APR 0 5 1989

Mr. Samuel Rousso, Acting Director
Office of Civilian Radioactive
Waste Management
U.S. Department of Energy
Washington, D. C. 20585

Dear Mr. Rousso:

I am in receipt of your March 7, 1989 letter requesting a meeting to discuss an on--going rulemaking. The rulemaking referred to in your letter involves amendments to 10 CFR Part 61, as proposed by the NRC in the Federal Register on May 18, 1988. In your letter, you indicate that "few, if any, of the DOE recommendations and comments were adopted by the NRC staff in preparation of the final rule." The NRC staff's recent presentation to the NRC's Advisory Committee on Nuclear Waste (ACNW) is cited in your letter as the basis for your concern. The specific concerns identified in your letter are similar to those expressed by the Advisory Committee, and the NRC staff has attempted to resolve those concerns in the final rule package. Enclosed are:

--Restatements (or paraphrases) of each of the four specific concerns cited in your letter and NRC staff responses to those concerns.

--Highlighted text from the proposed rule relevant to your concerns. As we indicated to the ACNW, the substance of the amendments has not changed from those proposed on May 18.

--Additional text under consideration for the final rule package in response to the recommendations of the Advisory Committee.

--Transcripts of the staff's presentation to the Advisory Committee.

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I hope that the enclosed information will assist in resolving your concerns regarding the NRC's amendments to Part 61, and will provide you background information useful for our meeting scheduled for April 14, 1989 (4:00 p.m., Room 6-B-11 of the NRC's White Flint offices).

Sincerely,

(Signed) Robert M. Bernero

Robert M. Bernero, Director
Office of Nuclear Material Safety
and Safeguards.

Enclosures:
1. DOE concerns and NRC staff response
2. Highlighted text from rule
3. Possible additional text for final rule package
4. Transcripts of NRC staff's ACNW presentation

cc: R. Stein, DOE HQ
C. Gertz, DOE Nevada
R. Loux, State of Nevada
D. Bechtel, Clark County, Nevada
M. Baughman, Lincoln County, Nevada
S. Bradhurst, Nye County, Nevada

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ENCLOSURE 1

DOE CONCERNS AND NRC STAFF RESPONSES

1. DOE Concern: If the NRC intends to suggest in the final rule that GTCC wastes be disposed of in the repository . . . The alternative is to specify requirements for disposal of GTCC, irrespective of destination . . ."

Response: The NRC staff emphasized in its presentation to the ACNW that the final rule, like the proposed rule, requires repository disposal of GTCC waste only if no alternative method of disposal has been approved by the Commission (see the transcripts of the presentation, pp. 623, 629 - 635, 636, 644, 645). DOE would retain its current flexibility to pursue any disposal technology that might seem attractive.

2. DOE Concern: "NRC appears to have abandoned its efforts to define HLW based on its radiological characteristics. DOE has stated a preference for this risk-based approach and needs to understand the NRC's position."

Response: As noted in the proposed rule, the Commission does not consider that an adequate technical basis now exists for distinguishing HLW from non-HLW in the generic manner contemplated in the NRC's earlier Advance Notice of Proposed Rulemaking. The NRC staff has also not been able to resolve the legal difficulties that would result from DOE's preferred approach. Specifically, some wastes would likely be classified as HLW for purposes of one law and as non-HLW for purposes of another law. The staff considers it more useful to specify one acceptable means of disposal for GTCC wastes, leaving open to DOE the option of developing others, and to classify any other wastes in question on a case-by-case basis as has already been done for salts at Savannah River and West Valley.

3. DOE Concern: "The introduction of GTCC waste in the waste management system portends potential changes . . . for the geologic repository . . . as well as disposal costs."

Response: As indicated on page 632 of the enclosed transcripts, the Low-Level Radioactive Waste Policy Amendments Act of 1985 established the Federal government responsibility for disposal of GTCC wastes - not the proposed amendments to Part 61. Also, as noted above, the staff emphasized in its presentation that these amendments would allow virtually unlimited flexibility for DOE to pursue development of any safe disposal technology that might seem attractive for GTCC waste disposal.

4. DOE Concern: ". . . DOE still believes that the uncertainty in the estimates of GTCC waste volume precludes selection of a disposal option."

Response: The amendments under consideration do not specify use of any particular disposal option. Development of proposals for use of specific disposal options is left to the Department of Energy.

ENCLOSURE 2

HIGHLIGHTED TEXT FROM PROPOSED RULE
(53 FR 17709)

1. "The Commission proposes to require disposal of all GTCC wastes in a deep geologic repository unless disposal elsewhere has been explicitly approved by the Commission. This proposal reflects the Commission's view that intermediate disposal facilities may never be available, in which case a repository would be the only type of facility generally capable of providing safe disposal for GTCC wastes. At the same time, the Commission wishes to avoid foreclosing possible use of intermediate disposal facilities by the Department of Energy (DOE). If DOE chooses to develop one or more intermediate disposal facilities, the Commission anticipates that the acceptability of such facilities would be evaluated in the light of the particular circumstances, considering for example the existing performance objectives of 10 CFR Part 61 and any generally applicable environmental radiation protection standards that might have been established by the U. S. Environmental Protection Agency."

2. " Many comments on the ANPRM advocated classification of all GTCC wastes as HLW in order to ensure availability of a safe disposal "home" for those wastes, but this proposal achieves the same purpose while leaving open the prospect that an intermediate disposal facility may prove attractive at some time in the future."

3. "In line with the foregoing discussion, therefore, the Commission is proposing two changes to its existing rules. First, by amending 10 CFR 61.55, it would henceforth require all greater-than-Class-C waste to be disposed of in a geologic repository unless an alternative proposal is approved by the Commission."

4. "61.55 Waste classification.

(a) * * *
(2) * * *
(iv) Waste that is not generally acceptable for near-surface disposal is waste for which waste form and disposal methods must be different, and in general more stringent, than those specified for Class C waste. In the absence of specific requirements in this part, such waste must be disposed of in a geologic repository as defined in Part 60 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are submitted to the Commission for approval."

ENCLOSURE 3

POSSIBLE ADDITIONAL TEXT FOR FEDERAL REGISTER NOTICE

For all wastes disposed of in a repository, Part 60 now requires:

(1) waste disposal operations shall be conducted in compliance with the radiation protection requirements of Part 20 of the NRC's regulations (section 60.111(a))

(2) the option of waste retrieval shall be maintained for a period up to 50 years after the start of waste emplacement operations (section 60.111(b)), and

(3) ". . . any release of radionuclides from the engineered barrier system shall be a gradual process which results in small fractional releases to the geologic setting over long times . . . The release rate of any radionuclide from the engineered barrier system following the containment period shall not exceed one part in 100,000 per year of the inventory of that radionuclide calculated to be present at 1,000 years following permanent closure . . . (section 60.113).

Also implicit in Part 60 is a requirement that any GTCC wastes disposed of in a repository not prevent HLW or spent fuel from meeting the specific performance objectives for those types of wastes.

These general objectives can be achieved in various ways for different wastes. For example, containment within a durable waste canister might be appropriate for short-lived wastes (half-lives about 30 years or less), while processing of wastes to reduce leachability or use of retardant backfill materials might be more appropriate for longer-lived wastes. The NRC is initiating an effort, as contemplated by section 60.135(d) of Part 60, to specify in more detail the waste form and packaging criteria appropriate for specific types of GTCC wastes. The Commission anticipates that DOE will develop specific waste form and packaging alternatives for consideration by the NRC in that rulemaking, and the Commission would welcome similar suggestions from other interested parties.

ENCLOSURE 4

TRANSCRIPT OF ACNW BRIEFING

ACNWT-0007

ORIGINAL

UNITED STATES
NUCLEAR REGULATORY COMMISSION

ADVISORY COMMITTEE ON NUCLEAR WASTE

In the Matter of:)
)
7th ACNW Meeting)
Day Three)

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UNITED STATES NUCLEAR REGULATORY COMMISSION'S

ADVISORY COMMITTEE ON NUCLEAR WASTE

February 23, 1989

The contents of this stenographic transcript of the proceedings of the United States Nuclear Regulatory Commission's Advisory Committee on Nuclear Waste (ACNW), as reported herein, is an uncorrected record of the discussions recorded at the meeting held on the above date.

No member of the ACNW Staff and no participant at this meeting accepts any responsibility for errors or inaccuracies of statements or data contained in this transcript.

1 CERTIFICATE

2

3 This is to certify that the attached proceedings before the

4 United States Nuclear Regulatory Commission in the matter

5 of: ADVISORY COMMITTEE ON NUCLEAR WASTE
7th Meeting 3rd Day

6 Name:

7

8 Docket Number:

9 Place: Bethesda, Maryland

10 Date: February 23, 1989

11 were held as herein appears, and that this is the original

12 transcript thereof for the file of the United States Nuclear

13 Regulatory Commission taken stenographically by me and,

14 thereafter reduced to typewriting by me or under the

15 direction of the court reporting company, and that the

16 transcript is a true and accurate record of the foregoing

17 proceedings.

18 /s/ Joan Rose

19 (Signature typed): JOAN ROSE

20 Official Reporter

21 Heritage Reporting Corporation

22

23

24

25

CERTIFICATE

is to certify that the attached proceedings before the
ed States Nuclear Regulatory Commission in the matter

ADVISORY COMMITTEE ON NUCLEAR WASTE
7th Meeting 3rd Day

me:

ocket Number:

Place: Bethesda, Maryland

Date: February 23, 1989

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken stenographically by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

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(Signature typed): /s/ Joan Rose

JOAN ROSE
Official Reporter
Heritage Reporting Corporation

UNITED STATES NUCLEAR REGULATORY COMMISSION

ADVISORY COMMITTEE ON NUCLEAR WASTE

In the Matter of:)
)
)
7th ACNW Meeting)
Day Three)

Thursday,
February 23, 1989

Room P-110, Phillips Bldg.
7920 Norfolk Avenue
Bethesda, Maryland

The meeting convened, pursuant to notice, at 8:30 a.m.

BEFORE: DR. DADE W. MOELLER
Chairman, ACNW
Professor of Engineering
in Environmental Health
Associate Dean for Continuing Education
School of Public Health
Harvard University
Boston, Massachusetts

ACNW MEMBERS PRESENT:

DR. MARTIN J. STEINDLER
Director, Chemical Technology Division
Argonne National Laboratory
Argonne, Illinois

CONSULTANTS:

MELVIN CARTER
DONALD ORTH
JUDITH B. MOODY
WILLIAM J. HINZE
DAVID OKRENT
EUGENE E. VOILAND

DESIGNATED FEDERAL OFFICIAL:

DR. S.J. PARRY

ACRS COGNIZANT STAFF MEMBERS:

R.F. FARLEY, Executive Director
H. STANLEY SCHOFER, Technical Secretary

- - - - - -

1 A F T E R N O O N S E S S I O N

2 (2:25 p.m.)

3 DR. MOELLER: The meeting will come to order.

4 We are continuing with our meeting and we are now

5 at the final technical session for the day. And that is a

6 presentation by the NRC staff on the proposed rule on

7 disposal of greater-than-Class-C radioactive waste.

8 This is a matter for the consultants, and of

9 course Don Orth will remember that the waste management

10 subcommittee of the ACRS for the past several years had been

11 following this along. And it is now coming to a point where

12 the decision is being made.

13 So we will call upon the NRC staff. We have Mel

14 Silverberg here, who will be handling the presentation for

15 the staff. Mel?

16 MR. SILBERBERG: Thank you, Dr. Moeller. The

17 staff appreciates the opportunity to be here this afternoon

18 to present the status of the proposed final amendments to

19 Part 61 dealing with the disposal of greater-than-Class C

20 radioactive waste.

21 This amendment is the product of a staff working

22 group who are here with us this afternoon -- Dr. Clark

23 Prichard from the Office of Research; Dr. Dan Fehringer from

24 the Division of High-Level Waste in NMSS; Regis Boyle from

25 the Division of Low-Level Waste, NMSS in the back row; and

1 Jim Wolf from the Office of General Counsel.

2 Dr. Prichard from the Office of Research will lead

3 the presentation.

4 The staff has recently sent some material to the

5 Committee dealing with the proposed final amendment. And we

6 welcome the Committee's comments on the proposed final

7 amendment.

8 Thank you.

9 MR. PRICHARD: These are amendments to Part 61 to

10 require geologic repository disposal of greater-than-Class-C

11 waste unless an alternative means of disposal has been

12 approved by the Commission.

13 The present regulations governing this type of

14 waste are, it is not routinely eligible for near surface

15 disposal. It is presently orphan waste.

16 The proposed rulemaking was published in May,

17 1988. We had 35 public comment letters. The NRC staff has

18 analyzed public comments and is now preparing the final

19 rule.

20 The final rule is what you have I think in your

21 notebooks.

22 The schedule calls for submission of the final

23 rule to the Commission by April, 1989.

24 Greater-than-Class C waste is basically activated

25 metals from reactors, sealed sources and spent ion exchange

1 resins.

2 DR. PARRY: Clark?

3 MR. PRICHARD: Yes?

4 DR. PARRY: Excuse me just a moment. For those of

5 you who are searching madly for the proposed final rule, it

6 is on page 8 in Section 5.

7 DR. MOELLER: Excuse me. Clark, you were saying

8 activated metals such as from decommissioning a power plant.

9 And ion exchange resins, and what was the third?

10 MR. PRICHARD: Sealed sources.

11 DR. MOELLER: Okay, sealed sources. Now, on the

12 ion exchange resins, we generally, we have, you know,

13 trainloads of ion exchange resins now from the nuclear power

14 plants. Are they different than the ion exchange resins you

15 are citing here?

16 MR. PRICHARD: Yes, they are.

17 DR. MOELLER: So these ion exchange resins that

18 are greater-than-Class-C are greater in concentration than

19 the run of the mill. Thank you.

20 MR. PRICHARD: Yes.

21 DR. MOELLER: Okay. Go ahead.

22 MR. PRICHARD: Most waste will be a by-product of

23 decommissioning nuclear reactors. Estimates by DOE indicate

24 that from 2,000 to 4,800 cubic meters of greater-than-Class-

25 C waste will need disposal through the year 2020.

1 We now go to the public comments on the proposed
2 rule.
3 DR. OKRENT: Could I ask a question?
4 MR. PRICHARD: Yes.
5 DR. OKRENT: Would these pieces be readily
6 compactable into the volume you have described? You gave a
7 volume, but I visualized things like pressure vessels that
8 are not solid. And I'm just asking, would it be easy to
9 compact it or would one actually be creating problems in the
10 compaction process that were difficult?
11 MR. FEHRINGER: Some of the wastes will need some
12 compaction or other processing. For example, if hardware is
13 removed from spent fuel, it will have a large void space as
14 you are suggesting and it will require compaction. The
15 difficulty of doing so is quite variable. For spent fuel
16 hardware it appears that it would be fairly easy.
17 DR. OKRENT: I'm thinking of the --
18 MR. FEHRINGER: Well, the reactor vessel itself
19 would probably not be greater than Class C.
20 DR. OKRENT: I see.
21 MR. FEHRINGER: But a thing called the shroud, the
22 piece of metal closest to the core, very well might be
23 greater-than-Class-C. And that might have to be cut up and
24 packaged.
25 DR. OKRENT: Thank you.

1 DR. STEINDLER: If I might ask, what is the
2 relationship between what you see as the inventory or the
3 potential inventory of greater-than-Class-C in this country
4 and what the Europeans call intermediate level waste? Are
5 they both the same thing?
6 MR. FEHRINGER: To a large extent, they are
7 similar wastes. The Europeans are in some cases pursuing
8 reprocessing of spent fuel which generates transuranic
9 wastes. We have very small volumes of that from the
10 commercial sector in the United States. So they have a
11 different problem there than we do.
12 DR. STEINDLER: No, no. Yes. I'm not addressing
13 the transuranic issue. There is, in all countries I think
14 except this country, a category of waste called intermediate
15 level waste. And I'm trying to find out whether that is
16 really what you mean by greater-than-Class-C.
17 MR. PRICHARD: I don't know, because each country
18 defines their categories differently, often not by
19 concentration but rather by source of the waste, and I can't
20 make a comparison of that type. It's a similar type of
21 waste but I don't know that there's a one to one
22 correspondence.
23 MR. PRICHARD: We had 35 public comment letters.
24 We had eight from states, one from a state low-level waste
25 compact. States by and large supported the proposed rule.

1 DOE and EPA commented among the Federal agencies.
2 DOE was perhaps the most vociferously opposed to the rule.
3 Utilities and EEI had some problems with placing greater-
4 than-Class-C waste in the repository, but they were not so
5 much opposed as DOE was.
6 We had some comments from environmental groups and
7 private citizens and they voiced a variety of concerns.
8 The major comments and NRC staff responses are
9 contained in the draft Federal Register notice.
10 DR. MOELLER: Say, could you go up to the podium?
11 Several of us are having trouble hearing you.
12 MR. PRICHARD: Let me just get closer.
13 DR. MOELLER: Okay. Okay. Try that.
14 MR. PRICHARD: The major comments and NRC staff
15 responses are contained in the Federal Register notice.
16 DR. MOELLER: Excuse me, now. Why was DOE
17 strongly opposed? Did you tell us?
18 MR. PRICHARD: We have a whole page on that.
19 DR. MOELLER: Okay. We'll wait.
20 MR. PRICHARD: All relevant comments are addressed
21 in the detailed public comment analysis which is part of
22 the public record on the rulemaking. That is placed in the
23 public document room and available for public inspection.
24 I gave a copy of that to Jack Parry.
25 The first major comment came basically from states

1 and environmental groups. And it was the problem of
2 limiting geologic repository alternatives to Federal
3 disposal facilities.
4 Many states and environmental groups were very
5 concerned that greater-than-Class-C waste was gong to go to
6 state low-level waste disposal sites. NRC was urged to
7 prohibit this in the rule.
8 Our staff response is that we basically don't
9 think this is a problem because under the provisions of the
10 Low-Level Waste Policy Amendments Act, greater-than-Class-C
11 waste is clearly a Federal responsibility. We just don't
12 think states can be forced to take greater-than-Class-C
13 waste.
14 However, on the other hand, this Act holds open
15 the option for states to take this waste at their option.
16 So we just do not want to put anything like this in the
17 rule. We feel it is covered already by legislation.
18 The second major comment came from EPA, DOE and
19 some others. They were concerned about the applicability of
20 standards. We proposed the possibility of putting greater-
21 than-Class-C waste which would be low-level waste in a
22 repository for basically high-level waste. And these people
23 were concerned about what standards would apply and the
24 potential for confusion among various standards.
25 EPA's regulations, high-level and low-level waste

1 standards, are developed for waste type, not facility, as
2 are NRC's. Part 60 does contain some packaging requirements
3 which are specific to high-level waste. If greater-than-
4 Class-C did go to the repository, NRC would probably have to
5 conduct some additional regulatory guidance to put in
6 packaging requirements for greater-than-Class-C waste.
7 The third major comment was basically --
8 DR. STEINDLER: I'm sorry. Is that still open for
9 question, or is that a positive statement?
10 MR. PRICHARD: Yes, it is open for question. And
11 we don't see the need to do it unless DOE elects to put
12 greater-than-Class-C waste in a repository.
13 DR. STEINDLER: Is the only source of greater-
14 than-Class-C waste DOE?
15 MR. PRICHARD: No, but DOE was given the job of
16 managing commercial greater-than-Class-C waste by the Low-
17 Level Waste Policy Amendments Act. So it will be DOE's
18 responsibility to find a disposal site.
19 DR. STEINDLER: Okay. They then have the job.
20 MR. PRICHARD: Yes.
21 DR. STEINDLER: And you're saying that if they in
22 fact do their job, then you might have to put in
23 regulations?
24 MR. PRICHARD: Yes.
25 DR. STEINDLER: But it seems to me they have no

1 choice but to do their job.

2 MR. PRICHARD: They have a choice of either

3 electing geologic repository disposal or some other

4 alternative disposal facility which they could choose to

5 develop subject to Commission approval.

6 DR. MOELLER: Well, help me, then, because I guess

7 maybe I'm asking for the bottom line too soon. But I

8 thought the general plan was to send the greater-than-Class-

9 C to a Federal repository. That is still open, then?

10 MR. PRICHARD: To my knowledge, DOE has not made

11 that decision.

12 DR. MOELLER: Does has the responsibility. If

13 they elect or decide to send it to a repository, then you

14 believe NRC would have to rewrite or alter, modify Part 60.

15 MR. PRICHARD: It would not be a major

16 modification. It would only involve putting in a few

17 specific packaging requirements for greater-than-Class-C

18 waste.

19 DR. MOELLER: Okay. And at the moment, is what

20 you are proposing simply to acknowledge or whatever that

21 DOE has the responsibility to dispose of these wastes and to

22 leave open to them to decide how they do it? Is that where

23 we are?

24 MR. PRICHARD: Yes. It is removing greater-than-

25 Class-C waste from the orphan category by specifying if DOE

1 does not elect some type of intermediate disposal facility,
2 then it must go to a geologic repository.
3 DR. MOODY: Do you have any information on the
4 volume of this material that is in this category?
5 MR. PRICHARD: 2,000 to 4,800 cubic meters will
6 need disposal between now and the year 2020.
7 DR. MOELLER: The volume is small.
8 DR. CARTER: How much of that is commercial?
9 MR. PRICHARD: That's all commercial.
10 DR. CARTER: That's all commercial.
11 MR. PRICHARD: We're only talking about commercial
12 waste here.
13 MR. VOILAND: Question?
14 DR. MOELLER: Yes. Excuse me. Gene.
15 MR. VOILAND: Have you done an analysis which
16 indicates how much of this that is greater-than-Class-C, how
17 much greater is it? And if you waited ten years or 15
18 years, would it all of a sudden become Class C and could be
19 disposed of in low-level waste sites?
20 Some of the items I'm familiar with are biological
21 fields from reactors, control rods, parts of them, things of
22 that sort.
23 MR. FEHRINGER: That's generally not the case.
24 Many of the nuclides that cause a waste to go above the
25 Class C limits are quite long-lived. Some of the activated

1 metals have halflifes of thousands of years. And even if
2 strontium and cesium were the nuclides of concern, the 30-
3 year halflife is a marginal opportunity to allow decay.
4 MR. VOILAND: The limit for cesium on Class C is
5 monumental. Thank you.
6 DR. MOELLER: Let me back up, and not to beat it
7 to death, but just to be sure I firmly understand, number
8 one, is it the National Waste Policy Act that requires DOE
9 to handle greater-than-Class-C?
10 MR. PRICHARD: The Low-Level Waste Policy
11 Amendments Act of 1985.
12 DR. MOELLER: All right. The Low-Level Waste
13 Policy Amendments Act of 1985 requires DOE to handle
14 greater-than-Class-C waste. Number two, the NRC obviously
15 agrees with that law. You can't object. And you say
16 though that DOE in doing this, that it is all right, it's
17 okay with you for them to develop whatever satisfactory
18 means of disposal they want to? If they put it in a
19 repository, you'll modify, you are willing to modify Part 60
20 to cover it? If they develop some intermediate sort of a
21 disposal scheme, you will do what?
22 MR. PRICHARD: They could license it under Part
23 61.
24 DR. MOELLER: Okay. It could be licensed under
25 Part 61. Okay.

1 MR. PRITCHARD: The major comments that DOE and
2 some others had concerning the geologic repository disposal
3 option were these. They felt that it would impose
4 unnecessary cost impacts on the repository program. They
5 thought that it would use up valuable repository space. Some
6 comments even went so far as to claim that this would cause
7 need for a second geologic repository.
8 DR. MOODY: How does that correlate with the
9 supposed small volume?
10 MR. PRITCHARD: It does not correlate at all.
11 DR. MOELLER: Then it would seem to me, you know,
12 that they could use it as a space to reduce the temperature
13 output of the high level waste.
14 MR. PRITCHARD: That has been considered.
15 DR. MOELLER: Okay.
16 MR. PRITCHARD: DOE also argued that it would
17 complicate its performance assessment of the repository.
18 Our response to these comments are that cost impacts are not
19 significant. Greater than Class C waste is not eligible for
20 near surface disposal, so you cannot compare the cost of
21 shallow land burial with geologic depository disposal.
22 DR. STEINDLER: Well now, wait a minute. On the
23 other hand, you do not have to go much beyond the shallow
24 land burial say for greater confinement, or you can make a
25 reasonably decent estimate of costs on the basis of existing

1 literature, and compare that to what it costs to bury a slug
2 of material in a repository. That is at least what people
3 are being charged. So that cost impact is enormous.
4 MR. PRITCHARD: Well, the Congressional Office of
5 Technology Assessment just did a study on greater than
6 Class C waste, and they looked at this cost question. And
7 they felt that geologic repository disposal would be no more
8 expensive than developing a separate greater than Class C
9 only facility.
10 DR. STEINDLER: I find that less than intuitively
11 obvious.
12 MR. PRITCHARD: Because of the high fixed cost of
13 developing a brand new facility.
14 DR. MOELLER: Now who will bear the cost, will the
15 generator of the greater than Class C be charged so much per
16 cubic foot?
17 MR. PRITCHARD: That is something that we do not
18 have any regulations about or really know too much about.
19 But we assume that DOE will find some means of charging
20 generators. The Low Level Waste Policy Amendments Act
21 directs them to do so.
22 DR. MOELLER: All right.
23 DR. MOODY: You mean that there really is no
24 policy available at this point in time?
25 MR. PRITCHARD: There is no set way of funding

1 this at this time.

2 The greater than Class C volumes that we talked

3 about, the 2000 to 4800 cubic meters, if that went to the

4 repository, it would represent less than one percent of the

5 total space in the repository.

6 DR. PARRY: Is that repository space or the

7 canister?

8 MR. FEHRINGER: The volume of opening in a

9 repository is roughly a hundred times the volume of the

10 waste. If you could efficiently pack greater than Class C

11 in the repository, it would occupy about one percent of the

12 volume.

13 MR. PRITCHARD: Regarding DOE's comments on

14 performance assessment, most greater than Class C wastes are

15 physically and chemically similar to high level waste. If

16 this is a big problem, DOE always has the opportunity to not

17 put it in the repository, but to develop a separate facility

18 for greater than Class C waste.

19 DR. STEINDLER: You indicated that that separate

20 facility or greater confinement or whatever would be

21 licensed under Part 61?

22 MR. PRITCHARD: Yes.

23 DR. STEINDLER: Are you not proposing a change to

24 the Part 61 that says that waste that is not generally

25 accepted for near surface disposal must be disposed of in a

1 different way?

2 MR. PRITCHARD: No. The current Part 61 says

3 waste that is not generally acceptable must be disposed of

4 in ways, I think that it says more stringent or something

5 very vague like that. All this rule does is specify one

6 more stringent way.

7 This concludes our presentation.

8 DR. MOELLER: Do we have comments or suggestions

9 and so forth? I tried a few minutes ago, of course, to be

10 sure that I followed what they are doing, and maybe I am

11 beating it to death. But what I heard the staff saying is

12 they are willing to go along with whatever method of

13 disposal that DOE wants to use in meeting their

14 congressional mandate. And you are willing to make whatever

15 changes are necessary and whatever regulations 60 or 61 that

16 will help DOE to fulfill again its mandate.

17 MR. PRITCHARD: We consider our regulations to be

18 very flexible with respect to DOE's actions.

19 DR. MOELLER: What do you need from this

20 committee?

21 MR. PRITCHARD: We sent the draft final rulemaking

22 to you. We would just like your opinion as to I guess

23 whether you approve of it or if you have any suggestions or

24 comments.

25 DR. STEINDLER: I have got a question about the

1 repository again.

2 Do you imply that the packaging requirements are

3 going to be similar to the high level waste packaging

4 requirements for release rates, times, et cetera?

5 MR. PRITCHARD: No, they probably would be quite

6 dissimilar.

7 DR. STEINDLER: But that has not been settled,

8 right, I mean you have got no draft?

9 MR. PRITCHARD: We have no draft regulations. I

10 do not know if anybody else here knows more than I do about

11 this.

12 MR. FEHRINGER: In the absence of a commitment by

13 DOE to pursue use of a repository for disposal of these

14 wastes, we have not developed a criteria that would apply to

15 that type of disposal.

16 DR. STEINDLER: Now currently in other countries,

17 I gather that intermediate level waste at least in some

18 countries is buried I guess in what we would call greater

19 confinement.

20 Does the staff have any experience in the analysis

21 of designs of greater confinement if someone were to throw

22 one on your desk for licensing?

23 MR. FEHRINGER: Many of the concepts for greater

24 confinement are very similar to those that the states are

25 now developing for low level waste disposal. I do not the

1 extent that our low level waste division has the analytical
2 tools available, but we have a contract in place to provide
3 that type of support in the future.
4 DR. MOELLER: And you have analyzed the
5 alternatives to shallow land burial. And as you say,
6 essentially all of them represent greater confinement.
7 DR. ORTH: I have what may be an argumentive
8 question that the Chairman can rule me out of order on.
9 DR. MOELLER: No, go ahead.
10 DR. ORTH: In view of the significant number of
11 comments that DOE put in, and they were rather extensive in
12 my reading of them, I would characterize argumentively here
13 now, I would characterize the answer by the NRC to many of
14 them as published in the comment letter as rather cursory.
15 I am just idly wondering, does the NRC when it
16 deals with these comments do the equivalent of let's say
17 appointing an internal advocate for the DOE to sit and argue
18 the DOE points against the staff point, just to make sure
19 that we end up with the best possible answer. This is a
20 little different from looking at the comments there and how
21 do we get rid of it.
22 Does anybody want to try to answer that one, or am
23 I out of order?
24 DR. MOELLER: No, I think that that is a good
25 question. For example, I guess that we do not have DOE here

1 today, or is there someone here. Okay, Ed is here. Well,
2 maybe we could listen. Go ahead, you answer. And Ed, would
3 you be prepared to give us any remarks?
4 MR. REGNIER: Well, I am not prepared, but I would
5 make a couple anyway.
6 DR. MOELLER: Fine, okay. Go ahead. Dan is going
7 to speak, and then Ed.
8 MR. FEHRINGER: We do not use the approach that
9 was suggested of having an advocate. We tried to understand
10 the comments and respond to them, but we do not have someone
11 on the staff take that advocacy role.
12 DR. MOELLER: Okay. Ed Regnier is here.
13 MR. REGNIER: Ed Regnier from the Department of
14 Energy. I did not come here to this meeting expecting to
15 make any remarks. But I think that since I have the
16 opportunity that I will make a couple. I think that the
17 staff has fairly well characterized our concerns. Of
18 course, we are not particularly pleased I think with the
19 fact that a lot of them have not been adopted.
20 One of our concerns, if not our major concern,
21 which I think may not be coming through quite as clearly as
22 it might is our concern that the rule at least as it was
23 drafted in the proposed rule I think is very subject to an
24 incorrect interpretation, at least incorrect from what we
25 understand talking to the NRC staff as to their intent.

1 And that is in the matter of whether or not the
2 NRC is showing a preference for disposal of this waste in
3 the repository. It is our understanding talking with the
4 staff that in fact there is not a preference for disposal of
5 the waste in the repository. We have been told that what
6 this rule is intended to do is simply to codify the status
7 quo. The simple fact that there is not any other place to
8 put the waste now.
9 However, at least the way that the rule is worded
10 in the proposed rule, that does not come through, at least
11 in our view, it does not come through at all clearly. When
12 we read the ruling of the proposed rule seeing how it could
13 be interpreted against us if you will unfavorably, it is
14 pretty easy to interpret it we felt to be showing a
15 preference or a direction to dispose of this waste in the
16 repository.
17 It has been pointed out, and indeed the Low Level
18 Waste Amendments Act does give to DOE the task of deciding
19 where and how to dispose of the waste. So if that were,
20 that certainly would be inappropriate. I am certain that
21 that was not the intent, but we would like to have that made
22 much, much clearer.
23 Again from our own perspective, DOE really has not
24 determined whether or not it would be advisable to dispose
25 of the waste in the repository. There are numerous

1 tradeoffs to be made. The costs, we have not done detailed
2 cost comparisons. They are very difficult to establish, and
3 it is very difficult to determine how much of the repository
4 costs to assess to the waste and so forth.
5 In that view, another technical and legal concern
6 which certainly could be overcome by the simple act of some
7 legislation is the concern that right now we are required to
8 only place in the repository waste from waste producers who
9 had entered into a contract with us for disposal of that
10 waste at a date that has already been bypassed. Now that,
11 of course, is something that could be remedied. But as of
12 now, we would have no means to pass the costs on to the
13 waste generators. And again it is a problem that can be
14 addressed, but it will be or would be very difficult for us
15 to determine how to assess those costs.
16 Also, I guess that we are sort of in a chicken and
17 egg situation with the specification of waste package
18 requirements. As the staff pointed out, the Part 60 does
19 not contain a waste package or waste form requirements for
20 these greater than Class C wastes. So we do not really know
21 what would be required of us.
22 Maybe on an extreme, maybe on a ridiculous extreme
23 I would hope, that we might be required to place them in the
24 same type of canister as the high level waste is. Anything
25 down from that to put in bushel baskets and stacking it. We

1 find it hard to believe that we would be able to use any
2 method that resembled that.
3 And again as pointed out, the performance
4 assessment concerns, the EPA regulation was developed. You
5 know, using examples, we had special isotopic content. If
6 these are different sources, different chemical composition,
7 and different isotopic compositions. It is something that
8 we have not looked at in detail, but that could create some
9 problems.
10 The bottom line is that we would like to encourage
11 the NRC and we certainly would be more than willing to work
12 with them in continuing the efforts to develop what is a
13 risk based definition of high level waste in the vein of
14 earlier versions that were being considered.
15 We did have other concerns. And if you like, we
16 would be happy to provide some other time certainly more
17 information on our views on this. I do thank you for the
18 opportunity to make these few remarks.
19 DR. MOELLER: Thank you.
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1 DR. MOELLER: Thank you, Ed. That was well done,
2 particularly as you had to do it impromptu.
3 Well, let's pick these up then. Let's see. Jack
4 and then Gene.
5 DR. PARRY: I just wanted to remind Ed that there
6 are limits on the isotopes of concern depending upon the
7 1,000-year inventory, that might well take these materials
8 out of concern in terms of the performance assessment if
9 they are not concluded already in the EPA standard.
10 DR. MOELLER: Gene?
11 MR. VOILAND: In the Part D, relationship to
12 defense waste, the question was asked whether there might be
13 applicability of this regulation to some of the defense
14 wastes at Hanford and at Savannah River. And the answer was
15 essentially no, that it applied only to commercial greater
16 than low-level waste. But then in the very last paragraph,
17 there was a statement that said, additional efforts are now
18 underway to review decontaminated salts to be produced at
19 Hanford so as to determine whether the disposal thereof is
20 subject to Commission licensing.
21 I guess my question is, if it turns out that they
22 are subject to Commission licensing, is there a chance that
23 they would have to be considered in this particular category
24 of waste? And the volume of those is not inconsequential.
25 If I remember, there are tens of millions of dewatered salt

1 out there.

2 Can somebody address that?

3 MR. FEHRINGER: I will give the answers that I can

4 to the questions. And if my colleagues want to elaborate on

5 those answers, why perhaps they'll be able to do so.

6 The first point that Ed made was perceived NRC

7 staff preference for repository disposal of greater-than-

8 Class-C wastes.

9 I think today, given the absence of any disposal

10 facility for greater-than-Class-C wastes, it would be fair

11 to say we prefer a repository, as compared to the continued

12 non-disposal of those wastes.

13 There are a few wastes in existence now that

14 perhaps could pose a public health risk if they are not

15 taken into some management and disposal scheme. Sealed

16 sources that the owners no longer have a use for, they run a

17 risk of lying around until they get lost and get out into an

18 uncontrolled situation. So today we would prefer

19 repository disposal as compared to non-disposal.

20 We don't know enough about the intermediate

21 disposal concept to state a preference of that versus

22 repository -- the greater confinement disposal.

23 DR. MOELLER: Excuse me, Dan. You are saying you

24 prefer a repository which is going to be ready to operate in

25 2005, isn't that the date, if it meet with luck? So what

1 are you saying?

2 MR. FEHRINGER: We're saying that if plans are

3 made now to dispose of greater-than-Class-C wastes in a

4 repository, perhaps DOE can take them into a storage

5 situation in the interim. That will provide the control

6 over these wastes that will prevent them from becoming a

7 public health hazard.

8 DR. STEINDLER: Doesn't DOE have a storage

9 requirement now? Your rulemaking is not going to be the

10 thing that causes DOE to take care of those wastes?

11 MR. FEHRINGER: No, that's correct. This

12 rulemaking will not affect the temporary storage before

13 disposal of wastes.

14 DR. STEINDLER: So I have to go back to Dr.

15 Moeller's comment. You are talking about the repository

16 disposal in the year 2010, with luck, against not disposal.

17 And you are sitting in 1989.

18 MR. FEHRINGER: Baseline today is no disposal

19 facility. We see no evidence that the department is

20 developing one. And we want to push for an acceptably safe

21 disposal facility, whether that is a repository or a greater

22 confinement disposal. Either one would be acceptable if the

23 technology is appropriate for the waste.

24 DR. MOELLER: Well, I think if you said that, DOE

25 would be happy. But apparently you have not said that. At

1 least not in the proposed rule.

2 MR. FEHRINGER: Perhaps in the proposed rule

3 package we did not say it as strongly as we could and we

4 tried to say it more strongly in the responses to comments

5 and in the final rule package.

6 The second point that Ed made was their legal view

7 that the repository can only accept waste that is currently

8 covered by the high-level waste contracts. That may be a

9 reason that the Department will want to develop another type

10 of disposal facility, if they are not able to obtain that

11 legal authority, and that's fine with us. If there are

12 reasons to do so, we will evaluate a greater confinement

13 proposal just like we would evaluate any other.

14 So we don't think that that is a problem for our

15 rulemaking.

16 We discussed earlier our recognition that Part 60

17 does not now have waste packaging and waste form

18 requirements for any wastes other than high-level waste and

19 spent fuel. And we recognize that if the department chooses

20 a repository for disposal of greater-than-Class-C wastes, we

21 may need to develop new criteria covering those subjects.

22 Concerns about the performance assessment for a

23 repository we think are over-stated. The largest part of

24 greater-than-Class-C wastes will likely be activated metals

25 which should be much like the activated metal portion of

1 spent fuel, the hardware and cladding. Some of the same
2 radionuclides, some of the same physical characteristics.
3 In any case, the total inventory of material in
4 greater-than-Class-C wastes radionuclide content is a very
5 small fraction of the radionuclide inventory of spent fuel.
6 And we just think that the presence of greater-
7 than-Class-C waste will be within the uncertainty of the
8 overall performance assessment and hardly be noticeable.
9 Again, though, if some particular type of greater-
10 than-Class-C waste posed a problem, it would be permissible
11 to develop another disposal facility for those wastes.
12 And finally, regarding the risk-based definition
13 of high-level waste that initiated this action, we have not
14 been able to overcome the legal difficulties that would
15 result from that. We would end up with wastes classified as
16 high-level wastes for purposes of one law, not high-level
17 wastes for purposes of another law. And we think it would
18 just make things worse rather than improving the situation.
19 Finally, there was the question about
20 applicability to defense wastes, and particularly the
21 decontaminated salts at the Hanford site.
22 This is a confusing point. Let me try to explain
23 it. The Nuclear Regulatory Commission has licensing
24 authority for defense wastes only if those wastes are
25 classified as high-level wastes.

1 We have no authority to license disposal of low-
2 level wastes from the defense program.
3 Therefore, this rulemaking will not affect the
4 transuranic wastes destined for the WIPP site, for example,
5 or any other defense wastes that are not high level.
6 The wastes in the tanks at Hanford arguably might
7 be high-level wastes, and that's the reason we're discussing
8 with the department how to classify the salt fraction that
9 might be separated from those wastes. We think conceptually
10 it is possible to split the salts out in a way that would
11 not have them classified as high-level and we're working
12 with them to develop criteria that will determine when that
13 separation sufficiently complete so that they will not be
14 classified as high-level and NRC will not have to license
15 the disposal of those wastes.
16 But the wastes that are analogous to greater-than-
17 Class-C wastes are outside the NRC's licensing jurisdiction
18 by the legal structure of our authority.
19 DR. ORTH: Well, then, in effect, since the
20 activity in the waste is what is going to determine whether
21 it is high-level or low-level, you are going to go to a
22 risk-based waste classification at some point. Is that
23 right?
24 MR. VOILAND: I think it's going to determine
25 whether it's greater-than-Class-C.

1 DR. ORTH: And that's going to be determined by
2 the radioactivity level in it which by definition is a risk-
3 based analysis of sorts.
4 DR. STEINDLER: I didn't hear him say anything
5 about radioactivity level. All I heard him say was
6 something about the separation of salt. Sounds like a
7 chemical operation.
8 DR. ORTH: From radioactivity.
9 DR. CARTER: Yes, but it involves activity. I
10 think that is inherent in what he said.
11 DR. STEINDLER: And so we are going to change the
12 definition of high-level waste for that particular kind of
13 material?
14 DR. MOELLER: Well, you know, we heard about West
15 Valley last month. And at West Valley they are taking the
16 supernatant and running it through the ion exchange columns
17 and that becomes low-level and the sludge becomes high. So
18 that is a risk-based approach, too. Okay. Maybe we're
19 making progress.
20 DR. CARTER: The thing that I hear, it sounds to
21 me like that's still missing, is the packaging, for example,
22 if DOE decides that they would like to take that small
23 volume of commercial TRU and put it in the repository. I
24 don't think you addressed that.
25 MR. FEHRINGER: I addressed it in acknowledging

1 that those criteria are not in place now.

2 DR. CARTER: That's missing, either way?

3 MR. FEHRINGER: Yes. Yes. That's correct. And

4 whichever way the department decides to go, whether it's

5 repository or greater confinement disposal, either way we

6 may need to develop specific criteria. We don't want to

7 set out doing both. We would prefer to have a decision by

8 the Department and then we can limit our efforts to one set

9 of criteria.

10 DR. MOELLER: Well, it would seem to me the

11 Committee could write a letter that says we've heard the

12 parties, representatives from the staff and DOE, and that we

13 concur with what the NRC Staff proposes to do. However, we

14 do believe they ought to not favor any particular disposal

15 method in any of their proposed, in the proposed rule. They

16 should give DOE full choice or full flexibility, whatever it

17 is, to do whatever works out best. Not prejudge it.

18 And they have just said they stand ready, once DOE

19 makes the decision, they stand ready to modify whatever

20 regulations need modified to accommodate it. And that is

21 certainly reasonable.

22 I think we are again serving our purpose. That

23 is, to bring the parties together and resolve the issues.

24 Does that sound reasonable to the Committee?

25 DR. STEINDLER: I'm not sure we've resolved the

1 issue, but we can at least ventilate the issue.

2 DR. MOELLER: We ventilated it. Okay.

3 Well, then, I think that is what we'll probably

4 do.

5 Any other comments? Yes. A legal comment, a

6 legal opinion?

7 MR. WOLF: Dr. Moeller, this is Jim Wolf from

8 Office of General Counsel.

9 It occurred to me that you might wish to consider,

10 having offered the floor to one of the commenters on this

11 rule, the Department of Energy, if there happened to be any

12 other commenters here who might wish to take advantage of

13 the same opportunity, I would recommend that, sir.

14 DR. MOELLER: You are absolutely correct.

15 Are there any representatives from any other

16 organizations here who would like to comment on this issue?

17 (No response)

18 DR. MOELLER: And this is a public meeting, and

19 we do always invite public comment.

20 (No response)

21 DR. MOELLER: I hear none. But thank you for

22 that, reminding me of our obligation.

23 With that, then, I believe this brings our formal

24 meeting to a close. The Committee will go into immediate

25 Executive Session -- well, now that I say it, do we need --

1 well, we'll go into Executive Session just for a few
2 minutes, to elicit any other comments from the consultants
3 on what you heard the last three days. I doubt that t here
4 is anything really new to cover.
5 And then following that, Dr. Steindler and I will
6 go into closed Executive Session to discuss personnel
7 matters, personal matters related to the activities of the
8 Committee.
9 With that, then, let me thank our Reporter once
10 again for her time, thank the NRC staff, particularly for
11 the fact we were an hour or more late this afternoon in
12 accommodating you.
13 With that, I declare the meeting adjourned.
14 (Whereupon, at 3:10, the meeting was adjourned.)
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