

ORIGINAL

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Title: BRIEFING ON IMPLEMENTATION OF THE
LICENSE TERMINATION RULE AND PROGRAM
ON COMPLEX DECOMMISSIONING CASES
PUBLIC MEETING

Location: Rockville, Maryland

Date: Thursday, July 29, 1999

Pages: 1 - 71

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2 NUCLEAR REGULATORY COMMISSION

3 ***

4 BRIEFING ON
5 IMPLEMENTATION OF THE LICENSE TERMINATION RULE
6 AND PROGRAM ON COMPLEX DECOMMISSIONING CASES

7 ***

8 PUBLIC MEETING

9
10 Nuclear Regulatory Commission
11 One White Flint North
12 Rockville, Maryland
13 Thursday, July 29, 1999
14

15 The Commission met in open session, pursuant to
16 notice, at 2:00 p.m., Greta J. Dicus, Chairman, presiding.
17

18 COMMISSIONERS PRESENT:

19 GRETA J. DICUS, Chairman of the Commission
20 NILS J. DIAZ, Commissioner
21 EDWARD MCGAFFIGAN, JR., Commissioner
22 JEFFREY S. MERRIFIELD, Commissioner
23
24
25

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1 STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

2 ANNETTE L. VIETTI-COOK, Secretary of the Commission

3 STEPHEN G. BURNS, Deputy General Counsel

4 WILLIAM TRAVERS, EDO

5 CARL PAPERIELLO, Director, Office of Nuclear Material
6 Safety and Safeguards7 JOHN GREEVES, Director, Division of Waste Management,
8 NMSS9 CHERYL TROTTIER, Chief, Radiation Protection,
10 Environmental Risk and Waste Management Branch, RES

11 LARRY CAMPER, Chief, Decommissioning Branch, NMSS

12 ROBERT NELSON, Chief, Special Projects Section,
13 Decommissioning Branch, NMSS14
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P R O C E E D I N G S

[2:00 p.m.]

CHAIRMAN DICUS: Good afternoon. I welcome you to this briefing on behalf of my fellow Commissioners.

Today the NRC staff will update the Commission on the status of the decommissioning program and the remediation of sites listed in the Site Decommissioning Management Plan, otherwise known as the SDMP.

Today's briefing is the first part of a two-part story on the progress being made in implementing the new license termination rule. The story concludes tomorrow morning when the NRC staff briefs the Commission at 9:30 on its performance assessment program, which covers the areas of site decommissioning, high level radioactive waste disposal and low level radioactive waste disposal.

A sound and supportable performance assessment capability is absolutely essential to the success of the decommissioning program and the implementation of the new rule.

Today, however, the Commission looks forward to hearing more about the staff's decommissioning program and the cleanup of our SDMP sites.

I understand that copies of the briefing charts are available at the entrance to the meeting room.

I would like to also add that along with this

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1 briefing the staff had prepared a Commission information
2 paper, SECY-99-035, that provided an update of the
3 significant activities that have taken place in the area of
4 decommissioning. The staff's paper has been available on
5 NRC web site for several months.

6 Would any of my colleagues like to make any
7 opening statements?

8 Dr. Travers, would you please proceed.

9 MR. TRAVERS: Thank you, Chairman, and good
10 afternoon. As you indicated, the focus of our briefing
11 today is the status of the staff's implementation of the
12 license termination rule with a particular focus on the
13 status of the remediation of sites in the site
14 decommissioning management program or plan.

15 In addition, we want to address the status of
16 guidance development and staff initiatives for continued
17 decommissioning program improvement.

18 I should point out that while the Office of
19 Nuclear Material Safety and Safeguards has the overall
20 management responsibility for this program, significant
21 support is also provided from the Office of Nuclear
22 Regulatory Research, from the Office of Nuclear Reactor
23 Regulation, and the regions as well. Representatives of the
24 offices are here today, and as I understand it the regions
25 are observing this meeting with the Commission by video.

1 Present with me at the table are Carl Paperiello,
2 the Director of NMSS; John Greeves, who is going to be doing
3 most of the presentation, Director of Division of Waste
4 Management, NMSS; Cheryl Trottier, Chief of the Radiation
5 Protection, Environmental Risk and Waste Management Branch,
6 in Research; Larry Camper, who is the Chief of the
7 Decommissioning Branch in NMSS; and Bob Nelson, who is the
8 Section Chief of the Decommissioning Branch, NMSS.

9 Unless there are any questions, I will turn it
10 over to John Greeves, who is going to be doing the bulk of
11 the presentation.

12 MR. GREEVES: Good afternoon. As the Chairman
13 mentioned, this is sort of in two parts. The first part of
14 the discussion is going to focus pretty much on the sites
15 that we have been working on and trying to clarify the
16 status of those. Later today I will talk about
17 implementation of the license termination rule, where we are
18 in that process, and give some details.

19 Tomorrow we will identify the tools that have been
20 developed to implement these types of activities in an area
21 we refer to as performance assessment.

22 Chairman Dicus, you asked that we try and identify
23 any policy issues as we go through these briefings. I will
24 try and do that as I walk through the presentation and also
25 give some feedback on our interaction with various

1 stakeholders. I am going to include some of that in the
2 presentation.

3 [Slides shown.]

4 MR. GREEVES: The first slide is the overview
5 slide. I'm just going to go over the background for some of
6 the people in the audience who may not be familiar with the
7 program.

8 I will go over the status of the sites. There are
9 a large number of sites that have been running through this
10 program. We have got some good stories to tell and we have
11 got some areas where we need to make some improvements, and
12 I will make that clear.

13 We will talk about what our strategy is in terms
14 of implementation of the license termination rule and some
15 initiatives in improvements that we have put together and
16 how we are coordinating across the offices. That is very
17 important.

18 I will finish up with our forward view and
19 identify what we see as some challenges.

20 John Hickey has been the chief of this branch and
21 recently he and Larry Camper traded places. John Hickey has
22 done this briefing in the past. I will do it this time, and
23 we can look forward to Larry Camper picking it up next time.

24 The second slide is the background. I think the
25 Commissioners are pretty familiar with it. As you know, it

1 really goes back to the 1980s. Then-Congressman Synar had a
2 hearing and invited DOE, EPA, NRC and asked the hard
3 question: Where are we in setting these standards?
4 Chairman Carr was part of that hearing and promised that we
5 would make strides to go forward in this process.

6 Some of the things that were clear in that time
7 frame was the lack of timeliness. We had a number of sites
8 that were out there, including Apollo, Pennsylvania, which
9 is very recognized; UNC Wood River Junction; and, for
10 example, the Chevron Polling, New York, site. Progress just
11 wasn't being made on these sites. So that was one of the
12 issues.

13 Another was the evolving radiological criteria.
14 The staff was using guidance to evaluate these sites. We
15 had some branch technical positions addressing the uranium
16 and thorium issues, and we were using Reg Guide 1.86 for
17 surface contamination. These were the tools that we had
18 available.

19 Financial assurance was a key issue. It was a big
20 concern for all of us. We had a number of licensees that
21 had a bankruptcy issue going on, and it really drove the
22 early process of the rulemaking.

23 Incomplete records. There were a number of sites
24 that there were just poor records on. We went back and
25 looked at a number of old sites, which actually put more

1 sites on the list. So this was one of the drivers.

2 The last one on this sheet is the lack of
3 finality. There was not a clear standard by any of the
4 agencies as to what was the standard to hold the licensees
5 to by either EPA or NRC at that time.

6 The agency took a plan of action to address these
7 issues. They started with the 1988 decommissioning
8 procedures and financial assurance rule. This went part way
9 to addressing that issue. It clearly addressed the
10 financial assurance issue, which was one of the glaring
11 issues at the time.

12 It set a release referred to as unrestricted. It
13 did not address restricted release. Over time obviously we
14 have dealt with that. But that was what we had available in
15 1988.

16 In 1990 we put in place the Site Decommissioning
17 Management Plan. At the time, we had on the order of 40
18 sites, and it set a priority for these difficult sites and
19 gave them high visibility within the Commission.

20 The Commission agreed to use, in an interim
21 fashion, the criteria that the staff had been working on and
22 worked towards getting a final criteria in place.

23 As part of that process, in 1993 the Commission
24 put in place a recordkeeping rule to address that issue of
25 lack of recordkeeping. At that point in time all licensees

1 were responsible for keeping good records, keeping them in
2 one spot, and doing a good job of being able to record the
3 history. This was both for the materials and the reactor
4 site. So this helped in that process.

5 In 1994 the timeliness rule was put in place.
6 This was also necessary. There was not a good mechanism to
7 force timely cleanup.

8 With the timeliness rule put in place in 1994, it
9 set up a situation where if you wanted to stop your
10 operation or even if you had an area that had stopped for a
11 period of time, it gave the staff a tool to decide that,
12 okay, you've stopped your operation in this area or this
13 building for 24 months; you owe us a decommissioning plan.
14 So that was a tool that was needed and was in place in 1994
15 and has been working effectively to move these things along.

16 In 1996 the reactor decommissioning rule set up a
17 process for the large reactor facilities to identify the
18 back end of that process and also requirements for interface
19 with the stakeholders.

20 The most recent one and the last one on the list
21 is the license termination rule. It was by any measure
22 probably the hardest one to work on and get in place, but
23 the Commission was successful in 1997 in getting that key
24 part to finish off the framework.

25 I will mention one of the concerns that we do bump

1 into in the community with the stakeholders, and that is, is
2 that final? Can we count on that? I think the Commission
3 is quite aware of what the nature of those concerns are, but
4 that is one of them that we face in meetings with
5 stakeholders.

6 The next page is status of sites. There are a
7 large number of these. We have made significant progress.
8 Of the original 40-some sites, over half of those sites have
9 been dispositioned, and I think that is a real sign of
10 progress.

11 The number that are left. This is a little bit
12 busy. I'm going to give a little more background on each of
13 these categories.

14 We have already removed two this year and there
15 are 34 sites in various categories which I will be
16 explaining in the follow-up. The two that have already been
17 removed were Chemtron sites, one at Harvard Avenue and Bird
18 Avenue, and the Commission helped us out with that.

19 Actually, this set of sites is an example. It has
20 been a long process with those sites in Ohio. There was a
21 lot of public interaction, including the State of Ohio, in
22 those particular sites.

23 It's a success story from my vantage point. It
24 started, the first of these interactions, with kind of a
25 site-specific advisory board. We didn't call it that back

1 then. We called it a regulators group, but a lot of the
2 early experience the staff has in that arena of working with
3 other stakeholders we can attribute to those two sites, and
4 the state worked very well with us.

5 There are 34 sites that are currently on the list.
6 You can see the summary here. As I said, I'm going to
7 deliver each of these categories in more detail. They are
8 sort of split up into what we call a grandfathering
9 category, which pretty much relies on things like soil
10 concentrations and the license termination rule, which is a
11 dose-based criteria.

12 At the bottom you will see 11 sites. Those are
13 the more complicated sites, and I will finish off giving you
14 a little flavor of where we see that going.

15 COMMISSIONER MERRIFIELD: Chairman, may I ask a
16 clarifying question?

17 CHAIRMAN DICUS: Okay.

18 COMMISSIONER MERRIFIELD: In the discussion of
19 these different subtopics, I am wondering if for the benefit
20 of our audience you can explain what you mean by removal,
21 whether that means clean, whether that means we are taking
22 it out of the authority of the NRC and giving it to the
23 states; what decommissioning means. Is it clean or not
24 clean? That would be helpful as you explain your
25 presentation.

1 MR. GREEVES: I will give a short presentation and
2 others can add to it.

3 For example, when we removed a site from the SDMP
4 plan, it means we terminated the license. It doesn't mean
5 the site is at background. When you look at the action plan
6 criteria and the license termination criteria, there is a
7 margin above background that is set up in those regulations
8 that is allowed to be left at the site. That's a key issue
9 on any site that we get involved with.

10 How much could you leave? You're not going to go
11 back to background, but how much above background would you
12 be leaving?

13 The clean answer to your original question is
14 removal means the license was terminated. It doesn't mean
15 that you can't go out there and sample and find some measure
16 of radioactivity.

17 COMMISSIONER MERRIFIELD: For the sake of
18 clarifying for the audience and for me too, when you say
19 it's terminated, does that mean that activities necessary to
20 prepare the site for its future use have been completed?

21 MR. GREEVES: I will ask others to help me, but to
22 me, when it's terminated it means that the NRC regulatory
23 responsibility is over. The future activities of many of
24 these sites is not clear. Most of these are going for
25 unrestricted use.

1 MR. BURNS: I understand it's release for
2 unrestricted use; our regulatory jurisdiction is terminated.

3 MR. GREEVES: In those cases we make the
4 conservative assumptions of people coming back on the site,
5 and if it's feasible, setting up a farm or something like
6 that. If it's not, then that particular scenario may not be
7 included.

8 Have I answered your question for the moment? It
9 doesn't look like it.

10 COMMISSIONER MERRIFIELD: I can ask further
11 questions later on.

12 CHAIRMAN DICUS: Yes. Let's go forward.

13 MR. PAPERIELLO: Maybe I can help. We know what
14 is going to happen at Chemtron, what is going to be the
15 future use of the land.

16 MR. GREEVES: My understanding is it will be a
17 park. For example, at Apollo, we don't know. Apollo was
18 released for unrestricted use. It's a prime piece of real
19 estate. The town fathers would like to redevelop that piece
20 of real estate. However, there is a question in the minds
21 of local people: Am I going to have a problem if I reuse
22 this site?

23 Again, it goes back to that question I mentioned
24 earlier, the finality issue. Is there someone else who may
25 come in later and look for other issues?

1 CHAIRMAN DICUS: Okay. Go on. Thank you.

2 MR. GREEVES: I'm on page 5.

3 Of the two sites pending removal in 1999, for
4 example, one of them is a Pesses site. The Commission
5 helped us with this in terms of a decision recently to allow
6 material to go to waste control specialists. The site is
7 cleaned up to the standard, and Region I in fact has a paper
8 developed for us to get up to the Commission to release that
9 site. I understand the paper is actually in my staff at the
10 present time.

11 The other one in 1999 was the Elkem Metals site.
12 We have done all that we can on that. We've got a couple of
13 outstanding issues from the licensee which just have not
14 come back into us.

15 The seven sites with approved decommissioning
16 plans. Three of those will transfer to Ohio, and these
17 include the BP Chemicals site, Horizons, and RMI. We talked
18 with Ohio. They understand the basis for our approved
19 decommissioning plan, and they have told us they are going
20 to honor those commitments as they are passed through, which
21 we felt very good about.

22 We have three sites projected for removal in 2000.
23 These would include the Dow site in Michigan, Permagrain in
24 Pennsylvania, and the AAR site in Michigan.

25 One site is projected for removal in 2002. This

1 is an interesting case. This is the Parks Township site.
2 There are actually two sites there, one we refer to as the
3 shallow land disposal area. This particular one is the
4 operating site where they cleaned up equipment and did other
5 activities. The site was split and was subject to a hearing
6 process. This portion of the site we expect to make
7 progress on in 2002.

8 The next item is what we call the paper that
9 actually I believe is due to the Commission imminently on
10 extending the grandfathering deadline. The license
11 termination rule has built into it a date by which the
12 grandfathering approach would end, and it is August 20,
13 1999.

14 We have worked very hard to work these sites off.
15 In spite of those efforts, it turns out we will not be able
16 to get all of the last few sites off the list by the 20th.
17 We are asking for an approach where we could extend that
18 approval process.

19 MR. TRAVERS: Timing is everything. I just signed
20 it out this morning. So you should have it by this
21 afternoon.

22 CHAIRMAN DICUS: We have it.

23 COMMISSIONER DIAZ: We have it.

24 Would you mind summarizing for this meeting what
25 the key components of that paper are.

1 MR. GREEVES: Larry.

2 MR. CAMPER: The rule currently calls for the
3 staff to approve the submitted plans by August 20, 1999. We
4 are finding for a number of reasons, such as timeliness of
5 responses from the sites and the need to have our EA EIS
6 group review all of these packages. Time for states to
7 review the EAs and things of that nature has caused some
8 delays.

9 As John pointed out, we are well along. We think
10 that most of these will be completed later this calendar
11 year. In the Commission paper we actually give you a
12 schedule that we are managing to.

13 We recognize that despite those efforts and
14 despite the fact that we are well along in the process,
15 there can be unforeseen things. So we are going to ask that
16 you grant through an order an exemption for one year, to
17 August 20, 2000, for us to complete the approval work.

18 There is a table showing you what our projected
19 schedule is. Although we are asking for the one year
20 exemption worst case scenario, our efforts show we will
21 complete them much faster than that.

22 MR. TRAVERS: If I've got this right, the date as
23 it was established was established to provide an initiative
24 for the facilities to get their plans in. I think our
25 judgment in arguing the approval of an exemption is that we

1 believe good faith has been made on their part to do just
2 that. So it's simply a matter of extending it out to give
3 us some more time to deal with it.

4 CHAIRMAN DICUS: Thank you.

5 MR. GREEVES: The eights sites that would be
6 eligible under the grandfathering process include one of
7 them to transfer to Ohio. That is Northeast Ohio Sewer
8 District.

9 Seven, as Larry Camper identified, are actually
10 near completion. Most of these are uranium and thorium
11 sites, including sites such as Cushing, Lake City, Molycorp,
12 and Watertown GSA, which is a government site. All of these
13 are described in the paper that Larry just mentioned.

14 We have six sites that are under review for the
15 license termination criteria. Examples of these would be
16 two sites in Pennsylvania, Cabot in Reading and Revere, and
17 Safety Light.

18 As far as the schedule, one of those is projected
19 to come off in 2000. That is the 3M site. And five of them
20 are projected to make a decision approving a plan in 2001.
21 This would address the Sequoyah Fuels site, which the
22 Commission has seen in the past.

23 Another example is Waltz Mill with Westinghouse.
24 Westinghouse is coming up with a bit of an innovative
25 approach. They actually may stay on this site for a long

1 period of time, decades, and they are factoring decay time
2 into the evaluation. So the staff in the region are looking
3 at that.

4 The 11 sites that I mentioned with decommissioning
5 plans pending.

6 They have an approved alternative schedule that is
7 different than the 24-month time frame that I addressed.

8 Implementation has been somewhat more difficult
9 for these 11 difficult sites. They are typically the source
10 material sites. We have got some questions about an EIS
11 versus an EA, and will probably be back to you on that.

12 An example is the Jefferson Proving Ground, which
13 contains live ordnance. It's a difficult process of sorting
14 out how do you clean up that kind of a site and what do you
15 do with it. I expect somewhere along the line we will be
16 back to you and talking about that one.

17 Another one is the B&W shallow land disposal area,
18 which receives a lot of attention.

19 And Molycorp in Washington, Pennsylvania. We had
20 a meeting up there recently, and I believe there were
21 something like 300 people in attendance.

22 MR. BURNS: We also have a request for hearing
23 that has been referred to the Board.

24 MR. GREEVES: These are the ones that I will be
25 addressing towards the end of the presentation. It will be

1 a challenge for Larry Camper and his staff to manage that
2 schedule. We'll talk more about it.

3 The next site is a concept of partial
4 decommissioning plans. A number of licensees have come in
5 and asked us can we partially treat our sites. For example,
6 Kaiser, Fansteel, and Molycorp. They are looking in some
7 cases for an early release, and they want to use a
8 combination of the grandfathering criteria, and then for the
9 rest of the site later the license termination rule.

10 As Steve mentioned, there is a hearing request on
11 the Molycorp site. So we have that to work with. We have
12 worked with OGC on this. The concept is one we can work
13 with. OGC supports the process. We are nearing completion
14 on a couple of these.

15 This type of approval will allow these licensees
16 to make some progress and reduce some of the burdens on
17 them. It will allow them to clean up part of the site first
18 and address the rest of the site later. We see that as an
19 advantage, and will keep you posted as to how that plays
20 out.

21 At this point I'm going to switch gears to
22 implementation. We talked about the sites. Now we will
23 talk about implementing the staff requirements memorandum
24 that you gave us regarding the license termination rule as a
25 follow-up to that.

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1 As far as initiatives and improvements, we did put
2 out a draft guidance document. In August of last year
3 Research put out the Draft Guide 4006. It addresses the
4 four fundamental issues that you have to work with in the
5 license termination rule:

6 The restricted release question.

7 How does ALARA work in this process?

8 The final survey, which is very important for both
9 the materials and the reactor licensees.

10 Then dose modeling. How is the staff going to
11 address that?

12 Those four issues are in that document. It has
13 been out there for sometime and we are asking for comment on
14 it.

15 Another sign of progress is in November of last
16 year we put out a screening table. The regions asked us for
17 a tool that they can use to take care of some of the simple
18 licenses that, say, have a single nuclide. We were able to
19 come up with a screening table for beta and gamma nuclides.
20 It is based on a conservative approach and it is for
21 building only, but it's an early tool that we have put into
22 our capabilities.

23 We are developing and improved dose modeling
24 approach. Tomorrow Norm Eisenberg and company will be
25 giving you a complete briefing on that. We have been

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1 reducing some of the unnecessary conservatism and building
2 in a more realistic approach in the dose modeling
3 activities.

4 Both Research and NMSS have been working on these
5 dose modeling assessments. This is one of the things you
6 asked us to do in your staff requirements memorandum.

7 As far as these models, you will hear more about
8 it tomorrow. It's basically a graded approach. Licensees
9 can actually use that table. They will not have to hire a
10 consultant. They can choose to clean up to that level. A
11 lot of them can move out.

12 There is a screening level set of models that we
13 have been working with. Some licensees may choose to do
14 that. In some cases they don't have to hire a consultant to
15 do that.

16 Then there is the site-specific review.

17 I view this as kind of a graded process, depending
18 on the complexity of the site.

19 The standard review plan is under development. It
20 will document the staff procedures, how we intend to review
21 these sites, and what the acceptable approaches are, and
22 will support the 1997 license termination review. The
23 licensees are asking to see that document. I think we are
24 doing a good job of sharing that process with them.

25 We have been conducting a series of workshops. We

1 have completed four already. They were in December,
2 January, March, and recently one in June. We have one
3 scheduled August 18 and 19.

4 A focus will be the license termination plan for
5 reactor decommissioning. A lot of questions have been
6 raised in that arena. We felt it was worth a one-day
7 effort. We have coordinated that agenda with the
8 stakeholders. The states have been participating heavily in
9 these meetings. The licensees have provided a lot of input.
10 Department of Energy, EPA, NMSS, Research, and the technical
11 assistance contractors have all participated in these. It
12 has been a very successful approach.

13 We put a lot of this material up on our web site.
14 We have ten modules of the standard review plan that we put
15 up recently that we will be getting feedback on. The one
16 that is not there is the dose modeling piece. It's the most
17 difficult one to bring forward. We are working on that.

18 We also put out some guidance to the regions on
19 site-specific dose modeling. We put that up on the web. We
20 transparently want the licensees to see what guidance
21 headquarters was giving to the regions.

22 We have also participated in workshops sponsored
23 by EPRI and NEI. In May I personally went to the workshop
24 at Oyster Creek. I and my staff got a lot of out it and it
25 was a good feedback loop.

1 We have been coordinating, as you asked us, with
2 the Advisory Committee on Nuclear Waste. They support our
3 approach here and they have been giving us good feedback.
4 We have enjoyed that.

5 Streamlining. Carl has made streamlining an
6 office requirement and approach. Across all the divisions
7 we are putting in place a streamlined effort to licensing.

8 We have improved procedures. We have set up a
9 process where the expectation is we really would prefer not
10 even to ask questions. We would like to have a good product
11 coming in and be able to write our evaluation. Short of
12 that, the goal is only one round of questions, not multiple
13 rounds of questions.

14 Spent Fuel Program has set a good standard for us
15 here, and we want to follow that approach. You need to know
16 what the schedules are. We are having the staff write their
17 safety evaluation early. That should be the vehicle that
18 helps you ask those questions. If you have got a hole in
19 your safety evaluation, okay, you have a question, but if
20 you don't have a hole in your safety evaluation, maybe you
21 don't need to ask that question. We are working on that in
22 all of the divisions.

23 The second item below streamlining is the pilot
24 program. We provided a paper, SECY-99-160. It actually
25 came up June 22 to the Commission to give you some feedback

1 on how that project is going. We had a handful of licensees
2 who wanted to take the decommissioning issue into their own
3 hands and run with it. We have five. I think now we are
4 down to three, as described in the paper.

5 We will inspect at the end: Did they meet the
6 committed criteria? This lowers the burden on the licensee.
7 He doesn't need to be interacting with us, and it allows my
8 staff time to work on the more difficult sites. We found
9 this to be useful.

10 The last item is an integrated licensing and
11 inspection program. We are tracking the inspections on
12 these sites. We are tying the regions and headquarters
13 together. It's event driven. If something doesn't make
14 sense or there is not a lot going on, then we won't go out
15 and do that inspection.

16 Larry and his branch are responsible for working
17 with the regions on that. It does get revised as needed,
18 and there is a uniform inspection procedure that is applied
19 for decommissioning these sites.

20 MR. CAMPER: Putting it in perspective, we had
21 done 18 of 36 sites by the end of June and some more are
22 taking place in July and August.

23 MR. GREEVES: On the next page, page 10, the
24 Commission asked us in the past how is the concept of the
25 Decommissioning Board going. I believe it's going well. We

1 had what I will call a rough start. Any time you start
2 something up like this there are some inefficiencies.

3 We have the participation by NMSS. My deputy, Joe
4 Holonich, chairs the Board. We have representatives from
5 NRR, Research, and the regions. In fact, the regions are
6 quite interested in both these briefings. As Bill
7 mentioned, they are on the line today observing this
8 particular set of briefings.

9 We started out with weekly meetings. That was
10 just too much. We have slimmed down to biweekly meetings,
11 and they seem to be much more efficient in that process.

12 We did a diagnostic about five months ago and took
13 notes on things that weren't going so well, and we cut those
14 out and improved upon part of the process.

15 A key for the Decommissioning Board is to monitor
16 the operating plan commitments. In each meeting we ask the
17 question: What are the near-term goals in the operating
18 plan and how are we doing?

19 We address inter-office issues, commission papers,
20 briefing slides. These briefing slides were provided to all
21 the offices in advance. We looked for comments. The
22 screening table I mentioned earlier. That one was to the
23 Board a number of times to make sure that it was a useful
24 tool for the regions.

25 Let me mention one last one, the entombment paper

1 which you received recently. That cuts across NRR,
2 Research, NMSS. We had several briefings at the
3 Decommissioning Board on that paper.

4 The last item is just efficiency improvements. I
5 think the Board helps us facilitate the exchange across the
6 offices. We see, for example, reactor sites over time are
7 going to migrate from NRR to NMSS.

8 The licensees have actually expressed some concern
9 about this process: I'm used to my project manager. Who
10 are these new people? NRR management and NMSS management,
11 when we go out to our stakeholders we try to explain what
12 our roles are and how that changes with time, and we're
13 going to get better with time. We are actually doing some
14 rotations between the offices that I think is going to help
15 this process. NRR and NMSS are also taking the training,
16 which actually affects both of us, which I think would go a
17 long way towards addressing some of those concerns.

18 The last page. I sort of want to leave a flavor
19 or where we see us going.

20 We need to resolve these complex sites. I think
21 the next time we brief you a lot of these sites we talked
22 about on the front end will be behind us, for one reason or
23 another. The 11 sites I mentioned, the difficult sites,
24 they will still be with us. I've set a high expectation.
25 Larry Camper and I visit and talk about this. This is the

1 challenge for Larry and his branch: The 11 sites, get on
2 top of those; what is the schedule and how can we address
3 those?

4 In the next briefing I would expect we would lay
5 out that schedule, tell you where we were, and if there was
6 anything we needed some help on, we would mention that.

7 The third item here is integrate the materials and
8 reactor programs. Recently you sent down a staff
9 requirements memorandum and asked for a coordinated report
10 next time, an annual report that is coordinated. So we
11 would be back with NRR reporting not only on these 11 sites,
12 but the reactor sites also that are part of the
13 decommissioning program.

14 I think the efficiency has been improved between
15 the offices. There are some challenges. The dose modeling
16 issue was a challenge. You are going to hear a lot about
17 that tomorrow. We actually are getting a lot of input from
18 the licensees and the Department of Energy in terms of
19 things like input parameters.

20 The clearance rule. The clearance approach is
21 used internationally. This is a topic that frequently comes
22 up at our meetings with various stakeholders. How that goes
23 will have an impact on what we do.

24 The restricted release cases. These are the most
25 difficult ones. We could expect hearings on these. They

1 require the advisory groups. Lots of those groups are
2 forming, by the way. In some cases they are forming with
3 sites that don't require restricted release. The utilities
4 are enlightened in that they are actually forming these
5 groups for sites that are going to be cleaned up for
6 unrestricted use.

7 It's a good mechanism for feedback to the
8 community. The staff and the regions have been active in
9 that process.

10 The question of an EA and an EIS on these
11 restricted release sites is going to be a challenge for us.

12 The last one, which is the recent paper you
13 received, is on entombment. The staff recommended a
14 workshop. I understand it's scheduled for the middle of
15 December.

16 We need to address the question I started with in
17 response to one of the questions Commissioner Merrifield
18 asked. How much can you leave behind? That's a key
19 question.

20 Another one is greater than Class C waste. If
21 there is greater than Class C waste in the reactor, are they
22 going to cut it out? Are they going to leave it? And where
23 does that leave us with the statutes that are out there?
24 These are issues that I'd like to get some more information
25 in a workshop.

1 The compacts. We need to hear from them on what
2 is their view on entombment. It's a new concept. And how
3 many reactors would be interested in doing this.

4 I'm looking forward to a workshop environment for
5 these types of issues with various stakeholders, and we will
6 be in a much better position to make any recommendations to
7 you over time.

8 With that, I would be happy to answer any
9 questions.

10 CHAIRMAN DICUS: Thank you. Let me start with a
11 few. Then I would like the other Commissioners to weigh in.
12 I'm sure they have several questions, and they have sat
13 patiently through a very nice presentation. I appreciate
14 that.

15 You mentioned these restricted release cases. How
16 many do you anticipate might want to come in for restricted
17 release? Do we have something of an idea of a number?

18 MR. GREEVES: We do. I think it's probably a
19 large fraction of the 11. They are going to have trouble
20 meeting a 25 millirem unrestricted release criterion. They
21 might be able to meet 40.

22 Nelson or Larry, can you help me with a better
23 estimate?

24 MR. NELSON: I think it's a good estimate. It's a
25 large fraction of the 11. In some of these cases we don't

1 even have the decommissioning plan in yet. Licensees are
2 still evaluating decommissioning options. Some of them have
3 already set up advisory panels to get input. Then they need
4 to look at what restricted use mechanisms will be necessary
5 for their site. If it means government ownership or
6 control, then they need to interface with those agencies to
7 see whether they might be willing to do that.

8 All those factors are going to play into their
9 decisions. We don't know, but we anticipate a good number
10 of them will try to go that route because of the larger
11 volumes that they have on site.

12 CHAIRMAN DICUS: Thank you.

13 I want to ask a question about the decommissioning
14 pilot program. The answer to this question may be in
15 SECY-99-160. I must confess I haven't read it yet. The
16 past month has been a little busy.

17 The question has to do with the viability of the
18 pilot program. Given that there were five facilities in it
19 in the first place and two of those did not participate
20 ultimately and we only had the three that did participate,
21 did we really get some useful information out of this, or is
22 it going to be that helpful to us in the long term?

23 MR. GREEVES: I would like to have the staff
24 follow me. It hasn't taken a lot of energy out of the staff
25 to do this. It was a good idea. Maybe I would like to have

1 seen more than five, but you can't bring people to the table
2 if they -- there is a little tentativeness out there about
3 some of these things.

4 I think the real answer is, we are just going to
5 have to wait a little bit longer. The three that are still
6 in the running, if Westinghouse and Phillips come back into
7 a future Commission briefing and say, you know, you saved me
8 a bunch of time, process, your staff was back out here, we
9 committed to a criteria, you inspected it at the end, that
10 has value to me.

11 You asked us to do this for the simple sites. The
12 other licensees are watching this process. They may look at
13 this and say, I want some of that.

14 I think the jury is still out.

15 CHAIRMAN DICUS: Carl.

16 MR. PAPERIELLO: I'd like to make an observation.
17 John tended to get all the big bad sites. Obviously we
18 really decommission hundreds of sites every year, the
19 hospitals and all that. I think what the pilot does for you
20 is find where is the threshold that there needs to be prior
21 NRC involvement in planning the decommissioning, and where
22 because we know from experience and practice that the
23 licensee can do it, and then say, by the way, we are now
24 ready to shut down. Then we can go out. So I think it is
25 useful.

1 CHAIRMAN DICUS: That's good.

2 One final question is on the Decommissioning
3 Management Board. You mentioned that you made some
4 observations or some things that you had dropped out or
5 approved the activity of the board. I know you hired a
6 consultant at some point. Were these consultant findings?
7 Were these self-assessments? Or was it a mixture?

8 MR. GREEVES: We actually have a board for high
9 level waste also, which we have mentioned to you. This
10 particular consultant did a diagnostic of the high level
11 waste board. I enjoyed that process.

12 The high level waste board was actually more
13 mature at the time he did the diagnostic, and I said, well,
14 we need it here too; I can't afford to be inefficient.

15 It was the same consultant. It was a consultant
16 that Admin has available. The gentleman does a professional
17 job. He goes around and interviews the staff. He gives you
18 quality feedback. We value that. We want to do some
19 self-diagnostics. We did that, profited from it, and we are
20 implementing as much of that as we can.

21 Have I answered?

22 CHAIRMAN DICUS: Yes.

23 Commissioner Diaz.

24 COMMISSIONER DIAZ: I thank you for the very
25 thorough list of issues and characteristics. However, I

1 ended up without a clear idea of what is the effectiveness
2 of the present policies of the Commission in these different
3 areas. It seems like we enumerated very well what all the
4 things are. Or lack of effectiveness.

5 Sometimes you guys are very, very thorough and
6 don't realize that we don't have the insight of what is in
7 Ohio or in Kentucky and that we are looking at the overall
8 issues. I really think that we need to get the distinct
9 impression of what is the effectiveness of our policies. Do
10 we need to do something else? What time do we need to come
11 in?

12 We hear about complex sites and how complex they
13 are going to be. I don't know how complex is complex, what
14 are the issues that we are going to be facing and when do we
15 need to face them.

16 From the policy viewpoint, it would be helpful to
17 me to get a better view of what the staff is dealing with
18 with the stakeholders, dealing with the sites from the
19 policy perspective rather than from the particular issue.

20 For example, in this case I heard several times
21 you have interaction with stakeholders. What is the
22 reaction of the stakeholders to our license termination
23 rule? What have they come up with? Do the people say this
24 is okay, or no, this is not okay?

25 MR. GREEVES: I got about four or five questions

1 there.

2 COMMISSIONER DIAZ: The first was a statement for
3 you to consider. Don't take it as a question. It will take
4 too much time. Specifically, what have our stakeholders
5 been saying or doing regarding our license termination rule?

6 MR. GREEVES: The answer is mixed. I can give you
7 an example. The license termination rule involves a large
8 spectrum of things you need to be doing. Let's just talk
9 about dose modeling, which you will hear more about
10 tomorrow.

11 Some of our stakeholders were quite concerned
12 about the conservatism built into our dose modeling process.
13 We knew it was there. We were finding the same things they
14 were finding. NEI, as I said, we go to workshops with them.
15 You are going to hear more about this tomorrow. They
16 identified problems with the models that we are using for
17 cesium and strontium. We identified the same models, and
18 those issues have been discussed extensively in the
19 workshops.

20 The states are another set of stakeholders. I
21 think they are quite happy to come into this environment,
22 because they are going to inherit a lot of these sites and
23 they are going to need to use some of the same tools. So
24 the states come to the workshops. My sense is I get a
25 better response from the states in terms of a positive

1 response about "thank you for putting these things into
2 place."

3 There is another set of stakeholders. They don't
4 like the rule. They want something like zero to be the
5 answer, and they come into the meetings and they express
6 that view.

7 So it's mixed. EPA comes to the meeting and
8 explains what they are doing in modeling space. It's what I
9 called mixed. We are trying to capture the best elements of
10 it in the standard review plan that honor the license
11 termination rule.

12 I hope I am being clear.

13 COMMISSIONER DIAZ: You're not. Mix is not hot,
14 not cold; it's somewhere in between?

15 MR. GREEVES: Yes. What I mean is, depending on
16 the stakeholder, you get a different reaction.

17 CHAIRMAN DICUS: A variety of views.

18 MR. PAPERIELLO: If you look on it as an
19 optimization problem, it's an optimization of resources,
20 financial resources to do the remediation; the dose
21 criteria, with some people wanting it all the way to zero,
22 and the potential for restricted release, which a lot of
23 stakeholders don't want, at least living around the site.
24 That is why complex sites are complex sites.

25 There is not enough money to remove maybe 40 acres

1 of contaminated soil and move it to another part of the
2 United States. We would find under our rule that perhaps
3 construction of an onsite cell of two acres that a licensee
4 proposes meets the rule for restricted release of those two
5 acres. You now go and you have a community advisory
6 committee. A lot of people don't want that to happen. You
7 write EIS's. People comment on those. People obviously use
8 the full recourse of the law if people are going to take
9 action that they don't want. That's why you get into
10 complex sites. At the same time, there is the issue of how
11 much money is available to remediate the sites.

12 We got into the SDMP program and we got into these
13 sites many years ago because they tended to involve source
14 material. Many of them are people who use source material
15 for non-nuclear purposes, chemical purposes, metallurgical
16 purposes. They weren't in a nuclear industry. It was done
17 in the 1960s, 1970s, earlier than that. A lot of soil got
18 contaminated, and they were small businesses. There are no
19 financial resources to dig up many, many acres and move them
20 across the country.

21 That's the tension in this whole thing. I think
22 we created a reasonably good infrastructure now to preclude
23 it from happening in the future. In other words, we would
24 never allow somebody to get licensed and create the problem.
25 So we fixed that. We created a decommissioning criteria

1 which there is not complete agreement on, but the
2 implementation is still difficult.

3 It's the three things. It's financial resources,
4 which are finite; the group of people who might decide the
5 only acceptable dose criteria is zero; and the issue of when
6 you are going to have to restrict a site release. These
7 things go into making a complex site complex.

8 COMMISSIONER DIAZ: It might be worthwhile for the
9 Commission to receive a clear identification of where these
10 issues lie.

11 MR. PAPERIELLO: Commissioner, that is exactly
12 what John promised you. I directed the staff that I needed
13 a detailed analysis of each of these sites with time lines
14 and what has to be done and where are the resources to do
15 it, including things like the EIS, and who has to agree.

16 MR. GREEVES: One of the good things about what we
17 are doing is we are making the process more predictable. We
18 are doing this in a transparent way. The licensees know
19 what to expect because we are showing them up front.

20 You asked about the tough policy. There is one
21 that comes back to me day in and day out. The rule helps.
22 The 1997 rule helps, but too often I have to go out and try
23 and address, will it hold? Will another agency come in here
24 behind you at some future date and undo this process?

25 Apollo is an example of that. It's a beautiful

1 piece of real estate sitting there, but they are afraid to
2 develop it. They don't know whether it will hold.

3 That's the one issue. If I could stop talking
4 about that, I could probably get a lot more work done.

5 COMMISSIONER DIAZ: Thank you.

6 CHAIRMAN DICUS: Commissioner McGaffigan.

7 COMMISSIONER McGAFFIGAN: I have several. Let's
8 see if I can get them done in some finite amount of time.

9 There is a backup slide 6 that I think refers to
10 the 11 sites. I notice two of them are in Ohio and going to
11 get transferred. Three are in Pennsylvania; two in
12 Oklahoma. That leaves very few left. All those states are
13 either about to become an Agreement State at the end of
14 August or trying to be an Agreement State fairly soon.

15 How do you envision the transition? I know you
16 have worked it out for Ohio. Advanced Medical Systems,
17 there is a hearing on that. I guess the whole thing is
18 going to get transferred over to Ohio.

19 I assume the Shieldalloy Metallurgical is just
20 going to go to Ohio and you will just turn over your files.

21 How do you schedule your work on the Pennsylvania
22 and Oklahoma sites and work with the potential future state
23 regulator?

24 In the case of Ohio they adopted our rule by
25 reference with one minor exception, that if it's above 25

1 millirems, they are going to maintain a license; if it's a
2 restricted site above 25 millirems, they are going to
3 maintain a license indefinitely until it can go to
4 unrestricted. We found that compatible.

5 Have you had discussions with Pennsylvania and
6 Oklahoma as to what their rule is going to be and how the
7 transition is going to be made?

8 MR. GREEVES: It's my understanding in Oklahoma
9 they are asking to leave, as Carl calls them, the big bad
10 sites with me.

11 COMMISSIONER McGAFFIGAN: They want to leave them
12 with you.

13 MR. GREEVES: They want to leave those sites with
14 me. That answers part of the question.

15 I can tell you we are in dialogue with
16 Pennsylvania on all these sites. Nelson met with the
17 Pennsylvania contingent -- in fact, they are in the audience
18 -- recently on all these sites. It's my understanding they
19 are actually pushing off Nelson and company. This is not a
20 near-term thing for Pennsylvania.

21 MR. NELSON: Their Agreement State application has
22 been delayed, but they are very interested in these sites.
23 It turns out all of the Pennsylvania sites are in my
24 section. We met with them. Region I and I met two weeks
25 ago. We gave them a rundown and went over each one of the

1 sites in great detail, both the SDMP sites and other sites
2 undergoing decommissioning, terminated license sites.

3 We plan to have an ongoing dialogue with them.
4 They have identified site coordinators for each one of our
5 sites and we have identified our site project managers to
6 them. It's going to be a real partnership effort here on
7 each one of these sites. We are not going to take any steps
8 without talking with them and consulting with them first.
9 So they are going to be an active player. I think that is
10 going to be very helpful.

11 COMMISSIONER MCGAFFIGAN: You are talking about
12 your SDMP sites. I assume in the states that are already
13 Agreement States they have some fairly dirty sites too and
14 they have to deal with those sites. Is there any learning
15 that goes on back and forth between how individual states
16 that have sites that are either going to be restricted or
17 complex sites handle them and how we handle them?

18 MR. GREEVES: I can give you a partial answer. I
19 think the learning process is in large part done in these
20 workshops we are having. The Agreement States come to these
21 workshops. The CRCPD has a working group on cleanup. I
22 think Deborah Baugh is the chairman of that. She is coming
23 to the next meeting. She wants to sit in with me and go
24 over the status of these issues.

25 When they come to the meetings they share their

1 technology with us. Recently New Jersey sent their document
2 in. We could learn something from that process. They are
3 not an Agreement State, but we can learn from the states.

4 So they have been heavily participating in this
5 type of work. They participate in the ISCORS format. I
6 can't tell you that they sit down with me once a year and go
7 over their -- they do not have an SDMP program, but we do
8 not sit down and meet and go over --

9 COMMISSIONER MCGAFFIGAN: Is it fair to say that
10 in the states that are Agreement States there are sites like
11 these that they have to deal with on a state-by-state basis?

12 MR. GREEVES: Some of them went to Massachusetts
13 and some will go to Ohio. So yes is an answer. I'm less
14 familiar with the ones that originated in an Agreement
15 State, and they have not given me a call.

16 Nelson, have you gotten any calls?

17 MR. NELSON: No.

18 COMMISSIONER MERRIFIELD: If I could follow up on
19 your question. Do we keep track of how the states are doing
20 with these sites that we have transferred?

21 MR. NELSON: Not specifically in that we have an
22 after-transfer tracking system. We do look at their overall
23 decommissioning program as part of the IMPEP review. We do
24 look at their program. We don't specifically keep a log or
25 track specific sites that we have transferred.

1 CHAIRMAN DICUS: Carl, could you follow up on that
2 with the IMPEP reviews?

3 MR. PAPERIELLO: I will follow up the state
4 programs to find out. I don't know what they do. We'll
5 find out.

6 MR. GREEVES: The state programs ask me to
7 participate in the IMPEP review. If they have an active
8 cleanup program like this, then we would send one of our
9 experienced people out on that review. We just haven't had
10 a lot of visibility of it yet.

11 COMMISSIONER MCGAFFIGAN: Let me ask a similar
12 question. You were talking earlier about EPA and DOE coming
13 to your workshops. Do we go to theirs? DOE and EPA are
14 dealing with the dirtiest sites in the nation, namely, the
15 DOE facilities, and trying to figure out how to deal with
16 restricted release and institutional controls. DOE
17 documents use the term "controls in perpetuity" with regard
18 to Savannah River. So I imagine that there will be some
19 real learning we could do.

20 In Denver, I think John mentioned in passing we
21 were involved in commenting on some sort of EPA is trying to
22 work with the radium site there.

23 There is a lot of learning we could do as to how
24 EPA applies its dose modeling dealing with these complex DOE
25 sites and whether if we did a sanity check with our dose

1 modeling we would get the same answer.

2 Is that happening? They are coming to our
3 meetings. Are we going to theirs?

4 MR. GREEVES: Let me give you a little bit of an
5 answer. One, EPA and DOE are on the ISCORS format. So Andy
6 Wallow comes to our ISCORS meetings and frequently we talk
7 about dose modeling issues and he brings the DOE experience.
8 In fact, I wrote him a letter not too long ago and told him
9 that we were aware that the department had some information
10 regarding resuspension factors and we would like to use
11 that. We use that avenue through ISCORS.

12 On occasion we go go these meetings that DOE has.
13 In fact, ANS is sponsoring a decommissioning meeting in
14 Knoxville in September. I was asked to be a plenary speaker
15 for that meeting, but all the other speakers are DOE program
16 people. That is mostly a DOE industry type meeting.

17 They recognize it's the same contractors doing the
18 work. They are doing the work for the Department of Energy
19 and they are doing the work for the commercial sector. So
20 they very much wanted an NRC presence in this meeting.

21 COMMISSIONER McGAFFIGAN: It strikes me that even
22 perhaps a lower level of detail would be interesting to know
23 about if you had the time and the resources, namely, how do
24 they apply at an individual complex site their criteria,
25 their rules?

1 I believe almost every time you give up an SDMP
2 site you get a friendly letter from our friends at EPA
3 saying, well, how would it stack up against the license
4 termination rule, and what sort of modeling have you done if
5 it is one of these grandfathered sites? I assume you answer
6 that in the same friendly way and provide them the
7 information.

8 We might want to be asking the same sort of
9 questions just to educate ourselves; rather than having
10 theoretical discussions at workshops about suspension
11 parameters, how is this applied in fact downtown Denver, at
12 Rocky Flats, or at Hanford or at Savannah River, or
13 whatever, just to be sure we understand it?

14 Again, on this line of questions, this gets even
15 worse in terms of resources, probably. I know the Chairman
16 has been at international meetings. I keep reading in
17 Nucleonics Week and other publications that the British are
18 decommissioning sites. They have the same Cold War era
19 facilities that we did. They were involved in the Manhattan
20 project and all the ensuing stuff. I'm sure we are ahead of
21 them in terms of this sort of transparent public process
22 with models and everything, but do they have anything to
23 offer us? I know the French are doing the same thing.

24 MR. GREEVES: They are all a little bit different.
25 You got the answer back from the UK that said they don't

1 have a standard. What they do is start cleaning facilities
2 up. I saw the answer you got. I'd love to ask them, how do
3 you price this out? If you don't know what you can leave
4 behind, how do you price it out?

5 COMMISSIONER McGAFFIGAN: For the audience, what
6 Mr. Greeves is referring to is a letter that we sent to the
7 UK when we were trying to decide on what the West Valley
8 criteria were because they were also decommissioning a
9 reprocessing plant at Dounreay. I could put that letter in
10 the public domain as an attachment to the meeting notes.

11 MR. GREEVES: What we saw in Rome in the meeting
12 the Chairman attended was lots of the Europeans are cleaning
13 up what sounds like a clearance criteria. They are just
14 cleaning up concrete rubble. They use the same word. It
15 might be a different language. They clean the concrete up
16 and then they send it to a landfill. Another country
17 doesn't allow disposal of concrete in a landfill. So they
18 do something else. But they are all doing something a
19 little bit different.

20 The Japanese have a clearance criteria and they
21 have a reuse criteria. They have three criteria. I can't
22 quite remember what they all were, but the first one is
23 reuse. If we clean up a reactor site, it should be reused
24 for another reactor. That is one of their criteria.

25 COMMISSIONER McGAFFIGAN: That must not be a very

1 high criteria if it's going to used as a reactor site.

2 MR. GREEVES: In Japan it might be.

3 CHAIRMAN DICUS: Carl.

4 MR. PAPERIELLO: I want to make an observation.

5 Actually, it is going to kind form the basis for the
6 presentation I give to the international meeting after
7 Thanksgiving. This is not a textbook process. We talk
8 about realistic modeling. There are no textbooks that deal
9 with realistic modeling. They deal with screening. What
10 little bit is written is introduction to.

11 I think the staff here at the NRC -- and we are
12 working with DOE; we are working to a lesser extent with EPA
13 -- are writing the textbooks. I told the Commission
14 sometime ago when I looked at the medical area, it was an
15 area for which there are textbooks. You can find AAPM
16 standards, all kinds of standards on how you run a nuclear
17 medicine department.

18 There really are no standards and no textbooks on
19 how -- we're helping develop it; DOE has done some -- you
20 model a site to calculate the dose in compliance with the
21 dose criteria. We have been developing survey methods,
22 analytical methods and modeling. We are on the frontier
23 here.

24 I think we have got a lot to learn from people,
25 but I think we also are actually teaching a lot of people.

1 I wish it was simpler. It's not like we just set a limit
2 and then somebody opens up an engineering manual and the
3 manual tells you how you quantitatively get there.

4 I've done a lot of literature searching. I've
5 looked at the EPA web site on chemical modeling. I'm
6 convinced we are writing the book.

7 COMMISSIONER McGAFFIGAN: If I can get two more in
8 here.

9 COMMISSIONER MERRIFIELD: It makes me perhaps
10 wonder whether we should institute a time clock here.

11 COMMISSIONER McGAFFIGAN: I'd be happy to wait for
12 a second round.

13 CHAIRMAN DICUS: We will have time for a second
14 round.

15 COMMISSIONER MERRIFIELD: I have two quick ones.
16 You mentioned that there are some sites at which there are
17 site-specific advisory boards. That is not the case at all
18 of these complex sites?

19 MR. GREEVES: It would be the case at any site for
20 restricted release. The rule requires that. The point I
21 was making was that most of the utilities are going to
22 unrestricted release. They form these boards for purposes
23 of communication.

24 COMMISSIONER MERRIFIELD: We don't require it at
25 all of the complex sites?

1 MR. GREEVES: If it's a complex site that is
2 asking for a restricted release, the rule requires it.

3 COMMISSIONER MERRIFIELD: The answer to the
4 question is, no, we don't require it at all the sites.

5 MR. GREEVES: Right.

6 COMMISSIONER MERRIFIELD: In an analogous
7 situation, I used to deal with Superfund. All of the sites
8 have boards irrespective of whether the end point is
9 unrestricted release. I don't know if you have ever
10 considered doing that. There are many stakeholders who
11 notwithstanding the fact that the site will be cleaned up
12 their concerns are how you clean it up and the impact on the
13 community. I am wondering if any consideration has been
14 given to that.

15 MR. PAPERIELLO: I had a conversation with the EPA
16 Superfund people on that. The point is, though, not all the
17 chemical decommissionings are Superfund decommissionings. A
18 Superfund decommissioning is a very unique decommissioning.
19 EPA doesn't look for them; they are brought to the EPA's
20 attention. The reason why they have a site advisory board
21 is that in part the decommissioning criteria are somewhat
22 nebulous.

23 I'm giving you my perception from the interactions
24 I had with Maine Yankee in Region I. So I probably know
25 enough just to be dangerous. They do it, but it's for a

1 different reason. I mentioned earlier we do lots of
2 decommissionings. Somewhere along the line we would have to
3 define a threshold for having a site advisory board. We did
4 do it in the rule when it was restricted release. That was
5 the decision that was made in the past. I think we need to
6 remember that we have a lot of small licensees who
7 decommission.

8 COMMISSIONER MERRIFIELD: I think the analogous
9 situation is with Superfund and RCRA. EPA has under its
10 jurisdiction thousands of RCRA sites, a portion of those
11 scoring high enough on the hazardous ranking system, having
12 the right score for Superfund. There are approximately
13 1,400 of those. So Superfund is a much smaller subset than
14 10,000 RCRA sites.

15 I guess that creates a follow-up question. How do
16 we make a distinction between the sites that aren't complex?
17 How do we decide what is complex and what is not? How do
18 sites come on this list?

19 MR. GREEVES: It is a bit of history. The
20 February paper we kind of got at a crossroads. We said
21 we've got several criteria about how you get on the list.
22 Now that the decommissioning rule came into place there was
23 this criteria for restricted release which didn't exist back
24 in the early 1990s. So we said we've added that to the
25 criteria. If a licensee asks for restricted release, it

1 goes on the list automatically.

2 The other criteria, if memory serves me, were
3 bankruptcy, if we have a site that is bankrupt; if we have a
4 site that has significant groundwater or soil contamination.
5 There are a couple of others. Maybe Nelson would be able to
6 help me. It is pretty significant. You have to have large
7 volumes of material.

8 Restricted is automatic. Today, if I get an
9 application for restricted release, then next year you would
10 see that site. It doesn't mean that it's a particular
11 problem, but it's worthy of a lot more attention.

12 I think there are some 11 sites that aren't on
13 this list that are pretty significant to me that we actually
14 have a contractor looking at. The gradation is better
15 explained in the previous paper. It was the year-ago paper
16 where we defined what criteria it was for going on the list.
17 It included at least those three factors: restricted
18 release, soil contamination, groundwater contamination,
19 bankruptcy. I can probably do a better job later.

20 COMMISSIONER MERRIFIELD: Perhaps you can provide
21 that to us later on.

22 Again, harking back to my prior experience before
23 I came to the Commission, I am on the public record as
24 criticizing EPA on a number of scores on Superfund and RCRA.
25 I think one of the things that they do well in that program

1 is keep track and have a good means of explaining where they
2 are in the program, how many RCRA sites they have, how many
3 Superfund sites they have, where they are in the pipeline of
4 cleaning up the Superfund sites, those sites which have been
5 identified and they have initiated the studies as to whether
6 they are contaminated, whether they are currently conducting
7 remedial action, whether they made a record decision,
8 whether the site has been cleaned up or whether it requires
9 institutional controls. They can make a presentation, and
10 do frequently, to Congress as to where they are in the
11 pipeline; of that 1,400 sites, how many of them fit each one
12 of the boxes.

13 I don't mean this as a criticism because I think
14 the staff probably in your heads and in your file cabinets
15 have a very good idea where all this stands. My concern is
16 that the information that has been provided to us today
17 doesn't give me a very good idea of where we are in terms of
18 the cleanup of these sites.

19 A couple of reasons for that, I think. One of
20 them is some of the terminology that we use. We refer to
21 some of these sites as the license being terminated. If you
22 say to a member of the public, well, we terminated three
23 licenses this year, they sort of scratch their head and say,
24 well, what does that mean? Is it clean or is it not clean?
25 Is it open for unrestricted use or not? Are there

1 institutional controls or not? .

2 The other thing EPA does is they do a good
3 narrative job of having explanatory materials for any given
4 region. You have a little booklet and you can go in and it
5 will give you all the details on an individual site and
6 where it is and where they have been and the milestones. I
7 don't know whether we have that kind of information. If we
8 do, I am hoping you can share it with me and the other
9 members of the Commission.

10 If we had another congressional committee who
11 wanted us to come up and give an explanation about where we
12 are in the pipeline, how many sites are cleaned up, how many
13 are going to be cleaned up relatively soon, and the time
14 line for each of these 34 sites, based on at least the
15 information here I don't think I'd be very comfortable going
16 before Congress and trying to explain that.

17 Don't take this as a criticism. I think the staff
18 has it all in their heads and has it all in their file
19 cabinets. Just having it in a form which is useful for the
20 Commission to understand and be able to explain to the
21 public, this doesn't convince me you have it.

22 MR. PAPERIELLO: I agree with you 100 percent, and
23 we are going to get it. That was my reaction from
24 discussions I've had with the staff over the past couple of
25 months, that we need to have a good picture where every site

1 lives; there are going to be obstacles, and we need to tell
2 you where the obstacles are going to be.

3 COMMISSIONER MERRIFIELD: In point of fairness to
4 Carl, he and I had an earlier discussion on related issues
5 with some of the mining sites we have. I think we have the
6 same set of issues. Carl did commit to that earlier, and I
7 appreciate the fact that you recognize it here as well. I
8 think that is very positive.

9 I have some more questions, but I am going to
10 limit myself to this round and am willing to pass on to my
11 colleagues.

12 COMMISSIONER DIAZ: It just struck me that you
13 keep saying when you talk with stakeholders there is a group
14 that says zero is what we want. Does EPA defend you in that
15 case and say, no, we would like to see 15?

16 MR. GREEVES: I think they visibly present their
17 view in the meetings. What we have all heard them say is 25
18 is not adequate and use 15. So I think that whole statement
19 is they are not looking for zero; they are looking for 15.
20 However, anybody who really understands the process and
21 examines things like the MCLs, their standards for coal
22 piles -- I don't want to get Carl started -- everybody knows
23 that 15 is probably in the middle of the numbers that they
24 really use.

25 COMMISSIONER DIAZ: But it's not zero.

1 MR. GREEVES: It's not zero.

2 COMMISSIONER MERRIFIELD: Commissioner, if I may
3 jump in for a second. EPA is different than this Commission
4 in a lot of ways. One of the ways in which they are
5 different, and it is significant for me from a cleanup
6 standpoint, is their regional structure.

7 In this agency we have a very strong consistency
8 between our regions and a very high level of coordination
9 and control between our headquarters here in Rockville and
10 our offices out in the regions.

11 EPA is not the same way. The regions within EPA
12 have an enormous degree of variability in terms of how they
13 conduct these cleanups. Having traveled to a number of
14 regions and looked at over 50 Superfund sites nationwide, I
15 will tell you that -- and there may be some impact in terms
16 of our dealings with EPA -- the kind of clean up that
17 individual companies will have dealing with EPA can vary
18 enormously. I'm not going to point out which ones, but some
19 regions are very inflexible. The numbers are the numbers
20 and that's it. Other regions are very flexible. You can
21 have in EPA two virtually identical sites that are treated
22 dramatically different.

23 I think this agency has done a lot better job of
24 that in coordinating and should be complimented for that
25 reason. This creates problems for our staff, because the

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1 interactions we might have with EPA Region I in New England
2 might be very different than the reactions we have with EPA
3 Region V or EPA Region VIII.

4 MR. GREEVES: EPA doesn't say zero. The
5 Commission asked us to work with EPA on the mixed waste
6 proposal, which we are doing, and I think that could be a
7 win-win. We are working together on that. That's not zero.
8 They are also working internationally on a clearance
9 criteria. That's not zero. That's transparent.

10 COMMISSIONER DIAZ: That was my point.

11 MR. GREEVES: When the hard questions come, we
12 don't tend to rescue each other.

13 COMMISSIONER DIAZ: The bottom line is the zero
14 point is not realistic and all the federal agencies realize
15 it. At least there is an understanding that there has to be
16 some realistic numbers that are used.

17 We keep talking about the complexities in the
18 modeling. Since I've been here I've been hearing about the
19 complexities. I guess the staff is getting ready to put
20 some hands around the complexities of the modeling and will
21 give us an idea of how large the uncertainties are. In
22 other words, you don't have the answers but you know where
23 the answers should lie in an envelope that you can work
24 with.

25 MR. PAPERIELLO: We are going to be discussing

1 that tomorrow in the performance assessment.

2 COMMISSIONER DIAZ: Thank you.

3 CHAIRMAN DICUS: Commissioner McGaffigan.

4 COMMISSIONER McGAFFIGAN: You keep mentioning
5 finality, and obviously we have a position on finality. You
6 mentioned the Apollo site a couple times. It was before my
7 time on the Commission, but we spent a lot of money, thanks
8 to the Congress, cleaning up that site. Or the taxpayers
9 and the licensee did.

10 How clean is the site? Why would there be any
11 question about finality there? I know that was done under
12 the old criteria, the reg guides, but can you guesstimate
13 how clean the site would be using millirems to average
14 member of a critical group per year?

15 MR. GREEVES: I don't want to speculate in the
16 middle of it being done. We moved a lot of stuff. We
17 actually moved more than the criteria. On and off I worked
18 on that site for a decade. I had a number of different jobs
19 and I kept cycling back to it. The criteria there was 30
20 picocuries per gram.

21 I talked to Envirocare, the site that was
22 receiving the material removed, and they said it's averaging
23 15. They were cleaning up more than 30. So what was left
24 was probably considerably under 30. The site is not
25 occupied. The last time I was up there it was kind of a

1 green field, a park. When it gets reoccupied, which I'd
2 like to see in the interest of the country, it will probably
3 be an industrial area or something like that where people
4 will move in and out. Any dose would be quite low.

5 I don't want to go much further. It is under a
6 bit of cloud.

7 COMMISSIONER McGAFFIGAN: We have this big dispute
8 with EPA we talked about at the congressional hearing, but
9 how do you on an individual site get everybody to promise
10 it's clean enough and we are not going to come in and invoke
11 some additional authority and you can, town fathers,
12 redevelop the site? If I'm a town father in Pennsylvania,
13 knowing that there is this big national issue and they are
14 not running very fast to solve it, how do I get my local
15 issue resolved?

16 MR. GREEVES: Either EPA should put out their
17 general applicable standard or back off, in my view.

18 COMMISSIONER McGAFFIGAN: The financial assurance
19 issue. You mentioned that a long time ago we put out this
20 financial assurance rule. How well has it performed?

21 We have these folks who are bankrupt or we have
22 these folks whose sureties turn out to be inadequate.

23 Have we taken another look given the experience we
24 have had over the last decade with the actual cost of
25 cleanups and said what the size of the financial assurance

1 needs to be? Have we thought about going back and imposing
2 whatever the results of that study -- we may be too high for
3 some classes of licensees; we may be too low for others. Is
4 there work to be done in that area?

5 MR. GREEVES: I can't give you a good answer. We
6 have experience. First, I would like to say it has been a
7 great asset to put that in there, because it gets
8 everybody's attention. They know up front financial
9 assurance is important. I like it in the rule.

10 Is \$750,000 the right --

11 COMMISSIONER McGAFFIGAN: Is that what it says,
12 \$750,000?

13 MR. GREEVES: Depending on your facility. It's a
14 graded approach. For the fuel fabrications facilities, I
15 think the first measure was like \$750,000. That only lasted
16 a while, until you did a decommissioning plan. Of course
17 most of them at that point went up; \$750,000 was too low
18 for, say, a fuel fabrication facility.

19 If the number is too high, you can come in with a
20 decommissioning plan. We will do a customized review, and
21 if \$750,000 is the wrong number, then you do a plan. We
22 review it. If it's \$500,000, we drop it down.

23 I think it's working. I will take a note to go
24 back and see if there is more work to do in that area in
25 terms of refining the numbers.

1 COMMISSIONER MCGAFFIGAN: I didn't know what the
2 numbers were in the rule because I haven't looked at it. It
3 strikes me the numbers we deal with on these complex sites
4 are in the millions or sometimes tens of millions. Being
5 able to recognize up front what is likely to be a complex
6 site, maybe we can't. Maybe it's the practices that were
7 conducted at the site. Somewhat more financial assurance
8 would have been useful for some of these sites.

9 COMMISSIONER DIAZ: I think we see the value of
10 each one of Commissioners looking at a different thing. The
11 specific questions of Chairman Dicus, Commissioner
12 Merrifield, and Commissioner McGaffigan is part of what I
13 said the first time. We need to get some information that
14 is specific. That will certainly make the briefing much
15 more complete for us. I think it is an important thing for
16 us to have.

17 COMMISSIONER MERRIFIELD: I agree.

18 MR. NELSON: One thing I might say about the
19 financial assurance without getting too far out of my box is
20 the \$750,000 was in a sense a figure, a marker put on the
21 table. In a sense, one might say it is a grandfather or
22 grandmother provision. It has had problems. The ANS case,
23 Commissioner McGaffigan, you mentioned. That is the
24 touchstone. The issues in that case relate to the
25 decommissioning assurance.

1 What was supposed to happen is a realistic
2 estimate is supposed to be made with the decommissioning
3 plan. The problem, I think, is this transition period from
4 getting beyond the \$750,000 to the realistic estimates.
5 Then you are falling in a number of places, as I understand
6 it.

7 COMMISSIONER McGAFFIGAN: If you are Westinghouse
8 it's no big deal at that point if you need \$7 million
9 instead of \$750,000. If that was the sole business, you are
10 bankrupt. We consistently run into, for some of these
11 complex sites, less than adequate resources at the end. I
12 don't know how predictable it would be.

13 MR. PAPERIELLO: That's what I meant by
14 prospective and retrospective. For people we licensed after
15 the rule went into effect, I think we are in reasonably good
16 shape. The problem is when the rule went into effect,
17 immediately money had to be on the table. Then with the
18 renewal they were supposed to follow the details of the
19 rule. You come up with a decommissioning plan and price it
20 out and then make sure you can pay for it.

21 What you have is these complex sites are sites
22 that were already bankrupt or out of business when the rule
23 went into effect, and then we had a number of people who are
24 in business put up the \$750,000. But once they did the
25 actual detailed plan and looked at the money, the money was

1 enormous compared to the value of their business. That's
2 why I say the retrospective is where you tend to have the
3 problems. I think prospectively we are in pretty decent
4 shape.

5 CHAIRMAN DICUS: Commissioner Merrifield.

6 COMMISSIONER McGAFFIGAN: Could I ask one more?
7 It's almost more a procedural point. We have mentioned a
8 couple of papers today.

9 On July 9 we had the stakeholder meeting and we
10 have gotten the summary of it. I went to part of it.
11 People talked about how we could do our business better.
12 One of the points the stakeholders made from both industry
13 and the public interest groups is when we have meetings to
14 make sure there are adequate papers and all the papers
15 discussed are available. We have mentioned a couple today,
16 one of which we just got, and the other of which is an
17 information paper that within days will wend its way to the
18 PDR on the option of entombment.

19 I think we probably would have been better off to
20 have made those publicly available even it was just coming
21 to us today so that we don't get the criticism that we are
22 talking about papers that we are not making available to the
23 public.

24 Of the four papers we discussed today, two are
25 available, one of which was quite sometime ago. These two

1 are going to be available soon, but I think just
2 procedurally we would be better off if they were available
3 to the public.

4 CHAIRMAN DICUS: They will be available to the
5 public, both of them.

6 Commissioner Merrifield.

7 COMMISSIONER MERRIFIELD: A couple of quick
8 things. I will try to wrap this up. Commissioner
9 McGaffigan made some points relative to brownfields. We
10 talked about the Apollo site. The issue of brownfields and
11 providing an ability to get sites that are utilized back
12 into economic commerce is one which is very attractive to
13 Congress right now.

14 If we haven't already, and perhaps we have,
15 perhaps we should consider and have our counsel consider an
16 appropriate legislative package that may provide us with
17 some authority to provide the legal assurances necessary to
18 help some of these brownfields move forward. It has been an
19 important priority of the Clinton Administration. Congress,
20 both sides, Republican and Democrat, agree with it as well.
21 If there is an area there where we need to look at cases
22 such as Apollo, I think we should certainly consider it.

23 The second point I would make is on the state
24 sites I did ask the question: Do we keep track of the sites
25 which we formerly had responsibility for and have been

1 turned over the states? To be honest, I think if we were to
2 go up before Congress and were to be asked the questions,
3 what's going on with those sites, an answer of, "well, we
4 are not really sure" isn't the right answer for Congress.

5 I would urge the Chairman to instruct the staff to
6 perhaps think about going back and getting that information
7 so that we can have a better analysis of how the state
8 cleanup programs are doing as it relates to state
9 authorization.

10 A quick question on resources. At those sites
11 where the companies are either bankrupt and insolvent or
12 where there are insufficient resources to clean up, do we
13 have a mechanism to obtain the money necessary to do what we
14 feel is necessary to protect public health and the
15 environment?

16 MR. GREEVES: The only mechanism that I have
17 available to me is the funds that are provided. I know of
18 no vehicle. Maybe OGC can help me. We did the issues paper
19 sometime ago. If we get to the end of the road and there
20 are no funds and there is work to be done, I don't know what
21 the mechanism is.

22 Help me out, Steve.

23 MR. BURNS: I think the answer is no. The staff
24 does have a process in which they identify contacts in our
25 office to go through the bankruptcy process. Atlas is one

1 of the higher profile, more recent examples. What we do
2 from a governmental standpoint is we try to push to the
3 front of the line and assert that we have an administrative
4 claim in terms of environmental protection that requires
5 payment out of the bankrupt estate before other claims and
6 other creditors are satisfied.

7 We don't have funds. I think we don't have
8 current legislative authority for a fund that we would
9 expend and we do not ourselves undertake the cleanup effort,
10 for example, on a contractor basis. Again, using the Atlas
11 example, one of the conceptions there is that you would
12 create a trust to which the funds from the estate would roll
13 into the trust and then the trustee on behalf of the trust
14 would be the regulated entity that would carry it out. That
15 is the model under our current framework.

16 COMMISSIONER MERRIFIELD: As the staff under
17 Carl's direction puts together a better analysis of where we
18 are in the process, I would urge the Chairman to perhaps
19 instruct the staff to think about how we are going to deal
20 with these sites. It may very well be we are going to have
21 some number of sites that there are no financial resources
22 but activities should be undertaken to protect public health
23 and the environment.

24 We may need to seek assistance from Congress, a
25 special appropriation perhaps, directing, for example, the

1 Army Corps of Engineers to take responsibility and to clean
2 up those sites, to get them completed. I think we need to
3 think where we are going to be when we get to that point. I
4 make that for the consideration of the Chairman.

5 MR. BURNS: The one other thing I would add is
6 that we speak to sister agencies like DOE or EPA. For
7 example, in the Superfund area some of our sites probably
8 don't score very high.

9 CHAIRMAN DICUS: Carl.

10 MR. PAPERIELLO: We do have a bankruptcy
11 procedure.

12 MR. BURNS: Right.

13 MR. PAPERIELLO: Most of the time it's used for
14 material licensees like radiographers and well loggers that
15 have fairly hot sealed sources. It has been effective. We
16 get on top of it. Somebody has picked up the sources. DOE
17 has taken sources; sometimes the states have taken sources
18 or arranged for another licensee to take the sources. Where
19 there are acute problems we have always had a way to deal
20 with it.

21 Generally, when you have the kind of issues we
22 have here with diffuse source material you don't have an
23 acute hazard. It does not score on a Superfund. Up to now
24 there has been enough money around to have custodial care.
25 Maybe not remediate the site, but at least to have custodial

1 care to make sure people don't go on the site.

2 COMMISSIONER MERRIFIELD: I think as we move
3 towards closing out these issues we may want to think about
4 that.

5 My last quick question. Today is the 29th of
6 July. August 20 is the original deadline for the licensees
7 to meet the requirements under the license termination rule.
8 One could argue that it is somewhat late in the process to
9 be asking the Commission to extend that date for an
10 additional year. I am wondering why the timing given the
11 fact that there is so much left seemingly to accomplish.

12 MR. CAMPER: The commitment for the licensees, the
13 sites, was the 20th a year ago. The 20 August time line is
14 for the staff. For some of the reasons I went through, a
15 lot of good faith effort has been made and we are well along
16 the way. When you see the Commission paper, it contains a
17 table that will give you the dates that we are working
18 toward. Many of them will be brought to closure in this
19 calendar year or in the first quarter of the next calendar
20 year.

21 For such reasons as coordination of EA reviews
22 with the states or coordination with the EA EIS group within
23 NMSS to review these, the quality and the timing of
24 responses from the licensees or sites, those kinds of things
25 have led to some delay.

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1 While we believe that we will get these sites
2 completed according to the schedule we are presenting to
3 you, we also know that there will be times when something
4 just might go awry; we will just not be able to meet that
5 date. So we are saying as a backdrop, as a safeguard, we
6 want to extend and provide an exemption with the one year,
7 but it's really affecting the date that we have.

8 COMMISSIONER McGAFFIGAN: As I understand, we are
9 not going to allow additional people to come in the door;
10 their day was a year ago, August 20, 1998. It's our review
11 period for what they sent in by August 20, 1998.

12 COMMISSIONER MERRIFIELD: Let me rephrase the
13 question a little differently. I wasn't as articulate as I
14 should have been.

15 At what point did we realize we internally weren't
16 going to meet this date? If we had known that a while back,
17 had the Commission known sooner, we may have been able to
18 redirect some resources in order to get it accomplished
19 sooner. I don't mean to be smart about this, but seemingly
20 we have no other choice, no other course of action. The
21 Commission has been precluded from acting its will in some
22 other manner to make sure, if we wanted to, that we wanted
23 you to meet this date.

24 MR. GREEVES: First, let me apologize for giving
25 you the paper late. We should have gotten it to you

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1 earlier. You are right on point.

2 To answer your question, we gave the Commission a
3 paper in February. If you read that paper, it says we are
4 on schedule. As of February we did not know that this would
5 be a problem. Between February and now we detected it, and
6 we have been working very hard on that paper for longer than
7 I'd like to talk about.

8 First, I'm sorry. I apologize for not getting it
9 up to you sooner. It was my goal to get it up to you sooner
10 and I didn't make it. Probably two months ago it was real
11 clear to me that we had a problem and we started working on
12 this paper. It's only a paper of a few pages, but it's
13 unbelievable the complexity of answering the question of,
14 well, who does this apply to, who does it not apply to? Do
15 you have to do an order? Can you just give a license
16 condition? The paper has probably been rewritten, I don't
17 know how many times. All of that is where we are.

18 CHAIRMAN DICUS: I think you are identifying the
19 process problem together with the complexities of the
20 question.

21 COMMISSIONER MERRIFIELD: Chairman, I think the
22 staff is working real hard. Everybody around here that I
23 talk with in the staff is working hard. I think we
24 recognize this. I think the Commission is willing to be
25 flexible in order to help the staff where it's needed. An

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1 early warning of these things is helpful for us. It
2 certainly would make me feel a little bit more in the
3 process in that regard. That's the reason for that line of
4 questioning.

5 COMMISSIONER McGAFFIGAN: One solution might be
6 that when the staff starts to work on a paper like this that
7 a TA note come up and says a problem has arisen; we don't
8 have all the details as to how to resolve it, but we intend
9 to write a policy paper asking for exemptions. They might
10 have been able to send that as a TA note two months ago and
11 then all these details that had to be worked out as to who
12 it applied to and all that they finally get to us on July
13 29, and that's okay because we had two months notice that it
14 was coming. That happens sometimes.

15 MR. TRAVERS: I think it's a fair comment. I
16 think we need to keep you apprised. Hopefully there won't
17 be many instances, but where there are and we can provide
18 you with an early indication, we ought to do it.

19 CHAIRMAN DICUS: Thank you.

20 Again, on behalf of the Commission and fellow
21 Commissioners I want to thank the staff for the briefing we
22 had today and for the discussions and the frankness and the
23 candidness of them. I think they have been very beneficial
24 and I think they have shown that we have made some real
25 improvements in our decommissioning program, our license

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1 termination program, but I think it's clear from the
2 comments you've made and from the discussions that have gone
3 on on either side of the table that we have to continue to
4 make progress in identifying further issues that we need to
5 address.

6 We have had successes at a number of the sites,
7 but we have sites that are problematic and success is not as
8 clear a path as we might hope that it would be.

9 I think you've heard today whatever mechanisms are
10 appropriate, whether it be a paper or whether we should
11 consider a briefing in the not too distant future to address
12 some of the issues, where are we with our policies? Do our
13 policies and the programs that we have need to undergo some
14 sort of modification? Have we identified all the policy
15 issues that exist?

16 I think it's clear that we do need additional
17 information on the sites, where the sites are, as pointed
18 out, a scorecard, understanding them; perhaps more detailed
19 analysis.

20 We clearly want the information from the Agreement
21 States. I think we will get in touch with state programs to
22 get the follow-up on where they are with sites that they may
23 have identified or sites that were turned over to them or
24 that we made them aware of. There are such sites such as
25 the MP sites that the states do have.

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1 We heard very specific issues that were brought up
2 that we obviously need more detailed information on.
3 Perhaps we need to consider as we look at improving the
4 programs whether or not we need additional legislation to
5 deal with the sites and whether we need to take more
6 responsibility for the cleanup of these sites. Clearly
7 those are some legislative issues for the Commission to
8 wrestle with.

9 Again I want to thank you for the briefing, for
10 the work that you have put in. We will hear the rest of the
11 story on the dose modeling in the morning. It should be
12 another very interesting session.

13 Do my colleagues have any additional comments or
14 questions?

15 This briefing is adjourned. Thank you.

16 [Whereupon at 3:45 p.m. the briefing was
17 concluded.]

CERTIFICATE

This is to certify that the attached description of a meeting of the U.S. Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING ON IMPLEMENTATION OF THE
LICENSE TERMINATION RULE AND PROGRAM
ON COMPLEX DECOMMISSIONING CASES
PUBLIC MEETING

PLACE OF MEETING: Rockville, Maryland

DATE OF MEETING: Thursday, July 29, 1999

was held as herein appears, is a true and accurate record of the meeting, and that this is the original transcript thereof taken stenographically by me, thereafter reduced to typewriting by me or under the direction of the court reporting company

Transcriber: Michael Paulus

Reporter: Michael Paulus



DECOMMISSIONING PROGRAM AND SITE DECOMMISSIONING MANAGEMENT PLAN

Division of Waste Management

July 29, 1999

OVERVIEW

- **Background**
- **Status of Complex Sites**
- **Strategy**
- **Initiatives and Improvements**
- **Forward View**

BACKGROUND

PRE-1990 DECOMMISSIONING PROBLEMS

- **Lack of Timeliness**
- **Evolving Radiological Criteria**
- **Lack of Financial Assurance**
- **Incomplete Records**
- **Lack of Finality**

BACKGROUND (CONT'D)

KEY REGULATORY ACTIONS COMPLETED

**1988 - Decommissioning Procedures and
Financial Assurance Rule**

**1990 - Site Decommissioning Management
Plan (SDMP)**

1993 - Recordkeeping Rule

1994 - Timeliness Rule

1996 - Reactor Decommissioning Rule

**1997 - License Termination Rule
(Radiological Criteria)**

STATUS OF COMPLEX SITES

- **2 Sites - Removed from SDMP in FY99**
- **34 Sites - Currently listed on SDMP as of July 1999**
 - **2 Sites - Pending Removal from SDMP in FY99**
 - **7 Sites - Decommissioning Plans approved and grandfathered**
 - **8 Sites - Decommissioning Plans under review (eligible to be grandfathered)**
 - **6 Sites - Decommissioning Plans under review (using License termination Rule Criteria)**
 - **11 Sites - Decommissioning Plans submittals pending**

STRATEGY FOR SITES CURRENTLY LISTED ON SDMP

- **2 Sites pending removal in FY 1999**
- **7 Sites with approved Decommissioning Plans**
 - **3 - Sites transfer to OH 1999**
 - **3 - Sites projected removed from SDMP 2000**
 - **1 - Site projected removed from SDMP 2002**
- **Forward to the Commission a recommendation to extend the 8/20/99 grandfathering deadline - Commission Paper - Due July 1999**
- **8 Sites with Decommissioning Plans under review (eligible to be grandfathered)**
 - **1 - Site transfer to OH 1999**
 - **7 - Sites reviews near completion may be affected by 8/20/99 grandfathering deadline**

STRATEGY FOR SITES CURRENTLY LISTED ON SDMP (CONT'D)

- **6 Sites with Decommissioning Plans under review (using License Termination criteria)**
 - **1 - Site projected Decommissioning Plan approved in 2000**
 - **5 - Sites projected decisions/Decommissioning Plan approval 2001**
- **11 Sites with Decommissioning Plans pending**
 - **Commission approved alternate schedules**
 - **Clarify the need for EIS's**
 - **Define remediation schedules**

SITES WITH PARTIAL DECOMMISSIONING PLANS

- **3 Sites Affected**
 - **Kaiser Aluminum Specialty**
 - **Fansteel**
 - **Molycorp (Washington, PA)**
- **Partial Plans are eligible for grandfathering**
- **Reviews of plans near completion**
- **Approval will allow**
 - **Remediation progress**
 - **Stabilize site conditions**

INITIATIVES AND IMPROVEMENTS

- **Implementation Guidance**
 - **Draft Decommissioning Guide Issued 8/98**
 - **Surface Contamination Screening Table Issued 11/98**
 - **Develop Improved Dose Modeling**
- **RES/NMSS is developing improved dose modeling for performance assessment.**
 - **Reduction of unnecessary conservatism.**
 - **Reduction of uncertainty.**
 - **More realistic models of sites (site specific conditions), systems and processes.**
- **Standard Review Plan under development.**

INITIATIVES AND IMPROVEMENTS (CONT'D)

- **Provide Extensive Public Participation**
 - **Workshops (4 completed)**
 - **Maintain Web Site**
 - **Standard Review Plans**
- **Coordinate with Advisory Committee on Nuclear Waste**
- **Streamlining**
 - **Improve Procedures**
 - **Pilot Program for Performance-Based Decommissioning - SECY-99-160 (July 1999)**
 - **Integrated Licensing and Inspection Program**

INITIATIVES AND IMPROVEMENTS (CONT'D)

- **Decommissioning Board**
 - **Participation by NMSS, NRR, RES, and Regions**
 - **Biweekly Meetings**
 - **Monitors Operating Plan Commitments**
 - **Addresses Inter-Office Issues**
 - **Implementing Efficiency Improvements**

FORWARD VIEW

- **Resolve current complex sites**
- **Address future complex sites in a timely manner**
- **Integrate Materials and Reactor Programs**
- **Improve efficiency**
- **Challenges**
 - **Dose Modeling Guidance**
 - **Clearance Rule**
 - **Restricted Release Cases**
 - **Entombment Issues - SECY-99-187**

COMMISSIONING BRIEFING BACKUP SLIDES

July 29, 1999

SITES LISTED ON SDMP

July 1999

Sites

- 1-AAR Manufacturing (Brooks & Perkins); Livonia, MI**
- 2-Advanced Medical Systems, Inc.; Cleveland, OH**
- 3-Army, Department of, Jefferson Proving Ground; Jefferson, IN**
- 4-Babcock & Wilcox; Parks Township, PA**
- 5-Babcock & Wilcox; Shallow Land Disposal Area, PA**
- 6-BP Chemicals America, Inc.; Lima, OH**
- 7-Cabot Corporation; Reading, PA**
- 8-Cabot Corporation; Revere, PA**
- 9-Dow Chemical Company; Bay City and Midland, MI**
- 10-Elkem Metals, Inc.; Marietta, OH**
- 11-Fansteel, Inc.; Muskogee, OK**
- 12-Hartley and Hartley (Kawkawlin) Landfill; Bay County, MI**
- 13-Heritage Minerals; Lakehurst, NJ**
- 14-Horizons, Inc.; Cleveland, OH**
- 15-Kaiser Aluminum; Tulsa, OK**
- 16-Kerr-McGee; Cimarron, OK**

SITES LISTED ON SDMP (CONT'D)

July 1999

Sites

- 17-Kerr-McGee; Cushing, OK**
- 18-Lake City Army Ammunition Plant (formerly Remington Arms Company);
Independence, MO**
- 19-Michigan Department of Natural Resources (MDNR), MI**
- 20-Minnesota Mining and Manufacturing Co. (3M); Pine County, MN**
- 21-Molycorp, Inc.; Washington, PA**
- 22-Molycorp, Inc.; York, PA**
- 23-Northeast Ohio Regional Sewer District/Southerly Plant; Cleveland, OH**
- 24-Permagrain Products; Media, PA**
- 25-Pesses Company, METCOA Site; Pulaski, PA**
- 26-RMI Titanium Company; Ashtabula, OH**
- 27-Safety Light Corporation; Bloomsburg, PA**
- 28-Sequoyah Fuels Corporation; Gore, OK**
- 29-Shieldalloy Metallurgical Corporation; Cambridge, OH**
- 30-Shieldalloy Metallurgical Corporation; Newfield, NJ**
- 31-Watertown Mall; Watertown, MA**
- 32-Watertown GSA; Watertown, MA**
- 33-Westinghouse Electric Corporation; Waltz Mill, PA**
- 34-Whittaker Corporation; Greenville, PA**

CURRENT SDMP SITE STATUS

JULY 1999

- **2 Sites - Pending removal from SDMP in FY99**
 - **Elkem Metals (Pending Removal 8/99)**
 - **Pesses (Pending Removal 8/99)**
- **7 Sites - Decommissioning Plans Approved and grandfathered**
 - **AAR Manufacturing (Brooks & Perkins); Livonia, MI**
 - **Babcock & Wilcox; Parks Township, PA**
 - **BP Chemicals America, Inc.; Lima, OH**
 - **Dow Chemical Company; Bay City and Midland, MI**
 - **Horizons, Inc.; Cleveland, OH**
 - **Permagrain Products; Media, PA**
 - **RMI Titanium Company; Ashtabula, OH**

CURRENT SDMP SITE STATUS (CONT'D)

JULY 1999

- **8 Sites - Decommissioning Plans under review
(eligible to be grandfathered)**
 - **Heritage Minerals; Lakehurst, NJ**
 - **Kerr-McGee; Cimarron, OK**
 - **Kerr-McGee; Cushing, OK**
 - **Lake City Army Ammunition Plant (formerly
Remington Arms Company); Independence, MO**
 - **Molycorp, Inc.; York, PA**
 - **Northeast Ohio Regional Sewer District/
Southerly Plant; Cleveland, OH**
 - **Watertown Mall; Watertown, MA**
 - **Watertown GSA; Watertown, MA**

CURRENT SDMP SITE STATUS (CON'D)

JULY 1999

- **6 Sites - Decommissioning Plans under review
(Using License Termination Rule Criteria)**
 - **Cabot Corporation; Reading, PA**
 - **Cabot Corporation; Revere, PA**
 - **Westinghouse Electric Corporation;
Waltz Mill, PA**
 - **Safety Light Corporation; Bloomsburg, PA**
 - **Sequoyah Fuels Corporation; Gore, OK**
 - **Minnesota Mining and Manufacturing Co. (3M);
Pine County, MN**

CURRENT SDMP SITE STATUS (CONT'D)

JULY 1999

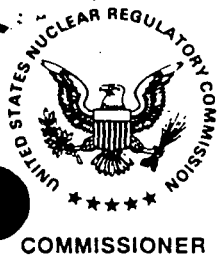
- **11 Sites - Decommissioning Plans not yet submitted**
 - **Advanced Medical Systems, Inc.; Cleveland, OH**
 - **Army, Department of, Jefferson Proving Ground; Jefferson, IN**
 - **Babcock & Wilcox; Shallow Land Disposal Area, PA**
 - **Fansteel, Inc.; Muskogee, OK**
 - **Hartley and Hartley (Kawkawlin) Landfill; Bay County, MI**
 - **Kaiser Aluminum; Tulsa, OK**
 - **Michigan Department of Natural Resources (MDNR), MI**
 - **Molycorp, Inc.; Washington, PA**
 - **Shieldalloy Metallurgical Corporation; Cambridge, OH**
 - **Shieldalloy Metallurgical Corporation; Newfield, NJ**
 - **Whittaker Corporation; Greenville, PA**

SITE - DECOMMISSIONING PLANS NOT YET SUBMITTED

July 1999

- **Reasons: Decommissioning Plans Pending**
 - **Decommissioning Plans found unacceptable or inadequate**
 - **Staff approved an alternative schedule or in the process of evaluating the licensee's justification for alternative schedule**
 - **License condition allow for alternative schedule**

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



January 14, 1999

Ms. Joyce Bourman
Office of the Health and Safety Executive
Room 4 NW
Rose Court
Southwark Bridge
London, England SE1 9HS

Dear Ms. Bourman:

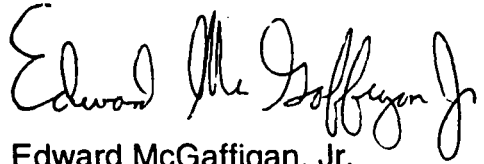
The purpose of this letter is to solicit information on whether the Health and Safety Executive (HSE) has established through policy, rule or guidance decontamination and decommissioning (D&D) criteria generally applicable to HSE-licensed facilities that must be met prior to termination of the license. In the absence of such generally applicable criteria, I would also be interested in knowing whether specific criteria applicable to the Dounreay facility exist.

I recently received three HSE documents including, "Managing for Safety at Nuclear Installations," as well as the HSE audit of the Dounreay facility and the United Kingdom Atomic Energy Authority's response to the audit. I reviewed these documents in an effort to determine whether the HSE has D&D criteria in place or under development. As you may know, the U.S. Nuclear Regulatory Commission (NRC) promulgated the "license termination rule" (LTR) in July 1997 which codifies NRC's criteria that must be met before a license is terminated (copy enclosed). For example, section 20.1401 requires that the potential dose to a member of the public from residual contamination at a site that is released for unrestricted use may not exceed 0.25 mSv (25 millirem) per year (see page 39088). The LTR is applicable to most NRC-licensed facilities.

Currently, I and the other four NRC Commissioners are faced with the difficult decision of determining whether and how to apply the LTR to a highly contaminated site located in the State of New York, referred to as West Valley. For your information, a copy of the publicly-available paper submitted by NRC staff to the Commission for its consideration is enclosed. The Commission held a public meeting on January 12, 1999 to solicit input from the stakeholders involved with this site. The West Valley site has many unique features, which require State and Federal regulatory oversight, not the least of which is the storage of high-level waste generated as a result of reprocessing nuclear fuel in the late 1960s and early 1970s. To assist me in making such an important and possibly precedential decision for the United States, I am considering the cleanup of the West Valley site in the context of other domestic sites and international sites such as the Dounreay facility.

I would greatly appreciate receiving any information which describes the status of HSE's efforts to develop either generally applicable or site-specific D&D criteria that must be met by HSE-licensed facilities, particularly the Dounreay facility. It would be most helpful if I received such information by February 15, 1999. Please do not hesitate to contact me directly or my Materials Technical Assistant, Ms. Janet Schlueter at 301-415-1800 if you have questions or would like to discuss my request. Thank you for your time and effort.

Sincerely,

A handwritten signature in cursive script, reading "Edward McGaffigan, Jr.".

Edward McGaffigan, Jr.

Enclosures: As stated



POLICY ISSUE

(Notation Vote)

October 30, 1998

SECY-98-251

FOR: The Commissioners

FROM: William D. Travers
Executive Director for Operations

SUBJECT: DECOMMISSIONING CRITERIA FOR WEST VALLEY

PURPOSE:

To request Commission approval on proceeding with proposed decommissioning criteria for the West Valley Demonstration Project (WVDP) and West Valley site and to inform the Commission of potential alternatives that may be necessary to ensure acceptable long-term control and care of the site.

SUMMARY:

The U.S. Nuclear Regulatory Commission's (NRC's) responsibilities under the WVDP Act include prescribing decontamination and decommissioning criteria for the U.S. Department of Energy (DOE). NRC's proposed decommissioning criteria will be a significant component of an environmental impact statement (EIS) being prepared jointly by DOE and the New York State Energy Research and Development Administration (NYSERDA) for decommissioning and closure of the site. NRC can also use the EIS to support its selection of criteria in accordance with the National Environmental Policy Act (NEPA). The staff is proposing decommissioning criteria that are compatible with existing regulations and guidance. Once NRC proposes the criteria, DOE and NYSERDA can consider the environmental impacts associated with attainment of the criteria and complete the EIS. Meeting these proposed criteria may require the removal and offsite disposal of large quantities of high-activity wastes, and that action may be difficult due to high cost and lack of access to offsite disposal capacity. For this reason, DOE/NYSERDA may consider leaving the wastes onsite under indefinite institutional control. Therefore, this paper also presents three regulatory alternatives, regarding long-term control of the site, that may need to be addressed in light of the proposed criteria described in this paper.

CONTACT: Jack Parrott, NMSS/DWM
(301) 415-6700

Monday
July 21, 1997

Final Rule

Part II

Nuclear Regulatory Commission

10 CFR Part 20, et al.

Radiological Criteria for License
Termination; Final Rule

Radiological Criteria for License
Termination: Uranium Recovery Facilities
Proposed Rule

Health & Safety Executive
Safety Policy Directorate
Nuclear and Hazardous Installations Policy Division

Mr E McGaffigan, Jnr
Commissioner
US Nuclear Regulatory Commission
Washington DC 20555
USA

Our file reference: NSP/18/104/96/1

29 January 1999

Dear Mr McGaffigan

Thank you for your letter (with enclosures) of 14 January 1999 asking for information on UK policy, rule or guidance on decontamination and decommissioning (D & D) criteria for nuclear licensed facilities.

You gave in your letter details of applicable HSE documents you already have, and I have pleasure in enclosing a copy of the paper 'HSE policy on decommissioning and radioactive waste management at licence nuclear sites' written by one of my colleagues.

The information is still current and I hope it will be helpful to you.

For your information, the UK has no site specific criteria for D & D.

Yours sincerely



Joyce Boorman (Mrs)

Tel. **171-717-6887

Fax. **171-717-6095

Email. joyce.boorman@hse.gov.uk

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Mr Nick Starling – Head of Division
Rose Court, 2 Southwark Bridge, London SE1 9HS
Tel: 0171 717 6000 Direct Line: 0171 717 6863 Fax: 0171 717 6095

HSE policy on decommissioning and radioactive waste management at licensed nuclear sites

M. Bacon

Health and Safety Executive, Safety Policy Directorate, Nuclear and Hazardous Installations Division, London, England

In the UK, radioactive waste management and decommissioning on a licensed nuclear site is regulated by the Health and Safety Executive. The same legislative framework used for operating nuclear power stations is also applied to radioactive waste management and decommissioning activities. This provides a continuous but flexible safety regime until there is no danger from ionizing radiations. The regulatory policy is discussed, taking into account the implications of the 1995 White Paper reviewing radioactive waste management policy.

For both radioactive waste management and decommissioning the key element of HSE policy is the need for strategic planning. This should ensure that problems are not allowed to build up and to demonstrate that, taking into account all factors, the proposed actions are the optimum in terms of safety. There is a presumption in HSE's policy towards disposal of radioactive waste as soon as possible where disposal routes exist. Where long-term storage is necessary passively safe forms are preferred over those requiring continuous monitoring or frequent intervention.

Introduction

The Health and Safety Executive (HSE) is responsible for regulating most of the activities on nuclear licensed sites from construction through to eventual clearance of the site. The main exception to this is the authorization of the discharge or disposal of radioactive waste which is authorized by the environment agencies. Operational enforcement is carried out on HSE's behalf by its Nuclear Installations Inspectorate. Policy matters are dealt with by its Safety Policy Directorate, of which the author is part.

The policy of HSE in respect of radioactive waste management is derived from the requirements of legislation and from Government policy. It is also informed by national and international consensus views on best

practice. This paper discusses HSE's policy in these areas as it has developed since the publication of the Government's White Paper¹ in July 1995.

Regulatory framework

The main legislation governing the safety of nuclear installations is the Health and Safety at Work Act 1974 (HSW74) and the associated relevant statutory provisions of the Nuclear Installations Act 1965 (as amended) (NIA65). Under NIA65 no site may be used for the purpose of installing, operating and subsequently decommissioning any commercial nuclear installation unless the operator holds a valid licence from the Health and Safety Executive (HSE). HM Chief Inspector of Nuclear Installations on behalf of HSE grants such licences, attached to which are conditions which require operators to make and implement adequate arrangements relevant to safety. Safety is the responsibility of the operator who has to satisfy HSE that this responsibility has been fully met. Other regulations important to radioactive waste management and decommissioning are the Ionising Radiations Regulations 1985, which are also enforced by HSE at licensed nuclear sites.

Conditions attached to a site licence are essentially non-prescriptive applying equally to decommissioning and operating sites, and form part of a continuous process of regulation from 'cradle to grave'. HSE will expect operators to consider in a safety case the full process, including the radioactive waste management and decommissioning implications. Regulatory control is effected by means of licence condition requirements. If satisfactory performance is not achieved, the Inspectorate *may* take enforcement action in the interests of safety.

Safety cases

A potential operator requires a licence from HSE to install and operate a nuclear installation. Once a

licence is granted activities of the licensee in relation to the plant are subject to licence conditions and certain actions may be subject to the agreement or consent of HSE. As part of this process the licensee must produce a safety case which will include the identification of operating limits and conditions, safety mechanisms and maintenance requirements. Parts of this safety case may be assessed by HSE if they decide that it merits it because of the hazards posed or for some other reason. Within the safety case, the Licensees must address radioactive waste generation, processing and accumulation facilities on site. The safety case has to be updated throughout the life of the installation to take account of any changes to the installation, and, periodically, to justify the continued operation and ultimate life of, the installation.

Role of the environment agencies

The environment agencies have an interest in radioactive waste management aspects of the safety case. HSE consult with the environment agencies so that they can identify points on the licensee's programme when their agreement should be sought. A licensee has also to obtain the environment agencies' authorization for discharges from the nuclear licensed site which is an additional reason for close consultation between HSE and the environment agencies.

It should be noted that HSE is responsible for all aspects of the regulation of waste management on nuclear licensed sites but the regulation of disposal of radioactive waste under the Radioactive Substances Act 1993 (RSA 1993) is the responsibility of the Environment Agencies (EAs). These are the Environment Agency in England and Wales and the Scottish Environment Protection Agency in Scotland. Close liaison between the regulatory bodies is maintained under the terms of memoranda of understanding in addition to statutory consultation under the terms of the Environment Act 1995. This consultation process was set up to ensure that government policy could be carried out without the need for additional statutory powers and to ensure smooth and harmonious working of the regulators.

Radioactive waste management

Since 1977, following a report by the Royal Commission on Environmental Pollution (the 'Flowers Report') the primary responsibility for national radioactive waste policy lies with the Department of the Environment, in conjunction with the Welsh Office and Scottish Office. The national policy on radioactive waste management was reviewed in 1994/95 and the conclusions of that review were set out in *Review of Radioactive Waste Management Policy (Cm 2919)*.

Policy issues

Arising from the national policy and consideration of HSE's functions in regulating radioactive waste management are ten policy issues. They cover:

1. Strategic planning of radioactive waste management.
2. Site-specific waste strategies.
3. Continuity of radioactive waste management responsibilities throughout a licensee's period of responsibility.
4. Generation of waste
5. Balance of risks to workers, the public and the environment.
6. Segregation and characterization of wastes.
7. Disposal of radioactive waste.
8. Safe storage of radioactive waste.
9. Retrieval or transfer of stored waste.
10. Projected use of storage facilities.

These are addressed in the following sections.

Strategic planning of radioactive waste management

HSE requires licensees to undertake strategic planning for radioactive waste management, including the development of programmes for the disposal of waste accumulated at nuclear sites within an appropriate timescale.

Any programmes for the disposal of wastes will need to take account of the expected availability, and requirements, of disposal facilities and Government policy on disposal of radioactive waste. Where disposal facilities are not immediately available they will also need to consider the potential for long-term storage prior to disposal.

Site-specific waste strategies

HSE requires licensees to develop a site-specific strategy which provides for the management of a radioactive waste on site. There should be particular emphasis on the long-term safe management of waste for which there is no authorized disposal route.

The strategy together with the safety cases(s) for associated facilities should demonstrate that the facilities are adequately safe. It should include arrangements to ensure that such facilities will remain safe throughout the period in which they deal with waste and that adequate facilities will be available to safely manage waste until its ultimate disposal. The strategies should ensure that waste management problems are not created which cannot be resolved using current techniques or techniques which could be derived from current lines of development.

Continuity of radioactive waste management responsibilities throughout a licensee's period of responsibility

The management and disposal of radioactive waste may, of necessity, be required after the operation of

facility which gave rise to the waste has ceased. HSE will continue to make full use of its regulatory powers under HSW74 and NIA65 to ensure that in such cases licensees manage radioactive waste on site in a manner acceptable to HSE through to the end of their period of responsibility under NIA65.

Generation of waste

In line with the national policy, HSE requires safety cases for all nuclear facilities to include a demonstration that

- wastes are not unnecessarily created and
- that the generation and accumulation of waste has been reduced as far as reasonably practicable.

Balance of risks to workers, the public and the environment

HSE expects that radioactive waste management should take an appropriately balanced account of the radiological risks to workers and to the public including potential doses from accidents. Risks to the environment will generally be considered to be acceptable if the risk to the public is acceptable. The total detriment should be as low as is reasonably practicable (ALARP).

In addition to the standard optimization involving cost-benefit analysis and other social and economic factors, HSE look for an appropriate balance, by three-way optimization, between the protection of the public, the environment and the workforce involved in waste management. Both individual/critical group and collective doses are expected to be addressed. Authorization of radioactive waste disposal and discharge is the responsibility of the Environment Agencies and HSE will consult with them on matters relating to discharges. The International Commission for Radiological Protection believe that the standard of environmental control needed to protect man to the degree currently thought desirable will ensure that other species are not put at risk. Hence, in the above, the focus is on the balance between public and worker exposure.

Segregation and characterization of wastes

HSE requires that, where it is practical and cost-effective to do so, radioactive waste should be segregated and characterized in order to facilitate the overall safe management of conditioning, storage, retrieval and subsequent disposal.

Characterization can be in terms of chemical and physical form, radiation type, half life, specific activity, radiotoxicity, combustibility, etc. Segregation of waste into appropriate streams, based on the storage and disposal requirements of the material, should be addressed in the design stage and form an integral part of the waste management arrangements. Early and appropriate segregation and characterization is

expected. This should be done as close to the point of generation as is reasonably practicable.

Disposal of radioactive waste

HSE requires that radioactive waste is disposed of at appropriate times and in appropriate places. HSE uses its regulatory powers to ensure that licensees dispose of waste promptly, where there is a route for authorized disposal, in an appropriate manner. Such disposals will need to be in accordance with an authorization granted under RSA93. The timing of disposal will be subject to the circumstances in each case but, in general, it is expected that, where disposal facilities are available, waste should be disposed of as soon as is reasonably practicable.

Safe storage of radioactive waste

When it is necessary to store radioactive waste, HSE requires that, where it is practical and cost-effective to do so, it is stored in a passively safe form and in a manner which facilitates retrieval for final disposal.

A passively safe form is one in which the waste is chemically and physically stable and stored in containment and in a manner which minimizes the need for safety mechanisms, maintenance, monitoring and human intervention, and which facilitates retrieval for final disposal. This applies to existing as well as future facilities.

Particular attention should be given to preventing the unauthorized dispersal of radioactive material. It is the HSE position that, where justified on safety grounds, on-site management of radioactive waste should not be unduly constrained by the possible requirements for final disposal which may be many decades into the future. Wherever possible, however, waste should be stored in a form which minimizes the need for further handling and processing prior to disposal.

Retrieval or transfer of stored waste

In order to facilitate waste handling while ensuring that exposures of workers and the public to radiation are ALARP, HSE expects new waste storage facilities to be designed with retrieval and transfer in mind. Where existing facilities are to be modified to provide additional capacity, or storage for an extended period, similar considerations should apply. New or modified storage facilities should be designed with retrieval and transfer mechanisms installed or so that the fitting of such mechanisms prior to the need for retrieval and transfer of waste can be achieved without undue delay and while maintaining radiological risks to workers and members of the public at an acceptable level.

Projected use of storage facilities

Existing wasteforms and waste storage facilities should be kept under review through an appropriate maintenance and surveillance programme. This should

include checks on their condition and suitability for continued use and seek to determine life-limiting features.

A full safety review to substantiate the projected life, taking account of modern standards and the strategy for ultimate disposal, should be carried out periodically. Attention should be paid to the provision of multiple containment to prevent inadvertent dispersal and to the availability of contingency storage facilities where appropriate.

Where necessary to maintain acceptable safety standards, waste retrieval followed by re-location, after conditioning of the waste, may be necessary. Where conditioning of waste is undertaken this should avoid foreclosure of waste management options unless justified on the grounds of safety or, if safety is not prejudiced, on economic grounds.

Retrieval of waste from any storage facility should be undertaken in such a manner as to limit radiation doses as far as reasonably practicable, including, where appropriate, the use of remote handling arrangements.

Decommissioning

Decommissioning is the set of actions taken at the end of a facility's economic life to take it permanently out of service and subsequently make its site available for other purposes. It should be undertaken with adequate regard for the health and safety of workers and the public and protection of the environment. The White Paper¹ includes aspects of policy on decommissioning and gives regulators a duty to ensure that the regulatory framework that it describes is properly implemented in accordance with their statutory powers.

Decommissioning will be subject to the continuation of the same licensing regime as that applied during the preceding design, construction, operation and shut down phases.

Policy issues

Arising from the national strategy and consideration of HSE's functions in regulating decommissioning are five policy issues. They cover:

1. Strategic planning for decommissioning.
2. Site or plant-specific decommissioning programmes.
3. Timing of decommissioning.
4. Priorities for decommissioning.
5. Completion of decommissioning.

Strategic planning for decommissioning

In line with government policy, HSE expects licensees to produce a decommissioning strategy for their plants and sites. This should address the approach they will take in deciding on actions to be taken in decommissioning plant under their control, and their timing. It should also address the financial provision arrange-

ments which will ensure that decommissioning can be undertaken at the appropriate time.

HSE would encourage as much openness as possible by licensees in the preparation of decommissioning strategies, in particular taking on board discussions with interested outside parties. HSE will provide a public explanation of the basis for its own decisions about the strategies.

The strategy should be kept under review by the licensee to take account of, inter alia;

- availability of disposal routes for the radioactive wastes
- availability of replacement plant (if necessary) for that being decommissioned
- the development of new technologies and
- experience gained in decommissioning.

HSE will review the licensee's strategy quinquennially and will consult with the environment agencies. As part of that review, HSE will expect the licensees to provide a report on their progress towards decommissioning and on their provisioning policies.

Site- or plant-specific decommissioning programmes

HSE will require licensees to prepare programmes and arrangements for decommissioning. Where appropriate, these will be approved by HSE.

The plant safety case as it evolves throughout the life of the plant, starting at the design phase and subject to periodic review, should include provision for decommissioning. In particular, for any new plant, the licensee should prepare an outline decommissioning plan which shows that the design of the plant will facilitate its safe decommissioning and dismantling. Operating arrangements should also take due account of the needs of decommissioning – particularly with the making and retention of adequate plant records.

A detailed decommissioning programme, describing the actions to be taken and the timescales, will be required at an agreed period prior to the cessation of use of the plant. The expected outcome of such a programme will be the removal and/or immobilization of the most active and potentially mobile radioactivity on a relatively short timescale. Further actions should follow at appropriate intervals consistent with the hazards they seek to address. Detailed arrangements including safety cases and demonstration of an appropriate management structure, will be required before commencement of each phase of decommissioning.

Timing of decommissioning

HSE will require the licensee to commence decommissioning at an agreed time. The timing of specific decommissioning projects will be reviewed periodically and, if necessary in the interests of safety, HSE may require decommissioning to be completed on an earlier timescale than originally planned.

HSE's primary interests in decommissioning is to ensure the safety of the plant/site, workers and the public until the plant is finally decommissioned and to ensure that the radioactive hazard has been removed. It will seek to ensure that licensees take steps, as far as is reasonably practicable, to reduce the radioactive inventory and associated hazard over an appropriate period. In general, the process of decommissioning should be undertaken as soon as it is reasonably practicable to do so. The rate at which the work proceeds will be determined by

- the hazards posed to the public, workers and the environment (recognizing the benefits obtainable from radioactive decay)
- the availability of disposal routes for the wastes and
- subject to ensuring public safety – the financial implications of proceeding on different timescales.

Where later stages of decommissioning are to be deferred, the initial stages should lead to a state of passive safety not requiring immediate human intervention to maintain risks below an acceptable level.

Priorities for decommissioning

HSE will require a systematic and progressive reduction of the hazards presented by the plant or site. HSE will pay special attention to those plants which are considered to have large hazards or high risk to ensure timely decommissioning.

HSE expects the decommissioning process to be a series of sequential stages, the end result of each stage being a reduction in hazard. The priority and extent of each stage will, where appropriate, require HSE agreement and will be influenced by the hazard posed by plant on the site. In the case of plant with large hazards or high risk the priority for action to reduce the risk will be correspondingly high.

Completion of decommissioning

HSE will regulate, under NIA65, the safety of activities on site, including decommissioning, until it is able to advise that there has ceased to be any danger from ionising radiation from anything on the site.

International standards and developments

Radioactive waste management and decommissioning should be undertaken to internationally acceptable standards. Where standards or guidance produced by international consensus exist, such as those of IAEA, HSE will take these into account in assessing the acceptability of programmes. HSE will maintain awareness of, and involvement in, national and international developments in the field of decommissioning and waste management.

In order to carry out its responsibilities effectively, HSE will maintain close involvement with international and national bodies in appropriate fields of technology. This will specifically include maintaining close liaison with the Department of the Environment and the environment agencies.

Conclusions

For both radioactive waste management and decommissioning the key element of HSE policy is the need for strategic planning to ensure that problems are not allowed to build up and to demonstrate that, taking into account all factors, the proposed actions are the optimum in terms of safety. There is a presumption in HSE's policy towards disposal of radioactive waste as soon as possible where disposal routes exist. Where long-term storage is necessary passively safe forms are preferred over those requiring continuous monitoring or frequent intervention.

The existing HSE strategy provides a flexible yet sufficiently powerful system of regulatory control to deal with radioactive waste management and decommissioning on nuclear licensed sites. The regulatory position will continue to evolve together with government policy and international guidance as practical experience accrues.

Reference

1. Cmnd 2919. *Review of radioactive waste management policy. Final Conclusions*. London, HMSO, 1995.