

U.S. DEPARTMENT OF ENERGY

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NOTICE OF INTENT TO PREPARE AN ENVIRONMENTAL IMPACT
STATEMENT
FOR THE DISPOSAL OF GREATER-THAN-CLASS C
LOW-LEVEL RADIOACTIVE WASTE

+ + + + +

PUBLIC SCOPING MEETING

+ + + + +

MONDAY,

SEPTEMBER 10, 2007

+ + + + +

The Public Scoping Meeting convened at 2:00 p.m. in
the Washington Room of the Hotel Washington, 15th
Street and Pennsylvania Avenue, NW, Washington, D.C.,
Holmes Brown, facilitator, presiding.

PRESENT:

HOLMES BROWN, Facilitator
CHRISTINE GELLES, Director, Disposal Operations, DOE;
Hearing Officer

PUBLIC COMMENTS:

DIANE D'ARRIGO, Nuclear Information & Resource
Service
ALFRED MEYER, Program Director, Alliance for Nuclear
Accountability
KEVIN KAMPS, Don't Waste Michigan and Beyond Nuclear
CINDY FOLKERS, Beyond Nuclear
BRIAN O'CONNELL, National Association of Regulatory
Utility Commissioners
ARJUN MAKHIJANI, Ph.D., President, Institute for
Energy and Environmental Research

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Eric Mollen

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P R O C E E D I N G S

1:40 p.m.

MR. BROWN: Good afternoon. Welcome to this public scoping meeting on the proposed Environmental Impact Statement for the disposal of greater-than-class C low-level radioactive waste.

The development of an Environmental Impact Statement by the Department of Energy's Office of Disposal Operations is required by the National Environmental Policy Act.

My name is Holmes Brown, and I will serve as a facilitator for this event. My role is to make sure that the meeting runs on schedule and that everybody has an opportunity to speak.

I am not an employee of the Department of Energy nor an advocate for any party or position. At the registration table you should have received a participant's packet. If not, please raise your hand, and staff will deliver one to you.

It contains important information on the presentation and is a convenient place to take notes during the briefing that will follow in a few minutes.

There are three purposes for today's meeting, first to provide information on the

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1 content of the proposed Environmental Impact
2 Statement or EIS and on the National Environmental
3 Policy Act, NEPA, which governs the process;
4 second to answer your questions on the proposed
5 EIS and NEPA; and third to receive and record your
6 formal comments on the scope of the proposed EIS.
7 The agenda for today's meeting reflects these
8 purposes.

9 We will begin with a presentation by
10 Ms. Christine Gelles regarding the proposed
11 Environmental Impact Statement.

12 Ms. Gelles is the Director of the
13 Office of Disposal Operations which is the DOE
14 office charged with preparing the EIS. To answer
15 your questions, project staff will be available
16 throughout the afternoon at the display posters.
17 They can discuss the proposed EIS and the NEPA
18 process, the contents of the printed materials on
19 display, and the contents of the DOE presentation.

20 Following Ms. Gelles's presentation, we
21 will recess so the public may pursue further
22 questions with available project staff.

23 Once we've reconvened, the court
24 reporter will be available to receive your
25 comments and suggestions regarding the scope of
26 the proposed EIS on greater-than-class C waste.

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1 All your comments will be transcribed and made
2 part of the permanent record.

3 We'll begin with a presentation by Ms.
4 Christine Gelles. She will discuss the background
5 of the project and the purpose and basic elements
6 of the proposed EIS.

7 MS. GELLES: Good afternoon, ladies and
8 gentlemen, welcome to the greater-than-class C low-
9 level radioactive waste Environmental Impact Statement
10 public scoping meeting. This is the last of our
11 scheduled public scoping meetings.

12 I will refer to the document throughout the
13 presentation as the GTCC EIS. I am Christine Gelles,
14 and I am the Director of the Office of Disposal
15 Operations which is within the Office of Environmental
16 Management here at the U.S. Department of Energy
17 Headquarters in D.C.

18 The Department has been charged by Congress
19 to develop a disposal capability for greater-than-class
20 C low-level radioactive waste and to take actions
21 related to the preparation of an EIS.

22 I'm pleased to be here, and I'm delighted
23 that all of you can make time in your busy work days to
24 join us here. This is an important opportunity as it's
25 your opportunity to present comments, concerns, issues,
26 and questions as well as suggestions regarding the

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1 proposed scope of the GTCC EIS.

2 Your involvement and input is very
3 important to us, and any comments received today and
4 throughout the public scoping process will be carefully
5 considered as we work towards analyzing and developing
6 a disposal capability for greater-than-class C low-
7 level waste.

8 The National Environmental Policy Act of
9 1969, we refer to it as NEPA, requires that an
10 Environmental Impact Statement be developed for any
11 major federal action that has the potential to impact
12 the quality of the environment.

13 The Department of Energy has determined
14 that providing a disposal capability for greater-than-
15 class C low-level waste constitutes a major federal
16 action and is appropriately considered in an EIS.
17 That's why we're here today.

18 We are in the beginning stages of the NEPA
19 process with the primary focus at this time being the
20 identification of the scope of the GTCC EIS including
21 the proposed disposal alternatives which includes both
22 possible locations and disposal methods. Again,
23 comments received here today will be considered
24 carefully as we work toward developing the draft
25 Environmental Impact Statement.

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1 After the draft Environmental Impact
2 Statement is prepared, we'll make that available for
3 public comment, and following resolution of those
4 comments, we'll proceed towards a final EIS.

5 As I will say or discuss later in the
6 presentation in some more detail, and I'll probably
7 repeat several times, before we can make a decision on
8 the disposal facility for greater-than-class C low-
9 level waste, we must first report to Congress on all of
10 the alternatives evaluated through this EIS process and
11 await their action.

12 We are just at the start of the process.
13 We have several years of analysis and hard work ahead
14 of us before we will be ready to implement an action as
15 a result of this EIS, and we do hope that you'll stay
16 involved in the process as we move along.

17 Before we get into the slide presentation,
18 I thought it might be helpful if we provide just an
19 introductory description of what greater-than-class C
20 low-level waste is. Greater-than-class C low-level
21 waste is generated from commercial activities such as
22 the production of electricity from nuclear reactors.
23 It's also generated when radioactive sealed sources
24 which are commonly used throughout the nation in
25 medical treatments for example and other industrial

1 purposes when they become disused.

2 The volume of greater-than-class C low-
3 level waste is small when compared to the other classes
4 of commercially general low-level waste, Classes A, B,
5 and C, and we'll talk about those in some detail, but
6 greater-than-class C low-level waste has a higher
7 radioactivity, and therefore requires special disposal
8 considerations under the Nuclear Regulatory Commission
9 regulations.

10 A copy of the presentation is included
11 within the folder, although I realize the copy is very
12 small but hopefully it will be a good take-away, and if
13 you have some questions, it'll prompt a discussion
14 during the recess. It is also available on the website
15 for our project, and the web link is included in the
16 next to the last slide in that copy of the
17 presentation.

18 Let's get into the presentation. The
19 Notice of Intent was issued on July 23rd of this year,
20 2007, and soon after we printed a correction to the
21 inventory table. That correction appeared on July 31st.
22 A copy of both Federal Register publications is also -
23 are also in the folder.

24 The purpose or the publication of the
25 Notice of Intent serves several purposes for the

1 Department. It did announce our intent to develop an
2 Environmental Impact Statement. It also announced our
3 intent to include DOE greater-than-class C-like wastes,
4 and we'll describe in some detail what is included in
5 that waste inventory.

6 Publication of the NOI did initiate the EIS
7 process. It requested public comment on the proposed
8 scope and announced these public scoping meetings. It
9 provided initial information on our current estimates
10 of greater-than-class C low-level waste as well as the
11 DOE greater-than-class C-like wastes. Together those
12 two waste streams are estimated to total 5,600 cubic
13 meters of waste over the life cycle that we have
14 included in our waste estimates, and that's 2062.
15 Through 2062 we estimate that there will be a potential
16 5,600 cubic meters of waste generated, and that's what
17 we intend to analyze in this EIS.

18 The Notice of Intent identified the purpose
19 and need for action as well as the proposed action of
20 the Department. It identified the proposed disposal
21 alternatives including possible locations and the three
22 disposal methods we propose to evaluate.

23 It also responded at a summary level to the
24 public comments that have been received on the advanced
25 Notice of Intent that was published in May of 2005, and

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1 finally it identified that the U.S. Environmental
2 Protection Agency will be serving as a cooperating
3 agency in development of this EIS, and the Nuclear
4 Regulatory Commission or the NRC is a commenting
5 agency.

6 Some detail about our purpose and need, why
7 do we have to do this? Well the NRC and agreement
8 state licensees have generated in the past and will
9 continue to generate low-level waste streams that meet
10 the definition of greater-than-class C low-level waste,
11 and today there is no disposal capability for NRC and
12 agreement state regulated greater-than-class C low-
13 level waste. That's why we are chartered with doing
14 this Environmental Impact Statement and identifying the
15 disposal capability.

16 We do have a statutory responsibility for
17 developing this capability, but also we own and will
18 generate certain low-level waste streams and
19 transuranic waste streams that have characteristics
20 similar to commercial greater-than-class C low-level
21 waste but which today we do not believe have a disposal
22 pathway. We refer to those wastes as DOE greater-than-
23 class C-like wastes.

24 There are three statutory drivers for us
25 undertaking this action. The first and primary is the

1 Low-Level Radioactive Waste Policy Act Amendments of
2 1985. It is that statute that assigned the federal
3 government, specifically the Secretary of Energy, the
4 responsibility for developing the greater-than-class C
5 low-level waste disposal capability.

6 The second, the NEPA of 1969, is the
7 statute that requires federal agencies to consider the
8 environmental impacts of our proposed actions as well
9 as alternatives to those proposed actions. Again, this
10 is the law that establishes the framework for public
11 input in these evaluations.

12 Finally, more recently, the Energy Policy
13 Act of 2005. It included two specific report
14 requirements, very specific to this greater-than-class
15 C EIS. The first required us to estimate the cost and
16 schedule for developing this Environmental Impact
17 Statement. We did provide a letter report to Congress
18 in July of 2006 consistent with that report
19 requirement.

20 The second report requirement is the one I
21 referred to in my opening comments. It requires the
22 Department to submit a report to Congress summarizing
23 all of the alternatives evaluated that were considered
24 for the EIS. It also includes other pieces of
25 information that are very similar to a congressionally-

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1 required report that was required under the Low-Level
2 Waste Policy Act Amendments of '85.

3 This report will be developed after we
4 complete the final EIS, and we will submit it to
5 Congress and by this report requirement of the EPACT,
6 that's what we call the Energy Policy Act, the EPACT of
7 2005, we must await Congress' action before proceeding
8 with implementation of a record of decision.

9 Again what this means is we will be unable
10 to take any action to provide the disposal capability
11 without Congress' involvement and support.

12 So now we'll talk more about what greater-
13 than-class C low-level waste really is. You have to
14 begin by, you know, talking about what low-level waste
15 is. Low-level waste includes items that have become
16 contaminated with radiation or become radioactive
17 through exposure to radiation.

18 It comes in many forms. It's generated
19 through a variety of commercial activities and
20 Government activities such as, again, the production of
21 electricity from nuclear utilities, medical treatment,
22 as well as research.

23 A statutory and regulatory definition for
24 low-level waste is rather complicated because it
25 defines low-level waste by what it is not rather than

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1 what, you know, from its origin. Low-level waste is
2 not high-level waste. It's not spent nuclear fuel. It
3 is not by-product material. Anything else that has
4 concentrations, sufficient concentrations, of
5 radioactivity probably falls into the category of low-
6 level waste.

7 The NRC Regulations classify low-level
8 waste into four classes, Class A, B, C, and Greater-
9 Than-Class C, or GTCC, and that's based - the classes
10 are based on the concentration of specific short-lived
11 and long-lived radionuclides, and again GTCC has the
12 highest concentrations of those radionuclides of
13 concern.

14 Class A, B, and C Low-Level Waste can today
15 safely be disposed of in existing near-surface disposal
16 facilities. The NRC Regulations assume that greater-
17 than-class C low-level waste requires deep geologic
18 disposal, however, it does provide that alternative
19 methods can be evaluated, and if proposed to and
20 approved by the NRC can be used for the safe and
21 permanent disposal of greater-than-class C low-level
22 waste. This is why we intend to analyze two disposal
23 alternatives to geologic disposal.

24 So what is greater-than-class C low-level
25 waste? Again, it is low-level waste generated by NRC

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1 or agreement state licensees that exceed the
2 concentration limits of radionuclides that are
3 established for Class C low-level waste under the NRC
4 Regulations.

5 It can generally be described as falling
6 into one of three waste streams or waste types. We'll
7 talk about each of these three in a little more detail.

8 Activated metals, these are primarily
9 generated in nuclear reactors during the
10 decommissioning phase. This picture here is that of a
11 radiation survey being conducted on an activated metal
12 component in a small research reactor during its
13 decommissioning.

14 Currently today there 104 commercially
15 operating nuclear reactors, 18 have been
16 decommissioned. Some of those 18 do store the greater-
17 than-class C low-level waste that was generated during
18 their decommissioning. They're at the decommissioned
19 site adjacent to the spent nuclear fuel that's also
20 awaiting deep geologic disposal.

21 Much of the activated metal that will come
22 from the utilities may be remote handle waste because
23 the degree of radioactivity.

24 The second waste stream would be sealed
25 sources. These typically are very small, highly

1 radioactive materials that are encapsulated in closed
2 metal containers. They are used in everyday practices
3 throughout the U.S., sterilizing medical products,
4 assisting in a diagnosis of treatment of illnesses, and
5 again, industrial purposes.

6 Not all sealed sources though are greater-
7 than-class C. Many are Class A, B, or C Low-Level
8 Waste and can safely be disposed of today in existing
9 near-surface disposal facilities.

10 The photo here is a picture of a very small
11 radiography source that's used in both medical and
12 industrial applications. Many in this room may be
13 familiar with the Department's off-site source recovery
14 program that was established about a decade ago to
15 collect the sealed sources that became disused.

16 It was somewhat of a stop gap measure
17 because the Department had not proceeded with the
18 identification of a disposal facility, so any disused
19 sealed sources that posed a proliferation risk are
20 being collected and safely stored until the EIS is
21 complete and ultimately a disposal solution is
22 implemented.

23 And then the third waste stream or waste
24 type within the commercial greater-than-class C
25 inventory is this other waste. This is really catch-

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1 all category. It includes any greater-than-class C
2 low-level waste that is not an activated metal or not
3 a sealed source. It would come in the form of
4 contaminated equipment, debris, trash, other
5 decontamination and decommissioning waste that are
6 generated when nuclear facilities are deactivated.

7 The picture here is that of a glove box.
8 These contaminated glove boxes if they existed in an
9 NRC or agreement state licensed facility may be a
10 greater-than-class C low-level waste once they are
11 ultimately deactivated.

12 Only a few commercial licensees do we
13 expect will generate - have generated or will generate
14 greater-than-class C that falls into this category.
15 The majority of our inventory estimate from the
16 commercial generators falls in the form of activated
17 metals or sealed sources.

18 And that brings us to DOE greater-than-
19 class C-like waste, and we do acknowledge that this
20 terminology can be somewhat confusing. We've had many
21 questions throughout the public scoping process to
22 date. Use of this term, greater-than-class C-like
23 waste does not have the intent or effect of creating a
24 new classification of radioactive waste nor does it
25 have the effect of having NRC Regulations apply to DOE-

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1 generated low-level waste.

2 We manage our DOE low-level waste under our
3 Atomic Energy Act authorities pursuant to our DOE
4 orders specific to radioactive waste management, and
5 that dual regulatory process or the dichotomy of those
6 two regulatory processes is really the source of this
7 confusion and use of this terminology, so we can work
8 through that, and if you have any questions, please do
9 bring them to me or any of the other project staff who
10 are here.

11 Any DOE low-level waste or transuranic
12 waste that has characteristics similar to greater-than-
13 class C low-level waste as defined by the NRC
14 Regulations and which does not have an identified
15 disposal pathway today falls into this category of DOE
16 greater-than-class C-like waste, or I should say could
17 fall into the category of DOE greater-than-class C-like
18 waste.

19 Our inventory estimates which are described
20 on the posterboard in the back, a little bit more in
21 the fact sheets that are in your folder, and certainly
22 on our web page, it is based on very specific waste
23 streams that fall within this general definition.

24 DOE greater-than-class C-like waste is
25 owned by DOE and generated by DOE activities even if

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1 those activities occur in a commercial facility which
2 is the case in some instances.

3 The waste forms would be similar to those
4 three waste forms that comprise the commercial greater-
5 than-class C-like waste, activated metals, sealed
6 sources, and others, but the percentage distribution
7 among those three waste streams differs significantly
8 for this DOE greater-than-class C-like waste inventory.
9 Most of the DOE greater-than-class C low-level waste or
10 greater-than-class C-like waste is transuranic waste
11 which today does not meet the definition - does not
12 meet the acceptance requirements for the Waste
13 Isolation Pilot Plant which is located near Carlsbad,
14 New Mexico, because it does not clearly have a tie to
15 defense-related activities.

16 The generators or potential generators of
17 this DOE greater-than-class C-like waste stream include
18 BWXT facility in Lynchburg, Virginia. That again is an
19 NRC licensed agreement or a commercial facility. Also
20 four of our DOE sites, the West Valley facility in New
21 York; Oak Ridge, Tennessee, the Oak Ridge National
22 Laboratory; the Idaho National Laboratory in Idaho; and
23 then the majority of the future generation estimate may
24 be generated by a project called the Radioisotope Power
25 Systems Project or RPS Project which is currently being

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1 evaluated by a project-specific NEPA document and
2 Environmental Impact Statement, but the location of
3 that facility has not been selected yet, so I can't
4 assign it to a specific generator location at this
5 time.

6 This slide in a very summary level gives
7 you a comparison of these two major waste streams the
8 commercial greater-than-class C low-level waste and the
9 DOE greater-than-class C-like Low Level Waste streams.
10 Again, the estimated stored and projected volume
11 through 2062 is estimated to be 5,600 cubic meters of
12 waste. That is a relatively low volume. I won't call
13 it insignificant. It's not, but it really is dwarfed
14 by the vast volumes of low-level waste that DOE manages
15 and other radioactive waste that DOE manages and safely
16 disposes of on an annual basis.

17 We have this year alone in fiscal year 2007
18 to date disposed of nearly 7800 cubic meters of defense
19 transuranic waste at WIPP. Many more cubic meters of
20 low-level waste have been safely disposed on site and
21 at off-site facilities this year.

22 When you look at in volume terms, however,
23 it really doesn't tell you the whole story. What's
24 significant about this 5600 cubic meter estimate is
25 that it could contain up to 140 million curies of

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1 radioactivity which is why we are evaluating its
2 disposal in a very specialized Environmental Impact
3 Statement.

4 In volume terms, the DOE contribution to
5 that inventory makes up a little bit more than half,
6 although in curie terms we make up less than a third of
7 the total activity.

8 There is 130 cubic meters we estimate of
9 the commercial waste that exist today. About 870 cubic
10 meters of DOE greater-than-class C-like waste that
11 exist today. The balance of the 5600 will be generated
12 in the future, and the rate of generation will differ
13 by those substreams depending on what type of
14 facilities are generating the specific waste types.

15 Another comparison point, the total volume
16 of greater-than-class C-like and greater-than-class C
17 low-level waste is 5600 cubic meters is less than one-
18 tenth of one percent of the total estimated volume of
19 Class A, B, and C low-level waste that will be
20 generated commercially during the same time period;
21 however, the activity of this volume, this 5600 cubic
22 meters, is estimated to be about seven times greater,
23 so less than one-tenth of one percent in volume terms
24 but seven times more of the radioactivity of the
25 comparable commercial low-level waste that would be

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1 generated.

2 We've developed these estimates based on
3 data calls, interviews, and other sources of
4 information such as available data bases that are
5 maintained by the Department and the NRC. The
6 methodology used for estimating the future projection
7 has been summarized in a inventory report that is
8 available on our DOE website. I'm sorry, our Greater-
9 Than-Class C project website which is very useful. I
10 hope you find it a great resource for additional
11 information. It is -- again, very specific assumptions
12 went into the estimate for each of the sub-waste
13 streams.

14 So here's our proposed action. To
15 construct and operate a new facility or facilities.
16 We're using an existing facility for the disposal of
17 both greater-than-class C low-level waste and DOE
18 greater-than-class C-like waste. Again this proposed
19 action stems from our Legislative requirement that we
20 develop a disposal capability for the commercial
21 greater-than-class C low-level waste.

22 There are a range of disposal alternatives
23 that we propose to analyze in this Environmental Impact
24 Statement. They range from the no-action alternative
25 which in this case I assure you is a very real

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1 alternative where current and future greater-than-class
2 C low-level waste and the DOE greater-than-class C-like
3 waste would continue to be stored consistent with
4 current regulations.

5 We also intend to analyze deep geologic
6 disposal at the existing Waste Isolation Pilot Plant,
7 geologic disposal at the planned repository at Yucca
8 Mountain, and then the two alternative disposal
9 methods, new Enhanced Near-Surface Disposal Facility
10 and new Intermediate Depth Borehole Disposal Facility
11 will be evaluated at the proposed locations that are
12 delineated here on the next page.

13 We do recognize that some of these
14 alternatives could require changes to existing
15 regulation or statutes, however, this alone is not a
16 reason for eliminating those alternatives from
17 consideration in this EIS. NEPA regulations require
18 that we consider a reasonable range of alternatives,
19 and it's through the development of the draft EIS that
20 we will further evaluate the constraints, regulatory
21 and Legislative constraints, that apply and offer some
22 possible solutions for resolution.

23 As I mentioned previously and will probably
24 mention one more time, we must await Congress' action
25 before implementing any of these alternatives, and

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1 there will be future opportunities for public comment
2 to the exact results of the evaluation for these five
3 alternatives.

4 So let's talk about each of these in a
5 little more detail, and if you have other ideas or
6 approaches that you'd like to see us evaluate in the
7 EIS, this scoping meeting is your opportunity to
8 identify those to us.

9 Deep geologic disposal involves the
10 placement of waste in mined cavities that exist deep
11 beneath the earth's surface. This method is the method
12 used for the Waste Isolation Pilot Plant for disposal
13 of defense-related transuranic waste in the salt
14 caverns in New Mexico. That is a picture here of
15 contact handled transuranic waste safely disposed of at
16 the WIPP facility. Geologic disposal is the method
17 planned for the repository for high-level waste and
18 spent nuclear fuel at Yucca Mountain.

19 Enhanced near surface disposal involves the
20 placement of waste in the upper 30 meters of the
21 earth's crust in engineered trenches or vaults. The
22 containment characteristics of these facilities can be
23 enhanced through barriers and other methods.

24 This is a picture of a concrete disposal
25 vault that exists at a DOE facility. It actually was

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1 not - is not in operation. It's there just to give you
2 an illustrative example of what Enhanced Near Surface
3 Disposal may entail. The posterboard on Enhanced Near
4 Surface Disposal has another conceptual drawing. The
5 exact design for our Enhanced Near Surface Disposal
6 Facility will be developed through the development of
7 the draft EIS. If you have any specific comments on
8 either of these two examples, again here for
9 illustrative purposes, we do invite those.

10 And the third method is Intermediate Depth
11 Borehole Disposal which involves the placement of waste
12 in augered borehole deeper than the upper 30 meters of
13 the earth's crust, and it will likely involve other
14 additional barriers such as drilling deflectors that
15 would provide increased protection against inadvertent
16 intrusion in the future.

17 This methodology has successfully been
18 demonstrated in the U.S. at a DOE facility as well as
19 in other countries. It is the method of disposal that
20 many foreign nations are considering for intermediate-
21 level waste which in the International Atomic Energy
22 Act waste classification schemes is the waste class
23 that is comparable to what the NRC calls greater-than-
24 class C low-level waste.

25 Again, the conceptual drawing that's

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1 included on posterboard is just an idea at this point.
2 The exact design of this disposal method will be
3 developed through development of the draft EIS. If you
4 have comments on this approach, we do invite them here
5 today.

6 And then there are the proposal disposal
7 locations we intend to analyze in the EIS. The two
8 geologic disposal facilities that are in operation at
9 WIPP and the planned repository at Yucca Mountain
10 hopefully are obvious candidates because, again,
11 geologic disposal is the disposal method that the NRC
12 regulations assume would be required for greater-than-
13 class C low-level waste disposal.

14 The identification of the other sites was
15 made based on a specific set of criteria. These
16 criteria considered mission capability and the physical
17 characteristics of the sites.

18 Mission capability basically means that
19 these sites have ongoing waste disposal operations, and
20 there's the presence of an infrastructure that would
21 support this sort of disposal activity during the
22 timeframe that we will be analyzing in the EIS.

23 The inclusion of WIPP vicinity will provide
24 for use of land either within the existing - in the
25 Department's existing land withdrawal on which the WIPP

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1 facility is sited, or in that general geographic area
2 just outside the land which are all on existing
3 Government property.

4 The inclusion of the generic commercial
5 facilities will provide us with - will allow us to
6 support a programmatic determination on possible future
7 use of commercial facilities for future disposal of
8 greater-than-class C low-level waste that is generated
9 by NRC and agreement state licensees.

10 Back in 2005 after publication of the
11 Advance Notice of Intent, we issued a request for
12 expressions of interest from industry to see if there
13 were any commercial companies that wanted to be part of
14 this disposal solution because again currently Class A,
15 B, and C commercial low-level waste is disposed of in
16 commercial facilities consistent with the Low-Level
17 Waste Policy Act.

18 We did have some responses from a number of
19 industry players, however, none of them were - none of
20 their facilities' licensing strategies were mature
21 enough that they were willing to identify a specific
22 site to allow for a specific site consideration under
23 this EIS, so we hope that selection of a generic site
24 at a humid environment and a generic site in an arid
25 environment will provide a representative example.

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1 It's highly likely that additional NEPA analysis would
2 be required before a site-specific commercial
3 alternative could be selected, but we do want to
4 provide for the programmatic cover in this EIS so it
5 could be tiered from this document.

6 We do intend to evaluate each of the GTCC
7 waste types, the activated metals, sealed sources, and
8 other in combination and alone for each of these
9 disposal alternatives, geologic disposal, enhanced near
10 surface, and intermediate depth borehole. That will
11 provide us the greatest flexibility, and we'll also
12 take into consideration the specific characteristics,
13 volumes, and generation rates of each of those three
14 sub waste streams.

15 Again, the EIS will describe any statutory
16 or regulatory requirements that constrain an
17 alternative or changes that would be required to
18 implement an alternative, and it is quite possible that
19 our recommendations resulting from this EIS could
20 entail combinations of facilities which - or maybe the
21 phased deployment of a facility over time to address
22 the rate of generation of this greater-than-class C
23 low-level waste inventory.

24 This slide summarizes the GTCC EIS process.
25 Again, it began with the Advance Notice of Intent back

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1 in May of 2005. The EIS officially began though with
2 the publication of the Notice of Intent on July 23rd of
3 this year.

4 What happened in the two years since the
5 publication of the Advance Notice of Intent? We've
6 been refining our waste inventory estimates and
7 reaching the programmatic decision to in fact include
8 the DOE greater-than-class C-like waste.

9 We are now in the public scoping process,
10 more than halfway through it. Again it closes on
11 September 21st. After the public scoping process, we'll
12 move into development of the draft EIS, taking again
13 into consideration carefully any comments received
14 during the public scoping process.

15 A draft EIS will be made available for
16 comments. We'll move into a final EIS. The final EIS
17 will be published, and then we'll send that report to
18 Congress summarizing all of the alternatives evaluated
19 and basically await their action.

20 What we did estimate to Congress in our
21 July 2006 report that was required by the Energy Policy
22 Act what this EIS would cost and how long it would
23 take. We expect that we will be revising those
24 estimates because we did anticipate publishing the
25 Notice of Intent last calendar year. We did need that

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1 extra time though to again refine the inventory and
2 reach this policy decision related to the DOE greater-
3 than-class C-like waste.

4 Both the July 2006 report to Congress and
5 the historical 1987 report to Congress that was
6 required by the Low-Level Waste Policy Act of 1985 are
7 available on our Greater-Than-Class C EIS web page.

8 And finally public participation, NEPA
9 process does provide for multiple opportunities for
10 public input into the process. You can participate
11 today by providing oral or written comments on the
12 scope of the EIS including the proposed alternatives
13 and the environmental issues. You can provide written
14 comments through the duration of the public scoping
15 period via mail, the EIS website, electronically or by
16 fax, and you can continue to stay informed by visiting
17 this web link. This is I think in my opinion, my not-
18 so-humble opinion, a very good website. I can take
19 really no credit for its content. Those project staff
20 that are here are responsible for it. They put a lot
21 of effort and time into ensuring that it has a wealth
22 of resource information, and we do welcome your
23 comments on anything that's there on that web page.

24 We've included a written comment form in
25 the green folders if you'd like to provide a written

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1 comment today, and again I do encourage you to stay
2 involved in this process as we move along.

3 This is our contact information. Again,
4 I'm Christine. Jaime Joyce here in the front row is
5 the Document Manager as well as our Greater-Than-Class
6 C Team Leader here at Headquarters. He will be your
7 primary contact.

8 We're joined here today by - where is
9 George, George Dixon. I'm sorry, George, I didn't see
10 you there. He's also one of our - on our Fed staff,
11 and Joel Kristal is in the back of the room.

12 We're supported in development of this EIS
13 by the Argonne National Laboratory and Sandia National
14 Laboratories, and we have a number of the lab employees
15 and staff here with us as well, so anybody who has a
16 badge like this can answer your questions here at
17 recess, and that concludes my comments. Thank you.

18 MR. BROWN: Great, thanks. At this time
19 we're going to take a brief recess to allow you to pose
20 any remaining questions to available staff. I will
21 make an announcement when we're about to begin the
22 formal portion of the meeting, at which point the court
23 reporter will be recording your comments.

24 If you would like to provide a comment and
25 haven't signed up yet, please sign up with Joel at the

1 back of the room. Again, we'll take a brief recess.
2 You were introduced to a number of the staff who are
3 currently available, and if you have any remaining
4 questions, please see them. Thanks.

5 (Whereupon the above-entitled matter went
6 off the record at 2:23 p.m. and resumed at 2:32 p.m.)

7 MR. BROWN: If you'll take your seats,
8 we'll get started on the formal comment period. Okay,
9 thanks. I sometimes think of getting Sheltie dogs,
10 send them out to round people up. What do you think?
11 Great. Yes, actually I think I know everybody. Great,
12 thanks.

13 Okay, at this time we have a few unruly
14 members. Okay, it's time to receive your formal
15 comments on the scope of the proposed EIS. This is
16 your opportunity to let DOE know what you would like to
17 see addressed in the draft document.

18 The court reporter will transcribe your
19 statements. Let me review a few ground rules for the
20 formal comments.

21 Please step up to the microphone over there
22 when your name is called, introduce yourself and
23 provide an organizational affiliation where
24 appropriate.

25 If you have a written version of your

1 comments, please give those to the court reporter when
2 you've concluded your statement. Also if you have any
3 additional materials that you're not going to read but
4 would like to see made part of the permanent record,
5 you can submit them at the same time, and they will be
6 marked and formally entered into the record.

7 I will call two names at a time, the first
8 of the speaker and the second of the person who will
9 follow.

10 In view of the number of folks who've
11 indicated an interest to speak this afternoon, I'm not
12 going to put a time limit on speaking, however, I know
13 Washington is the home of the filibuster, so I guess if
14 it looks like the audience is nodding off, I'll perhaps
15 remind you it may be time to finish and let the next
16 person take over.

17 Ms. Gelles will be serving as the hearing
18 officer for the Department of Energy during the formal
19 comment period. She will be - she will not be
20 responding to questions or comments during this
21 session, so that by way of introduction we will begin
22 with our first speaker which is Diane D'Arrigo, and
23 that one please, thanks, and Diane will be followed by
24 Alfred Meyer.

25 MS. D'ARRIGO: I'm Diane D'Arrigo with

1 Nuclear Information and Resource Service. The first
2 point I guess that I would like to ask in this report
3 to Congress is that it be made clear that greater-than-
4 class C since the bulk of it comes from - the bulk of
5 the radioactivity is coming from the nuclear power
6 industry that Congress understand that we are dealing
7 with an additional subsidy to the nuclear power
8 industry especially at a time when the nuclear industry
9 is trying to revive itself, and I think would ask that
10 the DEIS look at, in addition to where the waste comes
11 from, be clear about what's coming from existing and
12 proposed new nuclear power reactors, both the activated
13 metals and the other materials.

14 I know that there's been an effort to do
15 that, but it's not abundantly clear from the way this
16 is laid out, and I think that it's important to be
17 honest with the congressional decision makers about
18 what it is that they're going to be authorizing.

19 Is there a light here? Okay. In the U.S.,
20 so-called low-level waste is a broad category as we
21 talked about of materials that are not high level and
22 not from uranium mining.

23 It was in the quest for so-called low-level
24 radioactive waste dumps and when the public was faced
25 with these new unlined soil trenches that the demand

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1 was made that materials that are hazardous longer than
2 the institutional control period of 100 years, that's
3 the NRC's required institutional control period, be
4 moved up out of the low-level category into the high-
5 level category.

6 The compromise that came from this was that
7 the greater-than-C category was punted up to the
8 Department of Energy while states were continuing to
9 help the nuclear industry find dumps in the states and
10 largely with states being required to provide subsidies
11 to the so-called low-level waste portion of the nuclear
12 power industry.

13 Class A which is the least concentrated
14 still has plutonium in it and other long-lasting
15 radioactive materials including transuranics. Class B
16 has unlimited amounts of tritium and cobalt, high
17 concentrations of other biologically important
18 dangerous nuclides.

19 We do not support the concentration
20 averaging which allows the greater-than-C or the C or
21 B waste to be diluted down into a lesser category.

22 Radioactive waste with the concentrations
23 greater-than-C, as I said, were punted off to the
24 Department of Energy hoping that it would look like the
25 problem was deferred. The DOE is essentially providing

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1 another Federal subsidy for nuclear power by providing
2 for greater-than-class C disposal whether it's at a
3 commercial site, whether it's at a Department of Energy
4 site, and all of the existing sites for both commercial
5 and weapons waste are in various stages of needing
6 clean up and remediation themselves, so to consider
7 putting this whole new category of wastes into existing
8 problematic sites or into clean sites is really
9 unacceptable.

10 It comes down to the bottom line that there
11 needs to be incorporated into the evaluation of what to
12 do with the waste, whether to make more, and we do
13 support that which has been generated be stored in a
14 retrievable manner protected from both intentional and
15 unintentional release, that it be kept in an
16 institutional framework that keeps track of it.

17 Don't pretend that after 100 or x number,
18 300, 500 years that it's no longer a problem when in
19 fact it is much longer lasting than that.

20 Until there's an adequate proven way to
21 isolate greater-than-C from the environment, as long as
22 it remains hazardous, no future greater-than-C should
23 be generated. This should be laid out in the report
24 that it be an option, need to look at whether more
25 should be generated.

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1 I had a bit of a problem in the materials
2 that were provided in saying that certain amounts of
3 greater-than-C already exist or don't exist. The
4 reality is that reactors that all of the greater-than-C
5 exist. It just hasn't been put into the pot like the
6 sealed sources haven't been put into the list that DOE
7 has to deal with.

8 The reality is we've already generated a
9 substantial amount, but if we continue, if we make new
10 - if we license new facilities both for weapons and
11 power, we're going to be creating more, and the
12 question of whether or not these materials are
13 generated needs to be incorporated into the
14 Environmental Impact Statement and into the report to
15 Congress. It needs to be laid out that this is part of
16 what we're doing here is facilitating creation of more
17 waste for which we have no really guaranteed answer for
18 isolating.

19 Just to make sure I don't repeat myself.
20 What's needed is precaution, a halt to new reactor and
21 power production that generate greater-than-class C
22 waste, storage in an institutional system that
23 perpetuates knowledge from the generation to generation
24 of the waste presence and its hazard, a physical system
25 that prevents intentional and unintentional leakage and

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1 spreading in a manner that facilitates
2 recontainerization and isolation from the biosphere,
3 and an economic system that internalizes the costs so
4 that those that generate or generated the wastes are
5 paying for the perpetual management care and isolation.

6 The - a copy of that. The options that are
7 laid out in your advance notice, two of them appear to
8 be ones that are not even legal to consider.

9 Yucca Mountain is not close to being
10 licensed. It's likely that it might not be licensed.
11 If it is licensed, it has a limit on the capacity which
12 isn't even enough for all of the high-level waste, so
13 it doesn't seem sensible to have that as a serious
14 option for where to put these materials.

15 We do support that the waste be considered
16 high level. They should be considered high level
17 radioactive waste because their hazard is longer than
18 any low-level radioactive waste facility is designed to
19 manage, but Yucca Mountain should not be on the table
20 as a waste of taxpayer money to consider it for this
21 and also for the Waste Isolation Pilot Plant, that also
22 has its statutory limitations, and we don't need to
23 have another effort underway, official or unofficial,
24 eking away at the compromise that was made for WIPP
25 that prohibits waste that's not defense generated.

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1 I had a couple of other points that I
2 wanted to make. I think a similar reassessment should
3 be done for the continued release of sealed sources or
4 licensing, general licensing, of sealed sources.
5 Several international and Federal agencies, EPA, DOE,
6 are chasing after sealed sources that continue to be
7 licensed without proper track being kept, and there are
8 alternatives for those sealed sources that do not need
9 to be - that make them not necessary, potentially not
10 necessary.

11 So in looking at the EIS and in the report,
12 once again look at what the real purpose is and what
13 alternatives exist for the creation of this material in
14 the first place. That's about it for now.

15 MR. BROWN: Okay, thanks very much.
16 Alfred Meyer.

17 MR. MEYER: My name is Alfred Meyer, and
18 I'm with the Alliance for Nuclear Accountability.
19 We're an alliance which represents 35 different
20 organizations around the country working on issues of
21 nuclear weapons production and the consequent
22 environmental and health problems that are - that
23 happen from those.

24 I first want to thank the staff of the DOE
25 and the other people working to set up this meeting and

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1 to have this kind of meeting where we can all speak and
2 be heard and where our concerns can be considered by
3 the DOE representing many grassroots groups. We feel
4 this is a fundamental part of democracy and an
5 important thing in order to really protect us not only
6 in the near future but for generations to come because
7 the materials we're working with have the potential to
8 cause great harm for many years to come.

9 I'd like to go through a number of issues
10 which we feel are important. Some of this we'll be
11 asking for just additional information and has been
12 given already. I do appreciate the website that you
13 have up and the documents posted there. I thank you
14 for that, but we're hoping that you can add some more
15 detail to the websites.

16 We also want to bring up some concepts we
17 feel have not been dealt with in the options presented
18 to date.

19 So we are interested in knowing what's the
20 history of the disposal of GTCC and GTCC-Like Waste to
21 date and how has it been disposed of up until now. It
22 sounds like from what we heard today it's just on site,
23 but I'd like to be sure that that's the full discussion
24 of the topic, and we'd also like to make sure that
25 there's no kind of waste GTCC or GTCC-Like waste that's

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1 not listed in the table in the NOI.

2 We'd like a listing of this waste on a
3 state-by-state basis and also on a radioactivity basis
4 and a volume basis.

5 We're also concerned about environmental
6 protection and standards. We're wondering if the
7 health standards will include pregnant women and their
8 fetuses. This is the concept of using the reference
9 family instead of the reference man. We feel that this
10 is a very important thing to consider.

11 We also wonder about especially places like
12 the Savannah River site. I must say that with the
13 water table that's only 30 feet below the surface of
14 the ground, I wonder how even enhanced new surface
15 disposal could be achieved when that's in the upper 30
16 meters, so we're worried about the disposal techniques
17 and be sure that you consider how they will protect
18 ground water and in particular what standards will be
19 used to define contamination and what methods of
20 remediation will there be should these standards be
21 exceeded.

22 Also we'd like to know about ongoing
23 monitoring of these disposal sites. It's mentioned
24 that these sites will be closed, but we would like to
25 know what monitoring will go on, for how long, and what

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1 can be done if again there is a leakage of radiation.

2 We're also very concerned about the
3 transportation of this waste. We're wondering what the
4 transportation routes would be for Alternatives 2
5 through 5. We'd like to know what the projected costs
6 for transportation for all GTCC and GTCC-Like Waste to
7 the proposed disposal sites, what are the estimated
8 number of accidents, radioactive releases, and public
9 health and economic impacts that would result from the
10 transportation.

11 Also regarding transportation, we'd like to
12 know what shipping containers would be used to
13 transport these materials. Do these containers
14 currently exist, and if so, how many of them are there?
15 If they don't exist, what new containers or different
16 designs would have to be incorporated and licensed, and
17 what are the costs of such containers, and have such
18 containers been tested in practice or just by computer
19 monitoring?

20 This would lead to another important issue
21 we'd like the DOE to consider and this would be a
22 different alternative, and that would be for on-site
23 storage, storage as close to the site of generation as
24 possible. Conceptually what are the options available
25 for hardened, on-site, above-ground monitored,

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1 retrievable storage of GTCC and GTCC-Like wastes?

2 And we'd also like you to develop a plan
3 for hardened on-site storage at a facility that
4 contains GTCC-Like - or GTCC waste at a current nuclear
5 facility such as Plant Vogtle would be one that we'd
6 like to see portrayed again in particular because of
7 its proximity to the water table.

8 For those sites where on-site storage is
9 not feasible due to site-specific safety concerns, what
10 are conceptual options available for nearby and
11 centralized above-ground monitored retrievable storage?

12 And then we'd like to see a comparison of
13 the advantages and disadvantages including cost
14 estimates of above-ground storage versus underground
15 storage, and we'd like the engineering specifics and
16 characteristics of above-ground and below-ground
17 storage containers and/or the engineered barriers that
18 will last long enough to protect the surrounding
19 environment for the length of time the waste is
20 dangerous.

21 What materials are being considered for
22 containers and barriers and for what length of time
23 will the containers maintain their integrity? We're
24 also concerned that if Yucca Mountain is never licensed
25 what are the conceivable impacts on the GTCC and the

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1 GTCC-Like Waste disposal plans and options?

2 We'd also like an accurate characterization
3 of the GTCC-Like Waste reveal that we need a little
4 more detail than we've been given out in order to know
5 how these plans really would work.

6 Although the DOE states that they do not
7 have the effect or intent of creating a new
8 classification of radioactive waste by using this term
9 GTCC-Like, until it is disclosed exactly what
10 constitutes GTCC-Like Waste, how can we be sure that it
11 should not be given a new classification?

12 The current definition includes such vague
13 terms as other miscellaneous waste owned by DOE or
14 generated by DOE activities. We'd like a more specific
15 definition and characterization by source, form,
16 volume, and radioactivity.

17 And then lastly I'd like to bring up the
18 concept of newly-generated waste. We ask why the
19 projections for GTCC and GTCC-Like Waste go only to the
20 year 2062 when DOE itself is promoting potential for
21 new reactors for reprocessing, and for new nuclear
22 weapons.

23 If new reactors, if reprocessing, and if
24 new weapons are built, then what are the realistic
25 estimates of the types and amounts of expected new

1 wastes which would then be considered as GTCC and GTCC-
2 Like?

3 How much waste is projected beyond 2062,
4 and in specific, we'd like it if you could make an
5 assumption that let's say 50 new reactors will be
6 built. What then are those implications for the
7 disposal of GTCC waste?

8 And we also want to be sure that there's a
9 complete characterization of this waste. Is there a
10 disposal path of material that may become GTCC or GTCC-
11 Like waste either through decay or blending activity,
12 so we want to make sure that in the figures we're being
13 presented that all the waste items currently in cooling
14 pools that may cool down to GTCC levels of activity are
15 included.

16 Given the loose definitions of GTCC and
17 GTCC-Like Waste, are there plans to include other kinds
18 of radioactive waste under this classification either
19 through concentration or dilution so that they'll be
20 eligible for GTCC disposal? If so, what are they and
21 what materials will or won't be treated? In
22 particular, how does this work in relation to the
23 branch technical position on concentration averaging?

24 Are there prohibitions against such
25 treatments of waste to change its classification? That

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1 ends my comments. I appreciate this very much. I will
2 provide a written version of my comments with the
3 option for amendments before the end of the comment
4 period. Thank you very much.

5 MR. BROWN: Thanks very much. The next
6 speaker is Kevin Kamps, and Kevin will be followed by
7 Cindy of Beyond Nuclear, and I'll need a little help
8 with your - spelling your last name when you get up
9 here. Thanks. Hi, Kevin.

10 MR. KAMPS: Thank you. My name is Kevin
11 Kamps, and I speak on behalf of Don't Waste Michigan,
12 although fully in disclosure I'm also employed at
13 Beyond Nuclear. Don't Waste Michigan is a statewide
14 organization that was founded in the struggle against
15 a so-called low-level radioactive waste dump that was
16 started at the state by seven additional states, and it
17 also monitors nuclear power and radioactive waste
18 issues and radiation and its health impacts across
19 Michigan, and I would like to concur with the excellent
20 points made by my colleagues from NIRS and from
21 Alliance for Nuclear Accountability and just add a few
22 additional for now and submit more extensive written
23 comments.

24 The first point I would like to make is I
25 would request that the public comment deadline be

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1 extended especially considering the errors and
2 omissions that were present in the Federal Register
3 notices despite the correction that was issued.

4 Whether it's the fault of the Department of
5 Energy or the Government Printing Office, I think that
6 given the short timeframe that was allowed in the first
7 place, especially given the errors in the Federal
8 Register notices that an additional 60 days for public
9 comment should be granted.

10 I would like to reemphasize a point that
11 was raised earlier about the inclusion beyond 2062 of
12 greater-than-class C wastes that would be generated by
13 new reactors and also by the Global Nuclear Energy
14 Partnership and its various manifestations, whether
15 that be so-called advanced fast burner reactors or
16 reprocessing technologies.

17 Another point that I would like to see
18 included in the Environmental Impact Statement is the
19 impacts of climate change on these proposed sites so
20 that an arid site could become a humid site and a humid
21 site could become a more humid site in the future.

22 Also intrusion scenarios should be
23 addressed especially given the shallow depths that the
24 Department of Energy is proposing for burial of these
25 deadly materials. Groundwater contamination for the

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1 full extent of the hazardous persistence of these
2 poisons should be included.

3 Also of significance are issues of civil
4 liberties and security, the threat of terrorist attacks
5 upon these materials that are very similar to high-
6 level radioactive waste. There should also be a full
7 cost accounting which goes back to that point made
8 earlier that this is yet another subsidy to the nuclear
9 power industry especially when you look at Figure ES-1
10 which shows that the vast amount of radioactivity
11 included in GTCC wastes comes the commercial nuclear
12 power side of the equation.

13 As was mentioned as well, transportation
14 impacts in all their manifestations should be included
15 including not only accident scenarios but also so-
16 called incident-free transports, the mobile x-ray
17 machine that cannot be turned off phenomenon as these
18 wastes that emitting gamma radiation are transported
19 down our roads and rails and waterways and the impacts
20 on unsuspecting bystanders as well as workers from
21 those exposures.

22 Also in the EIS the radionuclides contained
23 in greater-than-class C and GTCC-Like wastes should be
24 clearly laid out and also the hazardous persistence of
25 each of these radionuclides should be clearly shown to

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1 the public.

2 As a final point, I would like to repeat
3 what was said previously about the idea of hardened on-
4 site storage, and I would like to point out that this
5 concept has to do with protecting these deadly wastes
6 against accidents, against attacks, and against
7 leakage, but it should be emphasized that some of the
8 locations where GTCC wastes are currently located on
9 lakes and rivers and seacoasts are not good locations
10 for the permanent storage of these materials.

11 As an example, the West Valley site in New
12 York, a former re-processing and dumping ground, will,
13 eventually after 1,000 years or so erode into Lake
14 Erie, and so hardened on-site storage should not be
15 confused with permanent disposal on-site. This is an
16 interim measure designed to protect these deadly
17 materials against attacks and accidents and leaks until
18 better solutions can be found than the Department of
19 Energy is proposing at this point.

20 I would add that the status quo no action
21 alternative is not acceptable. Hardened on-site
22 storage would add to the status quo, the fortification
23 against attacks, the safeguards against accidents, the
24 monitoring and retrievability against leaks over time,
25 and we look forward to submitting a full version of our

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1 written comments, and for now I will leave here
2 Principles for Safeguarding Nuclear Waste at Reactors,
3 also referred to as hardened on-site storage. This was
4 written and has now been signed by over 150
5 organizations across the country including
6 significantly many who live next to commercial nuclear
7 power plants with their mounting stockpiles of high-
8 level radioactive waster, greater-than-class C
9 radioactive waste, and other forms of deadly
10 radioactive material, but it should be pointed out that
11 greater-than-class C waste is in many regards
12 comparable to high-level radioactive waste, and so
13 these principles apply well to greater-than-class C
14 waste. Thank you.

15 MR. BROWN: Thank you, Cindy, with -

16 MS. FOLKERS: The spelling of my last name
17 is F as in Frank, O-L-K-E-R-S, like Sam.

18 MR. BROWN: Okay.

19 MS. FOLKERS: My name is Cindy Folkers.
20 I'm with Beyond Nuclear, and I would like to extend my
21 appreciation to DOE for having the meetings. I would
22 also like to extend my support for the other public
23 comments that have been made today, and I apologize for
24 the extemporaneous nature of my remarks. I was not
25 going to make any remarks until I read the DOE

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1 Environmental Management Fact Sheet called Radiation.
2 It was in the packet today that we received when we
3 walked in the door.

4 I am specifically going to comment on the
5 last paragraph on the last page entitled Primary Health
6 Effects. I'm going to start by reading this statement,
7 "The main health concern associated with chronic
8 exposure to radiation is the induction of various
9 cancers. This is the health effect of concern for the
10 GTCC low-level waste and will be analyzed in detail in
11 the EIS."

12 I beg to differ with that. I can off the
13 top of my head list three studies or groups of studies
14 that show that certain forms of heart disease are also
15 induced by radiation exposure. Matanoski from Johns
16 Hopkins did a study on radiologists that showed
17 increased levels of heart disease. There's also
18 evidence in the Hiroshima Nagasaki studies for heart
19 disease, and the third study was a study done - were
20 studies done by Dr. Bandazhevsky in Belarus as a result
21 of incorporated and externally - and external exposure
22 to the radionuclide Cesium-137, so I would give you
23 those.

24 I'm also going to provide written comments
25 with even more detail and better research and probably

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1 more articulate I'm hoping, so heart disease is an
2 issue, and it needs to be considered along with cancer,
3 and I really think that you need to assess for that.

4 The second thing is the statement that you
5 make is additional health effects associated with
6 exposures to radiation may, may, include genetic
7 mutations and teratogenic effect such as mental
8 retardation, but these have not been directly
9 attributable to specific radiation exposures.

10 This is a flashback for me. No, not
11 entirely because I'm not that old, but I know that this
12 is how the cancer debate with radiation started. Maybe
13 it does, maybe it doesn't, maybe it does, and where we
14 are today right now standing here, we know it does.

15 So I am asking you, please, use precaution
16 when you look at these other health effects. It's not
17 just cancer, and the BEIR VII report which DOE helped
18 pay for and asked for along with EPA and a few other
19 Government organizations, and this is going to be a
20 paraphrase, but they basically said that we see
21 evidence of genetic effects in the studies. There is
22 no reason to believe that this will also not be a
23 health effect for human beings, and I will again
24 provide that exact quote in my written comments, but
25 that's what BEIR VII says, so you better look at it.

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1 Please look at it because this is how we started with
2 cancer, and I see history beginning to repeat itself,
3 and I'm asking for precaution. If you think it's going
4 to be a health effect, assess for it.

5 Even if you don't feel or you can't find
6 the mechanism, assess for it anyway because there's a
7 historic precedent that we underestimate the health
8 effects of radiation exposure.

9 This also brings me to a second point which
10 is animal exposures, environmental exposure, water,
11 fish, animals, plants, these are all what some would
12 consider lower life forms. Well, folks, we're at the
13 top of the food chain, so if you're going to be
14 assessing for what's happening with human beings at
15 these sites, you better assess what's happening with
16 the environment, and that includes the water and the
17 fish and all of the rest of the animals and the trees
18 too because we all are one big circle.

19 We eat the fish, we grow food in the soil,
20 we drink the water, and so you're going to need to
21 assess the health effects not just for human beings
22 which is what this paragraph implied when I read the
23 bit about genetics because the genetics are seen in
24 animals. The genetic effects are seen there, but also
25 all of the other life forms that are at issue here.

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1 I would also like to ask for an assessment
2 of acute health effects, and this is for a very
3 specific reason. There have been a number of cases, I
4 believe one was Juarez, another Goiana, Brazil. I
5 would have to look them up to get the actual facts, and
6 I will do so for my written comments, but we had
7 intrusions and people took sources opened them, passed
8 the contents around to family members. I believe it
9 was Cobalt-60. Correct me if I'm wrong, and those
10 health exposures were acute in nature, so this was
11 something that no one foresaw. These materials were in
12 a regular landfill or a garbage dump of some sort that
13 was publicly assessable, so you might want to assess
14 also. I would request that you assess for acute health
15 effects as well in addition to any accidents that may
16 happen while transporting. Those health effects could
17 also be acute, not just long term.

18 I think that that concludes my comments.
19 I will be adding written comments by the 21st of
20 September which is the deadline, and I thank you for
21 the opportunity.

22 MR. BROWN: Thanks a lot. That concludes
23 the list of folk who signed up ahead of time to make
24 public statements, so let me ask at this point if
25 there's anyone in the audience who would like to add

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1 anything or if you'd like to make a comment of your
2 own. Okay. Why don't you go ahead. No. I have one
3 other person in back, okay, sir, in the back. Again,
4 if you can use that podium and identify yourself.

5 MR. O'CONNELL: Thank you. I wasn't
6 planning to make a comment. My name is Brian
7 O'Connell. I'm with the National Association of
8 Regulatory Utility Commissioners which is the
9 association of state and public utility commissions
10 that are mostly interested in the high-level waste
11 problem which I know is not the scope of this
12 undertaking, but GTCC is also an issue for the
13 decommissioned and to be decommissioned nuclear power
14 plants, so we're pleased that DOE has got the task of
15 finding a solution or combination of solutions to the
16 problems at hand, and I am also pleased that EM or the
17 Environmental Management Agency or organization within
18 DOE has the lead on implementation because you draw
19 upon a track record of success in project management
20 which is needed for this project.

21 Clearly the Congress has the policy aspects
22 of the program, but when it comes time for
23 implementation, it should be done with an Agency that
24 knows what it's doing.

25 I should also say that I just recently came

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1 back from a visit to Finland and Sweden where they have
2 a much smaller nuclear industry, but nonetheless they
3 have the same set of problems for their disposal and
4 management of spent fuel and other forms of nuclear
5 waste that are by-products of the commercial nuclear
6 power production.

7 They have in place low-level waste
8 facilities that are well designed, and there is public
9 confidence in them. They are regulated in both cases
10 of Finland and Sweden. They also have an interim
11 storage facility in operation in Sweden for spent
12 nuclear fuel while they develop their long-term
13 repository.

14 So these things can be done, and it is also
15 interesting to see how in those two countries public
16 outreach has been successful to the point where the
17 municipalities in the location of those facilities have
18 affirmatively approved the projects that shows a
19 confidence in the regulatory agencies as well as some
20 degree of confidence in the development of those
21 facilities. It's quite impressive.

22 The comment was made earlier about subsidy
23 to the nuclear power industry. I don't think anyone
24 contests the validity of the principle that polluters
25 pay, so if it is appropriate for the nuclear power

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1 industry to be charged for disposal of material that
2 they generated, I don't think that's going to be in
3 question.

4 I don't plan to submit any written
5 comments, but I just thought I would add a few more to
6 the record today.

7 MR. BROWN: Thanks very much. Okay,
8 Diane.

9 MS. D'ARRIGO: The concept of concentrating
10 Classes A, B, and C into a greater-than-class C form is
11 one that I believe the EIS should consider. The
12 dangers and the potential for the A, B, and C waste
13 being concentrated and then sent the site or sites that
14 the DOE chooses. In other words, since they're not
15 able to find new low-level radioactive waste disposal
16 as has been charged by Congress since 1980, if DOE is
17 going to provide a greater-than C site, is there a
18 potential then or what is the potential and what might
19 be the dangers of that site then providing for the
20 disposal for the hottest part of the low-level
21 radioactive waste A, B, C categories.

22 That's one concept that I would like to see
23 addressed, and I follow up on what Cindy Folkers said
24 with the Otake and Schull would be your reference for
25 mental retardation being a health effect from radiation

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1 exposure at a certain time during pregnancy, mental
2 retardation in the child, and the study is Otake and
3 Schull. I don't have the year, but you can give that
4 one that - in our written comments that you'd consider
5 and look that up yourself.

6 MR. BROWN: Thank you. Again, let me ask
7 if there's anyone else who would like to add comments
8 at this time. Okay.

9 MS. D'ARRIGO: The other thing is that the
10 majority of the - at least some portion of the greater-
11 than-C looks like it's at West Valley which is the only
12 commercial reprocessing that took place in the U.S.,
13 and it was more than half Federal reprocessing, Federal
14 nuclear material, but also commercial.

15 As Kevin pointed out earlier, if GNEP is
16 going to be considered, is going to be proceeded with,
17 and we're going to have one or more reprocessing
18 facilities in this country, that needs to be included
19 in the projections and very specifically.

20 MR. BROWN: Okay, thanks. Okay, let me
21 ask if anybody else would like to add comments at this
22 point. Okay, we are actually scheduled to remain
23 available for public comment until five o'clock, so
24 what we do in these circumstances is we will recess but
25 remain available to take public comments through that

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1 time, so if anyone arrives later or if anyone of you
2 decide after talking with staff or looking at posters
3 you'd like to add anything, just see me. We will
4 reconvene. The court reporter will remain available.

5 Again, let me thank all of you for turning
6 out and for your comments. We'll recess.

7 (Whereupon the above-entitled matter
8 went off the record at 3:17 p.m. and resumed at
9 3:50 p.m.)

10 MR. BROWN: Okay, we are reconvening.
11 We have another speaker, and, Dr. Makhijani,
12 welcome. Good to see you.

13 DR. MAKHIJANI: I'm Arjun Makhijani for
14 the record. I'm President of the Institute for
15 Energy and Environmental Research. I'm going to
16 submit written comments later on, but I wanted to
17 make some oral comments here, since you are having
18 this here in Washington, D.C.

19 First, a few things, observations on
20 the Notice of Intent. I see from the table that
21 most of these greater-than-class C wastes,
22 certainly in radioactivity and to a large extent
23 also in volume, are going to be generated in the
24 future.

25 The vast amount of radioactivity is

1 going to be from decommissioned reactors, and
2 since there's license extension going on, most of
3 this radioactivity will not be there as waste for
4 decades.

5 I don't see the rush to prepare a plan
6 to bury the stuff or dispose it off other than to
7 find some way to dispose of what is now there,
8 which is mostly "GTCC-Like Waste", the GTCC-Like
9 Waste is a DOE waste. The first time I have seen
10 this new term. It's stated in the Notice of
11 Intent that DOE doesn't intend to create a new
12 waste category, but it seems to me that it is.

13 I'm not necessarily opposed to the
14 creation of this new waste category. I think DOE
15 should just say that this GTCC-Like Waste will be
16 treated like GTCC unequivocally because its
17 radiological characteristics are GTCC-like, so I
18 think this may be a positive step in that DOE is
19 acknowledging that it has some wastes that are not
20 now classified as greater-than-class C waste but
21 should be treated like that, and I think this is a
22 positive element in the Notice of Intent that -
23 because in the past there's been a lot of
24 ambiguity about what was going to happen to
25 certain kinds of waste because DOE didn't have a

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1 waste classification for it, and I am always
2 afraid that some will wind up in a Class A low-
3 level waste type of designation, which is what
4 seems to be happening to depleted uranium.

5 My next point is about depleted
6 uranium. I have long held that depleted uranium
7 has similar characteristics to greater-than-class
8 C waste under the NRC definitions in 10 CFR 61.

9 It isn't defined as greater-than-class
10 C waste in 10 CFR 61 only because depleted uranium
11 in large amounts from enrichment plants was not
12 considered in the Environmental Impact Statement
13 underlying that rule, but all of its other
14 characteristics are GTCC-like, so that's another
15 reason I'm not unhappy you've created this
16 category. It should just be formalized as
17 greater-than-class C waste.

18 As some of you may know, there has been
19 a long argument about the classification of
20 depleted uranium from enrichment plants in the
21 course of Nuclear Regulatory Commission
22 proceedings for the licensing of the Louisiana
23 Enrichment Services plant, which is now being
24 built in New Mexico, and I have long argued that
25 this should be treated like GTCC even though it

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1 doesn't have a formal classification. Now, in the
2 course of the proceedings in 2005, the Nuclear
3 Regulatory Commission announced that this was low-
4 level waste but that its classification was not
5 settled.

6 Just last week before the Court of
7 Appeals in the appeal of that license and to which
8 Nuclear Information Resource Services was a party
9 and Public Citizen I was one of their experts in
10 the case, the Nuclear Regulatory Commission
11 formally acknowledged that the classification of
12 depleted uranium from enrichment plants within the
13 scheme of low-level waste is not a settled
14 question and that this question has to be settled.

15 I would advise the DOE really to get
16 out ahead of the NRC and include depleted uranium
17 from enrichment plans such as what it stored at
18 Paducah, Portsmouth, and - Paducah, Portsmouth,
19 and Oak Ridge as greater-than-class - GTCC-Like,
20 and to formalize a definition of alpha-emitting
21 long-lived more than 100 nanocuries per gram and
22 whatever the other greater-than-class C definition
23 is in 10 CFR 61.55.

24 I think this would be a very good
25 thing. You may have anticipated that I would only

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1 say negative things, but this is not the case.
2 People who follow what I say carefully know that
3 when there is something good to say, I say it, and
4 I do encourage you to push this thinking farther
5 because I don't find any evidence of that in the
6 Notice of Intent.

7 Depleted uranium definitely does not
8 belong in any other category than greater-than-
9 class C waste, and it should be, whether you call
10 it transuranic-like or greater-than-class C-like;
11 I don't really care. But it's not transuranic,
12 obviously but - that's only a nomenclature
13 problem.

14 The third difficulty I have is with the
15 inclusion - more unusually I will ask some things
16 to be removed from the scope of this proposed
17 Environmental Impact Statement because they really
18 don't belong there.

19 One is disposal of GTCC and GTCC-Like
20 Waste in WIPP. WIPP is designated for defense
21 transuranic waste. There is an enormous amount of
22 defense transuranic buried waste, some of which is
23 not well characterized. In Idaho, where there is
24 a very large volume of this, the Department of
25 Energy actually, to its credit, is recovering some

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1 of that waste, that waste will have to be treated
2 and disposed of like transuranic waste because it
3 is in fact transuranic waste under the DOE
4 definition, or a large proportion of it will be
5 when it is characterized at least, so we think
6 that more than one ton of plutonium in buried
7 waste in Idaho alone, one metric ton.

8 So I think to preempt - to jump the gun
9 on existing commitments for transuranic waste and
10 add burdens to WIPP would I think be contrary to
11 the intent of the creation of WIPP and to the
12 underlying laws and regulations.

13 I think WIPP should simply be removed
14 from the scope of the EIS. Similarly, I think
15 Yucca Mountain should be removed from the scope of
16 EIS. Right now there is extension of licenses
17 going on.

18 The amount of waste that will be
19 generated under the projected batch of existing
20 nuclear reactors is clearly more than what 70
21 metric thousand - 70,000 metric tons allowed under
22 the present law. It's not even clear whether there
23 would be physically enough room for the spent fuel
24 plus the defense wastes from Hanford, Savannah
25 River site. The volume of defense high-level

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1 waste from Hanford and Savannah River site is
2 still unsettled, so I think Yucca Mountain is -
3 even the license application has not been made.

4 DOE got quite a harsh decision last
5 week from a judge in Nevada regarding its conduct
6 on various counts, especially in regard to water
7 at Yucca Mountain, but I think - I have read the
8 whole decision, and the indictment is quite broad,
9 and were I a responsible official in DOE, I would
10 be very unhappy.

11 One small thing that can be done is not
12 to add problems to DOE's Yucca Mountain. The
13 waste acceptance criteria are not settled. The
14 licensing criteria are not settled. The waste
15 characterization criteria are not settled. You've
16 got a lot of stuff that you call debris other GTCC
17 LLW and DOE GTCC-Like waste includes contaminated
18 equipment, debris, trash, scrap metal,
19 decontamination, decommissioning waste.

20 A lot of this may be plutonium scrap,
21 for instance; it's not clear that this could meet
22 waste acceptance criteria. It's not clear how it
23 would be packaged. It's not clear what kind of
24 tests would be done at Yucca Mountain. I think
25 DOE has enough - at least, in my opinion I have

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1 been on the record as being opposed to the Yucca
2 Mountain as not a suitable site, and many of you
3 may know that, but I think DOE has enough
4 licensing issues with Yucca Mountain that to add a
5 whole raft of burdens, so as a friendly
6 suggestion, I would advise DOE to exclude Yucca
7 Mountain from -

8 The matter of boreholes I think
9 clearly, you know, deep disposal does include the
10 borehole option. National Academy talked about in
11 relation to plutonium.

12 The difficulty with boreholes that I
13 think should be explicitly within the scope of
14 this EIS is that you have to have actual data
15 before you can calculate an environmental impact.
16 It would be very depressing if there were only a
17 theoretical environmental impact from boreholes
18 sited in humid and dry areas, something like that.

19 You could do that with shallow land
20 sites as we have done using various computer
21 programs, but I think boreholes are a rather -
22 deep boreholes especially, are a rather novel
23 waste disposal method with which there is very
24 little experience, and I think whatever DOE does
25 to calculate the environmental impact of

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1 boreholes, it should be explicit within the scope
2 that DOE is actually going to use geologic data
3 and information including whatever disturbance the
4 actual drilling of the borehole and backfilling of
5 the borehole would make in terms of --

6 So so much for the scope of things. I
7 think - you know, I understand the words in the
8 Notice of Intent recognizing that shallow land
9 burial is not normally allowed under 10 CFR 61.55
10 of greater-than-class C waste, and that some
11 special, engineered structures are being
12 considered, but in light of the fact that the
13 predominant materials that we're considering like
14 Nickel-63 and Niobium-94, which would constitute a
15 large part of the bulk of the radioactivity from
16 reactor internals in greater-than-class C waste.

17 I don't know the exact fraction, but I
18 imagine it would be significant. They have half-
19 lives, if I remember, in the tens of thousands of
20 years. Somewhere - one of them is 70-odd thousand
21 years.

22 So I think that whenever you're talking
23 about thousands or tens of thousands of years,
24 shallow land burial is, a priori, unacceptable.

25 I do not know any - you know, it's hard

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1 to say that you should rule it out of your scope,
2 but when you do examine its impact, I don't know
3 that you can appeal to any engineered burial
4 structures that won't get eaten up by animals or
5 degraded by the weather or affected by the kinds
6 of changes that we are seeing in climate.

7 I mean, this is a problem even with
8 deep geologic repositories that are recognized by
9 DOE at Yucca Mountain by Andra in France, A-N-D-R-
10 A, in France - at its site in Eastern France that
11 they've done an enormous amount of quite good work
12 on climate change and deep geologic repositories.

13 So I think, when we have so much
14 difficulty with deep geologic repositories I, you
15 know, I think that the amount of effort that it
16 would take to do even a modestly good job of
17 characterizing the long-term impacts of shallow
18 land burial - and you are obliged to conduct that
19 to the peak year.

20 That is not explicit in the Notice of
21 Intent, but I think any environmental impact
22 that's not to the peak year would be unacceptable
23 because 10 CFR 61 Part C, goes to the peak year.
24 There's no time limit in the low-level waste
25 regulations under the Nuclear Regulatory

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1 Commission as they stand.

2 A lot of people assume that there's a
3 time limit of 1,000 years and calculated for 1,000
4 years, but that is not a correct reading of the
5 rule and the record in the LES hearings before the
6 licensing board does show that there is no time
7 limit, and an artificial time limit of 1,000 years
8 would be unacceptable.

9 All right, one option that should be in
10 there that is not in there is hardened on-site
11 storage.

12 I did a little back of the envelope
13 calculation. The projected volume of waste is not
14 very large. It's about 300 55-gallon drums at 70
15 sites. We've got about on the order of 70 sites
16 that we're talking about 60-odd reactor sites and
17 some Department of Energy sites, and it's not - so
18 it's not a lot of waste that we're talking about.
19 Most of it is in the future. You've got sites at
20 which you have to store spent fuel for security
21 reasons. Many of us have advocated, and I'm sure
22 you've heard today from others that it should be
23 hardened on-site storage.

24 Let me make a constructive suggestion
25 about hardened on-site storage. I have seen

1 vitrified canister storage at Savannah River site.
2 I think that kind of storage for canisters can be
3 hardened quite easily. I think DOE did a good job
4 of that storage building and storage method in my
5 opinion, and you can build on that in terms of
6 creating hardened on-site storage, both for spent
7 fuel which I believe you should do anyway given
8 the decades for which spent fuel will have to be
9 stored on site and for other reasons.

10 I don't believe that this is a huge
11 addition to that, and I think hardened storage of
12 highly radioactive material like GTCC waste
13 alongside spent fuel, not in the same packages
14 obviously, should be an option that is thoroughly
15 examined, because I think it's a preferable
16 option.

17 I think a follow-on EIS, perhaps ten or
18 20 years from now, when the deep geologic
19 repository issues connected with high-level wastes
20 are more clear should be envisioned, and that
21 perhaps should also be, you know, an impact,
22 environmental impact, option of reconsidering this
23 issue doing hardened on-site storage and
24 reconsidering this issue in ten or 15 years would
25 be desirable because I think - there's no rush to

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1 do this. You've stored this on site, at DOE
2 sites, most of it is not waste. At non-DOE sites
3 though - let me see if I have anything left.

4 Oh yes, did I talk about concentration
5 averaging? I don't think I did. I don't like
6 concentration averaging. This is dilution, a
7 fancy term for dilution, as a solution to
8 pollution.

9 If you mix wastes of the same type that
10 are all greater-than-class C and the result is
11 still greater-than-class C, it's fine, but really
12 one can mix - one can buy steel on the scrap
13 market, I guess, and mix it with metal that's GTCC
14 and then saying the whole thing is Class B or
15 Class C, and the problem would go away.

16 I think a preferable option to reduce
17 the scope of the greater-than-class C problem in
18 on-site storage because you have a decay of, to
19 some extent, not of the Nickel-63 and Niobium-94,
20 but of some of the lesser, shorter-lived
21 materials, and in a 30 or 40-year period the
22 volume of greater-than-class C waste should
23 materially go down. I've not checked the numbers
24 recently, but I think that volume projection
25 should definitely be done as part of your on-site

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1 storage, hardened on-site storage option. Thanks.

2 MR. BROWN: Thanks very much. Okay,
3 anyone else like to add anything? Okay, again we
4 will recess and if anybody has anything to add,
5 please see me. Thanks.

6 (Whereupon the above-entitled matter
7 went off the record at 4:09 p.m. and resumed at
8 4:54 p.m.)

9 MR. BROWN: Okay. All set, all right.
10 I'm reconvening the meeting noting that it is five
11 o'clock and asking if any other member of the
12 public would like to add any further comments.
13 Noting that no member of the public wishes to add
14 any statements, this meeting is officially
15 concluded. Thanks very much.

16 (Whereupon the above-entitled matter was
17 concluded at 4:55 p.m.)

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