

UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

Title: BRIEFING ON CERTIFICATION OF DOE TRANSURANIC
WASTE PACKAGE - TRUPACT II

Location: ROCKVILLE, MARYLAND

Date: AUGUST 11, 1989

Pages: 38 PAGES

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BRIEFING ON CERTIFICATION OF DOE TRANSURANIC
WASTE PACKAGE - TRUPACT II

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PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland

Friday, August 11, 1989

The Commission met in open session, pursuant
to notice, at 10:00 a.m., Kenneth M. Carr, Chairman,
presiding.

COMMISSIONERS PRESENT:

KENNETH M. CARR, Chairman of the Commission
THOMAS M. ROBERTS, Commissioner
KENNETH C. ROGERS, Commissioner
JAMES R. CURTISS, Commissioner

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STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

SAMUEL J. CHILK, Secretary

WILLIAM C. PARLER, General Counsel

HUGH THOMPSON, EDO, DEDS

ROBERT BERNERO, Director of Operations, NMSS

ROBERT BURNETT, Director of Safeguards and
Transportation, NMSS

EARL EASTON, NMSS

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

10:00 a.m.

CHAIRMAN CARR: Good morning, ladies and gentlemen.

The purpose of today's meeting is to brief the Commission on the staff's effort to certify the TRUPACT II transportation package. As a transportation package for contact handled transuranic waste from defense facilities, TRUPACT II plays an important role in the operation of the Department of Energy's waste isolation pilot plant.

Staff considers that it will be able to approve TRUPACT II later this month if the review proceeds as planned.

Copies of the presentation slides should be available at the entrance to the meeting room.

Do my fellow Commissioners have any opening comments?

(No response)

CHAIRMAN CARR: If not, Mr. Thompson, you may proceed.

MR. THOMPSON: Thank you, Mr. Chairman, Commissioners.

As we indicated, we do anticipate completing our review of the TRUPACT II certification package

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1 this month. We've been working very closely and very
2 hard on this review since January of 1988. Much of
3 that time was in a kind of a preapplication mode,
4 making sure that DOE understood the criteria, the
5 requirements that we were going to be reviewing, and
6 so that we have been able to fairly promptly
7 accomplish the review once the application was
8 actually submitted.

9 We have today in the audience two members of
10 the Department of Energy, Mr. Frank Falci, who is the
11 Manager of Nuclear Materials Transportation Research
12 and Development, who is from the DOE Headquarters; and
13 Mr. James Tollison, who is the TRUPACT Project Manager
14 from the Department of Energy in Albuquerque, New
15 Mexico.

16 CHAIRMAN CARR: Welcome, gentlemen.

17 MR. THOMPSON: I'm sure they'll be able to
18 answer any specific questions of where they are in the
19 process. Today's briefing will be done by Mr. Earl
20 Easton, who is the NRC Project Manager.

21 Earl, it's all yours.

22 MR. EASTON: Thank you.

23 You touched upon the importance of the
24 TRUPACT package in DOE's effort to transport
25 transuranic waste to the work facility. Today I'd

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1 like to brief -- give a brief overview of the design
2 of the TRUPACT package, what waste it's designed to
3 transport, and go over some of the aspects of the NRC
4 review of that package.

5 (Slide) Can I have the -- slide 3, please?

6 This is an outline, basically, of what we
7 hope to cover today.

8 (Slide) Next slide.

9 MR. THOMPSON: I might say that this is a
10 multimedia event. We have models, video cameras,
11 video tape. So hopefully it will all work very
12 smoothly today -- here we go -- except the viewgraphs.
13 I remember.

14 MR. EASTON: The TRUPACT II shipping package
15 is designed to ship plutonium contaminated waste
16 generated at DOE defense-related facilities to the
17 waste isolation pilot plant, or WIPP. The TRUPACT
18 package may also be used to transport waste between
19 the various DOE facilities.

20 These wastes consist primarily of the
21 byproducts from plutonium production, plutonium
22 reclamation processes, and laboratory operations. The
23 waste that would be shipped in a TRUPACT container are
24 low-level transuranic waste. They are considered
25 contact handled waste. They require no special

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1 shielding and can be handled by personnel wearing
2 gloves. The TRUPACT package would not be used to ship
3 high-level transuranic waste.

4 Most of the waste generated -- most of the
5 waste that would be shipped in the TRUPACT package is
6 currently stored at the Idaho National Engineering
7 Laboratory, or INEL. The waste at INEL falls into two
8 broad categories, the waste generated before 1970 and
9 the waste generated after 1970.

10 The waste generated before 1970 are buried
11 and DOE has no plans to ship these wastes to WIPP.

12 The wastes which were generated after 1970
13 are stored in 55 gallon drums or steel boxes. These
14 boxes are generally four foot by four foot by seven
15 foot in dimension and they are too big to fit in the
16 TRUPACT package. There are approximately 114,000
17 drums and 6,000 of these boxes in storage at the INEL
18 facility which DOE intends to ship to WIPP.

19 Apart from the waste stored at INEL, DOE
20 projects that approximately 8,000 drums and 5,000
21 smaller boxes of waste will be generated each year.

22 MR. THOMPSON: Is that 5,000 or 500?

23 MR. EASTON: I'm sorry, 500 boxes will be
24 generated each year, most of this at the Rocky Flats
25 facility. The 500 boxes refers to boxes which are

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1 specifically designed to fit in the TRUPACT package.

2 It should be emphasized --

3 (Slide) The next slide, please. You're
4 ahead of me.

5 It should be emphasized that there are a
6 large variety of wastes involved. They come from over
7 200 processes at ten different DOE facilities. The
8 wastes range from glassware, tools, clothing, to
9 byproducts from plutonium processing and many cemented
10 sludges. These are from the waste streams, that are
11 solidified and made into cemented sludges. The result
12 is a genuine mixed waste which must be considered as a
13 chemical waste as well as a radioactive waste.

14 A major consideration in the shipment of
15 this waste is the possibility of hydrogen generation
16 from the reaction of organic material with radiation.
17 I will talk about this in more depth later in my
18 presentation.

19 It's important to note that the initial
20 TRUPACT application does not address all of DOE's low-
21 level transuranic waste. You can see from the last
22 bulletin on the -- from the monitor that none of the
23 pre-1970 waste ~~is~~ is addressed. That's the buried
24 waste that's not going to WIPP. None of the boxes
25 currently stored is addressed. Those boxes are too

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1 large to fit into the TRUPACT container and that waste
2 will have to be repackaged. Only 30 percent of the
3 stored drums have been adequately characterized to be
4 acceptable for transport at this time, either because
5 of the waste form or potential for hydrogen
6 generation.

7 The current application does cover most of
8 the waste that would be generated in the future. This
9 includes 80 percent of the drums and 99 percent of the
10 boxes. Again, the boxes refer to those boxes
11 specifically designed to be transported in TRUPACT.
12 Most of this waste would be generated in the Rocky
13 Flats facility.

14 CHAIRMAN CARR: So, they're designing new
15 boxes to store things in now that will fit this
16 container?

17 MR. EASTON: Yes, sir.

18 CHAIRMAN CARR: Okay.

19 MR. EASTON: The current TRUPACT application
20 should be viewed as a first stage. We anticipate that
21 DOE will address additional waste in future requests.

22 (Slide) May I have the next viewgraph,
23 please?

24 NRC is conducting a review of the TRUPACT
25 package under Part 71 regulations. We believe our

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1 review is comprehensive, independent and thorough.
2 Our review covers all the areas listed in the
3 overhead, but for this presentation I would like to
4 focus on the first three areas: contents, structural
5 integrity and containment.

6 (Slide) Next slide, please.

7 The contents shipped in the TRUPACT will
8 have limits on the physical and chemical form. Some
9 of these limits come from the waste acceptance
10 criteria at the WIPP facility itself. Some are
11 necessary for the safe transportation of these wastes.
12 I'd like to focus on the limits we think necessary for
13 the transportation.

14 The contents must be in solid or solidified
15 form. All free liquid must be removed with the
16 exception it's limited to one percent. No corrosives
17 or explosives will be permitted in the waste, and
18 pyrophorics are limited to less than one percent. The
19 contents must be chemically compatible so that there
20 are no interactions between different waste forms
21 during transit and so that there is no interaction
22 between the waste and package components such as the O
23 ring seals, which are made from butyl rubber and
24 neoprene, or the vessel body wall. The chemical
25 compatibility of the waste forms was determined by

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1 using a method developed for the EPA.

2 The decay heat and fissile content of the
3 waste are limited for transportation purposes to
4 control the possible generation of hydrogen. I'll
5 talk more about this later.

6 At this point, I would like to note that DOE
7 has a program in place at each of its facilities for
8 verifying the characteristics of its waste. These
9 programs are set up to assure that the waste sent to
10 WIPP meet the WIPP acceptance criteria. The DOE
11 regularly audits and inspects the adequacy of the
12 procedures used at each of these sites.

13 This program for characterizing waste for
14 WIPP will be expanded to include transportation. This
15 includes the auditing and inspection by DOE to make
16 sure these procedures are adequate. The NRC will
17 require that the characteristics of all waste shipped
18 in a TRUPACT container be verified using these
19 procedures, that is, the procedures that were
20 developed for certifying waste for the WIPP facility.

21 CHAIRMAN CARR: Let me make sure I
22 understand what you're telling me here. Nothing will
23 be shipped in these containers that can't be stored at
24 WIPP.

25 MR. EASTON: Correct.

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1 CHAIRMAN CARR: However, WIPP could store
2 other things that can't be shipped in these
3 containers. Is that really what you're saying?

4 MR. EASTON: Yes.

5 CHAIRMAN CARR: Okay.

6 MR. BERNERO: Yes, excuse me. And there's
7 an important point and that is that we aren't going to
8 go in and inspect the procedures at the DOE
9 facilities. You know, that --

10 CHAIRMAN CARR: Yes. All we're certifying
11 is as long as you don't ship anything but this in
12 them --

13 MR. BERNERO: As long as you have adequate
14 procedures to control --

15 CHAIRMAN CARR: -- they're okay.

16 MR. BERNERO: -- what goes in the box and
17 what doesn't go in the box or the drum.

18 CHAIRMAN CARR: What goes in the container.

19 MR. BERNERO: Yes, right, whichever
20 container is used.

21 CHAIRMAN CARR: Okay.

22 MR. EASTON: (Slide) May I have slide
23 number 8, please?

24 An area we looked at in our review is the
25 potential for TRU waste to produce hydrogen. This is

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1 important because the TRUPACT package is a closed,
2 leak tight container during transit. Any generation
3 of hydrogen during transit could cause the hydrogen
4 concentration within the container to increase. The
5 generation of hydrogen in these wastes is based on the
6 decay heat which is a measure of the fissile content
7 or activity within the waste and the materials present
8 in the waste, especially organic materials.

9 The waste has a wide range of organic
10 materials. And importantly, the waste is packaged in
11 organic materials, that is plastic bags, many times
12 three or four layers of bags surrounding the waste.
13 Each 55 gallon drum has a rigid plastic liner in it.

14 With this in mind, the contents of the
15 TRUPACT package have been limited so that the hydrogen
16 concentration and any void volume within the package
17 would not exceed five percent in a 60 day period. The
18 60 day period is reasonable in light of the fact that
19 the normal shipping time is approximately three to
20 five days for these shipments.

21 CHAIRMAN CARR: So these are only certified
22 for truck shipment then?

23 MR. EASTON: Yes.

24 CHAIRMAN CARR: And not rail or ship?

25 MR. EASTON: No. At the present time, the

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1 application covers truck shipments. It may be
2 possible that DOE would want shipment by rail in the
3 future.

4 MR. BERNERO: Excuse me. When he gets,
5 later on, into the traffic envisioned, I think that
6 may well be a consideration.

7 MR. EASTON: So the hydrogen generation is
8 based on a 60 day period. That's reasonable because
9 shipping time is three to five days, the normal
10 shipping time.

11 As an aside, I'd like to point out that DOE
12 plans to track the TRUPACT containers by satellite
13 during the transit. There will also be 24 hour a day
14 monitoring. We feel this will allow DOE to be aware
15 of the progress of these shipments at all times.

16 COMMISSIONER ROBERTS: Could you elaborate
17 on the phrase, "tracked by satellite during transit"?

18 MR. EASTON: They have to -- the satellite
19 will locate or follow the progress of the shipment
20 from the beginning to the end. It's part of the
21 Transcom System.

22 MR. BERNERO: Yes. Our understanding is DOE
23 is implementing a track -- a satellite tracking
24 system for Category I shipments and that they would
25 use that same system for these waste shipments.

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1 CHAIRMAN CARR: Transmitter on the shipment,
2 transponder on the satellite?

3 MR. BERNERO: Yes.

4 CHAIRMAN CARR: And a receiver wherever
5 you're going to do the tracking?

6 MR. BERNERO: Yes, wherever. Wherever
7 you're doing it.

8 COMMISSIONER ROBERTS: And -- and with all
9 that, you're going to base this on a 60 day shipment
10 period?

11 MR. BERNERO: Yes. Well, we're not --

12 COMMISSIONER ROBERTS: Isn't that overkill?

13 MR. BERNERO: Well, if you read the
14 regulations, the regulations imply a year shipping
15 basis. We've actually cut down to 60 days as a
16 licensing basis.

17 The tracking is not a requirement. It's an
18 understanding. But you look at the hydrogenous
19 content and the possibility of breakdown and so forth.
20 Sixty days is pretty conservative for that. I'll
21 agree with you on that.

22 MR. EASTON: Normal shipping time is three
23 to five days. These go through the western part of
24 the United States. Some of them could be held up by
25 snow storms or delays in getting the shipment started

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1 or whatever. We don't anticipate that any of the
2 shipments would really take 60 days.

3 (Slide) May I have the next slide, please?

4 Now I'd like to briefly give a description
5 of the package design. On the monitor is a picture of
6 an actual TRUPACT container. The outer lid has been
7 removed so that you can see both the outer vessel and
8 the inner vessel.

9 (Slide) Okay, the next viewgraph, please.

10 The TRUPACT is designed to provide double
11 containment. There is an inner containment vessel, an
12 outer containment vessel, each of which is designed to
13 be leak tight. Leak tightness is verified before each
14 shipment.

15 The outer vessel is approximately ten feet
16 high and eight feet wide. This is a one-eighth scale
17 model. The inner containment vessel, the one that
18 actually holds the payload, is about eight and a half
19 feet high and six and a half feet in diameter.

20 (Slide) Next slide, please.

21 The package itself weighs about six tons.
22 The contents weigh just over three and a half tons, so
23 that the total weight for the package is almost ten
24 tons. Three of these packages go on a truck, so you
25 have basically 30 tons of packaging.

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1 The containment vessels are made of type 304
2 stainless steel. The outer vessel has a thickness
3 which varies from one-quarter inch to three-eighths
4 inch thick. The inner vessel is one-quarter inch
5 thick.

6 The cavity of the inner containment vessel
7 is dome shaped on each end so that each end is fitted
8 with an aluminum, honeycombed spacer. The primary
9 purpose of this is to per--is as a spacer, but this
10 could also provide some energy absorbing capability in
11 case of an impact.

12 The outer containment vessel has a ten inch
13 thick layer of foam just beneath the outer steel wall.
14 Here you see the foam. It's not exposed in the actual
15 packages, but for this model you can see the foam.
16 The foam provides insulation if the package is exposed
17 to fire and also acts as an energy absorber for
18 impacts.

19 (Slide) May I have the next slide, please?

20 I'd just like to point out two or three
21 features on this schematic of the TRUPACT. It is
22 designed for a 14 drum payload. The 14 drum payload
23 is on the schematic between the shaded areas. The
24 shaded areas are the honeycombed spacers. Also,
25 please note from this schematic that the foam layer

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1 completely surrounds the package. It's present in the
2 lid too.

3 (Slide) Okay, can we have the second
4 picture, please?

5 On the monitor is a picture of a prototype
6 TRUPACT package being loaded. You can see that the
7 package is about the height of two individuals and
8 that the method of loading is by lifting the drums as
9 a pallet into the container. This makes the package
10 relatively easy to load and unload.

11 (Slide) I'd like to have slide 12, please,
12 if I could.

13 I'd like to discuss briefly the testing that
14 was conducted on the TRUPACT container. Part 71
15 allows that the certification of a transport package
16 be based either on analysis or testing. The package
17 must be tested or analyzed for a particular sequence
18 of events. This includes a 30 foot drop onto an
19 unyielding surface, which is the impact test, followed
20 by a 40 inch drop onto a six inch pin. This is a
21 puncture test, followed by a fire test.

22 DOE conducted a series of full-scale tests
23 using four TRUPACT packages. The testing for the
24 packages is summarized in this table. It consisted of
25 an engineering design unit and three certification

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1 units.

2 The engineering design unit was used by DOE
3 to refine the package design. The testing on the
4 certification units was used as the basis for showing
5 that the TRUPACT package meets the requirements of
6 Part 71.

7 The numbers in the table are the times that
8 a particular test was performed on a test unit.

9 For example, the three under certification
10 unit number 1 under impact means that three 30 foot
11 drops were performed on the package at different
12 orientations. Similarly, the seven means that seven
13 puncture tests were performed, all at different
14 locations around the package.

15 The packages were tested over a wide range
16 of temperatures, both pressurized and unpressurized.
17 The payload was simulated during the test by 14 drums
18 filled with cement at the actual weight that the
19 contents would have.

20 At the conclusion of the test, the packages
21 were tested to verify leak tightness. I would like to
22 show a short video of some of the tests done on
23 certification unit number 1 at this time.

24 I guess, roll the video.

25 (Laughter)

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1 MR. BERNERO: Where's Roger Lindsey when you
2 need him?

3 (Laughter)

4 MR. EASTON: These were tests done on
5 certification unit 1. You will see a series of three
6 drop tests followed by several puncture tests. Then
7 you'll see the package in a fire and at the end you'll
8 see them opening the package.

9 MR. THOMPSON: Now, we did have some
10 individuals out there monitoring a number of these
11 tests. I don't know whether these were specifically
12 ones that we monitored, --

13 MR. BERNERO: Yes.

14 MR. THOMPSON: -- but we did have our own on
15 the platform.

16 MR. BERNERO: Yes. These are at Sandia
17 National Lab.

18 COMMISSIONER ROGERS: Just while we're
19 waiting here, was the loading the same for all of
20 these tests or were extreme differences in possible
21 distributions of loads within the TRUPACT--

22 MR. EASTON: The loading --

23 COMMISSIONER ROGERS: -- tests.

24 MR. EASTON: The loading was the same. It
25 was meant to represent the maximum weight that could

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1 be shipped in the TRUPACT.

2 COMMISSIONER ROGERS: Let me raise a
3 question about that. If you loaded all of the
4 concrete uniformly, that might be quite different from
5 loading some parts of it with concrete and some
6 with --

7 MR. BERNERO: Asymmetry?

8 COMMISSIONER ROGERS: Yes, to provide sheer
9 forces that you would get if they were uniform.

10 CHAIRMAN CARR: Did you see any damage to
11 the drums?

12 MR. EASTON: Yes, you'll -- I believe in
13 this video you'll see --

14 CHAIRMAN CARR: We're testing the container,
15 not the drums, right?

16 MR. EASTON: The drums were damaged.
17 However, we're giving no credit for containment to the
18 drums.

19 CHAIRMAN CARR: Yes, okay.

20 MR. EASTON: The drums are not really part
21 of the package itself.

22 CHAIRMAN CARR: The interest is in keeping
23 whatever is in there contained rather than --

24 MR. BERNERO: Yes. We have essentially the
25 same specs on this as on a spent fuel cask and we--

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1 there we go.

2 MR. EASTON: (Video) This is a side drop,
3 30 foot side drop. That's the side drop again. This
4 is being dropped onto an unyielding surface, eight
5 inches of armor plate over reinforced concrete. The
6 concrete goes down to the bedrock. This was --

7 MR. BERNERO: Sorry. Notice this was just
8 last December.

9 MR. EASTON: This is a corner drop. This is
10 on the same package. This is a repeat of that from a
11 different angle. This is the top end drop.

12 The next --

13 MR. THOMPSON: This is all the same packages
14 here?

15 MR. EASTON: This is all the same package.

16 This is a puncture test dropped onto a six
17 inch diameter pin. The idea is they aim the pin at a
18 vulnerable area on the package.

19 CHAIRMAN CARR: Like a joint?

20 MR. EASTON: A joint or a vent port or
21 something like that.

22 CHAIRMAN CARR: What are the bands around
23 the --

24 MR. EASTON: That's a weather seal, just to
25 keep rain or dust out of the joint. It's really not

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1 needed for safety.

2 Okay. The package is now suspended over a
3 pool of jet fuel, JP-4 and you'll see it ignited here
4 shortly.

5 This is a 30 minute duration fire.

6 CHAIRMAN CARR: See any more of that?

7 MR. EASTON: Those white poles are -- are
8 the -- the -- the ones on the right and left are
9 wooden two by fours that actually got charred during
10 the fire. They were about, what, 15 feet away or so.

11 This is after the fire test. You have to
12 let it cool off for a certain period till it gets back
13 to equilibrium.

14 Now they're taking off the outer lid. The
15 shiny container is the inner vessel.

16 There you see the drums. You can see that
17 some of the lids of the drums are a little cocked and
18 dented.

19 Tests were conducted on three certification
20 units similar to the one you saw for certification of
21 unit 1. It's important to be noted that, for all of
22 the certification test units, there was no release
23 from the package, either from the inner containment
24 vessel or the outer containment vessel.

25 COMMISSIONER ROBERTS: Excuse me, there's

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1 something I missed. How is the head of the vessel
2 secured to the shell?

3 MR. EASTON: Okay. The top is -- it is
4 placed over the cask body and rotated. It engages
5 locking tabs. And then there is a locking --

6 COMMISSIONER ROBERTS: For the inner and the
7 outer?

8 MR. EASTON: For both the inner and the
9 outer. And then there is a locking ring that goes
10 over where the vessels are joined and the locking ring
11 is pinned in place.

12 COMMISSIONER ROBERTS: Are these reuseable?

13 MR. EASTON: Yes, and they're
14 interchangeable, the --

15 COMMISSIONER ROBERTS: How many
16 manufacturers are there?

17 MR. EASTON: At the current time, one, I
18 believe.

19 COMMISSIONER ROBERTS: What does one of
20 these things cost?

21 MR. EASTON: About a half a million dollars,
22 is for the first units.

23 COMMISSIONER ROBERTS: And how many are
24 there going to be?

25 MR. BERNERO: Well, you'll see that in a

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1 moment.

2 COMMISSIONER ROBERTS: What?

3 MR. BERNERO: You'll see that in a moment.

4 MR. EASTON: We're coming to that at the
5 end, but --

6 MR. BERNERO: Yes, a lot of them.

7 MR. EASTON: But we have concluded from the
8 test program that the TRUPACT container provides
9 double containment under the conditions specified in
10 Part 71.

11 (Slide) If I can have the next slide.

12 MR. BERNERO: There, you got it.

13 MR. EASTON: Okay, thanks.

14 We have included this slide to list the
15 major milestones for the package review. The one
16 thing I might bring out is that we are in the final
17 stages of our review and we anticipate that the
18 TRUPACT package could receive NRC certification by the
19 end of August.

20 (Slide) Next slide.

21 The next is a picture of the DOE
22 demonstration unit, what a shipment might actually
23 look like. There'll be three containers on a
24 specially designed trailer. Each one of these weighs
25 about ten tons.

1 (Slide) Next slide, please.

2 DOE considers its campaign to ship
3 transuranic waste a long-term effort. It will involve
4 a 25 year campaign with approximately 600 shipments
5 per year. DOE plans to fabricate 50 to 90 of these
6 packages to handle these shipments. Currently they
7 have a contract for 51.

8 COMMISSIONER ROBERTS: With who?

9 MR. EASTON: With Nuclear Packaging.

10 COMMISSIONER ROBERTS: That's the name of
11 the entity?

12 MR. EASTON: Yes. And there is an option to
13 produce another 40.

14 COMMISSIONER ROBERTS: Tell me again, what
15 do these jewels cost?

16 MR. EASTON: Half a million dollars a --

17 MR. TOLLISON: \$600,000 for a trailer load,
18 which is about \$200,000 each.

19 MR. EASTON: Oh, \$200,000 each, six.

20 CHAIRMAN CARR: Is the trailer part of the
21 contract? Do you buy the trailer and the packages as
22 a package?

23 MR. TOLLISON: The contract included the
24 trailer but the design tradeoff we gave to the Nuclear
25 Packaging.

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1 COMMISSIONER ROGERS: Well, it sounds like a
2 lot, but I wonder if it's enough. The -- you're
3 planning to ship five and a half per day on the
4 average, 1800 packages a year and if you've got 90 of
5 them --

6 MR. BURNETT: Six hundred truckloads a year
7 --

8 CHAIRMAN CARR: Yes, that's only two per
9 day.

10 MR. BURNETT: It comes out about closer to a
11 couple a day.

12 COMMISSIONER ROGERS: I'm talking about
13 those packages. I'm talking about the number of
14 packages that you're shipping per day.

15 MR. BERNERO: All right.

16 COMMISSIONER ROGERS: So, you're shipping
17 five and a half per day on the average. I don't care
18 how many trucks that go out. And you're going to have
19 90 of them and that means on the average you'll have
20 about a 16 day turnaround that's required. And that,
21 with your five day travel time -- is that one way
22 transit time or two ways?

23 MR. EASTON: Probably one way, I think.

24 COMMISSIONER ROGERS: That leaves you six
25 days to load, unload, do anything else that you have

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1 to do under the best of circumstances without anything
2 else intervening. Well, you know, it's not
3 impossible, but it doesn't look to me like it's got a
4 lot of slop in it.

5 CHAIRMAN CARR: That's only four and a half
6 per day, right?

7 COMMISSIONER ROGERS: Five and a half per
8 day. Divide 1800 by 365.

9 MR. BERNERO: But the point is well taken.

10 CHAIRMAN CARR: You're not shipping on
11 Saturdays and Sundays? The truck really drives every
12 day.

13 MR. BERNERO: This is a major shipping
14 campaign and it's a very long one. There's a lot of
15 waste involved and this is by truck and it might end
16 up being advantageous in the future for DOE to be
17 looking at further considerations and maybe going by
18 rail. That's --

19 COMMISSIONER ROGERS: I was just saying, you
20 know, it looks -- it looks pretty -- it looks fairly
21 tight.

22 MR. BERNERO: Oh, yes. Yes. It's costly.

23 COMMISSIONER ROGERS: It's not a generous--
24 it's costly.

25 MR. BERNERO: And that's a big truck. You

1 know, it's roughly a 30 ton payload. So, you can't go
2 much further with the truck.

3 COMMISSIONER ROGERS: Yes. Well, I'm just
4 looking at your flow. I don't care how you send it
5 out, on truck or whatever. You're going to be
6 shipping on the average of 1800 a year, it's going to
7 be five and a half per day, on the average.

8 MR. BERNERO: Yes.

9 COMMISSIONER ROGERS: I don't know how you
10 schedule it, but that means on the average you're
11 going to have to have about a 16 day turnaround and
12 that -- with 90 of these things. And if you have 50,
13 that's a nine day turnaround. That's pretty tight.

14 So, you know, I'm just saying that it
15 doesn't look to me like you've got a lot of over
16 design in the numbers of these, for the packages
17 themselves. That's another matter. I mean, if you
18 stop to think, you're shipping something you could
19 handle with gloves. But just in terms of numbers of
20 packages that are planned, it looks a little -- to
21 meet that schedule, it looks to me a little bit, a
22 little bit tight. It doesn't allow for any
23 maintenance or cleaning or anything else to any great
24 degree, I would think.

25 MR. BERNERO: Keep in mind, Commissioner

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1 Rogers, our certification will include consideration
2 of the loading, unloading and other procedures that go
3 with proper use of the package.

4 COMMISSIONER ROGERS: How do -- how long do
5 you think --

6 MR. BERNERO: And then this is --

7 COMMISSIONER ROGERS: -- it will take to
8 load one of these things, on the average?

9 MR. BURNETT: How about DOE?

10 MR. TOLLISON: It's just a matter of hours.
11 The package is specifically designed so that you can
12 quickly load and unload it.

13 COMMISSIONER ROGERS: Yes, but you know
14 loading is the whole process. It's coming in. It
15 comes into the site. You've got to get things to--
16 got to get the right place. Then you put it in and
17 then it's ready to go on transit, you know.

18 MR. BERNERO: Yes.

19 COMMISSIONER ROGERS: We have to put all
20 these together.

21 MR. BERNERO: This is the DOE program plan
22 as it stands today and it's subject to variation as
23 events unfold.

24 COMMISSIONER ROGERS: Well, I'm just saying
25 it doesn't look impossible, but it means very tight

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1 control for 25 years, every single day, to meet that
2 scale.

3 MR. THOMPSON: Bob, I think you were going
4 to close up?

5 MR. BERNERO: Yes, let me wrap it up.

6 (Slide) If you go to slide 16.

7 Basically, as Earl has said, we just got the
8 response to the second round of questions. We're in
9 the final throes of the review. We don't see any
10 significant obstacle to certification by the end of
11 this month. Right now that's the way it looks. The
12 work is still going on.

13 We've done a thorough review of this thing,
14 witness tests, everything, you know. There have been
15 no compromises in the review. We're going to issue
16 that certification when we're finished and--
17 presuming that we haven't found any obstacle. And
18 it's going to be limited to the kinds of wastes that
19 are in that certification, you know, this five
20 percent, 60 days.

21 Stay tuned to this station though, because
22 DOE has further wastes that do have to be shipped. It
23 requires further work on characterization and the
24 projection is that there will be further application
25 for an amendment to this design or some other

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1 alteration that can cope with these other wastes.

2 This certification deals with the less gassy
3 end of the spectrum, the lower gas content end of the
4 spectrum. And so there will be further work on this
5 and we'll keep the Commission informed as we go along.

6 COMMISSIONER ROGERS: How much of the waste
7 of this kind do these requirements exclude?

8 MR. BERNERO: Well, right now, of the
9 existing waste, as that earlier slide showed, it's
10 slide number --

11 COMMISSIONER ROGERS: Five.

12 MR. BERNERO: -- five. Thirty percent of
13 the currently stored drums will fit this
14 certification. But with further work, they may be
15 able to -- you know, perhaps processing or whatever--
16 they may be able to get more of that waste to go into
17 it. That's an uncertainty. But the, you know,
18 package spec is there and maybe an alteration of the
19 design or a further alteration of waste form or
20 processing will be the answer. But there will be
21 further work on it.

22 COMMISSIONER ROGERS: What accounts for that
23 difference between your estimate that only 30 percent
24 of the drums currently stored could go in this but
25 drums generated in the future and boxes generated in

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1 the future 80 and 99 percent? If there's a waste--
2 if the character of the waste is a problem that
3 reduces that 30 percent -- that first number to 30
4 percent, then what will be changing about the
5 character of the waste for future generations that
6 makes it shippable in these?

7 MR. EASTON: It could be several
8 possibilities. The drums in storage could have been
9 generating hydrogen while they were in storage and --

10 CHAIRMAN CARR: The answer is they'll know
11 what's in them better for the future --

12 MR. EASTON: -- the sec --

13 CHAIRMAN CARR: -- and now they don't know
14 what's in them.

15 MR. EASTON: Right. The second answer is
16 that the data on the drums is a lot better. You can
17 actually track what you put in the drums. You have to
18 go back and find out what you put in the drums.

19 COMMISSIONER ROGERS: So, it's you just
20 don't know the reason for this.

21 MR. BERNERO: Yes, it's the institution of
22 controls is the key.

23 COMMISSIONER ROGERS: Yes. Yes.

24 MR. BERNERO: So that the results are usable
25 in the package.

1 COMMISSIONER ROGERS: Okay.

2 MR. THOMPSON: I think that completes the
3 staff's briefing, Mr. Chairman. We'll be delighted to
4 respond to any questions that you or the other
5 Commissioners have.

6 CHAIRMAN CARR: Commissioner Roberts?

7 COMMISSIONER ROBERTS: No.

8 CHAIRMAN CARR: Commissioner Curtiss?

9 COMMISSIONER CURTISS: A quick question. We
10 just got this letter that the Southwest Research
11 Information Center and EDF have sent to the Secretary
12 of Energy, cc to the Commission. I gather you've seen
13 it.

14 The letter makes the point -- and let me
15 just read it. "We were surprised and dismayed to
16 learn that the NRC has no intention of reviewing DOE-
17 transportation-related QA programs, the container
18 manufacturer, maintenance or operational handling."

19 Two questions. One, what are we doing about
20 QA in this context; and two, does it comport with what
21 Part 71 would require?

22 MR. THOMPSON: Let me let Mr. Burnett
23 respond to that question.

24 MR. BURNETT: All right. The first thing,
25 that third paragraph in the letter that you referred

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1 to is in error. NMSS is setting up a program to visit
2 the fabricators during fabrication and assure that
3 their QA and QC is in place and operational. Further,
4 we will revisit the facility periodically to make sure
5 that it's still being applied. I think that addresses
6 that first question you have.

7 COMMISSIONER CURTISS: Okay.

8 MR. BURNETT: Later in the letter they talk
9 about QA and QC, particularly as it's addressing the
10 characterization of the waste.

11 All right. As was said in the briefing, the
12 process -- the certification process -- does reference
13 their program to identify those wastes. However, at
14 this time there is no procedures in the NRC to inspect
15 that arm of DOE. So, it is assumed that DOE can
16 adequately control their characterization process.

17 CHAIRMAN CARR: There's no authority either.

18 MR. BURNETT: Yes, sir.

19 MR. THOMPSON: This is all a voluntary
20 aspect.

21 CHAIRMAN CARR: Yes, I understand that.

22 MR. THOMPSON: And we're doing this to
23 assist DOE's assurance --

24 CHAIRMAN CARR: They thought they would get
25 our certification and so that's what we're doing.

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1 MR. THOMPSON: That's right. That's right.
2 But we don't intend to inspect the facilities to make
3 sure people are -- that DOE is actually complying with
4 their own procedures in that respect.

5 But just to clarify the point, I think the
6 quality assurance programs are going to meet our
7 regulations and our requirements as the initial part
8 of the certification and we'll audit to see that those
9 things are being properly implemented at the
10 manufacturer.

11 COMMISSIONER CURTISS: A more general
12 question. Would it be fair to say that when we
13 certify the waste and with the exception of the
14 characterization question -- certify the cask, and
15 with the exception of the certification of the waste,
16 that this cask would meet all the Part 71 requirements
17 if it were submitted by a private entity?

18 MR. THOMPSON: Yes, sir.

19 COMMISSIONER CURTISS: All right.

20 MR. BERNERO: You know, this is -- the only
21 deal -- this is not a licensee using it.

22 COMMISSIONER CURTISS: I understand that.
23 It's kind of a curious relationship because it's a
24 voluntary thing on DOE's part.

25 CHAIRMAN CARR: And as I understand it,

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1 you're only going to certify it for DOE use. Is that
2 right?

3 MR. THOMPSON: Well, I don't think we have
4 any limitations on that. I mean, if someone else
5 wants to use it for some other shipment, they could.
6 If their waste --

7 CHAIRMAN CARR: The certificate is going to
8 DOE.

9 MR. THOMPSON: That's right. If DOE wanted
10 to let someone else --

11 MR. BERNERO: It's DOE's package, but --

12 CHAIRMAN CARR: And as they say, it's a fee
13 exempt job for DOE. How about the next problem that
14 comes in, the boxes or the modifications? Are we
15 doing those on a fee exempt basis too?

16 MR. BERNERO: Yes.

17 MR. THOMPSON: Most likely.

18 CHAIRMAN CARR: Does the High-Level Waste
19 Act not permit us to recoup some of this from that
20 fund?

21 MR. THOMPSON: No. The High-Level Waste Act
22 does not cover these wastes. The high-level waste
23 fund covers just the commercial spent fuel activities.

24 MR. PARLER: However, Mr. Chairman, there is
25 something that's called the Economy Act of 1932. If

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1 one agency wants to seek reimbursement for work
2 performed by another agency, they can seek
3 reimbursement.

4 CHAIRMAN CARR: Well, I just -- I don't want
5 to -- the agreement is fine as it is, but I don't know
6 how long we can keep working on it.

7 MR. THOMPSON: Well, that's a good point.
8 And we have done and made a commitment to do other
9 reviews, some of the shipping casks for the Naval
10 Reactors Program. We do those also right now without
11 any, you know, fee exempt approach. So, there are a
12 few things that we do in that area.

13 We recently had some correspondence back and
14 forth with DOE how -- so that we can make some of
15 these reviews more economical and they've agreed to
16 those steps. So, we're working with DOE in that area.

17 COMMISSIONER CURTISS: Just out of
18 curiosity, what did it cost us in terms of time and
19 resources to review this?

20 MR. BURNETT: We have approximately two man
21 years in this effort up to this point.

22 COMMISSIONER CURTISS: Okay. Contract
23 dollars or --

24 MR. BURNETT: No contract dollars.

25 CHAIRMAN CARR: Any other questions?

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1 (No response)

2 CHAIRMAN CARR: Well, I thank you very much
3 for the briefing and I assume that you'll let us know
4 if something should happen that you aren't able to get
5 it done this month and keep us informed also as to the
6 status of any additional requests you get for
7 modifications or additional packaging.

8 And I want to compliment the project manager
9 on a nice job. It looks like you made a lot of drops
10 out there.

11 If there are no other comments, then we
12 stand adjourned.

13 (Whereupon, at 10:46 a.m., the above-
14 entitled matter was concluded.)
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CERTIFICATE OF TRANSCRIBER

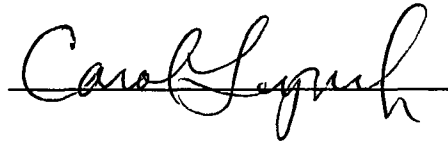
This is to certify that the attached events of a meeting
of the United States Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING ON CERTIFICATION OF DOE TRANSURANIC
WASTE PACKAGE - TRUPACT II

PLACE OF MEETING: ROCKVILLE, MARYLAND

DATE OF MEETING: AUGUST 11, 1989

were transcribed by me. I further certify that said transcription
is accurate and complete, to the best of my ability, and that the
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COMMISSION BRIEFING
ON
MODEL NO. TRUPACT II
SHIPPING PACKAGE
AUGUST 11, 1989

PURPOSE

TO INFORM COMMISSION OF ANTICIPATED STAFF
ACTION ON CERTIFICATION OF DOE PACKAGE
(TRUPACT II) FOR TRANSURANIC (TRU) WASTE

OUTLINE

- 0 TRU WASTE INVOLVED
- 0 AREAS OF NRC REVIEWS
 - CHARACTERISTICS OF CONTENTS
 - TRUPACT II PACKAGE
 - PACKAGE TESTING
- 0 REVIEW MILESTONES
- 0 PROJECTED SHIPMENTS OF TRUPACT II
- 0 SUMMARY

TRU WASTE INVOLVED

- 0 PLUTONIUM CONTAMINATED WASTE
- 0 GENERATED AT DOE FACILITIES
- 0 BULK OF MATERIAL STORED AT INEL
 - WASTE GENERATED BEFORE 1970 NOT INTENDED FOR WIPP
 - APPROX. 114,000 DRUMS AND 6,000 BOXES
GENERATED AFTER 1970
- 0 APPROX. 8,000 DRUMS AND 500 SMALLER BOXES WILL BE
NEWLY GENERATED EACH YEAR

TRU WASTE INVOLVED (CONTINUED)

- 0 LARGE VARIETY OF WASTES
- 0 HYDROGEN GENERATION IS A PRIMARY CONSIDERATION
- 0 INITIAL TRUPACT II APPLICATION ADDRESSES
 - PRE - 1970 WASTE NONE
 - DRUMS CURRENTLY STORED 30%
 - BOXES CURRENTLY STORED NONE
 - DRUMS GENERATED IN FUTURE 80%
 - BOXES GENERATED IN FUTURE 99%

AREAS OF NRC REVIEW

- 0 CHARACTERISTICS OF CONTENTS
- 0 STRUCTURAL INTEGRITY
- 0 CONTAINMENT
- 0 HEAT TRANSFER
- 0 SHIELDING
- 0 SUB-CRITICALITY
- 0 OPERATING PROCEDURES
- 0 MAINTENANCE
- 0 FABRICATION ACCEPTANCE TEST
- 0 PACKAGE DRAWINGS

CHARACTERISTIC OF CONTENTS

- 0 PHYSICAL FORM (LESS THAN 1% FREE LIQUIDS)
- 0 CHEMICAL FORM (LESS THAN 1 % PYROPHORICS,
NO EXPLOSIVES, NO CORROSIVES)
- 0 CHEMICAL COMPATIBILITY
- 0 DECAY HEAT
- 0 FISSILE CONTENT
- 0 HYDROGEN GENERATION

HYDROGEN GENERATION ISSUE

- 0 HYDROGEN PRODUCED BY RADIOLYSIS OF WATER AND ORGANIC MATERIALS
- 0 GENERATION IS BASED ON DECAY HEAT AND MATERIALS PRESENT IN WASTE
- 0 LIMITED TO 5% HYDROGEN IN ANY VOID VOLUME
- 0 BASED ON A 60-DAY SHIPPING PERIOD
 - NORMAL SHIPPING TIME: 3-5 DAYS
 - TRUCKS TRACKED BY SATELLITE DURING TRANSIT

TRUPACT II PACKAGE

- 0 DOUBLE CONTAINMENT
 - INNER CONTAINMENT VESSEL (ICV)
 - OUTER CONTAINMENT VESSEL (OCV)
 - EACH VESSEL LEAK TIGHT
- 0 DIMENSIONS
 - OCV 122" HIGH 95" DIAMETER
 - ICV 100" HIGH 77" DIAMETER

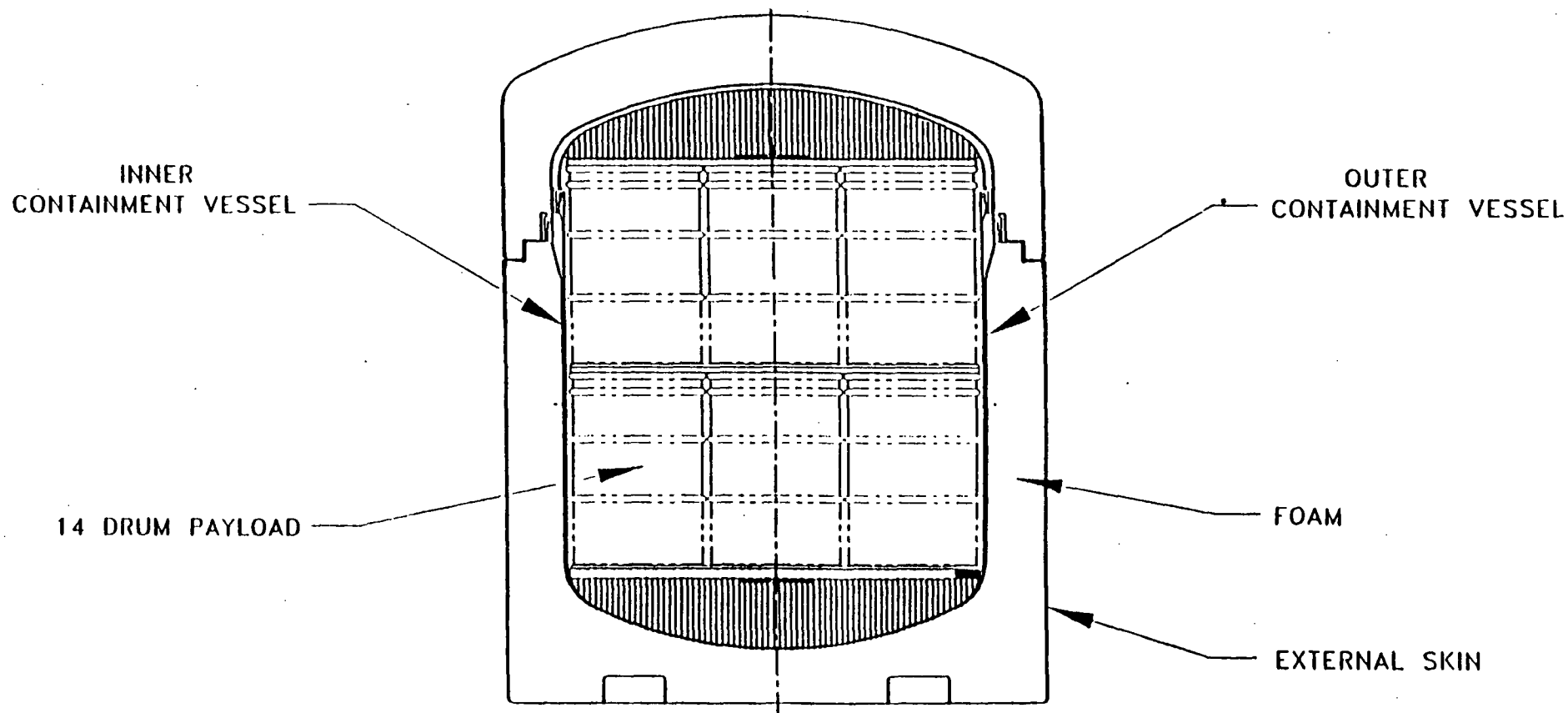
TRUPACT II PACKAGE (CONTINUED)

0 WEIGHT

- PACKAGE 12,000 LBS.
- CONTENTS 7,250 LBS.
- TOTAL 19,250 LBS.

0 MATERIALS OF CONSTRUCTION

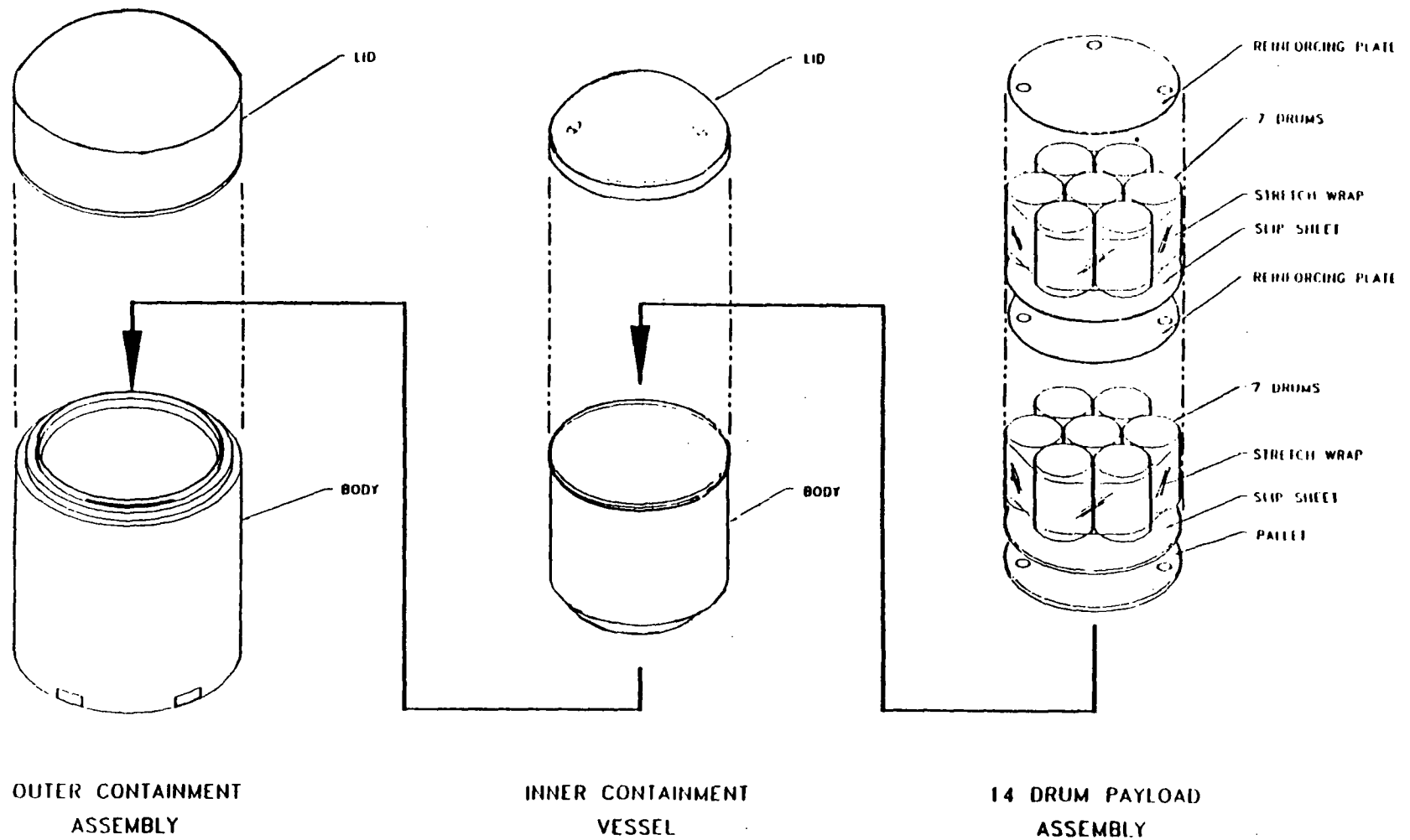
- CONTAINMENT VESSELS OF STAINLESS STEEL
- ALUMINUM HONEY COMB INSIDE ICV
- FOAM INSULATION WITH STAINLESS STEEL
SKIN SURROUNDING OCV



TRUPACT II

Cross-Sectional View

TRUPACT II ASSEMBLY



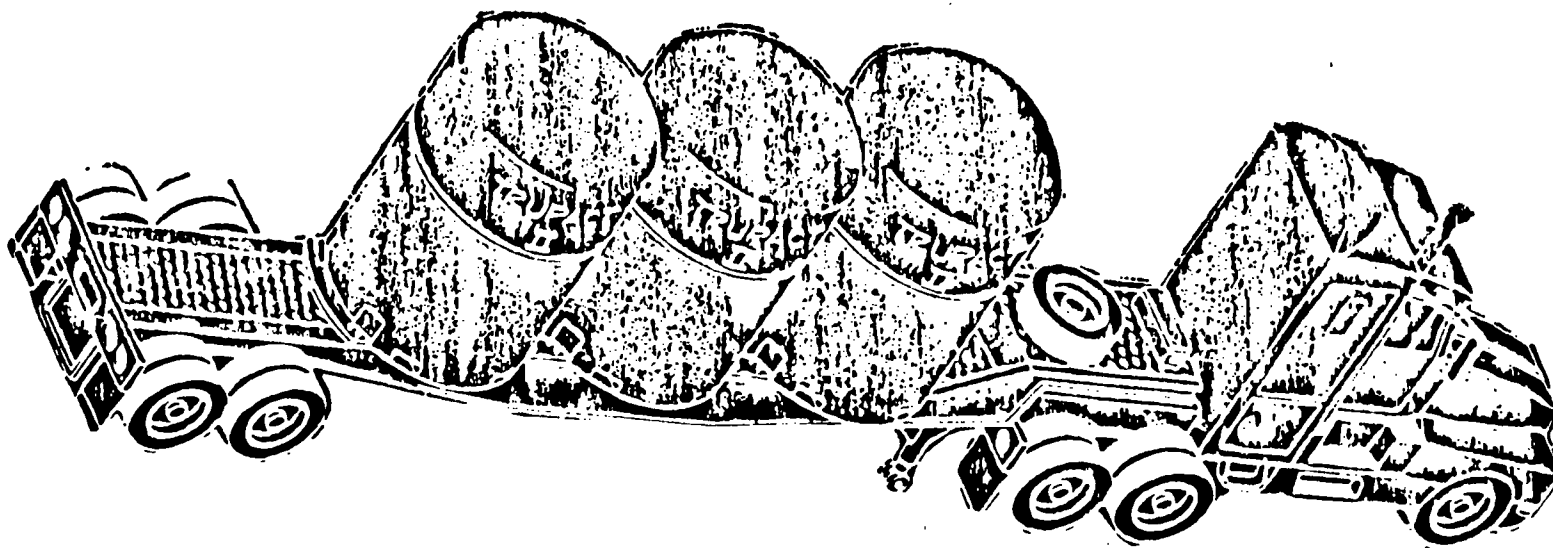
PACKAGE TESTING

	IMPACT	PUNCTURE	FIRE
ENGINEERING DESIGN UNIT	3	7	1
CERTIFICATION UNIT No. 1	3	5	1
CERTIFICATION UNIT No. 2	3	6	1
CERTIFICATION UNIT No. 3	3	5	0

- PACKAGES WERE TESTED HOT, COLD, PRESSURIZED, UNPRESSURIZED AND IN VARIOUS ORIENTATIONS
- NUMEROUS COMPONENT TESTS ALSO CONDUCTED

REVIEW MILESTONES

0	PREAPPLICATION EFFORT	JAN 88 - FEB 89
0	PARTIAL APPLICATION	MAR 89
0	NRC QUESTIONS (1ST ROUND)	MAY 89
0	RESPONSE TO QUESTIONS	MAY 89
0	COMPLETE APPLICATION	MAY 89
0	NRC QUESTIONS (2ND ROUND)	JUL 89
0	RESPONSE TO QUESTIONS	AUG 89
0	NRC REVIEW COMPLETED	AUG 89 (EST)
0	NRC APPROVAL, IF WARRANTED	AUG 89 (EST)



PROJECTED TRUPACT II SHIPMENTS

- O 14 DRUMS OR 2 BOXES PER TRUPACT II PACKAGE
- O 3 TRUPACT II PACKAGES PER TRUCK
- O 1800 PACKAGES (600 TRUCKLOADS) PER YEAR
- O 25 YEAR CAMPAIGN
- O DOE PLANS TO FABRICATE 50-90 TRUPACT II PACKAGES

SUMMARY

- 0 NO SIGNIFICANT OBSTACLE TO CERTIFICATION
IS NOW EVIDENT
- 0 NRC CERTIFICATION WILL BE LIMITED TO KINDS
OF WASTES IN THE APPLICATION
- 0 EXPECT SUPPLEMENTAL APPLICATIONS FOR
REMAINING WASTE TYPES