June 24, 1993

The Commission met in open session,
pursuant to notice, at 10:00 a.m., Ivan Selin,
Chairman, presiding.

COMMISSIONERS PRESENT:

IVAN SELIN, Chairman of the Commission
JAMES R. CURTISS, Commissioner
FORREST J. REMICK, Commissioner
E. GAIL de PLANQUE, Commissioner

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STAFF SEATED AT THE COMMISSION TABLE:

WILLIAM C. PARLER, General Counsel

JOHN HOYLE, Assistant Secretary

JAMES TAYLOR, Executive Director for Operations

THOMAS MURLEY, Director, NRR

ROBERT BURNETT, Director, Fuel Cycle Safety and
Safeguards Division, NMSS

FRANK CONGEL, Director, Division of Rad. Protection
and Emergency Preparedness, NRR

MIKE SMITH, Chief, Operations Branch, NMSS

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P-R-O-C-E-E-D-I-N-G-S

10:00 a.m.

CHAIRMAN SELIN: Good morning, ladies and gentlemen.

First we should congratulate Mr. Burnett on the raid he staged this morning, just to increase the interest in our meeting today, which as you all know has to do with the briefing by the staff on a recommendation regarding possible modification of the design basis threat to include vehicles and vehicular bombs.

Following the intrusion at the Three Mile Island facility and the bombing of the World Trade Center, the Commission requested the staff to reevaluate and, if necessary, to update the design basis threat for vehicle intrusion and the use of vehicular bombs. We were briefed in April of this year and gave some guidance to the staff about options and directions to follow in continuing the evaluation and we approved that the final decision should be held off until a public meeting was held and there was -- such a meeting was held on May 10th.

Today's meeting serves as a means for the staff to explain directly to the Commission what options are being considered. By this means the

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1 Commission hopes to gain a better understanding of the
2 staff's recommendations.

3 I would like to note the developments
4 this morning in New York where the FBI arrested a
5 number of individuals. Media reports indicate that
6 the individuals were involved in a conspiracy to
7 murder public officials and to bomb public facilities.
8 The NRC has been in contact with the FBI this morning.
9 We continue to monitor closely developments relating
10 to these latest arrests. We're watchful for any
11 developments regarding NRC licenses and are prepared
12 to take appropriate and timely steps as warranted.

13 I understand that copies of the
14 viewgraphs are available at the entrance to the room.

15 Commissioners, you do have any remarks?

16 Mr. Taylor, you may proceed.

17 MR. TAYLOR: Good morning.

18 Mr. Chairman, you noted that we had had
19 a previous meeting with the Commission and also a
20 public meeting. At our previous meeting we discussed
21 various options on the subject without making any
22 recommendation. In a paper which we provided to you
23 on the 14th of June, we developed the options we had
24 previously discussed and one refinement of the
25 options, which we prefer to call Option 5, which we'll

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1 discuss today.

2 Today we are in a position of from the
3 staff giving the Commission a specific recommendation.
4 Some of the information in support of what the staff
5 has done is safeguards material and we will avoid
6 trying to discuss anything that is safeguards and
7 classified in this meeting.

8 With those thoughts, I'll ask Bob Burnett
9 to continue.

10 MR. BURNETT: Just a little further
11 caution. There were provided with the staff paper two
12 enclosures, 7 and 8, which are classified information
13 and there is a tendency since we've all read that to
14 inadvertently use it in our discussion. I'll be
15 particularly careful to try to avoid that.

16 Today's meeting is really a continuation
17 of the April 22nd meeting to address the design basis
18 threat for radiological sabotage at power reactors.

19 (Slide) Specifically, I would like to be
20 addressing the subjects shown on slide 1. Would you
21 put up slide 1, please?

22 These are almost the exact same agenda
23 items that we had in April, but in addition we will
24 culminate with specific staff recommendations in this
25 case.

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1 (Slide) Slide 2, please.

2 During the April meeting I informed the
3 Commission that a gag order was in place on all
4 information around the World Trade Center bombing.
5 That gag order has now been lifted. However, the FBI
6 has chosen not to make any additional information
7 available. So, I have no additional information to
8 augment our knowledge basis at this time.

9 As you'll remember, the staff was
10 directed to reevaluate the design basis threat because
11 of these two incidents, the incidents at Three Mile
12 Island and the World Trade Center. On March 11th,
13 1993, staff outlined a two-phased program to
14 reevaluate the design basis threat. Phase 1 was to
15 reevaluate whether the threat should be modified to
16 include an adversary use of a vehicle and possible
17 containment of a bomb on that vehicle. Phase 2,
18 you'll remember, were to look at the other attributes
19 of the design basis threats, that is the number of
20 attackers, the weaponry, the motivation and those
21 types of attributes. That effort will not be
22 completed until December of this year and will be
23 forwarded to the Commission at that time.

24 Also at the April meeting we discussed
25 four possible options that staff had under

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1 consideration but, as Jim said, delayed our
2 recommendation until we had the advantage of meeting
3 with the public.

4 (Slide) Next slide, please.

5 Holding a public meeting to solicit
6 public input on the design basis threat was a rather
7 new approach for me. I've been in my current position
8 for 16 years and I must admit I went into it with some
9 degree of trepidation, but with a great deal of
10 interest. I normally receive a lot of calls from
11 public interested and different groups on what we're
12 doing and where we're going, so I pretty well expected
13 a large turnout. I was surprised that only 150 showed
14 up at the meeting, but it did include the right
15 people, industry, Committee to Bridge the Gap, Nuclear
16 Control Institute, and a citizen from the Three Mile
17 area.

18 We were informed by NUMARC that they
19 would represent the nuclear reactor industry and speak
20 for them, so that each facility would not be
21 commenting on each of our questions.

22 The meeting started out rather well, I
23 think. To begin with, all parties agreed that
24 reexamination of the design basis threat was
25 warranted. However, I learned very rapidly but for

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1 different reasons. Public interest representatives
2 stated that the design basis threat was inadequate and
3 should be raised to consider both vehicles, vehicle
4 bombs, number of attackers, different and increased
5 weaponry, et cetera; where industry representatives,
6 on the other hand, felt that the existing threat
7 statements was too paramilitary and did not represent
8 the real threat directed to nuclear reactor community
9 in the United States, which shows some confusion on
10 the way we use the design basis threat and I would
11 like to specifically hit that in a few slides.

12 In addition, the Commission had asked us
13 to put together the best cost estimates that we could,
14 knowing that industry had employed certain vehicle
15 denial systems already at a few of the sites and we
16 could get our hands on real good data. However,
17 during that meeting, that data was not available, but
18 NUMARC did note that they would provide it at a later
19 date. In accordance with their word, they did. On
20 May the 27th we received a letter which is included as
21 Enclosure 2 to the Commission paper.

22 I would like to also note that it was not
23 possible to convene what I'd say a consensus on what
24 the two incidents that had triggered this evaluation,
25 on what those incidents really meant. I will talk

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1 more specifically about that in slide 4, please.

2 (Slide) The Committee to Bridge the Gap
3 and the Nuclear Control Institute both felt that the
4 two incidents demonstrated that the design basis
5 threat was out of date and inadequate. Also, they
6 felt that the present method of creating and changing
7 the design basis threat was wrong because it depended
8 on trends noted in worldwide incidents and failed to
9 identify one-of-a-kind incidents that had not yet
10 occurred.

11 The industry, on the other hand, felt
12 that there was no credible threat directed to the
13 nuclear reactor community and buffeted their statement
14 by reference to the recent FBI report, which I have
15 with me if any of you all care to peruse through it.
16 But the important part of the report tracks incidents
17 in America that have occurred from 1987 to 1991. In
18 1987, the FBI attributed nine events to terrorism. In
19 '88, nine more. In '89, four. In '90, seven, and in
20 '91, five. The industry felt that that was a downward
21 trend and that should be taken into account.
22 Additionally, they did not see that the TMI and the
23 World Trade Center incidents were related to terrorism
24 directed at nuclear reactors. The TMI incident
25 certainly wasn't the act of terrorism. The World

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1 Trade Center had not been attributed to terrorists
2 yet, nor was it directed towards the reactor
3 community. Also, they noted that there'd been no
4 linkage between these two incidents and also they
5 called our attention to the fact that terrorists on a
6 worldwide basis had never attacked such a hardened
7 target as a nuclear power reactor.

8 (Slide) Slide 5, please.

9 I mentioned earlier some
10 misunderstandings between what we would call the real
11 threat in America and the design basis threat. So, I
12 think maybe a few words are in order to better
13 articulate the relationship between these two threats.
14 The design basis concept was created to do several
15 things. It was to serve as a standard to note change.
16 It was to be used to develop the regulatory
17 requirements, that is to define the capabilities of a
18 security system and to provide a standard for
19 evaluations. It was not a statement of the actual or
20 real threat present in America directed towards the
21 reactor community.

22 Since it takes so much time to implement
23 new security precautions and that a real threat could
24 generate in a rapid fashion, the design basis threat
25 is a level of protection that is required above the

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1 real threat to account for the dynamics that could
2 occur in a developing threat. The actual threat in
3 America agreeably, according to all information, is
4 low. It's the best way to think about these two
5 threats, as the difference between the real threat,
6 that is what we have seen at reactors, and the design
7 basis threat is separated by an area that we and the
8 staff call the margin of prudence.

9 (Slide) Could I have backup slide 1,
10 please?

11 COMMISSIONER REMICK: Is that a new term
12 or is that an existing term?

13 MR. BURNETT: Let's say over the years
14 that difference has been called many things. Okay.
15 I personally have referred to it as a margin of
16 safety, but that term got confused with the same term
17 used more in the safety in reactors world. I have
18 called it prudence, but lately we felt that this best
19 demonstrated what it was.

20 What this graph is attempting to show is
21 the left-hand side you have the actual threat, which
22 is characterized as low, and the hypothetical threat
23 which is the design basis threat, which is somewhat
24 higher in relative terms. As you move to the right,
25 we have the TMI intrusion and we've had the World

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1 Trade Center. So, what we've tried to show is that
2 we have to integrate those two new tools into the
3 design basis threat so that we reestablished this
4 comfort level or the margin of prudence. This is how
5 staff has worked for years and years, however the
6 words have changed.

7 I want to make clear at this point, this
8 is not to say that we expect a truck bomb threat at a
9 reactor in the near future. What we're trying to say
10 that it's somewhat more likely now because of these
11 two events that if a threat was to develop in America,
12 it most likely would utilize a vehicle and contain an
13 explosive.

14 Also, up to this point, we have given
15 greater credit to the ability of the law enforcement
16 organizations to interdict a would-be saboteur of this
17 type, just as it was done today. However, in the case
18 of the World Trade Center, that demonstrated that
19 large quantities of explosives, which has been
20 estimated between 500 and 1500 pounds, were
21 accumulated by anywhere from four to ten people and
22 was delivered without detection of law enforcement.
23 Therefore, the contingency planning requirements that
24 we now have in place at our reactors cannot be
25 considered quite as effective as we did some time ago.

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1 That started staff in a detailed analysis of truck
2 bombs worldwide. I'd like to note at this time that
3 approximately ten percent of the bombs that we
4 studied, which were 500, were in ranges above 500
5 pounds and that five percent of those bombs were in
6 quantities in excess to 1,000 pounds, and that three
7 of these larger weapons have gone off and directed at
8 targets in America. A 1400 pound bomb was created and
9 delivered to the IRS building out west. Fortunately
10 it did not go off, but it was not detected beforehand.
11 A 1275 pound bomb was exploded at the University of
12 Wisconsin in the early '70s and, of course, the World
13 Trade Center, which is estimated to be between 500 and
14 1500 pounds.

15 (Slide) Next slide, please.

16 During the April meeting the Commission
17 requested that we solicit the best cost data that was
18 possible utilizing industry input. Again, as I said,
19 the NUMARC did provide us with very important data and
20 we do appreciate it in their May 27th, 1993 letter.
21 That data was combined with data available to the
22 staff and has aided us in developing and fine tuning
23 the costs of the options that were presented during
24 the April meeting. I'll run down these just very
25 quickly.

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1 Option 1, which was to do nothing. It
2 costs \$25,000.00 to \$150,000.00 for the original
3 designs and about \$4,000.00 a day to implement if the
4 contingency planning was called upon.

5 Option 2, which is protection with an
6 active barrier of the entry points with some
7 protection on either side, was estimated between \$200K
8 and \$400K assuming four active barriers and 800 feet
9 of passive barriers, which would give you 100 feet on
10 either side of the entry gate times four.

11 Option 3 was all of the above in 2, but
12 protect the entire perimeter. That was been
13 established at something between \$300K and \$2.9
14 million, and took a rough estimate of 7,000 feet of
15 passive barrier to come up with those numbers.

16 (Slide) Option 4 is \$400K to \$4 million
17 with all the same assumptions.

18 Please note that these estimates vary
19 widely and that's because there's so many variations
20 between our sites. The length of the perimeters, the
21 type of soil that the facilities are built upon, and
22 depending on which size vehicle is ultimately
23 selected.

24 (Slide) I'd like now to skip up to slide
25 8.

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1 The recommended approach would require
2 reactors to protect against a design basis vehicle
3 with an explosive at their existing protected area
4 boundaries. The staff would develop criteria that
5 could be used by the reactor licensee to determine how
6 much protection was provided by stopping the vehicle
7 at that point. It is estimated by NRR that total
8 protection against the design basis vehicle that was
9 identified in Enclosure 8 and provided to the
10 Commission under separate cover would be achievable at
11 80 to 90 percent of the reactor sites. However, that
12 leaves something like 10 to --

13 CHAIRMAN SELIN: Without having to move
14 fences or --

15 MR. BURNETT: Without having to do
16 anything but put the new requirement at the existing
17 fences.

18 CHAIRMAN SELIN: In other words, Option
19 3 applied across the board would, by itself, meet
20 Option 5 requirements --

21 MR. BURNETT: Yes, sir.

22 CHAIRMAN SELIN: -- for 80 to 90 percent
23 of the sites?

24 MR. BURNETT: That is exactly the way to
25 say it.

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1 However, there are some sites that from
2 our analysis we believe that putting the barrier at
3 that point will not give complete protection against
4 the design basis vehicle and weapon that has been
5 articulated in Enclosure 8. For those sites, we would
6 allow in our rule that the site would have a choice of
7 providing substantial barriers to deflect a blast or
8 extend beyond their existing protected area fences
9 just the vehicular denial portion, which would be a
10 concrete barrier Jersey bounces or decorative pots or
11 a trench, an S-curve trench just on the side where
12 they have trouble with standoff distances to vital
13 equipment. Or they could yet present a case to this
14 Commission showing that they could achieve almost
15 total protection or significant protection, which we
16 will use the word, and that to get total it would
17 require a disproportionate amount of money for the
18 added protection that would result.

19 So, the rules that we would write, and we
20 have examples of it here today, would make that type
21 of a cost benefit tradeoff possible. This approach
22 would provide complete protection against the TMI type
23 incident and would give us a cost effective response
24 to the vehicle bomb. Estimates for Option 5, which we
25 are calling this, would add about \$50,000.00 to Option

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1 3, which the Chairman just related it to, to do this
2 added analysis and submissions.

3 CHAIRMAN SELIN: For those --

4 MR. BURNETT: For those limited --

5 CHAIRMAN SELIN: -- ten to 20 percent of
6 the sites?

7 MR. BURNETT: Actually, let's keep it in
8 the five to ten area.

9 COMMISSIONER de PLANQUE: But that's for
10 the analysis and submission, not for taking any
11 option.

12 MR. BURNETT: For those five to ten.

13 MR. TAYLOR: The staff would expect the
14 licensee to submit such analyses. We would then
15 review --

16 MR. CONGEL: Excuse me. I think we have
17 it the other way around. For those sites that can
18 easily demonstrate conformance, it would cost
19 \$50,000.00 more than Option 3. It's the five to ten
20 percent of the sites that it's not clear that you
21 would have to do analysis that could range to some
22 higher value.

23 CHAIRMAN SELIN: I see.

24 COMMISSIONER REMICK: Not only analysis,
25 but perhaps changes.

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1 MR. CONGEL: Perhaps.

2 MR. BURNETT: Yes, perhaps changes. I'm
3 glad he cleared that up for me. And it is correctly
4 stated in our Commission paper.

5 COMMISSIONER CURTISS: Bob, could I just
6 pursue a detail here? Option 3, as I understand it,
7 would require vehicular intrusion protection around
8 the entire protected area perimeter, the effect of
9 which would be to enable a license to rebuff a vehicle
10 intrusion of the specified size around the entire
11 perimeter of the site.

12 MR. BURNETT: Yes, sir.

13 COMMISSIONER CURTISS: If I could draw
14 your attention --

15 MR. BURNETT: But keep in mind that that
16 inherently at about 90 percent of the sites will give
17 you adequate standoff range for a contained weapon in
18 that vehicle.

19 COMMISSIONER CURTISS: Yes, I understand
20 that. Page 7 of the SECY paper -- I'll wait until you
21 find the page, because I'm going to refer to it. The
22 paragraph that begins, "Sites not meeting these
23 criteria --"

24 MR. BURNETT: Yes.

25 COMMISSIONER CURTISS: "-- would have

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1 choices that would include," and here's the language
2 that I don't understand, "using more substantial and
3 expensive barriers for a portion of their protected
4 area to reduce vehicle penetration." Now, do I
5 understand Option 3 to say the adoption of that alone
6 will reduce vehicle penetration and are you in turn
7 here talking about more expensive barriers to protect
8 against the effect of the blast at whatever point the
9 protected area perimeter is?

10 MR. BURNETT: Yes.

11 COMMISSIONER CURTISS: So, the purpose of
12 this option here for that site that doesn't meet the
13 criteria is not to reduce vehicle penetration.

14 MR. BURNETT: That's correct.

15 COMMISSIONER CURTISS: You already
16 accomplished that. What you really mean to say here
17 is that the vehicle had reached that point, it had not
18 penetrated the barrier because you've adopted Option
19 3.

20 MR. BURNETT: But there is a subtlety
21 that you have to keep in mind. There are different
22 types of barriers available on the market. Some
23 barriers give with the approaching vehicle and
24 actually will penetrate a fence by 20 or 30 feet.
25 Okay? Others stop the vehicle stone cold at the fence

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1 line. The cheaper ones allow a small amount of
2 penetration. All right.

3 COMMISSIONER CURTISS: Which ones would
4 we permit, I guess is the key question?

5 MR. BURNETT: Well, either. Let's say he
6 has a lot of standoff range and the 30 foot wouldn't
7 bother him. Okay? So then he stops the vehicle and
8 he's still protected against the design basis
9 explosive. However, at some sites, we anticipate the
10 leeway will be much closer. He will have to keep a
11 better control on penetration distances.

12 COMMISSIONER CURTISS: The intent of
13 Option 5, if adopted, the result of it would be that
14 at all of the sites around the entire perimeter you're
15 recommending that the licensee be able to rebuff a
16 vehicle penetration with a vehicle of the specified
17 size?

18 MR. BURNETT: That is correct. The truck
19 would be stopped in all cases. It's only the
20 variability would only be addressed to the contained
21 bomb.

22 CHAIRMAN SELIN: That's not really what
23 this says. What this says is that if you have a site
24 where it's particularly expensive to get the surrogate
25 for protecting the site, namely a reasonable standoff

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1 distance, we would entertain an analysis that says
2 that, yes, it would be very expensive. Not half a
3 million, but maybe \$5 million to get the standoff
4 distance, and yes, a truck perhaps could get onto the
5 site, but we would look in much more detail at the
6 actual buildings and the actual hardness and the
7 actual systems and just as we do with Charpy tests and
8 a lot of other tests, that we would entertain an
9 analysis that said, the plant is actually safe but you
10 can't do it with a once over lightly \$50,000.00
11 analysis. In a situation where the licensee were
12 faced with much larger costs than the average, he
13 might take on these costs or he might convince us with
14 a second order, much more detailed analysis, that
15 really there isn't a problem there, not because of
16 rough standoff distance based on generic engineering,
17 but because of the particular geometry of that plant.

18 MR. BURNETT: Oh, I agree. I thought we
19 were saying that.

20 CHAIRMAN SELIN: But conversely, if he
21 can't convince us of that, he's going to have to fix
22 something. Right?

23 MR. BURNETT: That's it. I was trying to
24 convey that exact same thing. Maybe didn't do it
25 quite as well.

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1 COMMISSIONER de PLANQUE: But then
2 whether or not you require the fix depends on your
3 assessment of the cost and whether the costs are
4 disproportionate to the benefit.

5 MR. BURNETT: Correct.

6 COMMISSIONER de PLANQUE: Are you going
7 to discuss what criteria or how you would do that?

8 MR. BURNETT: Okay. Now, we're
9 discussing the philosophy of this new change. If the
10 Commission approves this approach, we have to write
11 all of the supporting guidance and criteria. That has
12 not been done yet.

13 CHAIRMAN SELIN: Excuse me. I don't
14 think that statement was accurate. What the statement
15 says, this is a backfit analysis. It's a cost benefit
16 analysis and therefore we entertained the possibility
17 that in some plant the cost of getting the same level
18 of security as we would get at the other 90 or 95
19 percent is just not worth it. What the language says
20 at the bottom of the page Commissioner Curtiss quoted
21 is, "The staff will accept close alternative measures
22 if they provide substantial protection, et cetera, and
23 the costs of fulling meeting design goals and criteria
24 disproportionate with the added protection which would
25 be provided." In other words, we do recognize the

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1 possibility that one or two or three of these plants
2 may have a lesser degree of protection than --

3 MR. BURNETT: Yes, sir.

4 CHAIRMAN SELIN: -- all of the others, if
5 the costs of getting that protection are not
6 consistent with the benefit of additional protection.
7 So, it's really a three step option, if I understand
8 it. First you do this quick analysis, this
9 \$50,000.00. Are you in the ball park or not? The
10 second, if you're not in the ball park, then you do a
11 more detailed analysis, including some very specific
12 countermeasures if necessary, taking into account what
13 we really know about the plant to get better security.
14 And the third, for a couple of these plants, we may be
15 in a position where the licensee convinces the staff
16 that's the best we can do without an enormous
17 expenditure and then that expenditure is not
18 worthwhile.

19 MR. BURNETT: Absolutely.

20 CHAIRMAN SELIN: At which point
21 Commissioner de Planque's question, I think, is
22 perfectly relevant, which is what's the ball park that
23 we're talking about before we decide the costs are
24 disproportionate with the --

25 MR. BURNETT: And by the way, this has

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1 been raised by every reader of our document, including
2 us who wrote it.

3 CHAIRMAN SELIN: Right.

4 MR. BURNETT: But, you know, we were
5 working on a time schedule to come up with the
6 recommendation on the design basis threat. We all
7 know that we have a significant task ahead of us to
8 write this criteria. It would be included in a
9 proposed rule which would be briefed to the
10 Commission. So, we will all fine tune it and get it
11 right.

12 (Slide) I think that if you went to
13 backup slide 4 that is in your package, I think this
14 is the actual rule change that we would anticipate at
15 this time would be incorporated in 73.55, which is the
16 implementation section of security to protect against
17 the design basis threat.

18 COMMISSIONER CURTISS: Bob, let me pursue
19 the question that Commissioner de Planque has raised,
20 and there are actually two aspects of this, one I'd
21 like to come back to in a minute. You have pointed
22 out in the SECY paper itself that the concept of the
23 design basis threat has traditionally been associated
24 with adequate protection. I guess there was one
25 exception when we had a generic letter that we issued

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1 that was an enhancement. But that's the issue I want
2 to come back to at some point in just a moment.

3 What you're proposing here is an
4 enhancement as we understand that term in the context
5 of the backfit regime. It's not an adequate
6 protection issue, it's an enhancement. I guess I'm
7 curious here with the language that you have proposed
8 to employ in determining whether the costs are
9 justified by the benefits. The staff will accept the
10 proposed alternative measures if they provide
11 substantial protection against the land vehicle bomb
12 and the costs of fulling meeting the design goals and
13 criteria are disproportionate with the added
14 protection which would be provided.

15 Why is it that we haven't simply employed
16 or adopted the 50.109 backfit standard here for
17 purposes of evaluating what a licensee has to do?
18 After protecting the perimeter with essentially what
19 is Option 3, why haven't we said, from that point
20 forward for those five to ten percent of the licensees
21 that may have problems with standoff distance, we're
22 going to employ the garden variety backfit standard
23 that we've got in 50.109 as opposed to the language
24 that you've got here?

25 DOCTOR MURLEY: First, let me say that

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1 the backfit analysis that's done for this rule
2 change -- I'm sure you understand that every plant
3 that's subject to this rule change, we don't have to
4 do a plant by plant analysis to show a regulatory
5 analysis for each plant. We've done it generically
6 and we've satisfied ourselves that generically the
7 backfit test is met for this rule.

8 Now, I think your question is fine if
9 you've done it generically. Why not apply it then --
10 for those few plants that might not meet it, why not
11 apply the same cost benefit criterion? The answer is
12 we don't have a good answer at this stage, except we
13 know it's going to be very difficult to quantify the
14 radiological savings from this rule. So, I guess --
15 and that's what you have to do in order to get a
16 dollar per man rem saved from the backfit criterion.

17 I am reluctant to get into that, quite
18 frankly, because I don't think -- there is not a good
19 estimate for the probability or the frequency of the
20 sabotage event or terrorist event and that's what you
21 have to do if you're ultimately going to get these
22 frequency numbers. I would rather come back to the
23 Commission, I think, with a range of options. This
24 may be one. But to me this is almost the worst option
25 because it gets you into a murky probabilistic area

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1 that I don't think there are any answers to.

2 COMMISSIONER CURTISS: I share the
3 concern that you have with some of the difficulties
4 that would attend applying the typical backfit
5 standard to this determination. What you're
6 essentially saying, as the Chairman has described, is
7 protect the entire perimeter. The Option 3, everybody
8 has to do that and that can be done at the costs that
9 you estimate. You've done the backfit analysis for
10 that or will and concluded that that's a reasonable
11 step to require. Then when you get to the point of
12 assessing whether there are plants, and I gather there
13 may be five to ten percent of them where protection of
14 the perimeter nevertheless would permit a vehicle
15 laden with a bomb to reach a point where, because
16 there's not sufficient standoff distance you'd affect
17 the safety performance of the plant, then the
18 licensee, I guess, is under this approach. I'm really
19 simplifying it. Has the option of saying, "We think
20 it's more expensive to move our protected area
21 perimeter way out past where it is currently," or, "We
22 think it's much more expensive than the benefit that
23 would accrue to taking a variety of other steps."

24 I do realize that the backfit regime as
25 it exists under 50.109 does contain constraints and

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1 maybe some difficult concepts to apply here. But at
2 the same time I'm troubled by the notion that the
3 standard here for assessing whether to make a change
4 or not is are the costs disproportionate. It's a
5 highly judgmental standard, it seems to me, and in
6 analyzing whether one believes the costs are or are
7 not disproportionate, I'm not left with any standard
8 that one would apply and I think it's really at the
9 heart of Commissioner de Planque's question. What
10 standard would we apply in determining on these
11 specific five to ten percent of the plants that
12 additional steps ought to be taken? Is it a dollar
13 amount that we ought to settle on, \$2, \$3 million? Is
14 it --

15 DOCTOR MURLEY: Ultimately that's what it
16 will be, yes. But we haven't done the necessary
17 homework and options that are needed to come up with
18 such a number.

19 CHAIRMAN SELIN: I'm actually very taken
20 by this analysis, but the approach is very sensible
21 and good solid engineering. But when you finally do
22 get down to that last two percent, you do have a
23 problem and the question is how comfortable can we be
24 going forward with that problem? Basically, if I
25 might paraphrase what you're saying, nobody -- this is

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1 design basis threat. It's not a relative frequency
2 threat. Nobody can put a probability on all these
3 pieces. So, we're saying in order to get a margin of
4 prudence, the new term of art, we ought to do things
5 if they're pretty straightforward, and if they're not,
6 guarding against ridiculous threats. That takes care
7 of, say, 85 percent of the sites.

8 The next step says, well, let's do a more
9 detailed analysis for the ones where the surrogate
10 doesn't work, without setting out in advance how much
11 would be willing to spend. We look at the numbers and
12 we say, they're so low that a wide range of
13 sensitivities to the threat would still come to the
14 conclusion that we should do something like your
15 Option 5, and then a second set of guidance that says,
16 well, we also fall and we have to do more detailed
17 analysis and maybe we have to move some fences out.
18 We don't have to cross state highways. So, it's a
19 little more expensive, but we're still in the same
20 ball park.

21 Then you're left with a couple of people
22 who really are literally between a highway and a hard
23 place. They just don't have the geography to move the
24 fences out or for some other reason they can't do it,
25 and instead of arbitrarily saying, "What will it take

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1 to satisfy us," an analysis where you posit a relative
2 frequency out of thin air and then calculate it in
3 great detail or you set in advance how much is it
4 worth for us to protect against an unlikely threat,
5 you're basically saying, well, let's see what they
6 come in with and we'll try to figure out something
7 that all parties can agree to --

8 DOCTOR MURLEY: The way I view it, Mr.
9 Chairman, is this allows them the capability -- if
10 they don't meet the literal words of the standoff
11 distances from their protected area boundary, they've
12 got the option of several things. The obvious one is
13 they can buy up some land or whatever and extend --
14 but they could also build a sacrificial kind of a
15 wall.

16 CHAIRMAN SELIN: A berm or something.

17 DOCTOR MURLEY: They could do 3-D finite
18 element analysis of reinforced concrete and convince
19 us that the equipment is going to hold up and that's
20 how I view this --

21 CHAIRMAN SELIN: Yes. The trouble is
22 that a couple of guys will come in and just say,
23 "There's nothing reasonable for us to do, and it's
24 hard for us in advance to agree on what we mean by
25 reasonable." It's not an unusual problem, but I think

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1 that's really what the problem is.

2 MR. BURNETT: But, you know, there is
3 other support for this type of approach. Remember
4 when we select a design basis explosive, and I'm just
5 going to call it X, this is a subjective analysis
6 based on many, many events and I have intelligence, I
7 have events and I have opinions. We meld all that
8 together in a mixing pot and then I come up with a
9 design basis explosive. I don't think that that thing
10 should be chiseled in stone. I mean somebody could
11 come in higher or lower. There's some probability on
12 either way. So, from my perspective, I could support
13 this type of a tradeoff because of the uncertainties
14 even in the identification of the bomb.

15 Suppose a site gives you 75 percent
16 protection of X. Then we've got to look at that. Say
17 it costs 500 percent more to get the next 25 percent.
18 That obviously is disproportionate. Now, you're going
19 to get down, as the Chairman says, to these ones right
20 around the line. I hate to say it, but we're just
21 going to have to sit down with a reason and with other
22 reasonable men and work it out.

23 COMMISSIONER CURTISS: Let me make a
24 couple of suggestions here because perhaps we're left
25 with doing exactly that. It does seem to me that it's

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1 worthwhile trying to articulate in advance some sort
2 of standards, and particularly as you move beyond the
3 comfort of 50.109, which we know well and which has
4 been applied and used and perhaps not appropriate
5 here, but to articulate in advance some sort of
6 standard that you would employ for defining
7 disproportionate, what is it that we believe a
8 disproportionate cost would be.

9 Secondly, I would encourage you, for what
10 it's worth, to address this issue in the context of
11 some heavy influence from Headquarters. We all have
12 been around to see sites around the country and as you
13 travel from region to region you can see a distinct
14 difference in the approach that's taken to security.
15 Some regions approach security differently than
16 others. I think that's well understood.

17 So, as we get down to the small number of
18 sites that we're talking about here, the five to ten
19 percent, perhaps if we're able to establish some
20 criteria, and then with some strong involvement from
21 Headquarters, maybe that's what we're left with in
22 this context.

23 MR. BURNETT: And that would be in the
24 rule package for public comment when it goes out, our
25 criteria.

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1 DOCTOR MURLEY: Yes. Even though we
2 don't have it today, what we're asking for is the
3 approval for the general concept, but we would intend
4 to develop it.

5 CHAIRMAN SELIN: Oh, you would?

6 MR. BURNETT: Oh, yes. It would be in
7 the rule package, sir.

8 CHAIRMAN SELIN: Something between zero
9 and light, DCN light is the right frequency for this?

10 Go ahead.

11 MR. BURNETT: Should I move on?

12 CHAIRMAN SELIN: Yes.

13 MR. BURNETT: (Slide) Next slide,
14 please, which would be slide 9.

15 The Commission during our last briefing
16 asked the staff to analyze what mechanisms are
17 available to move licensing changes into the licensing
18 world if we felt it warranted. I would like to cover
19 two in particular. There are at least four that
20 comes to mind. We've used the generic letter in the
21 past. We did not feel that that was the right way for
22 this particular package. I would like to talk about
23 the immediate effective rule and an expedited
24 approach.

25 So, slide 9, the immediate effective rule

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1 does have some pros associated with it. It does
2 accomplish the rulemaking portion of this effort as
3 rapidly as it could be done and it shows a very high
4 priority on the subject. However, in order to support
5 an immediate effective rule, the NRC staff would have
6 to justify that we think that the threat is eminent,
7 of an eminent nature, and we do not have that
8 justification today. Therefore, we do not think an
9 immediate effective rule is warranted, which gets me
10 to slide 10, which is expedited rulemaking.

11 (Slide) It has the potential to shorten
12 the time in the rulemaking cycle. It does shorten the
13 public comment period to 30 to 45 days, but we feel
14 that that is still ample for public's interaction. I
15 do note that we have held one public meeting on it
16 already. The industry is very much aware that this
17 agency has been looking at this issue since 1983 and
18 we also think that current events, this was written
19 last night, for expeditious handling are justified.
20 So, the staff will be suggesting that.

21 (Slide) Which gets me to my last slide,
22 slide 11.

23 So, what we've said through our briefing
24 and the package is based on the staff review of the
25 TMI and World Trade Center incidents, we do not

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1 believe that changes to respond to those types of
2 threats should be considered in the sense of adequate
3 protection as Section 182 of the Atomic Energy Act
4 articulates. But we've concluded that Option 5, which
5 significantly increased the protection of the health
6 and safety of the American public and satisfied the
7 elements of backfit.

8 Therefore, the staff is recommending that
9 the design basis threat for radiological sabotage be
10 modified to include a vehicle for transportation of
11 personnel and hand carried equipment and/or
12 explosives. I call your attention to backup slide 2.
13 That is the actual wording that we would put in Part
14 73.1.

15 In addition, we would recommend to modify
16 73.55 to reflect the changes in the design basis
17 threat and allow for consideration of alternative
18 security measures when existing protected area
19 barriers do not provide complete adequate standoff
20 ranges. That's articulated and we've already looked
21 at that in backup slides 3 and 4.

22 We recommend an expedited rulemaking to
23 achieve these changes. We also recommend that the
24 design basis vehicle as described in Enclosure 8 be
25 utilized for this purpose. And lastly, that the staff

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1 continue its phase 2 study based on the Commission
2 approval of Option 5.

3 CHAIRMAN SELIN: Mr. Taylor, what would
4 be the likely schedule? Let's say, just for the sake
5 of argument, that the Commission approved your
6 recommendations within a relatively short time, say a
7 week. What would be the various milestones and in
8 particular at what point would 80 percent of the
9 plants have -- you know, how much time would you give
10 them and the ones that are fairly straightforward, at
11 what point would they have implemented the measures?

12 MR. TAYLOR: Well, we'd have to complete
13 the rulemaking first, and the expedited rulemaking
14 process. I would assume that would take at least
15 several months. Is that right?

16 CHAIRMAN SELIN: You mean to draft the
17 rule and publish it?

18 MR. TAYLOR: Well, we have to publish it.

19 MR. BURNETT: Draft it, publish it.

20 MR. TAYLOR: Develop the type of criteria
21 you've talked about this morning and put that out for
22 public comment and then incorporate public comment.
23 So, you're talking at least a period of months --

24 MR. BURNETT: Yes, sir.

25 MR. TAYLOR: -- to complete a rule.

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1 CHAIRMAN SELIN: Well, how close are you
2 to having a draft rule that you would be ready to
3 publish? Three months?

4 MR. TAYLOR: Well, we've developed a
5 couple of draft -- the actual rule changes, we think,
6 will be --

7 MR. BURNETT: Actually it's the
8 supporting documentation, the guidance to help this
9 tradeoff and the regulatory analysis which will take
10 the time. The actual rule language which we've
11 presented in the backup slides is most likely --

12 CHAIRMAN SELIN: Fine. So, let's say the
13 Commission --

14 MR. BURNETT: -- the rule.

15 CHAIRMAN SELIN: -- today told you to go
16 ahead, just a question of developing a schedule, not
17 as a prediction. How long would it take to put a
18 package together?

19 DOCTOR MURLEY: The backup material that
20 we would need to support going over the draft rules.

21 MR. CONGEL: We had talked about having
22 the portion for NRR analysis done in a four month
23 period, to have a complete regulatory analysis. You
24 also asked a question about implementation --

25 CHAIRMAN SELIN: It would be four months

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1 from today before you'd be ready to publish your
2 package?

3 MR. CONGEL: Based on waiting for more
4 feedback on commitment for feedback from NUMARC. They
5 promise us some more details on especially in the
6 cost. That's the kind of time frame we talked about,
7 sir, yes.

8 CHAIRMAN SELIN: You're going to let
9 NUMARC set the schedule --

10 MR. CONGEL: No, sir.

11 CHAIRMAN SELIN: -- when you've published
12 a package to tell them to -- I don't think that's --

13 MR. TAYLOR: Mr. Chairman, I think we're
14 going to have to come back to you. We're obviously
15 not prepared to --

16 CHAIRMAN SELIN: Okay.

17 MR. TAYLOR: We felt like we should
18 present the recommendations.

19 CHAIRMAN SELIN: The presentation was
20 terrific. Now, there's always the possibility that
21 one actually gets what one recommends, in which --
22 prepared to say what the implications would be.

23 MR. TAYLOR: Glad to get to the ten yard
24 line. But I think we'll have to get back to you with
25 some type of outline of expedited schedules to

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1 complete our work and then the necessary rulemaking.

2 CHAIRMAN SELIN: Up to the point where
3 the 80 to 90 percent of the plants would actually have
4 improvements in place. I'm less concerned with how
5 long the problem plants would take to get --

6 MR. TAYLOR: I think we can probably lay
7 that out in a time line and get back to the
8 Commission.

9 CHAIRMAN SELIN: Commissioner Curtiss?

10 COMMISSIONER CURTISS: I just have one
11 follow-up question that I alluded to earlier. I guess
12 this is the first time that the design basis threat
13 has been modified since it was first established?

14 MR. BURNETT: No, we modified it for
15 Category 1 facilities to inhibit vehicles only from
16 intrusion about 1988.

17 COMMISSIONER CURTISS: Okay. And when it
18 was first established and modified up to this point,
19 I gather from what you say in the paper that in those
20 cases it was always done on -- what it reflected was
21 a determination with regard to what was necessary to
22 provide adequate protection.

23 MR. BURNETT: Yes, sir, it was at that
24 time.

25 COMMISSIONER CURTISS: Is there any

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1 significance to the fact that we're modifying the
2 design basis threat now, not for an adequate
3 protection purpose but for basically a safety
4 enhancement? I'm suggesting there is and I don't see
5 any, but I'm just curious.

6 MR. BURNETT: Well, you're right to
7 perceive that it is slightly different. Okay? But we
8 believe that when we put the contingency planning
9 requirements out in '88, we did that through a generic
10 letter. So, we set the precedent for not using the
11 adequacy determination as the starting point.

12 COMMISSIONER CURTISS: Okay.

13 MR. BURNETT: But it is different.
14 There's no doubt about that, and we wanted to
15 highlight that.

16 MR. TAYLOR: I think we reasoned this
17 issue and decided this was the basis. If we felt it
18 met an adequate protection, I think if we knew of an
19 immediate type thing, we would be telling you quite
20 differently. But we think this is a safety
21 enhancement that is important.

22 MR. BURNETT: If we had a highly credible
23 working threat today, this briefing would have been
24 different.

25 COMMISSIONER CURTISS: Right. Right.

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1 Does the General Counsel see any significance to that,
2 to the fact that this is a safety enhancement
3 modification of the design basis threat as opposed to
4 an adequate protection?

5 MR. PARLER: Obviously if it were
6 adequate protection, cost would not be a factor. The
7 only reason why you're able to consider, and properly
8 consider in my judgment, the Option 5 is that this
9 issue, both for purposes of the vehicle intrusion and
10 the explosive have been viewed by the staff as
11 enhancement measures, not adequate protection
12 measures. So, yes, you have that difference, but that
13 doesn't cause me any problem.

14 May I make one point, Mr. Chairman, that
15 might be helpful in a different context?

16 CHAIRMAN SELIN: Commissioner Curtiss?

17 COMMISSIONER CURTISS: Oh, go ahead,
18 please.

19 MR. PARLER: I assume that I've responded
20 to your question.

21 I sense that there is some desire for
22 urgency with the rulemaking, even though the case
23 apparently cannot be made by the staff, and it's clear
24 from what I just said it cannot be made by the staff
25 or immediate effective rule in order to provide

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1 adequate protection. But I seem to get the impression
2 here that a lot of extra additional stuff has to be
3 collected, perhaps from NUMARC and others, before the
4 Agency can proceed at getting the Commission's
5 approval to move forward with rulemaking, proposed
6 rulemaking, in accord with the Commission's decision.

7 We have a draft of a rule. As a matter
8 of fact, under the APA an agency can initiate proposed
9 rulemaking even without the text of the rule.

10 The other point that I wanted to make is
11 that if these criteria for what others have described
12 as possible problem plants or the two to five to ten
13 percent of the group, if the development of those
14 criteria to respond to how are we going to go about
15 deciding the disproportionate thing is going to create
16 a problem for rulemaking, which it might because I've
17 heard here that each one of these situations might be
18 different, considerably different because of the
19 characteristics of the site and other characteristics,
20 it would seem to me that if that is the case, it might
21 be difficult to come up with meaningful criteria in a
22 rule.

23 So, if that has the potential for
24 delaying the initiation of the proposed rulemaking
25 substantially, perhaps other means may be considered

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1 for that particular aspect to be handled so that the
2 rule could be initiated for the vast majority of the
3 non-problem plants.

4 CHAIRMAN SELIN: In response to your
5 comments, speaking just as one Commissioner, not as
6 the Chairman, number one, I really think we need to
7 move quickly on this. I'm dismayed by the thought
8 that it would take months and months to get out.
9 Number two, I fully agree with the last thing that you
10 said, Mr. Parler. If we're really talking about the
11 two to five percent holding up the 95 percent, that's
12 not very sensible. We need a mechanism to deal with
13 the majority while not leaving just a gaping hole for
14 the other few pieces. The third is I think it's a
15 terrible piece of public policy if we're in a position
16 that the people we regulate effectively can set the
17 schedule rather than our setting the schedule
18 ourselves. If we are truly dependent on that, then we
19 need to find another avenue to get to the schedule.

20 Commissioner Curtiss, do you have
21 anything else?

22 COMMISSIONER CURTISS: No, I don't have
23 anything else.

24 CHAIRMAN SELIN: Commissioner Remick?

25 COMMISSIONER REMICK: Just some thoughts

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1 so I can know what I think.

2 The staff is saying it's not necessary
3 for adequate protection, but the staff is saying that
4 they have qualitatively decided that it meets the
5 backfit rule's substantial improvement and overall
6 safety to public health and safety. I understand the
7 difficulty of trying to quantify that, but it is a
8 qualitative judgment, I understand, that you're
9 making. So, it is subject to being able to defend it
10 in some way. So, staff is going to have to carefully
11 give consideration how they do justify that
12 qualitative judgment.

13 Let's say that Option 3 is a prudent
14 thing to do and then the staff is saying that that
15 would meet -- in 80 to 90 percent of the cases, that
16 that would satisfy the concern over vehicle bomb. In
17 my mind, that becomes pretty soft. Now, maybe the
18 staff has been able to quantify that better than I
19 would guess, but maybe you have. But I start to get
20 a little concerned there. I understand the approach
21 as you described it, and that seems like a reasonable
22 approach, but like the others I do have concerns about
23 the criteria that you're going to establish. If I
24 look at the proposed wording, which would implement
25 that, I get concerned that it's, in my mind, a garbled

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1 version of 10 CFR 50.109 and it worries me that we
2 take that requirement and change the words so that
3 there is confusion over the meaning and how it's going
4 to be implemented and how we established criteria.

5 So, coming to the point, has the staff
6 considered another option, 3-A or 5 minus, I don't
7 know what you call it, of proceeding with the vehicle
8 barriers around the entire perimeter? But since I
9 think we're in a very soft area, where you come a very
10 soft area with the rest of it, of then through some
11 mechanism, 50.54(f) or whatever is appropriate,
12 getting some of the additional information that will
13 put us in a better position than knowing what type of
14 rulemaking may or may not be necessary for the
15 vehicular bomb part of this? I just throw that out.
16 I don't know if the staff has given consideration to
17 that option.

18 Then, one other thing. It seems to me
19 that to propose expedited rulemaking is inconsistent
20 with staff's statements that the NRC staff, FBI and
21 CIA assessment is no significant change to actual
22 threat lull. I'm not sure how that sits with
23 arguments for expedited rulemaking. I think the
24 Agency should proceed, but I'm not sure why we should
25 forge ahead without getting adequate comment on this.

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1 Now, I realize that expedited rulemaking does not
2 necessarily mean there will not be an adequate, but I
3 hesitate to see us forge ahead in areas where we're
4 saying it's not needed for adequate protection without
5 careful thought about what we're doing and the
6 consequences and what we might get into when it comes
7 down to implementing criteria, especially when those
8 criteria are based on versions of existing backfit
9 language.

10 So, I don't know if the staff has a
11 response on the 3-A or minus 5 option.

12 DOCTOR MURLEY: I think with regard to
13 the last point, what the staff is saying is we think
14 the margins are less today than we perceived them to
15 be some time ago and we would like to reestablish
16 those margins. But it doesn't meet our test of
17 adequate protection.

18 Now, you said that there was an area that
19 was soft. Did you mean in the area of standoff
20 distance and that --

21 COMMISSIONER REMICK: Yes. When it comes
22 down to the statement that there have been 80 or 90
23 percent of the plants, this would be sufficient, it's
24 not only standoff distance, but it is facilities. I
25 realize you've had residents go and walk down some of

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1 these and so forth. Now, when it comes down to it, my
2 guess would be that -- I don't know. Maybe the staff
3 is more confident than I guess I feel at this point
4 you should be about that 80 or 90 percent and it might
5 change one's views if it was 60 or 70 percent versus
6 80 or 90 percent. But maybe you feel very confident
7 about that estimate.

8 DOCTOR MURLEY: My sense is that we think
9 that will hold up, yes.

10 MR. BURNETT: In fact, my understanding
11 is we've identified a very small number of sites,
12 which is Enclosure 7. We think all other sites will
13 meet the criteria. Then you also, in one of your
14 comments, you said that maybe it sounded like the
15 staff was violating its own principles by suggesting
16 expedited over shall we call normal rulemaking.

17 COMMISSIONER REMICK: No, I've just
18 pointed out that your bottom line on threat is
19 inconsistent in my mind with proposing expedited.

20 MR. BURNETT: But if we had a real
21 credible threat or an imminent threat, we of course
22 jump over expedited rulemaking to immediate.

23 COMMISSIONER REMICK: Sure.

24 MR. BURNETT: Expedited, in my
25 understanding, is a mechanism for this middle area,

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1 that we think it's very important. We're very
2 interested in the solution, but we're also interested
3 in public comment and everything they have to say. So
4 that expedited doesn't really reduce the data or
5 jeopardize the data but puts you into a format of
6 gathering it faster. That was where at least my staff
7 was coming from.

8 COMMISSIONER REMICK: That I could agree
9 to if that is the intent.

10 MR. BURNETT: And that is our intent.

11 COMMISSIONER REMICK: I think it's
12 extremely important that people have a chance to look
13 at this very carefully and analyze things and provide
14 the feedback and that we don't forge ahead assuming
15 what the outcome is going to be of that analysis.

16 MR. TAYLOR: Commissioner, Bob mentioned
17 Enclosure 7, which looks at some sites --

18 COMMISSIONER REMICK: Yes.

19 MR. TAYLOR: -- which is safeguards
20 material. But that sort of showed you a little bit of
21 a span of some sites where we have looked closely
22 enough to at least give you what we conceived as --
23 and certainly shows a variability among several sites
24 from one that will obviously require a great deal of
25 analysis and to one or two that would have much less

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1 analysis and potentially maybe not have to do much
2 other than Option 3. So, it was an attempt to span
3 and also outline, I think just from that information
4 you can gather, outline how important these analyses
5 will be on a plant-specific basis beyond the 80
6 percent which we have reasonable confidence the
7 solution is relatively straightforward.

8 COMMISSIONER REMICK: Well, it gives me
9 some comfort that the staff really feels confident on
10 those approximate numbers.

11 MR. TAYLOR: This was done by a survey
12 through -- do you want to add to that any further
13 information?

14 MR. CONGEL: Yes. We've been through
15 several iterations on it and the degree of confidence
16 that we had with each iteration is increased and the
17 number that we gave of the 80 or 90 percent, if
18 anything, refers to a conservative estimate. Namely,
19 it's probably like the 90 percent.

20 COMMISSIONER REMICK: Okay. Good.

21 CHAIRMAN SELIN: Anything else?

22 COMMISSIONER REMICK: No, that's all.

23 CHAIRMAN SELIN: Commissioner de Planque?

24 COMMISSIONER de PLANQUE: Yes, I have a
25 couple questions. You explained in Enclosure 1 some

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1 of the actions that the plants have already taken.
2 But then said, "Well, this doesn't quite accomplish
3 for many of these what we have in mind in Option 3."
4 Can you give us a better quantitative feel for that?
5 How many of the licensees might already satisfy Option
6 3?

7 DOCTOR MURLEY: I'm sorry.

8 MR. BURNETT: We're talking about the
9 question that they asked on how many of the people
10 have installed vehicular control systems and how many
11 of those systems might satisfy the new criteria?

12 COMMISSIONER de PLANQUE: Yes. This is
13 the last item in Enclosure 3.

14 MR. BURNETT: Right. I personally don't
15 have that data.

16 COMMISSIONER de PLANQUE: I'm sorry,
17 Enclosure 1.

18 MR. BURNETT: But we're looking.

19 DOCTOR MURLEY: We'll ask Phil McKee to
20 answer that. He can answer.

21 MR. MCKEE: I can provide some
22 information on that. In our survey that we've gotten
23 over time from licensees, we've got a number of
24 activities and we're aware at least at 30 sites a
25 number of licensees have taken actions such as putting

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1 cabling in the fence. We call them Jersey bounces,
2 cement barriers. Very few, if any, that we're aware
3 of have really taken actions to put active barriers in
4 the vehicle access which would say that they really
5 couldn't satisfy Option 3. And also, looking at the
6 design basis vehicle, we're finding out that some of
7 the measures taken may not be adequate to protect
8 against vehicles of certain size. They may stop a
9 smaller size vehicle. So, I think in that sense,
10 really if you look at all the sites, very few in their
11 entirety would meet the criteria for Option 3.

12 And many have taken actions that go
13 beyond the perimeter. They've got some things in
14 access controls outside and extended. So, that
15 really, unless they maintain and man those stations on
16 the 24 hour basis, somebody could come through that
17 and then have access into the protected area. So, a
18 lot of measures were taken. We didn't want to get the
19 sense that those measures would be acceptable
20 completely if you implemented Option 3. They might be
21 able to use some of those measures and apply it, but
22 probably they'd have to do more.

23 MR. BURNETT: Have to augment it.

24 COMMISSIONER de PLANQUE: Yes. Okay.
25 There's something subtle that troubles me a little bit

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1 about the rationale given on page 5 of the paper for
2 a substantial increase. It seems to me that the point
3 you're making is that TMI demonstrated a vehicle could
4 actually get on site, and in the World Trade Center
5 situation where you can have a bomb aboard a vehicle
6 without having any notice, and coupling those two
7 together you see the linkage with a substantial
8 increase in overall protection of public health and
9 safety.

10 But if you go back to the paragraph on
11 TMI, the linkage with actual safety is made in two
12 sentences there where it says, "There was confusion
13 and misinformation given to operations and security
14 staff until a positive assessment of the intrusion
15 could be made. Out of the confusion and concern for
16 personal safety, operation staff made decisions that
17 could have negatively affected public health and
18 safety."

19 Now, if you go with Option 3 and you have
20 the perimeter barriers that will actually stop the
21 vehicle and now assuming in most of the plants you
22 have an adequate standoff distance, I assume then that
23 we're not talking about any physical damage to the
24 plant that would affect public health and safety.
25 That leaves the argument that I see here given in the

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1 TMI situation that you have some confusion among staff
2 and some difficulties in directing what should be
3 done. Are we addressing that in any way? You're
4 linking that to could have negatively affected public
5 health and safety. It's the rationale that's
6 troubling me a little bit.

7 DOCTOR MURLEY: I'm not totally sure I
8 get the thrust of your question. Let me answer
9 generally at least, that our thinking was that that
10 rationale we gave is a rationale for having a vehicle
11 denial system, period.

12 COMMISSIONER de PLANQUE: Right.

13 DOCTOR MURLEY: And I believe at least
14 that that rationale does justify a vehicle denial
15 system. I guess I don't --

16 COMMISSIONER de PLANQUE: But if you had
17 an incident --

18 DOCTOR MURLEY: Yes.

19 COMMISSIONER de PLANQUE: -- if you have
20 a vehicle bomb go off on the perimeter, it's stopped
21 at the barrier but it goes off --

22 DOCTOR MURLEY: Yes.

23 COMMISSIONER de PLANQUE: -- my guess is
24 you're going to cause a lot of confusion anyway, which
25 is the point that you make on the TMI incident.

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1 DOCTOR MURLEY: Yes. No doubt there will
2 be confusion, but you won't have the confusion and the
3 uncertainty of --

4 MR. TAYLOR: A vehicle actually going in.

5 DOCTOR MURLEY: -- a vehicle and people
6 actually in the protected area.

7 COMMISSIONER de PLANQUE: So you don't
8 see that kind of problem leading directly then to any
9 health and safety concerns?

10 MR. BURNETT: Not as bad as it was in the
11 TMI incident.

12 COMMISSIONER de PLANQUE: Okay. All
13 right. It's just a little worrisome that you make
14 that linkage there and have you truly avoided that
15 problem?

16 DOCTOR MURLEY: I think we have, yes.

17 COMMISSIONER de PLANQUE: Okay.

18 MR. BURNETT: And the truth is we won't
19 really know until we have an incident. But we've
20 addressed it the best we can based on the data we've
21 got.

22 COMMISSIONER de PLANQUE: True.

23 Okay. Just one more question. You
24 mentioned the coordination with DOE and I recognize
25 that's something we're more or less required to do.

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1 Would there be any problem with them if we went for
2 Option 3 or Option 5?

3 MR. BURNETT: I have met with and
4 discussed these approaches with my opposite. He
5 happens to be also in attendance in this meeting today
6 with his boss. We met this morning also. The
7 philosophy behind the two protection systems are
8 essentially identical in producing the same type of
9 protection. I've had to word it that way because
10 their design basis threat is classified and there are
11 differences between our threat and their threat. But
12 the resulting implementation of security precautions
13 are very consistent.

14 COMMISSIONER de PLANQUE: Okay. That's
15 all. Thank you.

16 CHAIRMAN SELIN: Well, I'm very impressed
17 with this piece of work. I think it's very sensible.
18 I think you've taken the approach it's better to get
19 it roughly right than exactly wrong. We have to be
20 careful we're not capricious on this last five or ten
21 percent because that would undermine the full
22 credibility of the agency. But I think you've taken
23 one of these things that's sort of almost intuitively
24 self-evident but not, as Commissioner Curtiss pointed
25 out, falls quite far outside the way we normally do

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1 business and I think personally you've done a very
2 good job at getting there. You've also satisfied most
3 of Commissioner Remick's earlier questions that what
4 we do shouldn't make it harder to run the plant
5 properly from an operations point. I believe you
6 solved that question. I didn't see anything in the
7 approach that would just make it more difficult to run
8 the plant on a day to day basis. But, personally,
9 I'm very interested in how we get from here to there
10 without turning the keys over to the people who are
11 trying to regulate but control the steps ourselves.

12 The last thing I'd like to say is any
13 time you start with a design basis threat, whether we
14 call this adequate protection or enhanced protection,
15 you have the concept of enhanced protection because
16 somebody is always saying, "Well, this big is
17 reasonable but bigger is not reasonable," and part of
18 that is it would cost too much to overwhelm it and
19 implicitly it's too unlikely. So, we're getting into
20 some new legal ground. I'm not so sure we're getting
21 into as new substantive ground. I mean basically you
22 have a whole lot of people trying to posit what we
23 should protect against, nobody believing any of these
24 things will really happen, and we take a look at how
25 hard it is and how plausible it is and see if we add

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1 it up it comes out sensibly.

2 But I think it's very important to avoid
3 truly capricious behavior on the part of the
4 Commission or the staff when we get to those small
5 number of cases that don't fall into some kind of
6 guidance or guidelines consistent with what courts
7 normally have to deal with, these not completely
8 predictable situations. Personally I think it would
9 be very helpful.

10 Commissioner Remick?

11 COMMISSIONER REMICK: Just one minor
12 response. I fully agree, certainly licensees should
13 not be establishing our schedule, but the history of
14 the Agency is that when we estimate things from a
15 regulatory perspective, quite often we under estimate
16 those costs. So, it's always valuable to get perhaps
17 more detailed costs. But at the same time, I think
18 those could be provided during the process of comments
19 on the rulemaking process. I think we have found that
20 many times we under estimate costs.

21 CHAIRMAN SELIN: Right. I agree with
22 that. We need all the information, but we need to
23 control the process.

24 Commissioner Curtiss?

25 Commissioner de Planque, anything else?

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1 Thank you very much.

2 (Whereupon, at 11:14 a.m., the above-

3 entitled matter was concluded.)

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THREAT REEVALUATION
PLACE OF MEETING: ROCKVILLE, MARYLAND

DATE OF MEETING: JUNE 24, 1993

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COMMISSION MEETING ON VEHICLE THREAT

June 24, 1993

- O BACKGROUND
- O THREAT ENVIRONMENT CONSIDERATIONS
- O PUBLIC MEETING
- O COSTS ESTIMATES
- O NEW OPTION
- O RULEMAKING OPTIONS
- O STAFF RECOMMENDATION

BACKGROUND

- O TMI INTRUSION & WORLD TRADE CENTER BOMBING
PROMPTS TWO PHASE REEXAMINATION
- O PHASE 1 - VEHICLE THREAT
PHASE 2 - DESIGN BASIS THREAT (DBT)
CHARACTERISTICS
- O 4/22/93 COMMISSION MEETING - VEHICLE THREAT
 - Option 1 No change
 - Option 2 Protection at Protected Area (P.A.) vehicle
access points
 - Option 3 Protection at the entire P.A. perimeter
 - Option 4 Same as 3 with required stand-off distance
- O STAFF RECOMMENDATION DELAYED PENDING
PUBLIC MEETING ON DBT

THREAT ENVIRONMENT CONSIDERATIONS

- O NRC STAFF, FBI, & CIA ASSESSMENTS - NO SIGNIFICANT CHANGE, "ACTUAL" THREAT LOW
- O STAFF ANALYSIS OF 500+ VEHICLE BOMBINGS WORLDWIDE IDENTIFIES CHARACTERISTICS
- O DIFFERENCE BETWEEN "ACTUAL" THREAT AND HYPOTHETICAL DBT PROVIDES MARGIN OF PRUDENCY
- O INCREMENTAL INCREASE IN "ACTUAL" DOMESTIC THREAT RESULTS IN INCREMENTAL DECREASE IN MARGIN OF PRUDENCY UNLESS DBT MODIFIED
- O ACTUAL THREAT ASSESSED LOW, BUT SOMEWHAT MORE LIKELY

PUBLIC MEETING - MAY 10, 1993

- O 150 ATTENDEES, INCLUDING UTILITY REPS, PUBLIC INTEREST GROUPS, AND PRIVATE CITIZENS
- O PRESENTATIONS BY NRC, CBG, NCI, NUMARC, & ONE PRIVATE CITIZEN
- O ALL SIDES AGREED THAT REEXAMINATION OF DBT WARRANTED
- O COMMENTS ON ADVERSARY CHARACTERISTICS, VEHICLE THREATS, COSTS ETC SOLICITED WITH VARYING DEGREES OF SUCCESS
- O NO CONSENSUS ON IMPLICATIONS OF TMI & WTC INCIDENTS

PUBLIC MEETING - MAY 10, 1993 - continued

- O CBG/NCI - DBT INADEQUATE,
 - TERRORISM HAS ARRIVED IN U.S.,
 - DBT SHOULD INCLUDE REALISTIC
HYPOTHETICAL THREATS

- O NUMARC - SECURITY ADEQUATE,
 - NO CREDIBLE THREAT
 - DOMESTIC TERRORIST TREND DOWNWARD
 - TMI & WTC NOT RELEVANT. NO LINKAGE
 - NUCLEAR PLANT NOT SOFT TARGET

REVISED COST ESTIMATES

O FOUR OPTIONS PREVIOUSLY IDENTIFIED

Option 1 No change

- Cost of implementing vehicle contingency plan
- \$25k to \$150k + \$4k per day

Option 2 Protection at existing P.A. vehicle access points

- \$200k to \$600k

Option 3 Protection at the entire P.A. perimeter

- \$300k to \$2,900,000

REVISED COST ESTIMATES - continued

Option 4 Same as 3 with required standoff distance

Case 1 (no additional measures needed to protect against vehicle bomb) - \$400k to \$3,000,000

Case 2 (additional measures needed to protect against vehicle bomb) - \$700k to \$4,300,000

O VARIABLES THAT CAUSE LARGE COST RANGE

- Kinetic energy of DBV
- Length of perimeter (2,000 - 9,000 feet)
- Location of vital area structures relative to protected area barrier

NEW OPTION 5

- O REQUIRE A BARRIER AGAINST DBV WITH EXPLOSIVE PAYLOAD
- O FOR SITES WHERE A VEHICLE BARRIER PROVIDES INADEQUATE STAND-OFF, LICENSEE HAS OPTION TO TAKE ADDITIONAL MEASURES TO PROVIDE ADEQUATE STAND-OFF OR PROPOSE ALTERNATIVE MEASURES WITH COST ANALYSIS
- O NRC DETERMINES ACCEPTABILITY OF LICENSEE PROPOSAL
- O PREVENTS TMI-TYPE INTRUSIONS & PROVIDES PROTECTION AGAINST VEHICLE BOMB
- O MOST SITES (80% TO 90%) \$50K MORE THAN OPTION 3, REMAINING SITES ADDITIONAL COSTS

RULEMAKING OPTIONS

- O IMMEDIATELY EFFECTIVE FINAL RULE - Allowing for public comment only on the final rule.

Pros: 1. Most time saving course of action to achieve prompt and enforceable licensee response.

2. Forcefully demonstrates the priority placed on protecting the public health and safety.

Cons: 1. Demands justification of the credibility and immediateness of the threat to justify avoidance of Administrative Procedures Act (APA) requirements: 1) publication of a proposed rule with opportunity for public comment, and 2) the thirty day prenotice of effective date

2. Litigative risk due to shortcutting APA procedures and concerns regarding backfit and environmental review

RULEMAKING OPTIONS - continued

O EXPEDITED RULEMAKING

PROS: 1. May significantly shorten the time between Commission decision and implementation. 2. Eliminates litigative risk due to shortcutting APA procedures and other requirements.

CONS: 1. Allows less time for public comment, and 2. Resource intensive

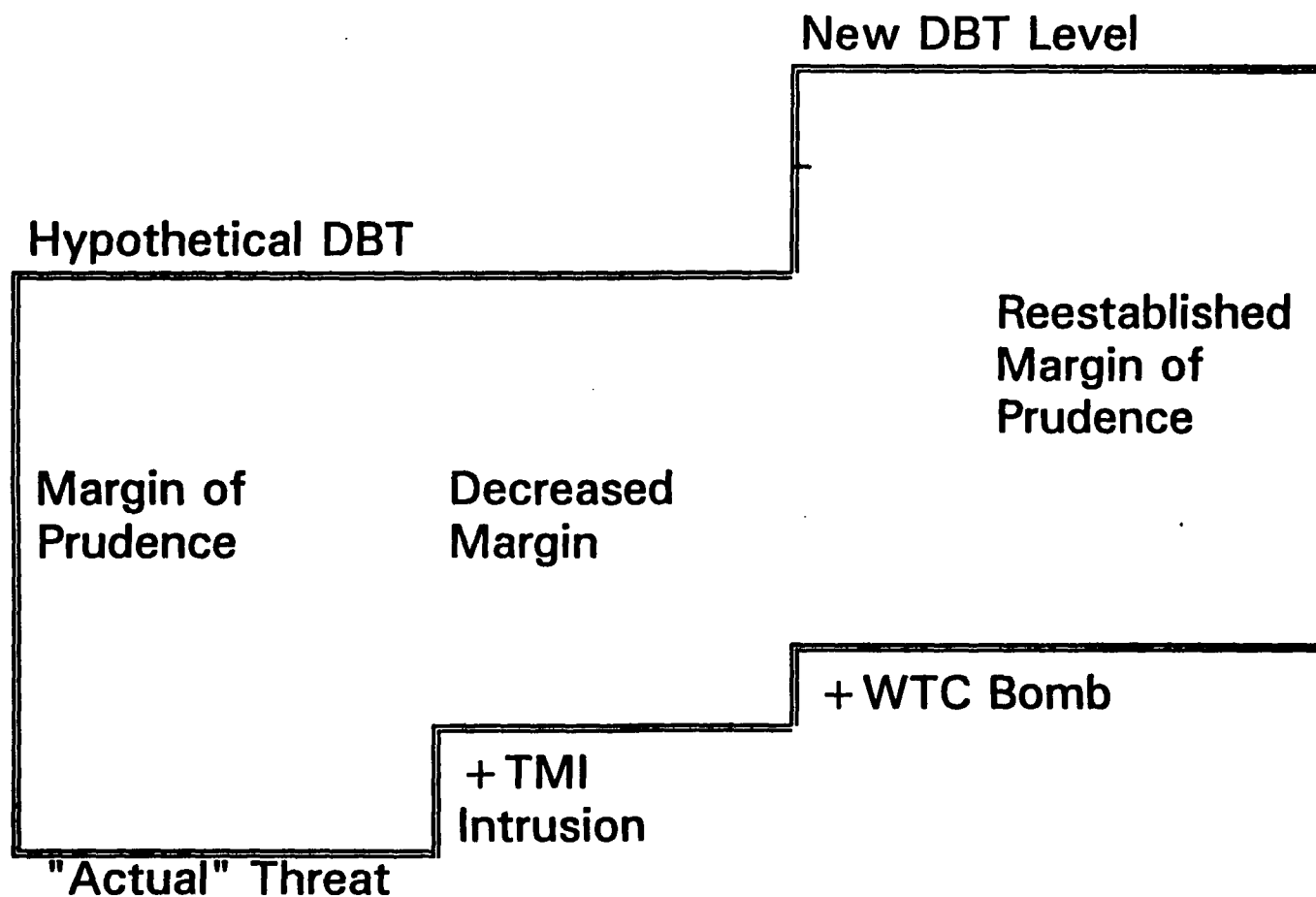
STAFF RECOMMENDATION

O APPROVE OPTION 5

- 1) Modify DBT for radiological sabotage (10 CFR 73.1) to include the use of a vehicle for the transport of personnel, hand carried equipment, and/or explosives**
- 2) Modifications to 10 CFR 73.55 to reflect the change to the DBT and to allow for consideration of alternative security measures when existing PA barrier does not provide adequate stand-off distance**
- 3) Use expedited rulemaking to achieve this change**
- 4) Use the design basis vehicle threat as described in Enclosure 8 to the Commission paper**

O CONTINUE PHASE 2, BASED ON COMMISSION APPROVAL OF OPTION 5

MARGIN OF PRUDENCY



PROPOSED CHANGE TO DESIGN BASIS THREAT - 10 CFR 73.1

73.1 Purpose and scope

(a) Purpose

(1) Radiological Sabotage

(i) (E) four-wheel drive land vehicle used for the transport of personnel, hand-carried equipment, and/or explosives

DRAFT RULE LANGUAGE FOR VEHICLE PROTECTION

Add new paragraphs (7) and (8) to 10 CFR 73.55(c):

(7) Vehicle control measures shall be established to protect against the use of a land vehicle, as specified by the Commission, as a means of transportation to gain rapid access to vital areas.

DRAFT RULE LANGUAGE - continued

(8) Each licensee shall compare the vehicle control measures established in accordance with 10 CFR 73.55(c)(7) with the design goals and criteria for protection against a land vehicle bomb specified by the Commission. Each licensee shall either (i) certify to the Commission that the vehicle control measures meet the criteria specified, or (ii) propose alternative measures in addition to the measures established in accordance with 10 CFR 73.55(c)(7), describe the level of protection that these measures would provide against a land vehicle bomb, compare the costs of the alternative measures with the costs of measures necessary to fully meet the criteria. The Commission will accept the proposed alternative measures if they provide substantial protection against a land vehicle bomb, and the costs of fully meeting the design goals and criteria are disproportionate to the added protection which would be provided.



POLICY ISSUE **(Notation Vote)**

June 14, 1993

SECY-93-166

FOR: The Commissioners

FROM: James M. Taylor
Executive Director for Operations

SUBJECT: STAFF RECOMMENDATION FOR PROTECTION AGAINST MALEVOLENT USE
OF VEHICLES AT NUCLEAR POWER PLANTS

PURPOSE:

To provide to the Commission a recommendation regarding the need to modify the design basis threat (DBT) for radiological sabotage to include use of land vehicles by adversaries, for transporting personnel, hand-carried equipment and/or explosives. The Commission is reminded that Phase 2 and a review of the other attributes of the DBT also are underway, as described in my March 11, 1993, memorandum to the Commission. The results of Phase 2 will be provided upon its completion.

SUMMARY:

In response to the Staff Requirements Memorandum (SRM) of May 5, 1993, the Commission paper provides five options and a recommendation for protection against malevolent use of vehicles at nuclear power plants. In addition, information is provided regarding: 1) industry's estimate of the costs to implement the various options, 2) the cost of present security at nuclear power plants, and 3) current industry initiatives to address the vehicle threat, independent of the Nuclear Regulatory Commission.

Regarding the threat environment, staff concluded that there is no indication of an actual vehicle threat against the domestic commercial nuclear industry. Nonetheless, in light of the vehicle intrusion at Three Mile Island (TMI) and

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NOTE: TO BE MADE PUBLICLY AVAILABLE
WHEN THE FINAL SRM IS MADE
AVAILABLE

the World Trade Center vehicle bombing, staff believes that a vehicle intrusion or bomb threat to a nuclear power plant could develop without warning in the future. Accordingly, to maintain a prudent margin between what is the current threat estimate (low) and the DBT (higher), staff proposes a modification of the DBT for radiological sabotage to include protection against malevolent use of vehicles at nuclear power plants.

The paper recommends: 1) a modification to the DBT for radiological sabotage (10 CFR 73.1) to include a land vehicle for the transport of personnel, hand-carried equipment, and/or explosives, 2) appropriate modifications to 10 CFR 73.55 to reflect the change to the DBT and to allow for consideration of reasonable alternative security measures when establishing stand-off distance, and 3) an expedited rulemaking to achieve this change. A Design Basis Vehicle (DBV) threat described in terms of vehicle characteristics and explosive device is forwarded under separate cover as Safeguards Information.

BACKGROUND:

At the April 22, 1993, Commission meeting on SECY-93-102, staff reviewed past Commission deliberations on the vehicle threat and presented four proposed options with cost estimates in response to the current evaluation. Option 1 was to take no action. Option 2 would require vehicular intrusion protection at existing protected area vehicle access points and some distance on each side of those access points. Option 3 would require vehicular intrusion protection around the entire protected area perimeter. Option 4 would require protection against some specified DBV and explosive charge. In addition to the proposed options, staff noted that absent an immediate actual vehicle threat, a staff recommendation on which of the four proposed options the Commission should adopt, would be delayed until after the May 10, 1993, public meeting on the DBT. This delay would permit staff consideration of public input.

The SRM of May 5, 1993, in addition to requesting a staff recommendation on the vehicle threat, directed staff to provide information regarding: 1) contingency planning requirements for non-power reactors, 2) industry's estimate of the costs to implement the various options identified above, 3) the cost of present security at nuclear power plants, and 4) current industry initiatives to address the vehicle threat, independent of the NRC. Information on contingency planning requirements for non-power reactors is being provided to the Commission by separate correspondence. Information on cost of security at nuclear power plants in addition to that provided in NUMARC's May 27, 1993 letter, and information on current industry initiatives to address the vehicle threat are provided in Enclosure 1. Information on industry's estimate of the costs to implement the various options and cost of security at nuclear power plants was provided by the Nuclear Management and Resources Council (NUMARC) in a May 27, 1993 letter to the NRC (Enclosure 2).

DISCUSSION:

In evaluating the four proposed options, staff considered the following factors in developing its recommendation to the Commission:

Threat Environment

The staff continually monitors and evaluates the threat environment worldwide. In addition, the Commission was briefed by the Central Intelligence Agency and the Federal Bureau of Investigation on March 5, 1993. Neither agency provided information regarding an actual vehicle threat to domestic commercial nuclear power reactors that could serve as the basis for modifying the DBT. Further, staff reported on its analysis of more than 500 vehicle bomb attacks worldwide. Although, based on current information, there is no significant change in the threat environment, the bombing at the World Trade Center demonstrated that a large explosive device could be assembled, delivered to a public area, and detonated in the United States (U.S.) without advance intelligence knowledge. In addition, the unauthorized intrusion at TMI demonstrated that a vehicle could be used to gain quick access to protected areas of the plant. Consequently, the staff has concluded that a modification to the DBT is warranted.

The DBT is not intended to represent a real threat. It serves three purposes. It provides a standard with which to measure changes in the real threat environment. It is used to develop regulatory requirements. And it provides a standard for evaluation of implemented safeguards systems.

In assessing the impact on the DBT of the events at TMI and the World Trade Center, staff has considered the following two issues: first, whether these events establish the need for NRC to revise its regulations to redefine adequate protection of the health and safety of the public, in the sense that adequate protection is used by Section 182 of the Atomic Energy Act; and second, whether these events demonstrate that amending NRC's regulations to protect against malevolent use of a vehicle at nuclear power plants would result in a substantial increase in the overall protection of the public health and safety. With respect to the first issue, the NRC cannot consider cost. With respect to the second issue, the NRC must determine that the direct and indirect costs of implementation are justified in view of the increased protection.

The staff's assessment as to whether to redefine adequate protection is as follows:

With respect to vehicle intrusions, the NRC interpretation of the DBT for radiological sabotage does not preclude adversaries' use of vehicles, other than vehicle bombs, for transportation and for breaching protected area barriers. The vehicle should be detected by an intrusion

detection system as it enters the protected area. The nature of the threat should be assessed using closed circuit television (CCTV) or other means. Responding security officers should be able to neutralize the threat before sufficient damage can be done to create radiological sabotage. At many sites, vital area doors can be reached on foot within similar periods of time as with a vehicle.

The vehicle intrusion at TMI demonstrated that a person in a vehicle could penetrate a protected area barrier and quickly approach a vital area barrier. However, for the public health and safety to be actually affected (absent a real vehicle bomb threat, which will be discussed with respect to the World Trade Center event), the following would also have to be true. The person or persons in the vehicle would have to possess the intent, knowledge of the plant, skills, and equipment necessary to create radiological sabotage. They would have to leave the vehicle and reach one or more vital area barriers. They would have to penetrate the vital area barriers, which are typically reinforced concrete walls and locked and alarmed steel doors. They would have to create a significant loss-of-coolant accident or create a reactor transient. They would have to disable sufficient safety systems to prevent the reactor from reaching a safe condition. They would have to cause a breach of containment. And they would have to accomplish all of this without intervention by the licensee's armed responding security officers. Therefore, staff has concluded that the TMI event has not demonstrated a need to redefine adequate protection.

In denying a 1991 petition for rulemaking to upgrade the DBT for radiological sabotage to include protection against a vehicle bomb, one factor identified by the staff was that a terrorist group would have to construct a large truck bomb undetected. The World Trade Center event demonstrated that this can happen. However, to conclude that protection of the public health and safety is not adequate, the NRC would have to conclude that the use of a vehicle bomb to create radiological sabotage is reasonably to be expected and that there would not be sufficient time to implement contingency procedures for protecting against a vehicle bomb. Based on its analysis of the threat environment, staff has concluded that the use of a vehicle bomb to create radiological sabotage at a nuclear power plant is not currently a reasonable expectation. If a significant change in the general threat environment caused staff to change this conclusion in the future, current contingency planning, which is designed to be implemented in a timely manner, would provide staff with a rapid regulatory mechanism to require licensees to implement temporary protection measures and maintain an adequate level of protection while its regulations are amended to require permanent protection. Therefore, the staff concludes that the World Trade Center event has not established a need to redefine adequate protection.

The staff assessment as to whether to amend its regulations to protect against malevolent use of a vehicle bomb against a nuclear power plant so as to provide a substantial increase in overall protection of the public health and safety is as follows:

Staff has identified several lessons learned from the vehicle intrusion at TMI. Although the intrusion detection system generated an alarm, the alarm station operators were not able to confirm the intrusion promptly by CCTV. A foot patrol was sent to evaluate the cause of the alarm. There was confusion and misinformation given to operations and security staff until a positive assessment of the intrusion could be made. Out of the confusion and concern for personal safety, operations staff made decisions that could have negatively affected the public health and safety. Even when an initial assessment was made, licensee staff did not know how many unauthorized individuals were inside the protected area, where they were, and whether they possessed weapons or explosives.

The TMI event demonstrates some aspects regarding use of a vehicle by a potential adversary that could present some challenges not previously considered. Therefore, staff considers that providing vehicular intrusion protection would provide a significant enhancement against such a threat. Enhancements to protect against the vehicular intrusion threat also provide, to varying degrees dependent on site characteristics (discussed later and in the enclosed regulatory analysis), enhancement for protection against vehicle bombs.

The World Trade Center event has demonstrated a capability within the U.S. to construct a truck bomb undetected. This recently demonstrated capability indicates that although a vehicle bomb attack at a nuclear power plant is not reasonably to be expected, it is somewhat more likely to develop without advance indications than staff previously believed. Staff therefore considers that providing permanently installed vehicle bomb protection would provide significant enhancement against such a threat.

Staff considers that protecting against vehicle intrusion and a vehicle bomb would substantially increase protection of the public health and safety. A rulemaking package will need to clearly elaborate that this change would be a regulatory enhancement and not redefinition of adequate protection of the health and safety of the public. In the past, the DBT has been closely associated with adequate protection, although a previous change to the DBT was completed through normal rulemaking and earlier Commission action regarding vehicle threats was accomplished with a Generic Letter and not considered a matter of adequacy.

Public Meeting

A public meeting on the NRC DBT for radiological sabotage was held on May 10, 1993. Formal presentations were made by the NRC and representatives of the Committee to Bridge the Gap, the Nuclear Control Institute, NUMARC, and a private citizen from the Harrisburg, Pennsylvania area. Also, all attendees were provided with an opportunity to express their views during a panel discussion. Briefly, a range of opinions were put forth regarding the need for vehicle bomb protection at nuclear power plants, and equally diverse views were expressed regarding other aspects of the DBT for radiological sabotage. In response to a Commission request, staff solicited estimates regarding the cost of the various vehicle protection options, but industry representatives at the meeting had no specific input at that time. Additional and more complete details of the meeting are provided in Enclosure 5.

Regulatory Analysis

Enclosure 6 provides a regulatory analysis of options related to regulatory changes to address protection against malevolent use of vehicles at nuclear power plants. (Enclosure 7 provides the Safeguards Information portion of the regulatory analysis.) The four options presented in SECY-93-102 were evaluated along with one additional option. Option 1 was to take no action. Option 2 would require vehicular intrusion protection at existing protected area vehicle access points and some distance on each side of those access points. Option 3 would require vehicular intrusion protection around the entire protected area perimeter. Option 4 would require protection against vehicular intrusion and consideration that the vehicle could be transporting an explosive charge.

In general the analysis shows that Option 2 provided little incremental benefit in protecting against either a vehicle intrusion event or a vehicle bomb. The analysis shows that Option 3, in addition to providing vehicular intrusion protection at the protected area boundary, provides varying degrees of protection against a vehicle bomb. At about 80 to 90 percent of the sites, considering distances between protected area boundaries and vital area structures, Option 3 would provide significant protection against a vehicle bomb of the type specified in Enclosure 8. Option 4 would require all licensees to conduct an analysis of explosive blast effects. Staff estimates that for many licensees (80 to 90 percent of the sites) the site specific analysis would demonstrate that no additional measures were needed beyond vehicle intrusion protection at the protected area boundary. Many of the remaining sites would need to implement relatively minor enhancements (e.g., more substantial vehicle barriers to reduce vehicle penetration). A few sites would be required to implement substantial additional measures (e.g., expansion of vehicle barriers beyond the protected area boundary or placement of blast shields). Staff analysis shows that, for these few sites, the costs for implementation of additional measures to meet criteria for protection against a vehicle bomb may be substantial and not commensurate with the incremental safety benefit. The regulatory analysis includes cost estimates and factors effecting these estimates for the four options.

Option 5

Based on the analysis of the four options, staff concluded that a fifth option should be proposed. (This paper only addresses in detail Option 5 because the other four options were previously discussed in SECY-93-102.) This new Option 5 incorporates the protection measures of Option 3 - hardened protected area perimeter against intrusion. However, for Option 5, staff would develop criteria that could be used by licensees to determine, through simplified site-specific analyses, that protecting against vehicle intrusion into the protected area would also provide high assurance of protection against a vehicle bomb with characteristics of the type specified in Enclosure 8. These criteria would specify safe stand-off distances for various types of building constructions typical of those at power reactors. All licensees would be required to review their sites against these criteria, and those sites meeting these criteria would certify this to the NRC. Staff estimates that this certification process would demonstrate that about 80 to 90 percent of the sites could meet these criteria without further analysis or consideration of additional measures.

Sites not meeting these criteria would have choices that would include using more substantial (and expensive) barriers for a portion of their protected area to reduce vehicle penetration, extending vehicle barriers beyond the protected area perimeter, performing a more detailed analysis of existing structures and equipment to demonstrate their ability to protect against a vehicle bomb using barriers at the protected area, or evaluating other alternatives. Some licensees may be able to demonstrate that atypical building structures would provide adequate protection, that building damage would not disable vital equipment, or, if vital equipment were damaged, that redundant or diverse equipment could provide a backup function. If this capability could not be demonstrated, a licensee may have to establish additional security measures to assure protection from a vehicle explosive for vital equipment. Examples of these measures are extending the hardened barrier outward from the current protected area boundary, placement of blast shielding, or providing backup systems for those assumed to be damaged.

For most sites (80 to 90 percent), the costs for Option 5 would be about \$50,000 more than Option 3. This amount assumes a confirmation analysis that vital area structures meet staff specified criteria for safe stand-off distances. Many of the remaining sites would have choices available to provide equivalent protection with additional cost. For the few sites where analysis indicated that stand-off distances may be less than those specified in staff guidance, Option 5 permits evaluation of alternative approaches.

In those cases where licensees determine additional security measures may be needed to protect safe shutdown capability, Option 5 would permit licensees to either implement the additional security measures or develop alternate protection strategies. Staff would review licensee's alternative proposals and make an acceptability determination. The staff will accept the proposed alternative measures if they provide substantial protection against a land

vehicle bomb and the costs of fully meeting the design goals and criteria are disproportionate with the added protection which would be provided. The Commission would be notified of such staff action.

The Regulatory Analysis (Enclosure 6) contains the essential elements of the appropriate Backfit Analysis for this option, and a suitable Backfit Analysis will be included in the proposed rulemaking package. Staff has concluded that Option 5 would significantly increase protection of the public health and safety. Staff has also determined that the direct and indirect costs of implementation of Option 5 are justified in view of the increased protection. Staff also notes that the determination on costs of implementation of Option 5 is based on the premise that the only definitive requirement for all licensees is that they provide measures to protect against the use of a land vehicle as a means of transportation to gain rapid access to vital areas and that they assess any incremental measures, if necessary, to meet the design goal for a land vehicle bomb. A determination of whether incremental costs were disproportionate to incremental benefit would be made on a site-specific basis.

Coordination with the Department of Energy (DOE)

The DOE has been advised that the NRC is considering a modification to the NRC DBT for radiological sabotage. The DOE will be informed in a timely manner of subsequent actions directed by the Commission. Staff will work closely with the DOE to assure that steps taken by the NRC are coordinated with the DOE.

Rulemaking

Rulemaking options with regard to the vehicle threat would apply to implementation of a Commission decision to modify the DBT for radiological sabotage and to promulgate related amendments to 10 CFR 73.55. As noted previously, staff has concluded that the vehicle threat does not present an immediate threat to nuclear power reactors and that additional prudent measures, based on a redefined DBT, will provide, at relatively low cost, an additional margin of prudence.

While normal rulemaking is an option, staff has focused its consideration on the two more expeditious methods of rulemaking.

Immediately Effective Rule: Promulgate an immediately effective final rule, allowing for public comment only on the final rule and require immediate implementation of licensee vehicle bomb contingency plans until permanent measures are in place.

Pros: The most time saving course of action to achieve prompt and enforceable licensee response and to provide protection against the DBV threat.

Cons: Cannot be supported by a credible justification of the reality and immediateness of the threat to negate the need for two Administrative Procedures Act requirements; publication of a proposed rule with opportunity for public comment, and the 30-day prenotice of effective date.

Presents a litigative risk due to eliminating prior public comment.

May present additional litigative risks to the extent that applicable Commission rules are not applied to enable a timely implementation, e.g., 10 CFR Part 51 (environmental review).

Expedited Rulemaking: Promulgate a final rule in an expedited manner.

Pros: May significantly shorten the time between Commission decision and implementation.

Eliminates litigative risk due to eliminating prior public comment.

Cons: Provides a shortened public comment period.

Resource intensive.

An additional point should be noted regarding rulemaking in general as applied to the DBT and 10 CFR 73.55. There is no categorical exclusion under Part 51 for this activity, and therefore, an environmental assessment is required. In addition, both the proposed and the final rules would have to be reviewed by the Committee to Review Generic Requirements and the Advisory Committee on Reactor Safeguards.

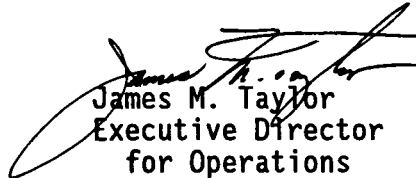
An expedited rule for Option 5 would require prompt implementation of security measures at most sites, given the availability of necessary materials and hardware. However, for sites where the vehicle control measures to protect against rapid access to vital areas do not meet the Commission's criteria for protection against a vehicle bomb, due allowance will be given for time to complete additional analysis, develop alternative security measures, and resolve site specific considerations.

RECOMMENDATION:

That the Commission approve Option 5: 1) a modification to the DBT for radiological sabotage (10 CFR 73.1) to include the use of a vehicle for the transport of personnel, hand-carried equipment, and/or explosives (Enclosure 3), 2) appropriate modifications to 10 CFR 73.55 to reflect the change to the DBT and to allow for consideration of reasonable alternative security measures when the existing protected area barrier does not provide adequate stand-off distance (Enclosure 4), and 3) an expedited rulemaking to achieve this change. A DBV threat is described in Enclosure 8, including vehicle weight, speed, and explosive payload. Enclosures 7 and 8 contain Safeguards Information and are therefore being forwarded under separate cover.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection.


James M. Taylor
Executive Director
for Operations

Enclosures:

1. Additional Info Requested by the Commission
2. May 27, 1993 Letter from NUMARC
3. Proposed change to the DBT for radiological sabotage.
4. Proposed change to 10 CFR 73.55
5. Summary of Public Meeting Results
6. Regulatory Analysis
7. Table for Regulatory Analysis
(Safeguards Information -
provided under separate cover)
8. DBV (Safeguards Information -
provided under separate cover)

Commissioners' comments or consent should be provided directly to the Office of the Secretary by COB Tuesday, June 29, 1993.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Tuesday, June 22, 1993, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

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ADDITIONAL INFORMATION REQUESTED BY COMMISSION

In the May 5, 1993 Staff Requirements Memorandum, the Commission requested information on the following:

Contingency Planning Requirements for Non-Power Reactors

Information related to this topic is being provided to the Commission by separate correspondence.

Industry Estimates on Various Options

At the public meeting on the Design Basis Threat none of the parties took exception to the general range of costs of the options presented in SECY-93-102. Industry representatives at the meeting had no comment at that time.

Staff requested Nuclear Management and Resources Council (NUMARC) to provide industry's estimate of costs to implement the various options. NUMARC's May 27, 1993 letter to the NRC responded to this request. NUMARC's letter is provided as Enclosure 2 to this paper.

Cost of Security at a Nuclear Power Plant Site

Information developed by NUMARC on 1991 operations and maintenance (O&M) costs in the nuclear industry showed that security activities account for about 4 percent of total O&M costs. The per-unit average security cost in 1991 was 2.8 million dollars. NUMARC also compared O&M costs on a per unit basis between the top and bottom quartiles using a three year average (1989-1991). For security, on average the top quartile spent 2.68 million dollars (per unit) while the bottom quartile spent 4.15 million.

In NUMARC May 27, 1993 letter to the NRC (Enclosure 2) they provided information calendar year 1993 nuclear plant security costs.

Current Status of Industry Initiatives

A large number of licensees have taken actions to provide protective measures against vehicle threats. Staff is aware that at least 30 reactor sites have implemented permanent measures to restrict vehicle access. Several techniques have been employed, including measures implemented at the site protected area (PA) perimeter and measures taken along facility primary and secondary access roads. Measures taken at the PA perimeter include aircraft cable woven into the PA fence, heavy concrete barriers placed along portions of the perimeter, buried utility poles/steel beams (bollards), vehicle guard rails, mounding of dirt/sand/gravel, or combinations of these measures. Several licensees have taken measures at PA vehicle access points including some of the measures described above, hardened gates and parked vehicles to block the gate when not in use. A number of licensees have restricted access to secondary roads by

Enclosure 1

blocking them with large vehicles or heavy concrete barriers. Along primary roads, some utilities have established vehicle check points bounded by substantial barriers such as landscape boulders which would preclude vehicles from bypassing the check point. These measures would facilitate licensee's implementation of contingency plans should the need arise. It should be noted that many of the measures described above would not be sufficient by themselves to provide the protection proposed in Options 3 and 4 of the Commission Paper.



NUCLEAR MANAGEMENT AND RESOURCES COUNCIL

1776 Eye Street, N.W. • Suite 300 • Washington, DC 20006-3706
(202) 872-1280

May 27, 1993

**Mr. Frank J. Congel
Director
Division of Radiation Safety and Safeguards
Office of Nuclear Reactor Regulation
11555 Rockville Pike
Rockville, MD 20852**

Dear Mr. Congel:

This letter responds to your request of May 9, 1993, for industry cost estimates to implement vehicle protection options at nuclear power plants (SECY-93-102) and for utility costs for security at these plants.

The NUMARC Security Working Group has begun a review of the need for vehicle protection requirements at plant sites and will develop recommendations for industry consideration. We recommend that the NRC delay action on proposing new vehicle protection requirements until that time.

In the 2-1/2 weeks we have had to prepare a response to your request, there was not sufficient time to perform engineering analyses and cost estimates at the plant sites. We have been able to gather data indicating the anticipated range of implementation costs. These estimates assume the purchase and installation of materials typical of highway construction, but the effect of local soil conditions has not been included. If performance testing and quality assurance requirements typical of nuclear safety related equipment installation are required, these estimates should be increased by a factor of 3 to 10. Further, no estimates has been made of the costs for long term maintenance of equipment exposed to weather. The NUMARC Security Working Group has established an advisory committee to pursue these questions in more detail. This group consists of individuals responsible for or familiar with plant operations, plant security, security facilities engineering, and emergency preparedness.

Enclosure 2

Option 1 -- No changes required.

Option 2

A small number of sites have installed "hardened" vehicle gates. A number of different designs are available in the marketplace. We understand that limited testing of some gates has been performed and documented, but we do not yet have specific information in hand. We also do not yet know what installation specifications must be followed to obtain a high level of confidence that a gate will stop a vehicle of a particular size.

The number of vehicle gates in protected area (PA) fences at the 69 sites ranges from 2 to 16. The average is 5 gates. Estimates of gate purchase and installation range from \$10,000 to \$60,000. Using the upper end of this range, the cost to implement Option 2 would be approximately \$300,000 per site. These figures do not include an allowance to harden the fence for "some distance on either side of the vehicle control points."

Option 3

Option 3 involves hardening the gates (Option 2) and installing various barrier devices in front of, in or behind the segments of the PA fence not already protected by natural terrain features. Possible vehicle protection devices for the PA boundary include installation of highway-style guard rails, concrete deflectors (Jersey barriers), aircraft arresting cable, bollards, concrete blocks, and concrete flower pots. Again, some performance data exist which cover a range of vehicle kinetic energies, but this information has not been analyzed.

The "vulnerable" portion of PA perimeter ranges from 1200 ft. to 11,000 ft. The average is 2,600 ft. Cost estimates range from \$20 to \$120 per foot of protected area perimeter. Assuming that installations at \$120 per foot and gate installation costs of \$300,000 per site will provide the protection sought by Option 3, the cost to implement Option 3 is approximately \$612,000 per site.

Option 4

We are not now able to provide information on this option. All of the discussion for option 3 above applies here as well. The design basis explosive (DBE) must first be established. In general, costs will be higher for a given DBE since the perimeter of the standoff area is greater than the perimeter of the protected area. Then, site specific

analyses would have to be conducted to establish an explosive protection strategy for that site. Not all systems and equipment normally used to achieve safe shutdown are required. Engineering analyses would indicate which components, especially those not currently contained within or shielded by reinforced concrete, could be damaged by the DBE without loss of safe shutdown capability.

At some sites the use of natural features would permit lower barrier installation costs because the natural features - swamp, woods, body of water, etc.-would provide a barrier to a land-based vehicle. On the other hand, moving the vehicle control point(s) out beyond the protected area fence could involve:

1. Relocation of parking lots,
2. Relocation of warehouses,
3. Realignment of site roads,
4. Vehicle searches at site entrance, as opposed to protected area entrance,
5. Interference with the response of off-site emergency equipment, e.g., fire trucks, and
6. Purchase of additional property

For example, at one site use of the nominal safe standoff distance would reach across a state highway.

All of this is a function of the design basis explosive (DBE) and the results of each site's analysis of the plant's ability to achieve safe shutdown after loss of equipment which could reasonably be expected to be disabled by the DBE exploding at the protected area fence.

Nuclear Plant Security Costs

Based on information from an industry survey, capital cost expenditures for security for the 5 year period from 1988 through 1992, inclusive, average \$8.2 million per site. The average cost per site for security operations and maintenance was \$5.5 million in calendar year 1992.

Based on discussions with individuals in the industry, the major new costs in recent years have been to continually upgrade hardware (a capital expenditure) with the latest technology. Furthermore, some costs associated with security enhancements are accounted for in other categories such as maintenance.

Summary

These cost estimates are based on a number of assumptions and are subject to the several qualifications described above. These figures should be viewed as a "first cut" at estimating the costs requested in the Commission's Staff Requirements Memorandum of May 5, 1993.

<u>Vehicle Protection Option</u>	<u>Average Cost Per Site</u>
1	No change
2	\$300,000+*
3	\$612,000
4	Unknown

* Estimate does not include cost of hardening the fence on each side of the gate.

Conclusion

Additional work would be required to develop high confidence cost estimates for these 3 options. Site specific engineering analyses can proceed only after decisions are made about the size of the explosive. Establishing vehicle denial at a safe standoff perimeter (Generic Letter 89-07) may result in major disruption of routine site activities, interference with the response of off-site fire equipment, land acquisition requirements and other significant impacts.

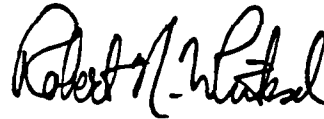
Mr. Frank J. Congel

May 27, 1993

Page 5

As we acquire additional data on the cost of these options, we will provide it. If you have any questions, please call Rich Enkeboll or me.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert N. Whitesel". The signature is fluid and cursive, with the first name "Robert" and last name "Whitesel" clearly distinguishable.

Robert N. Whitesel

Manager

Operations, Management and
Support Services Division

RNW:ldl

Proposed Changes to Design Basis Threat for Radiological Sabotage

73.1 Purpose and scope

(a) Purpose ***

(1) Radiological sabotage ***

(i) (E) four-wheel drive land vehicle used for the transport of personnel, hand-carried equipment, and/or explosives

DRAFT RULE LANGUAGE FOR VEHICLE PROTECTION

Add new paragraphs (7) and (8) to 10 CFR 73.55(c):

(7) Vehicle control measures shall be established to protect against the use of a land vehicle, as specified by the Commission, as a means of transportation to gain rapid access to vital areas.

(8) Each licensee shall compare the vehicle control measures established in accordance with 10 CFR 73.55(c)(7) with the design goals and criteria for protection against a land vehicle bomb specified by the Commission. Each licensee shall either (i) certify to the Commission that the vehicle control measures meet the criteria specified, or (ii) propose alternative measures in addition to the measures established in accordance with 10 CFR 73.55(c)(7), describe the level of protection that these measures would provide against a land vehicle bomb, compare the costs of the alternative measures with the costs of measures necessary to fully meet the criteria. The Commission will accept the proposed alternative measures if they provide substantial protection against a land vehicle bomb, and the costs of fully meeting the design goals and criteria are disproportionate to the added protection which would be provided.

SUMMARY OF PUBLIC COMMENTS ON THE DESIGN BASIS
THREAT FOR RADIOLOGICAL SABOTAGE

The Commission directed that staff solicit public comment relevant to the Nuclear Regulatory Commission's review of the Design Basis Threat (DBT) for Radiological Sabotage. Accordingly, an agency-sponsored public meeting was held to obtain information from the public, licensees, and other interested parties relevant to the need for any changes to the DBT for radiological sabotage¹.

The meeting was announced to the public on April 20, 1993, by NRC press release No. 93-47 and on April 22, 1993, by Federal Register Notice 58 FR 21546. The Federal Register Notice also included a request for written comments from interested parties for those that could not attend the meeting.

In addition to these public announcements, eight different public interest groups were invited to make general presentations and to participate in a forum that would address specific aspects of the DBT. Letters were also sent to facility and corporate security staffs announcing this meeting.

The meeting was held on May 10, 1993, at the Holiday Inn Crowne Plaza in Rockville, Maryland. Approximately 150 people were in attendance, which included representatives from the utilities, public interest groups, non-government organizations, and other interested parties. Respondents to NRC's request for presentations were comprised of representatives from Committee to Bridge the Gap, Nuclear Control Institute (NCI), Nuclear Management and Resources Council (NUMARC), and one private citizen who lives near Three Mile Island.

The meeting agenda consisted of three sessions--all open to public participation. The first session involved separate presentations by the NRC and representatives from Committee to Bridge the Gap, NCI, NUMARC, and one private citizen from the Harrisburg, Pa., area regarding their individual views on the DBT. The second session involved a forum in which representatives from the three previously mentioned groups, and the general audience, responded to questions regarding various aspects of the DBT. The third session was to give the audience an opportunity to discuss any aspect of the DBT; however, due to the paucity of comments from the audience, it was combined with the second session.

Enclosure 5

¹The term design basis threat (DBT) in this enclosure refers to radiological sabotage only.

Specific topics that the NRC presented for discussion during the forum included: (1) size of adversary, its capabilities (including weaponry) and attributes; (2) use of various transport modes (e.g., land, water, air) to gain access to the protected and vital areas; (3) use of a vehicle as a weapon or bomb to commit radiological sabotage; (4) attributes of a vehicular threat (e.g., size, speed); (5) quantity of explosives; and (6) use of vehicular-mounted weapons.

The following is a general summary of information received at this meeting and through written correspondence to the NRC. The NRC staff does not necessarily endorse the veracity of this data.

Summary of Comments

The responses to changes in the DBT primarily focused on two distinct issues: (1) the vulnerability of NRC-licensed commercial nuclear power plants to a forcible vehicular intrusion involving explosives and (2) the type of information used by the NRC to determine the DBT (e.g., trends in terrorism). Commentors from both the public interest groups and the nuclear industry agreed that a fresh look is needed at the DBT. There was disagreement on the implications of the Three Mile Island (TMI) intrusion and the World Trade Center explosion, and what relevance these two incidents have to the DBT.

Representatives from the two public interest groups--Committee to Bridge the Gap and NCI--commented at the meeting that the current DBT, which is the Commission's criteria for establishing security regulations, is not adequate. They stated that the United States is no longer immune to international terrorism's vehicle bomb, as evidenced by the New York Trade Center bombing. Their recommended DBT changes include, among other things, protection against vehicle bombs.

These representatives further stated that the NRC should consider, when revising the DBT, both trends and realistic hypothetical threats. Relying on terrorism trends to guide the DBT standard fails to identify or foresee precursors, incipient trends, and one-of-a-kind events.

The public interest groups advocated, as they had in their previous petition on the subject, extending the Individual Plant Examination for External Events program to require licensees to perform plant-specific analyses of their vulnerabilities to vehicle bombs.

Conversely, representatives from the nuclear industry stated that current nuclear power plants' security arrangements provide more than adequate public health and safety protection. The new DBT

assessment should only include information from the World Trade Center and TMI incidents that are relevant to the threat to nuclear power plants.

Industry challenged the assumption that a credible threat of radiological sabotage to nuclear power plants exists in this country and contended that the DBT should not be assumed to be a paramilitary force. (Reference was made to a downward trend in domestic terrorist events over the last several years.) Moreover, the DBT review should also include plant experience and trends in domestic terrorist events over the last 16 years. Industry further stated that the profiles and motivations of existing terrorist groups, and the tactics these groups would use, should be factored in when considering any DBT changes. Industry stated that terrorists choose targets that have maximum chance of success and minimum risk to themselves. To approach a facility that has security in place has far more risk attached to it than an unsecured high profile target such as the World Trade Center.

Industry (NUMARC) recommended that NRC delay proposing any vehicle-protection requirements until an industry security working group completes their own review of the need for these requirements at plant sites and develops recommendations for industry consideration. A range of cost estimates for implementing certain facility vehicle barriers was also provided to the NRC (Enclosure 2).

Specific Aspects of the DBT

The following are comments from public interest groups and the general public (referred to as "public commentators") and the nuclear industry on specific aspects of the DBT. Included in the public commentators' responses are comments from several facility security officers who were responding on their own behalf.

Adversary size: Public commentators stated that the DBT should require that plants protect against teams of terrorists operating in multiple groups. In light of the current threat environment, both the number of presumed adversaries in the DBT and the number of facility armed guards are too small to be considered realistic. Although it was mentioned that a single attacker would suffice, as evidenced by the recent TMI incident and especially when it comes to a vehicular bomb. One public commentator said that the adversary size is less important than the vehicular bomb.

Industry group stated that the size of the external adversary should not be considered before deciding what the nature of the

actual threat is to the nuclear power plants, i.e., is it a paramilitary force? Further, the actual threat should be based on the activities of terrorists in the United States.

Insider threat--activities that an insider can perpetrate:

Public commentators stated that consideration should be given to the potential cooperation between an insider and external adversaries using a vehicle bomb. Because of this, the insider threat should not be excluded--at least "one insider" should be considered. Moreover, if a vehicle bomb adversary manages to secure the cooperation of an insider in certain important positions (through any means, including misleading the insider about his or her intentions), the damaging effects of a vehicle bomb can be increased. With respect to the industry's arguments that the insider threat should be eliminated, one public commentator stated that all the trustworthiness measures mentioned could be bypassed by coercion from outside the plant.

Industry representatives stated that the insider threat should be eliminated because of the access authorization and fitness for duty rules, the continued behavior observation programs, and the plants' emphasis on fostering teamwork. In addition, industry stated that since the NRC has been keeping records, there is no recorded incidents of radiological sabotage; only one incident exists of sabotage and that was classified as industrial.

Capability of an adversary using more than hand-carried weapons and equipment: Public commentators stated that if it is a realistic assumption that a vehicle will be used by an attacker or attackers, obviously more weapons and equipment would be used; the adversaries would not be limited to what could be hand-carried. Since vehicles are readily available to potential adversaries, the question that should be considered is whether the weapons and equipment are greater than what is provided for in the current DBT. Furthermore, as evidenced by international events, terrorists have used more than hand-carried weaponry for this type of activity. Terrorists have acquired sizable conventional military arsenals, including small rocket launchers and anti-tank ordnance. Other specific weapons mentioned include rocket-propelled grenades (RPG). (The DBT's attributes of hand-carried weapons include the use of RPGs.)

Industry stated that assigning adversary capabilities is premature until it is determined that a paramilitary force is indeed a threat to a nuclear power plant.

Adversary use of land-based vehicles for transport of personnel and equipment, as a weapon or as a vehicle bomb, and vehicle type and weight: Public commentators responded that the use of a vehicle is significant as demonstrated by the TMI incident. The

NRC needs to consider vehicles and protection to prevent them from getting close to the plant. Specifically, protection against truck and boat bombs, which the NRC should consider simultaneously, with the airborne threat given further consideration; the NRC should not delay the first issues, while considering the less likely and more difficult airborne threat. Barriers should be established at an effective stand-off distance.

Public commentators further stated that the DBT should protect against the type of vehicles that are readily accessible to the public, in particularly rental agencies; a four-wheel drive vehicle with a large weight-carrying capacity was specifically mentioned. Consideration should be given for individuals bypassing the normal access roads and attempting to enter the plant off-road.

The only response received regarding speed the vehicle would be travelling, in reference to the DBT, is that putting control barriers would force a vehicle to drive in a zig-zag pattern, thus reducing speed.

Industry comments on the above topics were that the TMI intruder, although successful in crashing a vehicle through the gates, was a trespasser; this event did not represent a radiological sabotage threat to the plant.

Vehicle-mounted weapons: The only comment received was from public commentators who stated that a reasonable assumption could be made that by using a vehicle, vehicle-mounted weapons would also be used.

Location of vehicle barriers: Public commentators stated that by planning for a penetration at vehicle access points, and placing vehicle denial systems at those points only, would allow potential adversaries to bypass those barriers with an off-road vehicle.

Location of vehicle barriers to provide the greatest safety benefit--protected entry/exit vehicle access points, around the protected area, or at a determined stand-off distance: The only comment was from public commentators who stated that protection at a greater distance from the plant might be easier but at a minimum they should be placed at the stand-off distance.

Size of explosives: The only comment received was from public commentators: the NRC should consider the worst case based on what has actually happened in the past (i.e., Beirut) and that amount is approximately 10,000 pounds.

Costs of implementing protective measures based on a defined DBT vehicle and a DBT explosive: Public interest stated their estimate as a few hundred thousand dollars to a million dollars per site to install and a few tens of thousands of dollars per year to maintain the type of protective measures previously mentioned.

Industry representatives stated that the installation could cost greater than a million dollars at some sites. Vendor costs should be cautiously evaluated, especially when the vendor does not do the installation. It was also mentioned that facilities have a number of buried electrical cables, gas lines, water, etc., and to install the barriers with the stopping powers previously discussed, the system must be firmly anchored, which would involve a number of deep holes. Industry (NUMARC) also provided an anticipated range of costs for implementing certain facility vehicle barriers (Enclosure 2).

In some cases, the perimeter fence may have to be redesigned, which would be an additional and costly expense. Industry did not provide any operational cost because of the time involved in determining the cost on a site-specific basis.

Cost of security to protect against a land-based vehicle outweighing the risk to the public health and safety: Public commentors stated that keeping the costs in the low millions of dollars is not a major consideration. They consider this as a reasonable cost to reduce such a risk to the public health and safety.

Industry representatives stated that in determining costs, the probability of the event, and the consequences expected from it should be balanced with what is being spent to protect against the threat. Since there has never been a threat to power plants in this country, expenditures to install systems at power plants that protect against a terrorist attack are not warranted. Based on past trends, there has never been a credible threat from terrorist groups to U.S. power plants.

Affect of vehicle protection systems on normal and emergency plant operations: Public commentors stated that physical barriers previously mentioned should not pose any serious problems regarding access to the plant for emergency vehicles. (Types of barriers mentioned include hydraulically lifted gates and vehicle denial systems along the protected area fences.)

Industry representatives stated that a site-specific analysis is needed to make this determination. However, with the systems

previously mentioned--large vehicles, capable of carrying 10,000 pounds--the necessary hardware would surely have an affect on ingress and egress from the protected area.

Other DBT characteristics that should be changed, added, or deleted: Public commentors responded that the use of bullet-proof vests by the adversaries should be considered, and as a result, this may require some adjustment in terms of tactics used by the facility's protective force.

Public utilities that have installed, or plan to install, vehicle protection systems as a result of the World Trade Center and TMI incidents: Public commentors stated that the cost of installing protective measures against the type of threat which would change the DBT is a reasonable cost to protect the public health and safety.

A representative from one utility stated that a crash-proof gate and barriers, located at some of that facility's weaker points, were installed as a result of the Beirut incident. It was mentioned that this was done as a prudent measure by this company and this decision needs to be made separately by each utility.

Utilities that would proceed to install systems to protect against a design basis vehicle and a design basis explosive before final rulemaking is completed: Public commentors stated that the NRC should move promptly with an immediately effective rule and not rely upon volunteerism by the utilities.

Industry representatives could not comment on this issue since those attending the meeting were not in a position to make that decision.

Relying on advance warning of a terrorist threat against U.S. power plants before the NRC asks the facilities to protect against a vehicle threat: Public commentors stated that the NRC should not wait for advance warning from the intelligence community before taking prudent measures to protect against such an event. Moreover, advance warning is not always certain or likely, and as evidenced by the successful TMI intrusion, where no advance warning was given.

Industry representatives stated that this issue should best be answered by the intelligence community and law enforcement officials at the Federal level who have access to intelligence information.

REGULATORY ANALYSIS
Malevolent Use of Vehicles at Nuclear Power Plants

1.0 STATEMENT OF THE ISSUE

1.1 Background

The Commission began its deliberations on the vehicle issue in 1985 and a series of Commission meetings and papers followed. These meetings and papers focused on a range of options to respond to the potential threat posed by vehicles, Nuclear Regulatory Commission and other agency assessments of the threat, and the continuing validity of the design basis threat (DBT) for radiological sabotage. Staff provided options to the Commission in SECY-86-101 and SECY-88-127. Options were included for contingency, both short-range and long-range planning by licensees and NRC, and for various physical security requirements. The physical security options addressed were: 1) vehicle denial system on existing access roads to power reactor sites, 2) vehicle denial system for land portion of protected area (PA) perimeter, and 3) surface vehicle bomb protection.

The Commission also solicited the views of other agencies. A number of Commission meetings between 1985 and 1987 included threat briefings by the Central Intelligence Agency (CIA), the Federal Bureau of Investigation (FBI), and the Department of Energy. Further, guidance was sought from the National Security Council (NSC). The NSC and the FBI documented their assessments in classified correspondence to the NRC.

Although staff recommended that the Commission approve contingency plans for use by the NRC staff in the event that a vehicle bomb threat were to arise, the Commission directed in a Staff Requirements Memorandum (SRM), dated June 16, 1988, that short-range contingency planning by licensees be required that would assure that plans were in place for installation of temporary emergency measures for response to a surface vehicle bomb threat. In choosing short-range contingency planning, the Commission also chose not to modify the DBT based on available information. Contingency planning for surface vehicle bombs was addressed in Generic Letter 89-07 and developed by licensees in 1989.

1.2 Recent Events

The intrusion incident at the Three Mile Island (TMI) power reactor and the bombing at the World Trade Center renewed concerns about the vehicle threat. Regarding the intrusion at TMI, NUREG-1485, "Unauthorized Forced Entry into the PA at Three Mile Island Unit 1 on February 7, 1993," reports the findings of the NRC Incident Investigation Team. The report highlighted the fact that PA barriers could be penetrated by vehicles and that assessment and response to such a penetration was difficult. In the World Trade Center attack it appears that a van bomb, containing between 500 and 1,500 pounds of explosives, was detonated in a public underground parking garage. These two events initiated the need for staff to reassess the DBT with respect to malevolent use of a vehicle.

At an April 22, 1993 Commission meeting on SECY-93-102, staff reviewed past Commission deliberations on the vehicle threat and presented four proposed options with cost estimates in response to the current evaluation. Option 1

was to take no action. Option 2 would require vehicle protection at existing PA vehicle access points and some distance on each side of those access points. Option 3 would require vehicle protection around the entire PA perimeter. Option 4 would require protection against some specified design basis vehicle (DBV) and explosive charge. In addition to the proposed options, staff noted that, absent an immediate actual vehicle threat, a staff recommendation on which of the four proposed options the Commission should adopt would be delayed until after a May 10, 1993, public meeting on the DBT. This delay would permit staff consideration of public input. Staff also presented updated intelligence information at the closed portion of the April 22, 1993 Commission meeting.

2.0 OBJECTIVES OF THE ANALYSIS

Following the recent events, staff was directed by the Commission to expeditiously prepare options for their consideration, without completing all of the normal supporting documentation such as a regulatory analysis. On May 26, 1993, the Executive Director for Operations forwarded a predecisional draft staff paper for Commission information prior to a scheduled Congressional Hearing on May 27. That memorandum noted that staff had not developed the required regulatory analysis to justify the addition of a DBV to the DBT. It also noted that staff believes that flexibility is needed with respect to implementation to provide DBV protection at some distance from vital equipment at a reasonable cost. The objective of this regulatory analysis is to analyze the four options presented to the Commission in SECY-93-102; develop a fifth option to provide the needed flexibility; and to explain the technical rationale and basis for staff judgments sufficiently to support any proposed rulemaking.

3.0 ORIGINAL OPTIONS

3.1 Option 1

No change in current position.

3.2 Option 2

Roadway Protection - Require a vehicular protection system on existing roadways and some distance on either side of the vehicle control points into PAs.

This option would protect against forced vehicle entry only in the immediate area of existing vehicle gates into the PA. Because the remainder of the PA perimeter would remain vulnerable to vehicle intrusions, licensee contingency planning for land vehicle bombs would be retained.

Barriers that could be used to protect gates include permanent active barriers that can be lowered to permit passage of authorized vehicles and temporary barriers that can be moved. Adjacent areas could be protected by passive barriers such as concrete blocks, bollards (i.e., heavy posts), or planters, all which must be properly anchored into the ground.

3.3 Option 3

PA Perimeter Protection - Instead of existing contingency procedures, require protection against vehicular intrusions into PAs.

This option would extend vehicle protection to the entire PA. In addition to the type of barriers discussed in Option 2, licensees could use other techniques such as trenching or reinforcing existing perimeter with anchored cabling systems.

This option would also provide varying degrees of protection against a vehicle bomb. At facilities with an average sized PA and typical concrete structures, a vehicle bomb similar to that reportedly used at the World Trade Center may cause moderate damage to some concrete walls. However, the safety equipment located behind typical concrete walls, but not contiguous to outside walls, would likely be protected. Some facilities also have intervening structures which might absorb some of the energy from an explosive blast.

However, some PAs are smaller and have portions of the PA perimeter that are close to a vital area barrier and would likely be severely damaged. In addition, not all safety equipment is protected by reinforced concrete walls. At a few sites, significant portions of safety systems are not behind concrete walls.

3.4 Option 4

Protection at Standoff Distance for a DBV and Explosive Device - Instead of existing contingency procedures, require protection against a vehicle bomb of a specified size. Existing vehicle bomb contingency procedures would remain in effect until permanent measures are implemented.

At some sites, protection against vehicular intrusions into PAs may be sufficient to protect against the DBV bomb. At other sites, licensees would have to provide additional measures to protect against unauthorized vehicles approaching close enough to vital equipment to cause a significant safety risk. Staff believes that this could be done at most sites without reconfiguring existing PA perimeters, intrusion detection systems, and closed-circuit television (CCTV) or increasing the size of security forces. The extent of additional measures required for some sites would vary depending on the size of the design basis explosive used in determining appropriate stand-off distances. Implementation options would include installing permanent or moveable barriers to protect against vehicle access to portions of the PA perimeter or installing blast shields or deflectors to protect vital equipment.

4.0 CONSEQUENCES

4.1 Analytical Approach

Staff conducted a preliminary analysis of the benefits and costs of the four options in support of SECY-93-102. Because of the short time available, this preliminary analysis was limited in scope. To assess the benefit from protection against use of a vehicle for forced entry into the PA (absent a bomb threat), staff reviewed NUREG-1485, "Unauthorized Forced Entry into the Protected Area at Three Mile Island Unit 1 on February 7, 1993." For the purposes of this analysis, staff also reviewed prior assessments of the vehicle intrusion issue. It also examined details of the times it would have taken an adversary to reach vital areas from the PA at TMI, both using a vehicle and on foot, which was outside the scope of NUREG-1485.

In analyzing the benefits of protecting against a vehicle bomb for SECY-93-102, staff reviewed drawings of all 67 power reactor sites that are currently operating or are in temporary outages, that showed the owner controlled area, the PA, and the location of buildings that contained vital equipment. For all sites, staff estimated the shortest distance between the outer edge of the owner controlled area and a vital area. For 26 sites, chosen at random, staff estimated the length of the PA perimeter, the shortest distance between the PA perimeter and a vital area, and the shortest distance between a parking area and the nearest vital area. Because of the small scales involved, many of the estimates of distances were imprecise.

To estimate the impact of a truck bomb of the size described in Enclosure 8, staff assumed a building with concrete walls 18 inches thick and an effective density of rebar of 0.2 percent. Most vital area barriers equal or exceed this assumption, although several sites have a few pieces of vital equipment that are not within structures. Staff assumed that the ceilings or roofs of vital area structures would provide protection at least equivalent to the wall assumption. For distances at which the closest vital area structure would provide a low level of protection, staff assumed that vital equipment within the structure would be disabled. Staff estimated the impact of an explosive blast on building structures using the United States (U.S.) Corps of Engineers Blast Analysis Manual, PDC-TR-91-6, July 1991. Staff did not assess the significance of the actual equipment in the nearest vital area structures nor did it assess whether redundant or diverse equipment would continue to function.

Since preparing SECY-93-102, staff has expanded the scope of its analysis of vehicle bomb protection. It has expanded its review of site drawings to all 67 sites. It then identified the 30 sites that its initial analysis indicated had a specified distance between the PA and the nearest vital area. (At a distance greater than the specified distance, most vital area barriers should provide at least a medium level of protection. The Corps of Engineers uses medium level of protection to describe a structure that would be damaged, but repairable. Occupants or other assets within the structure may sustain minor injuries or damage.) For these 30 sites, it determined, through information obtained by the resident inspectors, more precise estimates of the distance

from the PA to all vital areas that were within 125. For these vital areas it obtained available details on the wall structures. For vital area structures that appeared to provide less than medium protection, it assumed that the vital equipment within the structure would be disabled and then determined whether redundant or diverse equipment would be available to perform the same function.

Staff has been unable to obtain data on the direct effect of an explosive blast on unprotected equipment. Its' initial assessment on equipment not in buildings focused on the availability of diverse systems, substantial intervening buildings, and stand-off distances sufficient to reduce blast overpressures to the same range as static pressures used in design to protect against natural phenomena.

4.2 Benefits

Traditionally, the staff has not attempted a quantitative evaluation of the benefits associated with safeguards requirements. In 1983 the NRC reviewed past efforts to quantify risk due to sabotage of nuclear power plants in an attempt to include consideration of that risk in the Commission's safety goal. The review led the staff to conclude that sabotage should not be included in the safety goal because no technical basis was available for quantifying the contribution of sabotage to the overall risk from nuclear power plant operations.

For the purpose of this analysis, a quantitative evaluation would require, among other things, quantification of the likelihood that someone would use a vehicle bomb in an attempt to damage a nuclear power plant, the probability that the bomb would be set off from a stationary location or that forced entry into the PA would be attempted, the probability that a bomb of a particular size would be used, and the probability that the bomb would be in a particular location. Staff is unable to quantify any of these factors.

In analyzing Options 2 and 3, staff first qualitatively considered the benefits that would be gained from avoiding a TMI-type intrusion, assuming that the intruders had malevolent intent and the characteristics of the DBT specified in 10 CFR 73.1(a). Option 2 would provide little incremental benefit, since portions of the PA perimeter at most sites would still be protected by only a chain link fence. A typical unenhanced chain link fence provides little protection against a moving vehicle. For any sites where Option 2 would be effective because natural terrain or other site features prevent access to the PA perimeter away from vehicle access points, the site would effectively meet Option 3 at no additional costs beyond those to meet Option 2.

With respect to Option 3, staff identified several lessons learned from the vehicle intrusion at TMI. Although the intrusion detection system generated an alarm, the alarm station operators were not able to confirm the intrusion promptly by CCTV. A foot patrol was sent to evaluate the cause of the alarm. There was confusion and misinformation given to operations and security staff

until a positive assessment of the intrusion could be made. Out of the confusion and concern for personal safety, operations staff made decisions that could have negatively affected the public health and safety. Even when an initial assessment was made, licensee staff did not know how many unauthorized individuals were inside the PA, where they were, and whether they possessed weapons or explosives. The vehicle also could have provided some protection from responder weapons fire, could have been used as a breaching device, or could have been used as a weapon against on-site personnel.

Although at many sites, vital area doors can be reached on foot within similar periods of time as with a vehicle, the incident demonstrated that a person in a vehicle could penetrate a PA barrier and quickly approach a vital area barrier. Staff estimates that at TMI an adversary in a vehicle could have reached vital areas about 50 seconds faster than on foot. At some sites, this difference could significantly affect the licensee's ability to interdict an adversary before critical safety equipment was reached.

By providing protection against vehicular intrusion into the PA, Option 3 also provides varying degrees of protection against a vehicle bomb. If a barrier stopped a vehicle at the PA perimeter with little or no further penetration, about 90 percent of the sites would provide significant protection against a vehicle bomb of the type specified in Enclosure 8. Barriers that result in no vehicle penetration for vehicle impacts at specified kinetic energies are typically more expensive than those that allow some penetration. For less expensive barriers, a vehicle of the type specified in Enclosure 8 may penetrate as much as 30 feet into the PA. For these types of barriers, about 80 percent of the sites would provide significant protection. Staff's analysis also indicates that there is a high likelihood that all sites would be capable of achieving and maintaining safe shutdown if a vehicle bomb of the size specified in Enclosure 8 were detonated at any land accessible location of a nuclear power plant outside of the owner controlled area.

Option 4 would provide an additional benefit by assuring that the remaining 10 to 20 percent of the sites would provide significant protection against a vehicle bomb of the type specified in Enclosure 8. Enclosure 7 to this Commission paper provides information (Safeguards Information provided under separate cover) regarding the potential impact at certain sites that might not provide significant protection against a large vehicle bomb that was stopped at the PA perimeter.

4.3 Assumptions used in Predicting Backfit Costs

General Assumptions

1. Based on analysis of all power reactor sites, site perimeters range between about 2,000 and 9,000 feet. Site PA perimeters that have potential for land vehicular access range from 2,000 to 7,000 feet. This range assumes some protection by natural terrain features which would preclude the need for protection of portions of the PA.

2. Site has four vehicle access points. Some sites may have up to 15 vehicle access points to protect.

Costs of Specific Intrusion Protection Devices Active Vehicle Access Barriers

Active barriers - Active vehicle access barriers include reinforced sliding gates and pop-up barriers. Vendor prices for materials and installation of active barriers of these types with a width of 10 - 12 feet range between \$15 - 35K. Price is dependent on several factors, most important of which is the design characteristics (size and speed) of the vehicle to be stopped. To account for licensee overhead costs (engineering, interface connections, procurement, and training) the vendor costs have been doubled. Therefore, the prices used in the cost estimates are as follows:

- a. \$30K for an active barrier to stop a passenger vehicle
- b. \$40K for an active barrier to stop a pickup truck
- c. \$70K for an active barrier to stop a large truck

Passive Barriers - Commonly used passive barriers are concrete barriers (Jersey Bounces) or cabling that can be placed at the PA fence and anchored at periodic intervals. Passive barriers to stop larger size vehicles include concrete planters and reinforced concrete walls. Price is dependent on a number of factors, most important being the size and speed of the vehicle (kinetic energy). Licensees may also choose combinations of options, such as a means to slow down a vehicle, which would justify less substantial barriers. Vendor prices for concrete barriers and cabling that can stop passenger size vehicles are estimated to be between \$16 and \$25 per foot. Vendor prices for passive barriers that can stop pickup trucks are estimated to be between \$36 and \$60 per foot, although staff did not find specific barrier test data for barriers that stop this size vehicle. Vendor prices for passive barriers that can stop large trucks are estimated to be between \$110 and \$136 per foot. To account for licensee overhead costs (engineering and procurement) the vendor costs have been tripled. Therefore, the prices used in the cost estimates are as follows:

- a. \$60/ft for a passive barrier to stop a passenger size vehicle with some penetration
- \$90/ft for a passive barrier to stop a passenger size vehicle with no penetration
- b. \$150/ft for a passive barrier to stop a pickup truck with some penetration
- \$225/ft for a passive barrier to stop a pickup truck with no penetration
- c. \$375/ft for a passive barrier to stop a large truck with some penetration
- \$550/ft for a passive barrier to stop a large truck with no penetration

Standoff Distance Analysis - If required to do a site-specific analysis, it is assumed that a licensee would need to do one similar to that described in NUREG/CR-5246, "A Methodology to Assist in Contingency Planning for Protection of Nuclear Power Plants Against Land Vehicle Bombs." This analysis would consist primarily of two major elements.

1. Blast Effect Analysis - The blast analysis would require assessment of what vital structures would be damaged and what vital equipment in that structure was damaged (assuming an explosive size). At many sites, where equipment was located inside reinforced concrete walls at sufficient standoff distances from the PA, this analysis would not need to be extensive. At other sites, with shorter distances between the PA boundary and vital area structures, this analysis could be significantly more complex. Vital equipment needed to be protected and not located in a building would also add to the complexity of the analysis.

2. Systems Analysis - Once it was determined what equipment was damaged, analysis would need to be done to determine if there was backup equipment, not damaged, that would allow the plant to maintain a safe shutdown condition.

4.4 Results of Costs Analysis

Option 1 - No change in current position.

Cost Summary:

No additional costs

Option 2 - Roadway vehicle intrusion protection at PA perimeter.

Cost Summary:

Items	Passenger Vehicle	Pickup Truck	Large Truck
1. 4 Active Vehicle Access Barriers	120	160	280
2. 800' Passive Barrier	48	120	300
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Total	\$168K	\$280K	\$580K

Option 3 - Vehicle intrusion protection at PA perimeter.

Cost Summary:

Items	Passenger Vehicle	Pickup Truck	Large Truck
1. 4 Active Vehicle Access Barriers	120/120	160/ 160	280/ 280
2. 2,000/7,000' Passive Barrier	120/420	300/1,050	750/2,625
Total	----- \$240/540K	----- \$460/1,210K	----- \$1,030/2,905K

Option 4 - Protection at safe standoff distance for DBV and explosive device.

Cost Summary Case 1: (Assumes analysis demonstrates safe standoff distances are within present PA - About 80 percent of sites)

Items	Passenger Vehicle	Pickup Truck	Large Truck
1. 4 Active Vehicle Access Barriers	120/120	160/ 160	280/ 280
2. 2,000/7,000' Passive Barrier	120/420	300/1,050	750/2,625
3. Standoff Analysis	115/115	115/ 115	115/ 115
Total	----- \$355/655K	----- \$575/1,325K	----- \$1,145/3,020K

Cost Summary Case 2: (Assumes analysis demonstrates safe standoff distances go beyond PA boundary for about 1/3 of boundary and further hardening of portions of PA barrier to penetration needed)

Items	Passenger Vehicle	Pickup Truck	Large Truck
1. 4 Active Vehicle Access Barriers	120/120	160/ 160	280/ 280
2. 2000/7000' Passive Barrier	120/420	300/1,050	750/2,625
1000/2000' Passive Barrier - hardened	90/100	225/ 450	550/1,100
3. Standoff Analysis	300/300	300/ 300	300/ 300
Total	----- \$630/940K	----- \$985/1,960K	----- \$1,880/4,305K

Discussion of Factors Impacting Cost of Option 4:

Ranges in cost estimates for the three vehicle types illustrates the influence of site-specific characteristics on costs, including the need at some sites to extend the vehicle exclusion area beyond portions of the current PA boundary or providing a more substantial passive barrier to prevent vehicle penetration. At a few sites, extension of the vehicle exclusion area beyond the current PA boundary may result in costs that exceed the upper range of the cost estimate.

The need for a licensee to provide additional measures beyond those needed to protect against vehicle penetration into the PA (Option 3) is a factor of the structural details of buildings containing vital equipment and the distance of the buildings from the PA. In SECY-93-102, staff indicated that at facilities with an average sized PA and typical concrete structures, a vehicle bomb similar to that reportedly used at the World Trade Center may cause moderate damage to some concrete walls. However, the safety equipment located behind typical concrete walls, but not contiguous to outside walls, would likely be protected.

5.0 DECISION RATIONALE

The staff continually monitors and evaluates the threat environment worldwide. In addition, the Commission was briefed by the CIA and the FBI on March 5, 1993. Neither agency provided information regarding an actual vehicle threat to domestic commercial nuclear power reactors that could serve as the basis for modifying the DBT. Further, staff reported on its analysis of more than 500 vehicle bomb attacks worldwide. Although, based on current information, there is no significant change in the threat environment, the bombing at the World Trade Center demonstrated that a large explosive device could be assembled, delivered to a public area, and detonated in the U.S. without advanced intelligence knowledge. In addition, the unauthorized intrusion at TMI demonstrated that a vehicle could be used to gain quick access to PAs of the plant. Consequently, the staff has concluded that a modification to the DBT is warranted.

The DBT is not intended to represent a real threat. It serves three purposes. It provides a standard with which to measure changes in the real threat environment. It is used to develop regulatory requirements. And it provides a standard for evaluation of implemented safeguards systems.

In assessing the impact on the DBT of the events at TMI and the World Trade Center, staff has considered the following two issues: first, whether these events establish the need for NRC to revise its regulations to redefine adequate protection of the health and safety of the public, in the sense that adequate protection is used by section 182 of the Atomic Energy Act; and second, whether these events demonstrate that amending NRC's regulations to protect against malevolent use of a vehicle at nuclear power plants would result in a substantial increase in the overall protection of the public

health and safety. With respect to the first issue, the NRC cannot consider cost. With respect to the second issue, the NRC must determine that the direct and indirect costs of implementation are justified in view of the increased protection.

The staff's assessment as to whether to redefine adequate protection is as follows:

The vehicle intrusion at TMI demonstrated that a person in a vehicle could penetrate a PA barrier and quickly approach a vital area barrier. However, for the public health and safety to be actually affected (absent a vehicle bomb threat, which will be discussed with respect to World Trade Center event), the following would also have to be true. The person or persons in the vehicle would have to possess the intent, knowledge of the plant skills, and equipment necessary to create radiological sabotage. They would have to leave the vehicle and reach one or more vital areas barriers. They would have to penetrate the vital area barriers, which are typically reinforced concrete walls and locked and alarmed steel doors. They would have to create a significant loss-of-coolant accident or create a reactor transient. They would have to disable sufficient safety systems to prevent the reactor from reaching a safe condition. They would have to cause a breach of containment. And they would have to accomplish all of this without intervention by the licensee's armed responding security officers.

The NRC interpretation of the DBT for radiological sabotage does not preclude adversaries' use of vehicles, other than vehicle bombs, for transportation and for breaching PA barriers. The vehicle should be detected by an intrusion detection system as it enters the PA. The nature of the threat should be assessed using CCTV or other means. Responding security officers should be able to neutralize the threat before sufficient damage can be done to create radiological sabotage. At many sites, vital area doors can be reached on foot within similar periods of time as with a vehicle. Therefore, staff has concluded that the TMI event has not demonstrated a need to redefine adequate protection.

In denying a 1991 petition for rulemaking to upgrade the DBT for radiological sabotage to include protection against a vehicle bomb, one factor identified by the staff was that a terrorist group would have to construct a large truck bomb undetected. The World Trade Center event demonstrated that this can happen. However, to conclude that protection of the public health and safety is not adequate, the NRC would have to conclude that the use of a vehicle bomb to create radiological sabotage is reasonably to be expected and that there would not be sufficient time to implement contingency procedures for protecting against a vehicle bomb. Based on its analysis of the current threat environment,

staff has concluded that the use of a vehicle bomb to create radiological sabotage at a nuclear power plant is not currently a reasonable expectation. If a significant change in the general threat environment caused staff to change this conclusion in the future, current contingency planning, which is designed to be implemented in a timely manner, would provide staff with a rapid regulatory mechanism to implement temporary protection measures and maintain an adequate level of protection while its regulations are amended to require permanent protection. Therefore, the staff concludes that the World Trade Center event has not established a need to redefine adequate protection.

The staff assessment as to whether to amend its regulations to protect against malevolent use of a vehicle bomb against a nuclear power plant so as to provide a substantial increase in overall protection of the public health and safety is as follows:

Staff has identified several lessons learned from the vehicle intrusion at TMI. Although the intrusion detection system generated an alarm, the alarm station operators were not able to confirm the intrusion promptly by CCTV. A foot patrol was sent to evaluate the cause of the alarm. There was confusion and misinformation given to operations and security staff until a positive assessment of the intrusion could be made. Out of the confusion and concern for personal safety, operations staff made decisions that could have negatively affected the public health and safety. Even when an initial assessment was made, licensee staff did not know how many unauthorized individuals were inside the PA, where they were, and whether they possessed weapons or explosives.

The TMI event demonstrates some aspects regarding use of a vehicle by a potential adversary that could provide advantages not previously considered. Therefore, staff considers that providing vehicular intrusion protection would provide a significant enhancement against such a threat. Enhancements to protect against the vehicular intrusion threat also provide, to varying degrees dependent on site characteristics, enhancement for protection against vehicle bombs.

The World Trade Center event has demonstrated a capability within the U.S. to construct a truck bomb undetected. This recently demonstrated capability indicates that although a vehicle bomb attack at a nuclear power plant is not reasonably to be expected, it is somewhat more likely to develop without advance indications than staff previously believed. Staff therefore considers that providing vehicle bomb protection would provide significant enhancement against such a threat.

Based on the analysis of the four options discussed in Sections 4 and 5, staff concluded that a fifth option should be proposed that would offer a more realistic and practical approach.

6.0 OPTION 5

This new Option 5 incorporates the protection measures of Option 3 - hardened protected area perimeter against intrusion. However, for Option 5, staff would develop criteria that could be used by licensees to determine, through simplified site-specific analyses, that protecting against vehicle intrusion into the protected area would also provide high assurance of protection against a vehicle bomb with characteristics of the type specified in Enclosure 8. These criteria would specify safe stand-off distances for various types of building constructions typical of those at power reactors. All licensees would be required to review their sites against these criteria, and those sites meeting these criteria would certify this to the NRC. Staff estimates that this certification process would demonstrate that about 80 to 90 percent of the sites could meet these criteria without further analysis or consideration of additional measures.

Sites not meeting these criteria would have choices that would include using more substantial (and expensive) barriers for a portion of their protected area to reduce vehicle penetration, extending vehicle barriers beyond the protected area perimeter, performing a more detailed analysis of existing structures and equipment to demonstrate their ability to protect against a vehicle bomb using barriers at the protected area, or evaluating other alternatives. Some licensees may be able to demonstrate that atypical building structures would provide adequate protection, that building damage would not disable vital equipment, or, if vital equipment were damaged, that redundant or diverse equipment could provide a backup function. If this capability could not be demonstrated, a licensee may have to establish additional security measures to assure protection from a vehicle explosive for vital equipment. Examples of these measures are extending the hardened barrier outward from the current protected area boundary, placement of blast shielding, or providing backup systems for those assumed to be damaged.

For most sites (80 to 90 percent), the costs for Option 5 would be about \$50,000 more than Option 3. This amount assumes a confirmation analysis that vital area structures meet staff specified criteria for safe stand-off distances. Many of the remaining sites would have choices available to provide equivalent protection with additional cost. For the few sites where analysis indicated that stand-off distances may be less than those specified in staff guidance, Option 5 permits evaluation of alternative approaches.

In those cases where licensees determine additional security measures may be needed to protect safe shutdown capability, Option 5 would permit licensees to either implement the additional security measures or develop alternate protection strategies. Staff would review licensee's alternative proposals and make an acceptability determination. The staff will accept the proposed alternative measures if they provide substantial protection against a land vehicle bomb and the costs of fully meeting the design goals and criteria are disproportionate with the added protection which would be provided. The Commission would be notified of such staff action.

The Regulatory Analysis (Enclosure 6) contains the essential elements of the appropriate Backfit Analysis for this option, and a suitable Backfit Analysis will be included in the proposed rulemaking package. Staff has concluded that Option 5 would significantly increase protection of the public health and safety. Staff has also determined that the direct and indirect costs of implementation of Option 5 are justified in view of the increased protection. Staff also notes that the determination on costs of implementation of Option 5 is based on the premise that the only definitive requirement for all licensees is that they provide measures to protect against the use of a land vehicle as a means of transportation to gain rapid access to vital areas and that they assess any incremental measures, if necessary to meet the design goal for a land vehicle bomb. A determination of whether incremental costs were disproportionate with incremental benefit would be made on a site-specific basis.

A summary of cost estimates follows for two cases, one where analysis demonstrates that safe standoff distances are within the present PA and one where the standoff distances go beyond the PA boundary.

Cost Summary Case 1: (Assumes analysis demonstrates safe standoff distances are within present PA - About 80 to 90 percent of sites)

Items	Passenger Vehicle	Pickup Truck	Large Truck
1. 4 Active Vehicle Access Barriers	120/120	160/ 160	280/ 280
2. 2,000/7,000' Passive Barrier	120/420	300/1,050	750/2,625
3. Standoff Analysis	50/ 50	50 / 50	50/ 50
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Total	\$290/590K	\$510/1,260K	\$1,080/2,955K

Cost Summary Case 2: (Assumes analysis demonstrates standoff distances go beyond PA boundary for about 1/3 of boundary and further hardening of portions of PA barrier to penetration needed)

Items	Passenger Vehicle	Pickup Truck	Large Truck
1. 4 Active Vehicle Access Barriers	120/120	160/ 160	280/ 280
2. 2,000/7,000' Passive Barrier	120/420	300/1,050	750/2,625
3. Standoff Analysis	100/100	300/ 300	500/ 500
4. Additional Measures	100/100	150/ 150	250/ 250
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Total	\$440/740K	\$910/1,660K	\$1,780/3,655K

Conclusion: Staff has concluded that Option 5 would significantly increase protection of the public health and safety. Staff has also determined that the direct and indirect costs of implementation of Option 5 are justified in view of the increased protection. Staff also notes that the determination on costs of implementation of Option 5 is based on the premise that the only definitive requirement for all licensees is that they provide measures to protect against the use of a land vehicle as a means of transportation to gain rapid access to vital areas and that they assess any incremental measures, if necessary to meet the design goal for a land vehicle bomb. A determination of whether incremental costs were disproportionate with incremental benefit would be made on a site-specific basis.

7.0 IMPLEMENTATION

7.1 Rulemaking Options

Rulemaking options with regard to the vehicle threat would apply to implementation of a Commission decision to modify the DBT for radiological sabotage and to promulgate related amendments to 10 CFR 73.55. As noted previously, staff has concluded that the vehicle threat does not present an immediate threat to nuclear power reactors and that additional prudent measures, based on a redefined DBT, will provide, at relatively low cost, an additional margin of prudence.

While normal rulemaking is an option, staff has focused its consideration on the two more expeditious methods of rulemaking.

Immediately Effective Rule: Promulgate an immediately effective final rule, allowing for public comment only on the final rule and require immediate implementation of licensee vehicle bomb contingency plans until permanent measures are in place.

Pros: The most time saving course of action to achieve prompt and enforceable licensee response and to provide protection against the DBV threat.

Cons: Cannot be supported by a credible justification of the reality and immediateness of the threat to negate the need for two Administrative Procedures Act requirements; publication of a proposed rule with opportunity for public comment, and the 30-day prenotice of effective date.

Presents a litigative risk due to eliminating prior public comment. May present additional litigative risks to the extent that applicable Commission rules are not applied to enable a timely implementation, e.g., 10 CFR Part 51 (environmental review).

Expedited Rulemaking: Promulgate a final rule in an expedited manner.

Pros: May significantly shorten the time between Commission decision and implementation.

Eliminates litigative risk due to eliminating prior public comment.

Cons: Provides a shortened public comment period.

Resource intensive.

An additional point should be noted regarding rulemaking in general as applied to the DBT and 10 CFR 73.55. There is no categorical exclusion under Part 51 for this activity, and therefore, an environmental assessment is required. In addition, both the proposed and final rules would have to be reviewed by the Committee to Review Generic Requirements and the Advisory Committee on Reactor Safeguards.

7.2 Guidance for Licensees

As indicated above, staff intends to develop criteria that could be used by licensees to determine, through simplified site-specific analyses, that protecting against vehicle intrusion into the PA would also provide substantial protection against a vehicle bomb with characteristics of the type specified in Enclosure 8. These criteria would specify safe stand-off distances for various types of building constructions typical of those at power reactors. The safe standoff guidance would consider such variables as wall and ceiling construction material; wall height, width, and thickness; the size, spacing and depth of rebar, and boundary conditions.

Staff anticipates that most licensees could certify the adequacy of their standoff distances using staff's guidance, without the need for more detailed analysis. For those licensees that choose to perform more direct analyses, staff could make available a four volume security engineering manual prepared by the U.S. Army Corps of Engineers. These manuals include information on vehicle barrier design and penetration tests. Additional barrier testing results are available from the Naval Civil Engineering Laboratory and Sandia National Laboratories. Staff also plans, with the help of the Army Corps of Engineers, to provide guidance on extrapolating data on penetration tests to barriers with different details of construction and for various soil conditions.

Sites not meeting the criteria would have choices that would include using more substantial and expensive barriers for a portion of their PA (to reduce vehicle penetration), extending vehicle barriers beyond the PA perimeter, performing a more detailed analysis of existing structures and equipment to demonstrate their ability to protect against a vehicle bomb using barriers at the PA, or performing a qualitative analyses of alternatives. The qualitative analysis would address the enhanced protection that would be achieved by protective measures that exceed protecting against vehicle intrusion into the PA. Some of these licensees may be able to demonstrate that atypical building structures would provide adequate protection, that building damage would not disable vital equipment, or, if vital equipment were damaged, that redundant or diverse equipment could provide a backup function. If this capability could not be demonstrated, a licensee may have to establish additional

security measures to assure an acceptable level of protection from a vehicle explosive for vital equipment. Examples of these measures are extending the hardened barrier outward from the current PA boundary, placement of blast shielding, or providing backup systems for those assumed to be damaged.

In those cases where the licensee determines additional security measures are needed to protect a safe shutdown capability, this option would permit licensees to either implement the additional security measures, develop alternate protection strategies, or propose not implementing measures beyond the PA boundary, along with a complete cost analysis. Staff would have to review the licensee's alternative solution against developed criteria and make a determination on its acceptability. For those licensees proposing not to implement additional security measures (beyond hardened PA perimeter), staff would need to make a determination of whether the costs were disproportionate with the incremental benefit. The Commission will be informed of the staff decision.

8.0 RECOMMENDATION

That the Commission approve Option 5: 1) a modification to the DBT for radiological sabotage (10 CFR 73.1) to include the use of a vehicle for the transport of personnel, hand-carried equipment, and/or explosives
2) appropriate modifications to 10 CFR 73.55 to reflect the change to the DBT and to allow for consideration of reasonable alternative security measures when the existing PA barrier does not provide safe stand-off distance, and
3) an expedited rulemaking to achieve this change.