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NUCLEAR REGULATORY COMMISSION

Title: In the Matter of GE-Hitachi Global Laser Enrichment LLC

Docket Number: 70-7016-ML

ASLBP Number: 10-901-03-ML-BD01

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ATOMIC SAFETY AND LICENSING BOARD PANEL

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EVIDENTIARY HEARING

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In the Matter of: : Docket No.
 GE-Hitachi Global Laser : 70-7016-ML
 Enrichment LLC : ASLBP No.
 (GLE Commercial Facility) : 10-901-03-ML-BD01

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Thursday, July 12, 2012

Nuclear Regulatory Commission
 Hearing Room T-3B45
 11545 Rockville Pike
 Rockville, Maryland 20852

BEFORE:

PAUL S. RYERSON, Chairman
 JAMES F. JACKSON, Administrative Judge
 MICHAEL O. GARCIA, Administrative Judge

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(9:00 a.m.)

3 CHAIRMAN RYERSON: Good morning, everyone.

4 Just a reminder that this is a closed
5 hearing at which thus far we have had I believe Secret
6 Restricted Data. I think we are hopeful we will not
7 reach that today, but for the moment, subject to
8 further discussion, we should not have any cell phones
9 or electronic devices in the room. Are there any?

10 (No response.)

11 There should not be. Very good.

12 All right. When we finished last night,
13 there was some discussion of whether we wanted to
14 modify the rules that we used yesterday with respect
15 to who would be in the room at various times. And,
16 Mr. Silverman, shall I start with you? Have you and
17 the NRC staff discussed that?

18 MR. SILVERMAN: Yes. We have discussed
19 it, and we have also spoken with Ms. Jenny. And it
20 would be the Applicant's preference -- we have in the
21 room right now our witness -- our Panel 4 witnesses.
22 But we would prefer, if it's not objectionable to the
23 staff -- and Ms. Jenny I don't think has a problem
24 with it -- to have our witnesses for Panels 5 and 6
25 here, so they can observe the proceedings. And they

1 have been sitting down in, you know, the room down
2 below.

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3 So we would like to have them up for the
4 session, if the Board doesn't object and the staff
5 doesn't object. And, again, Ms. Jenny will be more
6 than willing to jump up if she thinks we are getting
7 close to an issue, which we think the risk is much
8 lower today.

9 CHAIRMAN RYERSON: Okay. Now, that would
10 be GLE witnesses for all topics would be in the
11 courtroom.

12 MR. SILVERMAN: Yes.

13 CHAIRMAN RYERSON: Now, the staff
14 witnesses on the various topics, I think we are going
15 to continue the process where the staff witnesses
16 follow the GLE witnesses. And it would be the Board's
17 preference -- and I'm willing to hear arguments to the
18 contrary, but it would be the Board's preference that
19 the staff witnesses not hear the GLE witnesses first.
20 Were you contemplating something different, Ms.
21 Safford?

22 MS. SAFFORD: No. But I think I am --
23 would our witnesses for the other topics also be
24 permitted to sit in the hearing room for Topics 5 and
25 6? I think that's where it gets a little confusing.

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CHAIRMAN RYERSON: Yes, yes.

2 MS. SAFFORD: If we change tack from where
3 we were yesterday, the --

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4 CHAIRMAN RYERSON: Well, some of your
5 witnesses are -- cover more than one topic, correct?

6 MS. SAFFORD: Correct. Right. But from
7 what I understand -- and, Don, correct me if I'm wrong
8 -- if what we are proposing is to have witnesses for
9 topics -- for all topics today sit in the hearing
10 room, except for those that are testifying on numerous
11 topics?

12 CHAIRMAN RYERSON: In other words, except
13 for those -- we have sort of two things going on at
14 the same time. One is we had, particularly yesterday,
15 a serious concern about security.

16 In addition, in most courts, although it
17 is not so often done here, it is common for a witness
18 who is about to testify on a particular issue not to
19 hear the testimony of the prior witness. Not that
20 people are going to fabricate their testimony
21 necessarily, but you often get kind of testimony that
22 is perhaps less slanted, if the witness has not heard
23 the previous testimony on the same topic.

24 So I guess what I'm -- and I would like to
25 discuss this briefly with the Board members, but what

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1 I am suggesting is that, since we are going to always
 2 have the staff's witnesses second, it is fine if the
 3 GLE witnesses are all in the conference room, because
 4 they can see the way we ask questions. That's fine
 5 and that's helpful to the witnesses. That's fine.

6 But on the staff side, your witnesses will
 7 be following the GLE witnesses. So the witnesses who
 8 will be on the same topic, I think it would be the
 9 Board's preference should not be in the courtroom,
 10 recognizing that some of your witnesses are on
 11 multiple topics.

12 MS. SAFFORD: Can we just have one moment
 13 to confer?

14 CHAIRMAN RYERSON: Certainly.

15 MS. SAFFORD: Thank you.

16 (Pause.)

17 I think, if I understand correctly, our
 18 witnesses will leave the room when GLE witnesses
 19 testify on Topic 4. And then, when our witnesses come
 20 in for Topic 4, GLE witnesses will be allowed to
 21 remain.

22 CHAIRMAN RYERSON: Correct.

23 MS. SAFFORD: Similar to yesterday, but
 24 also their witnesses for Topic 5 and Topic 6. And I'm
 25 not sure -- I'm not familiar with duplication. Do you

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1 have a number of people who are testifying on Topics
2 4, 5, and 6? Or is it just one or two people?

3 MR. MOLDENHAUER: Right. Julie Oliver is
4 testifying on Topics 4, 5, and 6. And we do have some
5 overlap in some of our environmental experts for Topic
6 5 --

7 MS. SAFFORD: Okay.

8 MR. MOLDENHAUER: -- and Topic 6.

9 MS. SAFFORD: So would we be consistent
10 with yesterday's practice? Would those witnesses who
11 are testifying on numerous topics today be required to
12 leave the room?

13 CHAIRMAN RYERSON: No, because the GLE's
14 witnesses, we have decided, will consistently testify
15 first. So there is really no reason to exclude them,
16 because they are not going to hear the staff testimony
17 first, because the staff testimony issue by issue will
18 be second.

19 So, basically, what the Board is
20 suggesting is that for today -- let me start with the
21 security aspects. The security aspects, we do not
22 have the public here. I will entrust counsel to
23 ensure that everyone who is here has a need to be
24 here. If there is a security issue, if we get into
25 discussion of the cascade area, any kind of technical

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1 aspects of that, GLE security expert, Ms. Jenny, will
2 stand up and wave her arms or do something to catch my
3 attention, and we will have a further discussion about
4 that.

5 But otherwise, I will rely on counsel to
6 ensure that, in their view, there is a need to know
7 with respect to matters that are below the level of
8 classified information. We have other categories of
9 non-public information, and to some extent there is a
10 need to know requirement on some of those.

11 But as far as the Board is concerned, it
12 is fine if counsel satisfies themselves that everyone
13 in the courtroom has a need to know. We do not have
14 to worry about classification levels, unless Ms. Jenny
15 tells us we do today. But -- so that is on the
16 security side.

17 On the management of witnesses, we have
18 decided we are going to go consistently with GLE
19 first, topic by topic. So GLE witnesses are in the
20 nicest position. They will not have to worry about
21 hearing the staff testimony on their topic, because
22 they will always be going first. So they can stay.

23 The staff witnesses who will be testifying
24 on a topic should not be in the courtroom when that
25 topic is being testified to by the GLE witness. Is

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that clear?

MS. SAFFORD: I think that helps. And then, so, therefore, when we have our NRC witnesses, for example, on Topic 4, we can have our NRC witnesses on 5 and 6 in the room to hear sort of how the proceeding is progressing.

CHAIRMAN RYERSON: That's fine.

MS. SAFFORD: Okay. But not in the room while our --

CHAIRMAN RYERSON: But not in the room as we begin Topic 4. We should exclude your -- your witnesses, for example, on Topic 4 appear to be Ms. Davis, Ms. Seymour, Mr. Diaz, and Mr. Johnson.

MS. SAFFORD: Yes.

CHAIRMAN RYERSON: And they -- so they should be excused while we hear the GLE --

MS. SAFFORD: Okay.

CHAIRMAN RYERSON: -- witnesses, and then we will bring them in.

MS. SAFFORD: Okay.

CHAIRMAN RYERSON: Okay? Any other --

MR. SILVERMAN: I was just thinking, Your Honor, as we have our Topic 4 witnesses come up, if we could take a five-minute break, so maybe a clerk can help bring our people up or down from the 8th floor,

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1 the people that --

2 CHAIRMAN RYERSON: Oh, oh, absolutely.

3 MR. SILVERMAN: It shouldn't take long, as
4 long as we can -- as long as we can get someone to get
5 them, we're fine.

6 CHAIRMAN RYERSON: Are there any other
7 administrative matters we should discuss before we
8 bring in the witnesses?

9 MR. SILVERMAN: Applicant does not have
10 any.

11 MS. SAFFORD: NRC staff doesn't have any.

12 CHAIRMAN RYERSON: Very good. We will
13 resume at 9:15.

14 (Whereupon, the proceedings in the
15 foregoing matter went off the record at 9:10 a.m. and
16 went back on the record at 9:20 a.m.)

17 CHAIRMAN RYERSON: All right. Well, we
18 are now proceeding to the testimony on Topic 4 from a
19 panel representing GLE. Ms. Oliver, welcome back. I
20 will just remind you you are already under oath.

21 MS. OLIVER: Thank you.

22 CHAIRMAN RYERSON: And is it Mr. Crate?
23 Am I pronouncing your name right?

24 MR. CRATE: That's correct.

25 CHAIRMAN RYERSON: Okay. Would you raise

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1 your right hand? Do you swear or affirm that
2 testimony you are about to give in this proceeding
3 will be the truth, the whole truth, and nothing but
4 the truth?

5 MR. CRATE: I do.

6 CHAIRMAN RYERSON: Thank you. And it is
7 my understanding that you are going to begin with a
8 presentation?

9 MS. OLIVER: Yes, sir. So our
10 presentation on Topic 4 is labeled Exhibit GLE 22, and
11 this morning we are going to be talking about GLE's
12 methods for tracking and implementing commitments that
13 we have made either to the NRC or to other regulatory
14 agencies.

15 So on Slide 2, just to give an overview, I
16 am going to discuss commitments and regulatory
17 requirements. I am going to describe our commitment
18 and tracking process all the way from when we make a
19 commitment to implementation. And then, Bob Crate is
20 going to discuss detecting and correcting non-
21 compliances as well as preparing for the NRC
22 operational readiness review.

23 On Slide 3, GLE has several agencies that
24 will be regulating them. These are local, state, and
25 federal agencies. We also have to comply with

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1 international laws.

2 The NRC has imposed certain license
3 conditions upon us. Some of those are imposed by
4 regulation, and some of them have been proposed by the
5 NRC staff and agreed to by GLE. In addition to
6 license commitments throughout the license application
7 as well as the safety documentation, GLE has made
8 several commitments.

9 GLE defines a commitment as a promise to
10 perform an action that may be tied to a regulatory
11 requirement. There are two types of commitments that
12 GLE has made -- mandatory and voluntary.

13 On Slide 4, mandatory commitments are
14 categorized as those commitments which are required by
15 a regulatory agency. Voluntary commitments are
16 selective actions which go above and beyond the
17 regulations. For environmental protection, there are
18 also mitigation measures, which are subsets of
19 commitments, and these are made to minimize impacts on
20 the environment from the construction, operation, and
21 decommissioning of the GLE commercial facility.

22 On Slide 5, this ties in with my testimony
23 yesterday. If GLE needs to make changes to
24 commitments, there are certain cases where NRC
25 approval is required before GLE can do that. And

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those criteria, as I described yesterday, are found in
2 10 CFR 70.72 or the license application Section
3 1.2.5.5.

4 In general, NRC approval is required
5 before making changes that would decrease the
6 effectiveness of commitments, that would conflict with
7 the license condition, or that require prior approval
8 under 70.72.

9 And as I stated yesterday, if NRC approval
10 is required, GLE will submit a license amendment
11 request. If NRC approval is not required, GLE will
12 submit a summary of the changes, either on an annual
13 basis or every three months, depending on the criteria
14 with which GLE was able to make that change.

15 On Slide 6, the way that GLE has chosen to
16 track commitments through implementation is through
17 the use of what we have termed "compliance
18 checklists." These checklists are essentially maps,
19 which take a commitment and map it to an implementing
20 procedure. That way, GLE is ensured that there is,
21 one, a way to comply with the commitment, as well as a
22 way to track it.

23 The checklist also details the actions and
24 the responsible individuals. This is then going to be
25 tied into an electronic calendar system, which will

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1 have automated reminders prior to when the commitment
2 is due.

3 GLE is in the process of finalizing these
4 checklists, and it includes license conditions,
5 industry codes and standards, and other types of
6 commitments that we made throughout the licensing
7 process. These compliance checklists will be made
8 available for NRC review upon request or during an
9 onsite visit.

10 On Slide 7, as you know, there is often
11 changes to regulatory requirements as well as
12 regulatory guidance. So GLE has adopted procedures
13 for reviewing, tracking, and implementing new or
14 modified regulatory guidance and requirements.

15 As far as implementing the voluntary
16 commitments which GLE has made in the license
17 application, as you know from my testimony, GLE will
18 determine the feasibility of implementing these
19 voluntary commitments according to the five identified
20 factors. Whether the voluntary commitments are
21 feasible or not to implement, GLE will note the
22 decision, the justification for why or why it is not
23 feasible in the compliance checklist.

24 MR. CRATE: Continuing on Slide 8,
25 detecting and correcting non-compliances, the primary

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1 tool that we use for that is our corrective action
 2 program. It captures a broad range of issues
 3 including improper implementation of commitments and
 4 non-compliances. And the overall goal is to improve
 5 quality and performance using that process.

6 We also have a self-assessment program.
 7 It is a primary method for proactively identifying
 8 non-compliances for inclusion in the corrective action
 9 program. GLE will conduct periodic assessments and
 10 audits of various programs and functions to ensure
 11 that it will remain compliant.

12 On Slide 9, detecting and correcting non-
 13 compliances, the handling of non-compliances,
 14 potential non-compliances, will be evaluated in
 15 accordance with the reporting procedures. For those
 16 things that need to be reported to regulatory
 17 agencies, we have a procedure for that.

18 We will initiate corrective action
 19 requests in the corrective action program as part of
 20 that evaluation. And in addition, we also will
 21 conduct incident investigations to assess the validity
 22 of data, implement corrective actions, and ensure
 23 regulatory agencies are notified as appropriate.

24 On Slide 10, preparation for the NRC
 25 operational readiness review, GLE understands that the

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1 NRC will perform an operational readiness review prior
2 to beginning operations. GLE will perform internal
3 readiness reviews. They will be conducted well before
4 the operational readiness review. We will use multi-
5 disciplinary teams to conduct those reviews, and we
6 will use NRC inspection manual and other guidance
7 documents as we prepare for the operational readiness
8 review.

9 And that concludes our presentation.

10 CHAIRMAN RYERSON: Thank you, Mr. Crate,
11 and thank you, Ms. Oliver.

12 The Board will begin its questions with
13 Judge Garcia.

14 ADMIN. JUDGE GARCIA: Good morning. I
15 would like to focus in on mitigation measures, if we
16 may.

17 MS. OLIVER: Certainly.

18 ADMIN. JUDGE GARCIA: And first I would
19 like to start off with the issue of changing of the
20 sequence of events. And, particularly, I think it was
21 assumed at the time that the final EIS was written
22 that there would be certain pre-construction
23 activities already completed. Have any of those
24 activities gone on?

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25 MS. OLIVER: They have not.

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1 ADMIN. JUDGE GARCIA: They have not.

2 Thank you. So in light of that, is there any change
3 in the list of mitigation measures that you have
4 anticipating to implement?

5 MS. OLIVER: There is not any change to
6 those. When we do move into construction, which now,
7 you know, pre-construction is lumped in with our
8 construction, so now when we go forward into the
9 construction phase we will perform all of the
10 mitigation measures that we have committed to in the
11 license application, the ER, as well as listed in the
12 FEIS.

13 ADMIN. JUDGE GARCIA: Okay. In your oral
14 testimony, you had mentioned five different factors
15 that may influence whether or not you implement any
16 voluntary measure. You did not show the Board what
17 those factors were in the oral testimony, and I wonder
18 if we could go to the written testimony. Can you
19 remind me what the GLE number is for that document?

20 MS. OLIVER: Yes, Your Honor. It is
21 question 19, page 14 of the testimony, which is
22 Exhibit GLE 21.

23 ADMIN. JUDGE GARCIA: Thank you. It's
24 page 14. Oh, that's not the right document.

25 MS. OLIVER: Page 14. Excuse me, it's

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1 page 13.

2 ADMIN. JUDGE GARCIA: Oh.

3 MS. OLIVER: There we go.

4 ADMIN. JUDGE GARCIA: That's it. Right.

5 So in looking at these five factors, I wonder if you
6 could help the Board understand how they will be
7 evaluated. I found what is stated here to not be very
8 helpful -- for instance, the availability of
9 mitigation measure such as low sulfur fuel oil versus
10 ultra low. How will you determine what it would be?

11 MS. OLIVER: For that particular factor,
12 what we meant was we will -- you know, essentially we
13 have committed to doing these things. Obviously, we
14 call them voluntary commitments, but there may become
15 situations where it is just not feasible to do that.
16 And so we listed these five factors.

17 So the second factor which discusses
18 availability of the mitigation measure is just that.
19 We are going to implement it, unless there is a reason
20 why the mitigation measure is not available. So one
21 of those was we committed to low sulfur fuel oil -- or
22 I will have to doublecheck whether it was low sulfur
23 or ultra low sulfur diesel fuel. We will do that as
24 long as the fuel type that we want to use is
25 available. If it's not available, we will have to use

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1 another fuel type, and then we will document it on our
2 compliance checklist.

3 ADMIN. JUDGE GARCIA: Very good. When I
4 first read this, I was concerned that these were
5 potential reasons to avoid doing what you had said you
6 would do. So unless there is a good reason, you will
7 follow your --

8 MS. OLIVER: Yes. And if I may, the way
9 we determined these mitigation measures was largely
10 based on our experience, because we do have these type
11 of programs available today at the Wilmington site,
12 which is where we are going to place this facility.
13 And that's how we came up with the mitigation list,
14 right, from our experiences that we have had onsite.

15 But it -- you know, we did -- it did come
16 to our attention that, you know, we can commit to a
17 lot of things, but there may be cases when we are just
18 not able to implement those commitments. So to answer
19 your question, yes, we do intend to go through all of
20 these mitigation measures unless one of these factors
21 prevents us from doing so.

22 ADMIN. JUDGE GARCIA: Very good. In the
23 FEIS, the NRC staff had made suggestions of potential
24 mitigation measures in Table 5.2.

25 MS. OLIVER: Yes, sir.

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1 ADMIN. JUDGE GARCIA: And I wondered if --
2 which, if any, of those that GLE will --

3 MS. OLIVER: If I could just refer to my
4 testimony for question number 5, we do have tables of
5 mitigations in question number 5, because this topic
6 comes up again later. And it is the same process, so
7 the mitigation measures that the NRC has recommended
8 on top of the mitigation measures that GLE has
9 voluntarily committed to is the same procedure. We
10 will perform those mitigation measures unless some
11 reason comes up that we cannot perform them.

12 ADMIN. JUDGE GARCIA: Very good. Thank
13 you. Next, I would like to ask you about how you will
14 track these voluntary mitigation measures.

15 MS. OLIVER: Sure. We have the compliance
16 checklist that we are preparing. So what we are doing
17 is we have taken our licensing documentation, and we
18 have pulled line by line for each of those documents
19 into -- right now it is in a spreadsheet, but that
20 spreadsheet eventually is going to be loaded into a
21 database, which is common amongst GE facilities.

22 And what that database allows us to do, it
23 allows us to take a line item -- so, for example, if
24 we said we were going to -- I'm just pulling an
25 example. If we said we are going to put bluebird

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1 boxes around the site, and that is a line item, it is
2 going to be tied to an implementing procedure. And
3 then eventually that database will be tied to an
4 electronic calendar, and we will determine the
5 periodicity that we have to go back and revise that
6 commitment.

7 ADMIN. JUDGE GARCIA: Okay. Very good.
8 Lastly, I wanted to ask if you are going to make these
9 lists public.

10 MS. OLIVER: We don't intend to make them
11 public, because there could be cases where there is
12 proprietary or sensitive information, particularly
13 when it comes to safety systems or security systems.
14 So we will keep them as either proprietary or
15 security-related, whichever category they fall into.
16 We will, however, make them available to the NRC, and
17 to our other regulators as well.

18 ADMIN. JUDGE GARCIA: Okay. Thank you.

19 CHAIRMAN RYERSON: Judge Jackson?

20 ADMIN. JUDGE JACKSON: Good morning.

21 MS. OLIVER: Good morning.

22 ADMIN. JUDGE JACKSON: In your fifth
23 chart, one of the bullets is also covered in your pre-
24 filed testimony on page 7. And it basically talks
25 about that GLE is required to obtain NRC approval

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1 before making any changes to the license application
2 that would decrease the effectiveness of its
3 commitments.

4 My question relates to how that decision
5 is made. It seems like an important decision. Do you
6 have a formal process, who makes these decisions, what
7 is the management review, and so on.

8 MS. OLIVER: Okay. It is a formal
9 process. So what we will have is we will have
10 individuals who are specifically trained in making
11 conservative decisions as well as trained in what is
12 available in the license application information and
13 in the license application. And then that person
14 will, when there is a change, the change will go
15 through our change request process, which we discussed
16 yesterday.

17 So when we have a change to make to our
18 license application, the first thing we do is put it
19 into our electronic workflow system as a change
20 request.

21 The first thing that happens with that
22 change request is we have that person, that license
23 application reviewer, review the request against the
24 procedure, the formal procedure for determining
25 whether or not a decrease in effectiveness has

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1 So it is -- the change request process is a
2 combination of making sure that we know when we need
3 to go to the NRC for an amendment application as well
4 as making sure that our documents are up to date with
5 any of the changes are our engineering team would
6 have, or any other team. It could -- it doesn't have
7 to be engineering.

8 ADMIN. JUDGE JACKSON: All right. Thank
9 you.

10 CHAIRMAN RYERSON: Ms. Oliver, let me try
11 to summarize, if I can, my understanding of your
12 testimony. There are perhaps three types of
13 commitments that GLE makes or has. One is commitments
14 -- binding commitments to the NRC in the form of
15 license conditions or compliance with regulations.

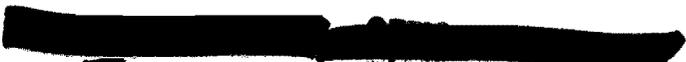
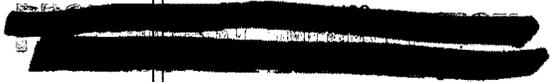
16 The second would be binding commitments to
17 other state, federal, or local regulatory agencies
18 that are mandatory, that are required. And then, the
19 third is so-called voluntary commitments, which would
20 include such things as statements in the GLE
21 environmental report in mitigation -- of actions that
22 you contemplate taking in mitigation of environmental
23 consequences, and so forth. But they are voluntary;
24 they are not enforceable under NEPA.

25 If I understand GLE's position, you are

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1 monitoring all three types, including the voluntary
2 type with your checklist.

3 MS. OLIVER: That's correct.

4 CHAIRMAN RYERSON: All right. And I think
5 you stated that you would make available the
6 monitoring list to the NRC. Do you report on those to
7 the NRC, or they simply are allowed access to your
8 files?

9 MS. OLIVER: There is no requirement to
10 report to the NRC on those, so we would just make them
11 available should the NRC request it, either in writing
12 or when they were onsite for an inspection or an
13 onsite visit.

14 CHAIRMAN RYERSON: Thank you. And it
15 would be helpful I think to the Board if you could
16 comment perhaps on some of the reasons that GLE would
17 have for complying with voluntary commitments. In
18 other words, are there public relations aspects? Are
19 there other aspects of -- other reasons why, even
20 though not legally binding perhaps, GLE would wish to
21 comply with promises it has made to a federal
22 regulatory agency.

23 MS. OLIVER: I would like to comment on
24 that. There are several reasons that it behooves GLE
25 to comply with those voluntary commitments. You know,

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1 one area is typically those commitments are good for
2 our business. Just in general, you know, what we have
3 committed to is going to be healthy for the business.
4 But some of those factors that you mentioned, there
5 are some public relation aspects to being good
6 stewards to the environment, as well as, you know,
7 it's our site, it's our community, and we want to be
8 good stewards of the environment as well.

9 And I would just like to add to that --
10 reemphasize that when we made that list of commitments
11 for the most part it was things that we do currently
12 on the site.

13 CHAIRMAN RYERSON: Thank you. Judge
14 Garcia, any further questions?

15 ADMIN. JUDGE GARCIA: No, thank you.

16 CHAIRMAN RYERSON: Judge Jackson?

17 ADMIN. JUDGE JACKSON: No questions.

18 CHAIRMAN RYERSON: Thank you for your
19 testimony, Mr. Crate, Ms. Oliver. And, Ms. Oliver, we
20 will be hearing from you on more matters.

21 MS. OLIVER: Yes.

22 CHAIRMAN RYERSON: Mr. Crate, I believe
23 you are free to go or stay, as you or your counsel
24 wish. Thank you very much.

25 MR. CRATE: Thank you.

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[REDACTED]

[REDACTED]

1 (Whereupon, the witnesses were excused.)

2 CHAIRMAN RYERSON: I guess we are now
3 ready for the staff witnesses on Topic 4. And shall
4 we take a brief break?

5 MS. SAFFORD: Yes. It will just take us a
6 minute to go get everyone.

7 CHAIRMAN RYERSON: Why don't we plan to
8 begin at ten of 10:00.

9 MS. SAFFORD: Great. Thank you.

10 CHAIRMAN RYERSON: Thank you.

11 (Whereupon, the proceedings in the
12 foregoing matter went off the record at 9:44 a.m. and
13 went back on the record at 9:50 a.m.)

14 CHAIRMAN RYERSON: We are back in the
15 hearing on Topic 4 with the staff witnesses.

16 Mr. Johnson, you previously have been
17 sworn. And we also have Ms. Davis, Ms. Seymour, Mr.
18 Diaz. If you would raise your right hands, please?
19 Do you swear or affirm that the testimony you are
20 about to give in this proceeding will be the truth,
21 the whole truth, and nothing but the truth?

22 ALL: I do.

23 CHAIRMAN RYERSON: Thank you. And once
24 again, my understanding is that you intend to begin
25 with a presentation. Is that correct? Please

1 proceed.

2 MS. DAVIS: Thank you. Next slide,
3 please.

4 Good morning. My name is Jennifer Davis,
5 and I am the project manager for the environmental
6 review of the FEIS review of GLE's application for the
7 proposed GLE facility. The purpose --

8 CHAIRMAN RYERSON: If I just may
9 interrupt, have we identified this by exhibit number?
10 Oh, it's 114? NRC 114?

11 MS. DAVIS: NRC 114.

12 CHAIRMAN RYERSON: Okay. Thank you. I'm
13 sorry to interrupt. Continue.

14 MS. DAVIS: No problem. I can start over,
15 if you'd prefer.

16 The purpose of our testimony today is to
17 discuss the license conditions, mandatory mitigation
18 measures, and commitments made by GLE that play a
19 significant role in meeting the safety and
20 environmental requirements applicable to the proposed
21 GLE facility, as well as the tracking and
22 implementation of these license conditions, mandatory
23 mitigation measures, and commitments.

24 My presentation today will describe the
25 environmental license conditions, mandatory mitigation

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1 measures and commitments, and how these conditions,
2 mandatory mitigation measures and commitments will be
3 tracked and implemented.

4 Mr. Johnson of the Office of Nuclear
5 Material Safety and Safeguards will discuss the
6 safety-related license conditions and commitments.
7 Ms. Deborah Seymour and Mr. Jose Diaz of Region II
8 office will discuss how safety-related license
9 conditions and commitments will be tracked and
10 implemented by NRC staff.

11 Next slide, please.

12 First, I would like to briefly go over
13 some terminology. Commitments are statements in a
14 licensing document where an applicant promises to take
15 certain actions. For instance, an applicant might
16 state in its environmental report that it will perform
17 a specific mitigation measure. The NRC staff would
18 consider such a statement to be a commitment by the
19 license applicant. Unlike regulations and orders,
20 commitments, in and of themselves, are not legally
21 binding.

22 A commitment becomes legally binding only
23 if the licensing document in which the commitment is
24 stated is tied down in the license. Once a licensing
25 document is tied down in a license, any commitments

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1 made in that document become mandatory.

2 License conditions are supplemental
3 provisions that are added to an NRC license based on
4 one of three reasons: one, if the provision is
5 necessary to ensure that an applicant complies with
6 the NRC's governing statute, NRC regulations, or other
7 NRC requirements, including statutes that are
8 applicable to the NRC; two, if the provision
9 memorializes an NRC staff approval of an exemption;
10 or, three, if an applicant agrees to be bound by the
11 provision.

12 Once a provision is included in a license
13 issued by the NRC, it becomes mandatory and binding on
14 the licensee.

15 Mandatory mitigation measures include
16 measures that are required to meet NRC regulations or
17 to comply with other regulations or statutes or are
18 required by other federal, state, or local permitting
19 agencies.

20 Next slide, please.

21 Two license conditions were identified
22 during the NRC staff's environmental review. As
23 stated in the FEIS, facility operations and
24 maintenance activities at the proposed GLE facility
25 have the potential to affect historic and cultural

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1 resources, because the proposed facility would be
2 located in close proximity to these resources.

3 NRC staff, through consultation with GLE
4 and the North Carolina State Historic Preservation
5 Office, herein referred to as SHPO, developed the
6 proposed license condition. GLE has voluntarily
7 agreed to add this condition to its license if it is
8 issued.

9 This license condition is intended to
10 ensure the NRC's compliance with Section 106 of the
11 National Historic Preservation Act. This proposed
12 license condition would be triggered in two
13 circumstances -- if there is an unanticipated
14 discovery of historic and cultural resources during
15 facility operations or maintenance activities; or,
16 two, if the applicant seeks to engage in any GLE
17 developmental activity that was not previously
18 assessed by NRC staff in the final environmental
19 impact statement and would physically disrupt or
20 disturb the inventoried historic property that has
21 been designated eligible for listing on the National
22 Register of Historic Places.

23 Once the proposed license condition is
24 triggered, GLE would notify the NRC and consult with
25 the North Carolina SHPO to develop mitigation measures

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1 to resolve any effects on those resources.

2 GLE is also required by the proposed
3 license condition to report on the status of any
4 activities that would affect cultural resources in its
5 annual environmental monitoring report. There would
6 be no formal audit or inspection activity associated
7 with this license condition. The NRC staff would rely
8 on GLE to notify the NRC when this condition is
9 triggered or when GLE contacts the North Carolina SHPO
10 to initiate consultation.

11 If an NRC license is issued to an
12 applicant for the proposed facility, the license would
13 also include a condition that would require an
14 applicant -- the applicant -- to comply with the
15 conditions contained in its 401 water quality
16 certification. This license condition is required by
17 Section 401(d) of the Clean Water Act, which states
18 that any certification provided under this section
19 shall become a condition of any federal license or
20 permit, subject to the provisions of this section.

21 GLE received its 401 water quality
22 certification in May of this year, which was issued by
23 the North Carolina Department of Environment and
24 Natural Resources Division of Water Quality. This 401
25 water quality certification identifies specific

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1 measures that GLE shall employ to avoid impacts to
2 waterways and wetlands, to the extent practicable.

3 Compliance with this 401 water quality
4 certification will rely on self-monitoring by GLE as
5 well as on complaints received to -- excuse me,
6 complaints reported by other persons to the North
7 Carolina Division of Water Quality.

8 GLE is required to notify the North
9 Carolina Division of Water Quality if GLE identifies
10 any violations of its certification. GLE is also
11 required to concurrently notify the NRC. Per 10 CFR
12 Part 70 Appendix A, any state-identified violation or
13 non-compliance issue with regard to its 401 water
14 quality certification would also be a violation of the
15 NRC license and would be evaluated by NRC staff for
16 appropriate action in accordance with NRC's
17 enforcement program.

18 Next slide, please.

19 As stated previously, mandatory mitigation
20 measures associated with the proposed GLE facility
21 includes those mitigation measures that are required
22 to meet NRC regulations or to comply with other
23 regulations or statutes and that are required by
24 either federal, state, or local permitting agencies.

25 The NRC staff will inspect and monitor

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1 implementation of mandatory mitigation measures that
2 are required to meet 10 CFR Parts 20, 30, 40, and 70.
3 NRC Region II staff is responsible for tracking
4 implementation of these mandatory mitigation measures,
5 as well as for oversight and tracking of the
6 construction and operations of the facility.

7 Mitigation measures that are required to
8 comply with other regulations and statutes are also
9 mandatory. For instance, mitigation measures proposed
10 by GLE that are based on GLE's site nuclear safety
11 program and industrial program to meet applicable
12 state, NRC, and Occupational Safety and Health
13 Administration requirements are also considered
14 mandatory.

15 Mandatory mitigation measures that are
16 required in construction and operating permits that
17 are issued by other federal, state, and local
18 permitting agencies would also be considered mandatory
19 and would be tracked by the agency that issued that
20 particular permit.

21 In addition, there could be mandatory
22 mitigation measures that are not discussed in
23 Chapter 5 of the FEIS that are required to comply with
24 other applicable statutory and regulatory
25 requirements. A listing of these requirements is

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1 provided in Section 1.5 of the FEIS. The agencies
2 that are responsible for these requirements will be
3 responsible for ensuring that any mitigation measures
4 required by these requirements are implemented and
5 tracked.

6 For example, GLE may be subject to further
7 requirements under the Endangered Species Act and the
8 Migratory Bird Treaty Act regulated by the U.S. Fish
9 and Wildlife Service. The applicability of this Act
10 to GLE would primarily relate to the possible
11 destruction of nests associated with GLE's pre-
12 construction and construction activities.

13 The applicant would need to consult with
14 the U.S. Fish and Wildlife Service regarding
15 compliance with the Act.

16 The staff is aware of one outstanding
17 permit that GLE needs to obtain before NRC can issue
18 the license -- a license. The Coastal Zone Management
19 Act was enacted to encourage and assist states and
20 territories in developing management programs that
21 preserve, protect, and develop, where possible,
22 restore the resources of the coastal zone. This
23 statute is implemented by the North Carolina
24 Department of Environment and Natural Resources,
25 Division of Coastal Management, through the state's

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1 Coastal Area Management Act.

2 The consistency determination required by

3 these statutes must be conducted prior to the issuance

4 of a federal permit or license. GLE submitted its

5 consistency certification to the North Carolina

6 Division of Coastal Management in June of this year,

7 and on July 2nd the state confirmed receipt of GLE

8 certification and announced that it had been

9 distributed to state agencies for review and comment.

10 Concurrent with the state's review, there

11 is also a public review period, which closes on

12 July 20th of this year. During the state's review,

13 the state could ask for additional information.

14 In its letter dated July 2nd, the state

15 noted that it intends to make a decision regarding

16 whether the proposed facility would be consistent with

17 the state program soon after the concurrence -- soon

18 after the public comment period ends and they receive

19 comments back from other state agencies. By law, the

20 state has until December 28th of this year to either

21 concur or object to the consistency certification.

22 This consistency determination must be

23 conducted prior to obtaining the federal license or

24 permit. Thus, this determination must be obtained

25 prior to the issuance of an NRC license.

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1 Next slide, please. [REDACTED]

2 The NRC staff considered all of GLE's
3 proposed mitigation measures that are not mandatory to
4 be commitments. As discussed previously, commitments,
5 in and of themselves, are not legally binding, unless
6 the licensing document that contains the commitment
7 becomes incorporated in an NRC by tiedown references.

8 If GLE implements only mandatory
9 mitigation measures, NRC staff determined that this
10 would be protective of public health and safety and
11 the environment, so none of the voluntary measures are
12 considered important commitments.

13 In other words, if GLE implemented some of
14 the voluntary mitigation measures, impacts in some
15 resource areas could be lower than if GLE implemented
16 only the mandatory mitigation measures. But
17 implementation of these voluntary measures is not
18 required to protect public health and safety.

19 The applicant's environmental report would
20 not be incorporate in an NRC license, if one is issued
21 to GLE. As stated previously, the NRC can impose a
22 license condition only if the potential license
23 condition is necessary to ensure that the applicant
24 complies with the NRC's governing statute, NRC
25 regulations, or other NRC requirements, if the

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1 condition memorialized the NRC staff's approval of the
2 exemption, or if the applicant agrees to be bound by
3 the provision.

4 The NRC staff does not have the authority
5 to require the applicant to comply with all of its
6 statements in the environmental report, because many
7 of these statements fall outside of the NRC's
8 regulatory authority. Also, the applicant did not
9 agree to be bound by the entire environmental report.

10 Commitments made by GLE in its ER that
11 fall within the NRC's jurisdiction -- and were also
12 included in the radiation protection and environmental
13 protection chapters of the GLE license application --
14 these AEA-related commitments would, thus, be included
15 in the license condition that ties down the license
16 application and would become mandatory and enforceable
17 by the NRC.

18 Consequently, the NRC staff would not
19 ensure that commitments in the ER, i.e. voluntary
20 mitigation measures, are tracked or implemented.

21 If GLE implements only mitigation measures
22 that are mandated by applicable regulations, laws, and
23 permits, the impacts in some resource areas could be
24 incrementally higher than estimated in the FEIS, but
25 the staff's overall impact conclusions would not

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2 This concludes my portion of Topic 4.

3 CHAIRMAN RYERSON: Thank you.

4 MR. JOHNSON: My name is Tim Johnson. I
5 am the NRC licensing project manager for the GLE
6 facility. And the topic of my discussion is the
7 safety-related license conditions.

8 Jennifer just went through the commitments
9 and license conditions related to the environmental
10 side, and my discussion will be related to the safety
11 side.

12 And for our safety requirements, we
13 institute license conditions which make commitments
14 made in the application mandatory and enforceable.
15 And these license conditions generally fall into two
16 categories. One are standard conditions that we use
17 for all materials, licenses, and standard conditions
18 that we have used previously for enrichment
19 facilities. The other license conditions are
20 facility-specific, and we have specifically discussed
21 those in the SER, in the various sections, and we also
22 have a summary of those license conditions in a table
23 that is presented in the pre-filed testimony.

24 What I'd like to do next is to go through
25 each of the safety-related license conditions and kind

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1 of summarize what the purpose of each one of these
2 conditions are. The first one is authorized place of
3 use, and this is a standard license condition that we
4 use that defines the location of a proposed facility.

5 The second one is what we refer to as a
6 tie-down license condition. And I will talk about
7 that in more detail later in the presentation, but
8 basically this is a license condition that lists the
9 licensing basis documents that we feel are important
10 to take those commitments and make those mandatory and
11 enforceable.

12 The next license condition relates to
13 expiration of the license, and this is a standard
14 license condition that sets out the expiration date
15 specifically for this facility. For GLE, they
16 proposed a 40-year license term, which we are -- we
17 will put in -- specifically into the license.

18 The next license condition relates to a
19 condition that we use for other enrichment plants, and
20 this provides for a minimum 60-day notice to NRC of
21 the licensee's planned start of operations. This
22 would enable us to make sure that all of the
23 construction inspections are completed in accordance
24 with the regulatory requirement for us to do a
25 construction inspection prior to authorizing

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1 operations. And I talked a little about that
2 yesterday.

3 The next license condition is a facility-
4 specific license condition, and it relates to the
5 tails cylinder storage capacity. GLE proposed a
6 storage pad for only about 10 years of production of
7 depleted uranium tails from the operations of the
8 facility. Because the facility is going to be
9 operating for 40 years, we wanted to make a limitation
10 on their operation, so that they understood that they
11 would need to either expand that storage capacity, if
12 they were not able to, or they chose not to
13 disposition those tails after the 10-year period.

14 Can I have the next slide?

15 The next license condition relates to
16 availability of funding for the facility. During the
17 license application phase, GLE did not provide all of
18 the detail necessary for us to ensure that the funding
19 would be provided for construction and operations.
20 And they have agreed to provide additional detail
21 before they begin construction of any particular phase
22 of their construction.

23 The next license condition relates to
24 liability insurance. And under the regulations, in
25 order to issue a license, GLE has got to show proof

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1 that they have liability insurance. Right now,
2 because they have an operating fuel fabrication
3 facility at that site, they have a \$200 million
4 liability insurance policy with American Nuclear
5 Insurers that covers the entire site.

6 But what that policy doesn't do is it
7 doesn't specifically include the operations of the
8 enrichment facility. So while there is proof of
9 liability insurance enough to issue the license, we
10 are going to require them to have that liability
11 insurance policy amended to specifically include the
12 operations of the enrichment facility prior to their
13 receipt of license material.

14 This is a similar condition that we have
15 put in place for the other enrichment facilities.

16 The next license condition is a notice
17 that GLE plans to produce for shipment greater than
18 five weight percent assay material. Currently, the
19 industry needs are oriented toward fuels that are less
20 than five weight percent, and the current shipping
21 containers that are commonly used are limited to five
22 weight percent. And the primary shipment for product
23 is a two and a half ton cylinder.

24 And if GE was to produce greater than five
25 weight percent for some future need and there has

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1 been discussion in the industry of going to higher
2 assays for -- related to higher burnup fuels, and so
3 on -- so there may be a future possibility of fuels
4 that require greater than five weight percent. But in
5 this case, we want to be -- we are concerned that an
6 appropriate certified cylinder would be used for
7 shipping of that product.

8 And the next largest size shipping
9 container for greater than five weight percent is a
10 container that is capacity limited to 250 pounds, and
11 that is certified to 10 weight percent. But because
12 of the practicality of using something of a very
13 limited shipping capacity, we expect that in the
14 future there will probably be some effort made to
15 certify new containers that have higher capacity.

16 So as a practicality situation, we expect
17 that larger capacity cylinders would be used in the
18 future. But before they make shipments, we want to
19 make sure that the appropriate shipping containers are
20 available for them, and that they use ones that are
21 appropriately certified.

22 The next license condition is an
23 authorization related to release of -- to unrestricted
24 use of equipment and facilities. And this is a
25 standard authorization that we grant to allow a

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1 licensee to do surveys to specific limits that are
 2 provided in a branch technical position that was
 3 issued in the 1970s and is still in use today. And
 4 this allows equipment to be decontaminated and
 5 surveyed for unrestricted use.

6 The next license condition relates to a
 7 change process authorization for the license
 8 application. And we talked a little about that
 9 yesterday. We have a change process built into the
 10 regulations in 10 CFR 70.72 for changes to the ISA
 11 summary. But there is not an equivalent requirement
 12 for changes to the license application.

13 So changes -- say, for example, the
 14 license application discusses organization, and GE
 15 decides they want to shuffle around their organization
 16 in a way that doesn't relate in any change in their
 17 overall commitments, just a reordering of which
 18 organization reports to who, well, that really doesn't
 19 have a safety significance. But without this
 20 authorization, they would have to come in for a
 21 license amendment to get that done.

22 So what this authorization does is it
 23 allows them to make certain changes that do not result
 24 in a decrease in effectiveness of commitments without
 25 prior approval. And if changes that they propose to

1 make do exceed that level, it would require the
2 submittal of a license amendment.

3 May I have the next page?

4 The next license condition relates to an
5 exemption from the use of using the internal exposure
6 dose coefficients in 10 CFR 20. When 10 CFR 20 was
7 promulgated, the internal dose coefficients were based
8 on two International Commission for Radiation
9 Protection documents, Numbers 26 and 30. But
10 subsequent to that, the ICRP updated their
11 calculational methods for internal dose coefficients
12 in ICRP Report 68.

13 And in this exemption, GLE is requesting
14 approval to use those updated internal dose
15 coefficient methods in ICRP 68. This is something
16 that was evaluated previously by the NRC staff and by
17 the Commission in a 1999 SECY paper, and the
18 Commission authorized its use, if requested by an
19 applicant or a licensee.

20 So in this case, we are granting the
21 exemption for GLE to use an updated method for
22 determining internal doses.

23 The next exemption relates to the labeling
24 requirements. And in 10 CFR 20.1904, there was a
25 requirement that any container that contains

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1 radioactive material must be specifically labeled to
2 identify that container as having radioactive
3 material.

4 What GLE is requesting is an exemption to
5 that to provide that for certain radiological control
6 areas, to use a general sign that would say that every
7 container in this area may contain radioactive
8 material, which would allow them to treat everything
9 in that storage area to be radioactive, but without
10 having to -- necessarily to administratively label
11 every container.

12 But once the container leaves that area,
13 it would have to be labeled properly under the
14 regulations to specifically identify that container as
15 containing radioactive material.

16 The next license condition relates to
17 decommissioning financial assurance. And in this
18 exemption we are allowing GLE to provide
19 decommissioning funding for its depleted uranium tails
20 on an annual forward-based assessment, rather than
21 providing financial assurance for the entire 40-year
22 generation of tails up front at the time of licensing.

23 So under this exemption, GLE would always
24 have sufficient money set aside in an acceptable
25 financial instrument to cover the depleted uranium

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1 that it generates over the course of a forward-looking
2 period.

3 The next one relates to definitions in
4 10 CFR 21.3. And this is a set of definitions that
5 relate to commercial grade dedication, and it
6 basically incorporates, as an exemption, the
7 regulatory requirements that specifically apply now to
8 reactor facilities.

9 When this regulation was put in place, it
10 was put in place only for reactor facilities but did
11 not include materials facilities and fuel cycle
12 facilities. So by the use of this -- these
13 definitions, it will enable GLE to use the commercial
14 grade identification process for its safety-related
15 items under the regulations that currently apply to
16 reactor facilities.

17 The next one is an exemption related to
18 Criticality Accident Alarm System requirements for
19 cylinder storage areas. And in this case, GLE has
20 requested that they not be required to put in an
21 accident alarm system in certain cylinder storage
22 areas where the risk of criticality is very low. And
23 we evaluated those particular areas that were proposed
24 for this exemption, and we agreed with them that the
25 risk for criticality under those conditions would be

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1 very low.

2 The next one relates also to accident
3 alarm systems for criticality. And in this situation,
4 the specific requirement in 10 CFR 70.65(b)(4)
5 requires that in the ISA there be a specific
6 discussion of locations and details of the Criticality
7 Accident Alarm System.

8 But in this case, because not all of the
9 areas have been specifically designed, the exact
10 detail required under this regulation is not available
11 at this time. So what we are allowing is GLE to
12 include this information, submit it to us for review
13 and approval prior to their receipt of license
14 material, so that this will be evaluated and approved
15 prior to them taking receipt of any license material.

16 The next exemption is a similar one to the
17 one I just talked about, but it relates to Material
18 Control and Accounting. And in 74.33(c)(5), there is
19 a requirement that a licensee specifically address the
20 details of its detection systems for Material Control
21 and Accounting. And, again, because these systems
22 haven't been specifically designed yet, we are
23 granting an exemption to require them to submit this
24 information for our review and approval prior to their
25 receipt of license material.

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1 The next license condition relates to
2 nuclear criticality safety validation reports. And
3 under this condition, any change to their validation
4 report that would reduce the conservatism in their
5 overall analysis would require them to submit that to
6 us for our review and approval.

7 In other words, we are putting in a "no
8 decrease in effectiveness" standard for this, to allow
9 them to make changes that don't reduce the overall
10 conservatism in their analyses that were done to
11 justify their margins of subcriticality.

12 The next item relates to another
13 criticality-related issue, and this is notice, again,
14 of producing greater than five weight percent product.
15 And in this case, the safety basis that was provided
16 by GLE in its application is limited to five weight
17 percent. We reviewed this for some off-normal
18 conditions that might generate up to eight weight
19 percent, but not for the normal production of material
20 that would exceed five weight percent assay.

21 And in this case, if GLE decides they want
22 to produce material for shipment greater than five
23 weight percent, they would have to -- they would be
24 required to submit the additional safety basis for
25 that production to us for our review and approval.

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1 The next license condition relates to
2 changes in Section 5.4 of the license application.
3 And this section in the license application discusses
4 how criticality analyses are performed. And basically
5 we are requiring them to submit any change that would
6 result in reducing the conservatism in their methods
7 to us for review and approval.

8 The next license condition relates to the
9 fundamental nuclear material control plan, and the
10 change process that is described in the regulations
11 for this document. And this is a license condition
12 that is required by regulation, and it incorporates a
13 change process with a no decrease in effectiveness
14 standard to it.

15 The next license condition relates to the
16 use of digital equipment in items relied on for
17 safety. In the GLE application, they are not
18 proposing to use any digital equipment as part of
19 instrumentation and control packages for their safety-
20 related systems. They are going to use analog
21 devices, which are very simple.

22 But in the future, it may be that maybe
23 some of these analog devices are no longer available
24 or they decide to change their philosophy where they
25 feel that it is useful to go to digital controls with

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1 some of their safety-related systems.

2 In that case, we want to make sure that
3 they submit to us for our review and approval the
4 details of the designs of those digital components
5 that they may use. We are particularly concerned
6 about the software, whether or not software may
7 introduce new accident scenarios that haven't been
8 previously evaluated. And we want to look at the
9 specific design of that digital equipment.

10 So this is a forward-looking license
11 condition that we have applied to our other enrichment
12 plants that are doing the same thing.

13 May I have the next slide, please?

14 I mentioned earlier that I wanted to talk
15 in more detail about our tiedown license condition.
16 And, again, this is a license condition that --
17 through which we make the important licensing basis
18 documents mandatory and enforceable.

19 And in these various licensing basis
20 documents, there are a number of commitments that the
21 applicant has made. And we want to make sure that
22 they are complied with, and we do this by listing each
23 of them specifically in this license condition.

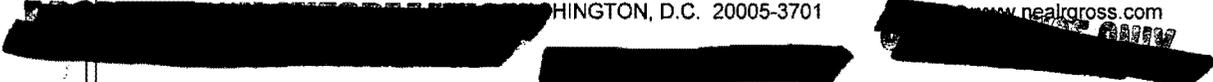
24 And on the next slide, I am identifying
25 those documents that will be in the tiedown license

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1 condition -- this license application, the fundamental
2 nuclear material control plan, the emergency plan,
3 standard practice procedures plans for the protection
4 of classified matter, the quality assurance program
5 description, the validation report for the criticality
6 analyses, the physical security plan, the
7 decommissioning funding plan, the nuclear material
8 transportation security plan, the human factors
9 engineering plan, and program cyber security plans
10 that relate to classified computer networks that are
11 used or will be used in the future for the facility.

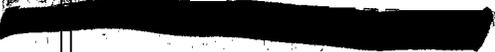
12 This concludes my presentation.

13 CHAIRMAN RYERSON: Thank you, Mr. Johnson.

14 MS. SEYMOUR: Good morning. I am Deborah
15 Seymour, and I am the Branch Chief for Construction
16 Projects Branch I in the Division of Construction
17 Projects in the NRC Region II office in Atlanta,
18 Georgia.

19 The Division of Construction Projects has
20 responsibility for the oversight of nuclear
21 construction for the NRC. My branch has the
22 responsibility for the oversight of fuel facility
23 construction and the fuel facility construction
24 inspection program for the NRC.

25 My role begins after the license is



[REDACTED]

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1 issued, so my presentation assumes a licensee.

2 Slide 17, please.

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3 As I said, I will be the branch chief
4 overseeing these activities for the proposed GLE
5 facility. Assisting me will be a senior project
6 inspector. Our responsibilities will include
7 oversight of the implementation of the construction
8 inspections and the operational readiness review
9 inspections that must be completed before the licensee
10 can begin operations.

11 We will be responsible for the planning,
12 performing, documentation, and enforcement associated
13 with the fuel facility construction inspection
14 program. We will be responsible for tracking
15 implementation of licensee requirements and
16 commitments and oversight and tracking of the
17 construction inspection program.

18 We will receive a lot of assistance in
19 these tasks. We will be assisted by other Division of
20 Construction Projects inspectors, the senior project
21 manager from NMSS, regional construction inspectors,
22 headquarters inspectors, and inspections from the
23 Region II Division of Fuel Facility Inspection.

24 I was involved with these activities for
25 the USEC lead cascade and for the Louisiana Energy

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1 Services' national enrichment facility. And I am
2 still involved in these activities for the Shaw AREVA
3 MOX services, mixed oxide fuel fabrication facility.

4 Slide 18, please.

5 I would like to discuss the basis for the
6 construction inspection program. A key point to
7 recognize is that the licensee has a primary
8 responsibility for constructing the facility as
9 designed and licensed. However, Section 193(c) of the
10 Atomic Energy Act provides that "Prior to commencement
11 of operation of a uranium enrichment facility licensed
12 hereunder, the Commission shall verify, through
13 inspection, that the facility has been constructed in
14 accordance with the requirements of the license for
15 construction and operation."

16 This requirement is codified in the NRC's
17 regulations under 10 CFR 40.41(g) and 70.32(k), and
18 applies to each construction phase and each cascade
19 planned to be placed into operation. We refer to
20 these required inspections as construction and
21 operational readiness review inspections

22 The NRC staff will conduct these
23 inspections to confirm that the facility was
24 constructed in accordance with applicable commitments.

25 The proposed GLE facility is slated to be constructed

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1 in phases. The construction and ORR inspections
2 the operational readiness review inspections -- will
3 address each of these phases.

4 Slide 19, please.

5 The inspection process for the proposed
6 facility will be outlined in an inspection manual
7 chapter that describes the fuel facility construction
8 and operational readiness review inspection programs.
9 This inspection manual chapter is expected to be
10 issued in advance of the onset of construction at the
11 GLE facility.

12 This document will provide high-level
13 guidance to the inspectors on the construction
14 inspection program. Our inspectors are required to be
15 familiar with the licensee's license application,
16 license commitments, and licensee requirements, and to
17 use this information to develop their inspection
18 plans. This knowledge will focus and inform their
19 inspections.

20 Our inspections will sample the licensee's
21 compliance with applicable commitments and
22 requirements.

23 A senior project inspector is responsible
24 for ensuring that an appropriate sample of these
25 commitments and requirements are incorporated into the

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1 construction and ORR inspections. This is done in
 2 coordination with NMSS, and the inspector is
 3 responsible for inspecting a specific technical area.
 4 Our inspections will primarily focus on the facility's
 5 items relied on for safety.

6 The inspection sample is based on the
 7 complexity of the items relied on for safety and the
 8 risk methodology outlined in 10 CFR 70.61, performance
 9 requirements. To this end, NMSS ranks the items
 10 relied on for safety for the inspectors, according to
 11 high, intermediate, and low accident and criticality
 12 consequences.

13 The operational readiness reviews -- the
 14 ORRs -- will be required by a license condition and
 15 will be performed before the NRC authorizes the
 16 licensee to commence operations. The ORR inspections
 17 evaluate licensee construction of the facility and
 18 implementation of the safety and security program in
 19 accordance with the regulations, the license
 20 application, and other commitments.

21 The proposed facility is going to be built
 22 in phases. The operational readiness review
 23 inspections will address the operational programs, our
 24 significant changes to these operational programs, for
 25 each of these phases as appropriate.

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slide 20, please.

2 The senior project inspector for the
3 proposed GLE facility will routinely communicate with
4 the licensee to discuss the construction inspection
5 schedule. During these communications, we will
6 request periodic construction schedule updates.

7 Region II typically obtains the licensee
8 construction schedule in the Primavera scheduling
9 software. This software is commonly used by many NRC
10 licensees, and it allows us to integrate the
11 licensee's construction schedule into our NRC
12 construction inspection schedule.

13 Currently, weekly scheduling meetings are
14 held in Region II with key NRC staff to discuss and
15 allocate inspection resources for our inspections.
16 The goal of these meetings is to ensure that the NRC
17 inspects early in the construction process, identifies
18 any issues early, and to verify implementation of
19 appropriate corrective actions for any identified
20 issues.

21 Slide 21, please.

22 In conclusion, for my portion of this
23 presentation, I would like to emphasize three key
24 points. First is that operations will not be
25 authorized by the NRC until the NRC staff verifies

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1 through inspection that the facility has been
2 constructed in accordance with the requirements of the
3 license as required by 10 CFR 70.32(k).

4 Two, Region II Division of Construction
5 Projects has the management structure, processes,
6 tools, training, and resources needed to verify that
7 the proposed GLE facility is constructed in accordance
8 with the license requirements.

9 And, lastly, that all required
10 construction ORR -- and ORR inspections will be
11 scheduled and conducted.

12 This concludes my presentation. Thank
13 you.

14 CHAIRMAN RYERSON: Thank you, Ms. Seymour.

15 MR. DIAZ: My name is Jose Diaz Velez. I
16 am a senior fuel facility project inspector with the
17 Region II office, Division of Fuel Facility
18 Inspection.

19 The NRC, if the applicant receives the
20 license and passes the stage of the ORR inspections,
21 then the NRC will issue them the authorization to
22 operate. My division will be in charge of performing
23 the operation inspections. The NRC does this using
24 the NRC inspection program, which encompasses several
25 manual chapters and inspection procedures.

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1 [REDACTED] the results of the inspections are
2 evaluated by our Region II management and also our
3 headquarters offices, when necessary. We receive
4 support on some of those inspections from other
5 headquarters offices, like NMSS. And the Region II,
6 in itself, it is responsible for implementing the NRC
7 inspection program once the license is received by the
8 applicant.

9 That is all that I have.

10 CHAIRMAN RYERSON: Thank you. Give us
11 just one moment, please.

12 (Pause.)

13 Before the Board begins its questions, we
14 have been going on for about 50 minutes now, it
15 probably makes sense to take a five-minute break. We
16 will -- seven-minute break. We will reconvene at
17 quarter of.

18 Thank you.

19 (Whereupon, the proceedings in the
20 foregoing matter went off the record at 10:39 a.m. and
21 went back on the record at 10:47 a.m.)

22 CHAIRMAN RYERSON: So we are resuming with
23 the Board's questions on Topic 4 of the NRC staff
24 witnesses. I would remind all four witnesses that you
25 are still under oath.

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And we will begin with questions from

Judge Garcia.

ADMIN. JUDGE GARCIA: Yes, good morning.

I would like to start off with the environmental issues, and in particular I would like to ask about the Table 5.2 in the environmental impact statement. And I wondered if you could tell us about why that table is in the environmental impact statement.

MS. DAVIS: Yes. Table 5.2 is a list of NRC recommended mitigation measures that our reviewers, as they were doing their analysis, identified additional conditions that could help reduce environmental impacts, but they are not required to be implemented.

A lot of these are based upon studies of best management practices that they have encountered throughout their years of doing this type of analysis. But, again, it is not binding or required for the applicant to implement any of that. It is -- we have listed those measures as the method of disclosure under NEPA.

ADMIN. JUDGE GARCIA: Okay. Very good. During the testimony earlier this morning, we were told that, as good stewards to the community, GLE had proposed to adopt as many of these potential

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1 mitigation as was feasible and met their four
2 other criteria, if I am stating that correctly, Ms.
3 Oliver.

4 And I wondered what -- and they said they
5 would then make these -- and they were planning to
6 track these measures, and they would make them
7 available to NRC staff. But in your testimony, it
8 appeared as though you were saying you were not going
9 to monitor these.

10 MS. DAVIS: No. We are not going to be
11 tracking -- the NRC regional inspectors are not going
12 to be tracking the voluntary commitments that GLE
13 would be keeping track of, again, their
14 recommendations. And from my view of GLE's testimony,
15 they have agreed to implement all except for one
16 voluntary noise measure in NRC staff recommendations,
17 but it has to go through their screening process
18 first.

19 But we have no way of going back and
20 checking to make sure the commitments that are outside
21 of our regulatory authority are implemented and
22 tracked. Many of -- again, we just disclosed
23 additional recommendations under NEPA.

24 ADMIN. JUDGE GARCIA: I see. This sort of
25 presents somewhat of a dilemma if this information

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[REDACTED] won't be available to the public. It is only
available to NRC. And if NRC staff do not plan to
look at it, then it will be essentially unavailable
and unmonitored. Is that your understanding?

MS. DAVIS: Because there is no
regulatory requirement to go back and check to ensure
that voluntary measures or NRC recommendations are
implemented, we would not be tracking those. No, sir.

ADMIN. JUDGE GARCIA: I see. Okay. We
also learned about GLE's commitment to adhere to
state, other federal agency, and international laws in
their compliances. And I wondered if NRC staff plan
to monitor any of those compliances.

MS. DAVIS: If it's related to
radiological health and safety, then, yes, the NRC
would be following up on that. With regards to other
state permitting programs -- for example, the 401
water quality certification -- if there is an issue of
non-compliance or a violation, GLE would of course
report that to the state, and NRC would also be
informed concurrently.

Not every construction or operating permit
that GLE obtains would require notification
necessarily to the NRC. It is only when there is,
according to the regulations I believe, an issue with

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1 radiological health and safety, common defense
2 security, and that's -- that's basically what --

3 ADMIN. JUDGE GARCIA: Okay. If I could
4 now ask Mr. Johnson about the liability insurance. If
5 I understand correctly, you had mentioned that there
6 is an existing \$200 million insurance policy in
7 effect.

8 MR. JOHNSON: Yes. It's a liability
9 insurance policy that is for the entire site oriented
10 toward the fuel fabrication facility that operates at
11 the Wilmington site.

12 ADMIN. JUDGE GARCIA: And what will NRC's
13 commitment -- well, requirement be for the new
14 facility?

15 MR. JOHNSON: The existing arrangement
16 that was approved in the safety evaluation report was
17 a site total of \$200 million.

18 ADMIN. JUDGE GARCIA: So that is
19 sufficient for both facilities.

20 MR. JOHNSON: Yes.

21 ADMIN. JUDGE GARCIA: And is that a
22 regulation?

23 MR. JOHNSON: This is in compliance with
24 the regulations. I believe it's 170.13(b) has
25 requirements for enrichment facilities and for

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liability insurance. And the reviewer looked at that particular issue. One of the issues that came up was the insurers, which is Nuclear -- American Nuclear Insurers, indicated that the maximum insurance that they would provide is \$200 million for the site.

So what needs to be done is to amend the existing policy to specifically identify the enrichment facility is part of that policy.

ADMIN. JUDGE GARCIA: Okay. Ms. Seymour, I wondered if you could tell us about how you will be assured that the inspectors will be familiar with the contract, the licensing agreement.

MS. SEYMOUR: First, we do provide training to our inspectors for each of our facilities and discuss any licensee-specific commitments or requirements. Also, all of our inspectors are required to go through a rigorous qualification process, which takes possibly 18 months to two years, where they are trained on how to create inspection plans that focus on these requirements, what is important to inspect. You know, they go out with other inspectors on inspections, create inspection plans for those inspections, which are vetted through experienced inspections.

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So, also, we meet prior to the inspections

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[REDACTED] and discuss the inspection plan. That would be the senior project inspector and myself, with the lead inspector, or, if there's more than one, the inspector for the inspections. We discuss the inspection plan, we talk about the focus of the inspection, provide any additional information, focus areas as needed.

So there is a number of ways which we ensure that the commitments are tracked. We also have a software program where, prior to the inspection program beginning, we load that software program with the commitments and requirements, and then we track through that software program which ones we have looked at, which ones have open items left that we need to go back, which ones are closed which we have looked at completely and are satisfied.

So there is, as I said, a number of ways that we track these. And my senior management is also very interested. So --

ADMIN. JUDGE GARCIA: Very good.

MS. SEYMOUR: -- it gets a lot of review.

MR. JOHNSON: Excuse me. Can I make a correction to --

ADMIN. JUDGE GARCIA: Yes, sir.

MR. JOHNSON: -- my response to your question on liability? The regulatory citation is 140

1 -- 10 CFR 140.13(b), not 10 CFR 170.13(b).

2 ADMIN. JUDGE GARCIA: Would you repeat
3 that number, again, please?

4 MR. JOHNSON: Yes. 10 CFR 140.13(b).

5 ADMIN. JUDGE GARCIA: Thank you.

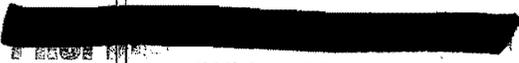
6 CHAIRMAN RYERSON: Judge Jackson?

7 ADMIN. JUDGE JACKSON: Good morning. My
8 first question can probably best be framed by going
9 back and looking at a page in the applicant's pre-
10 filed testimony. It is page 8.

11 In the center of that page, just above
12 GLE's commitment, it talks about changes. And we have
13 discussed this in several contexts and ways over the
14 past two days, but I wanted to focus in on one
15 particular aspect of this.

16 And if you'll go down in the last couple
17 of sentences there, just above three, it says, "In
18 addition, according -- in accordance with 10 CFR,"
19 yada, yada, "we will maintain records of changes to
20 the facility that include a written evaluation that
21 provides the basis for the determination that the
22 changes did not require prior NRC approval, and that
23 these records are maintained at the site, at the
24 facility."

25 So the situation is a design change or a



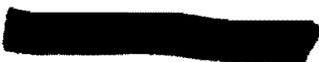
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1 [REDACTED] process change has occurred. GLE has gone through its
2 management process for evaluating and decided that it
3 would not negatively impact safety. That was a
4 situation where they didn't have to notify NRC.

5 And so then there was a justification that
6 is written, and it is placed somewhere there and
7 maintained. So I guess my question is, is this --
8 this is where NRC's check on those decisions would
9 come, in other words, to know that that was an
10 appropriate evaluation, that indeed it didn't
11 negatively impact.

12 So would -- here is my question. Does
13 that happen as part of the inspection process? Would
14 those records be examined routinely on an annual
15 inspection basis and be reviewed to make sure that
16 that determination -- that NRC agreed with it?

17 MS. SEYMOUR: Yes. As part of our routine
18 inspections, we have an inspection procedure that
19 deals with changes to the facility and review of those
20 modifications. And a reviewer will go in and get that
21 list of changes and will do a sampling of those to see
22 if we agree with the determination that they didn't
23 require an amendment.

24 So we do look at those changes. And also,
25 as part of our other routine inspections, for each

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1 specific area, like radiological protection, we will
2 actually look at, what are the specific changes to
3 that program since the last time we were out there.
4 Now, this is duration operational inspection.

5 And, Jose, you can jump in if you'd like
6 to address this.

7 We would look at those changes as part of
8 our routine inspection programs for each specific
9 area, what changes were made in the programs since the
10 last time we were there, and we also look at them
11 specifically with the module which addresses facility
12 changes and modifications.

13 And, in addition, the listing of changes
14 are sent up to headquarters, and headquarters reviews
15 them and gives us recommendations on ones they think
16 that we might want to look at.

17 ADMIN. JUDGE JACKSON: Okay. And this is
18 something, then, that is codified in the way you would
19 carry out the inspections --

20 MS. SEYMOUR: That's right. It is part of
21 our operational inspection program.

22 ADMIN. JUDGE JACKSON: -- routinely. Mr.
23 Diaz?

24 MR. DIAZ: I just wanted to say that when
25 those lists are received by the senior reviewers that

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1 facility assigned to them, they scan them
2 and provide the regional inspectors with a summary of
3 them and recommendations as to which ones they believe
4 that we need to look further.

5 And we have an inspection plan/procedure
6 that covers that at the -- you know, during the year
7 of inspections with a sample of which of those
8 modifications require our review. And our staff goes
9 over them and it is part of the -- our core inspection
10 program.

11 ADMIN. JUDGE JACKSON: Thank you. Later
12 on, I had another question that probably should be
13 directed to you, Mr. Diaz. And let me ask it now.
14 You talked about routine inspections that would occur
15 periodically. And I think in the pre-filed testimony
16 it listed some.

17 And I wanted to ask about the schedule of
18 these. How often do things get looked at? Is there a
19 regulation that says certain areas need to be
20 inspected at least once a year or biannually? Or how
21 does that -- how does the frequency of that work?

22 MR. DIAZ: The frequency of inspections is
23 defined in the NRC inspection manual Chapter 2600 for
24 fuel cycle. For MC&A inspections, it is described in
25 the 26 -- I believe 83 is the number of the manual

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1 chapter that covers those.

2 For security, you will have to excuse me,
3 but since I am not involved in those, I don't know the
4 -- how those are described. But I would imagine that
5 they follow the same process. They may have a manual
6 chapter assigned and a periodicity.

7 ADMIN. JUDGE JACKSON: Okay. Let me ask
8 you, then -- just give me an idea -- what about -- I
9 guess I would say routine safety inspection of safety
10 systems. Is that something, then, that would be done
11 annually or -- I am just trying to get a feel, is this
12 once a year? Is it every five years?

13 MR. DIAZ: The majority of inspections are
14 once a year. For example, fire protection is once a
15 year there is an annual inspection, but there is also
16 an every three years type of -- a bigger inspection.
17 The MC&A inspections, depending on the type of
18 facility, if it's Cat 1, 2, or 3, some Cat 1
19 facilities, for example, get MC&A inspections twice a
20 year, and Cat 3 facilities once a year.

21 ADMIN. JUDGE JACKSON: Okay. It's
22 formally defined, and not just an option of the
23 inspection team. You know exactly when you are going
24 to go back and --

25 MR. DIAZ: That is correct.

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ADMIN. JUDGE JACKSON: -- which areas.

2 All right. Thank you.

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3 I believe I would -- this question is
4 appropriate to Ms. Seymour again. You're the branch
5 chief, is that correct, of the --

6 MS. SEYMOUR: Yes. I'm the Branch Chief
7 for Fuel Facility -- Division of Construction
8 Projects, Construction Projections Branch I, which
9 oversees the Fuel Facility Construction Inspection
10 Program.

11 ADMIN. JUDGE JACKSON: Okay. So you would
12 see that it is your responsibility, when it comes to
13 time for an ORR -- let's say this facility is granted
14 a license, it is constructed, you now have an as-built
15 facility, and it's time to do the ORR and begin the
16 operation. Would it then be your -- you're the one
17 that would be responsible for ensuring that this
18 facility had been constructed to meet criticality
19 safety requirements.

20 MS. SEYMOUR: What happens is that when
21 the facility is completing its construction, we will
22 start implementing inspections for the various safety
23 programs. As those programs are finished and
24 completed, we will send out teams to look at them.
25 And those teams will come back with the information to

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1 share with senior management, and headquarters senior
2 management and regional senior management, to discuss
3 the findings and the determination of whether or not
4 they are ready in that area.

5 All of those decisions are then aggregated
6 to make the decision if the facility is ready to
7 operate. And criticality safety inspections are
8 performed right now with inspectors from headquarters,
9 so -- but they still would work working with -- you
10 know, in conjunction with Region II.

11 ADMIN. JUDGE JACKSON: Would it be your
12 responsibility to ensure that these inspections and
13 evaluations have the -- an adequate -- have a proper
14 skill-set for being able to look at criticality
15 safety? In other words, I'm saying that that is --
16 that can be quite a skilled person that is able to
17 evaluate criticality safety in a first-of-a-kind
18 facility. Would you ensure that --

19 MS. SEYMOUR: Yes. One of the things we
20 do is ensure that we are using the appropriate
21 technical specialists for each of those areas, whether
22 it's a civil engineer, an electrical engineer, a
23 nuclear criticality safety specialist or engineer. So
24 one of the things we do is we -- we do ensure that we
25 are using people who have been through the program.

[REDACTED]

[REDACTED]

[REDACTED]

1 We actually have specific programs -- I know there is
2 a specific inspection -- inspector program for
3 qualification as a nuclear criticality safety
4 inspector. So, and that is, at this time, run out of
5 headquarters, and the inspectors go through that
6 program and become qualified inspectors.

7 ADMIN. JUDGE JACKSON: Okay. So you are
8 comfortable with -- that this important area will be
9 well covered by people with the right skills.

10 MS. SEYMOUR: Yes. And we would make sure
11 we have the right people to do those jobs.

12 ADMIN. JUDGE JACKSON: Thank you.

13 All right. Let me move on to some other
14 questions. Let's see, I believe you have covered one
15 of my questions already, Mr. Diaz. Let's look at
16 page 21 of the pre-filed -- of the staff's pre-filed
17 testimony. Just a moment while I find it.

18 Mr. Johnson, you went down this list and
19 did a good job of saying a little bit about each of
20 those areas and what was involved. If you'll look at
21 number 14, that particular exemption, you talked about
22 that somewhat, and I believe you said it was aimed at
23 nuclear power plants and not fuel cycle facilities.
24 Do I recall that correctly?

25 MR. JOHNSON: There was -- some years ago

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1 there was an amendment made to the regulations that
2 would authorize certain commercial grade dedication
3 activities. And when that rulemaking was promulgated,
4 it was promulgated only for power plants. But the
5 same philosophy could also be used for other
6 facilities. But because the regulations don't
7 explicitly allow that, it has to be done through an
8 exemption process.

9 ADMIN. JUDGE JACKSON: Okay.

10 MR. JOHNSON: So what we are basically
11 doing is taking the same concept that is already
12 embodied in the regulations for Part 50 facilities and
13 using that for enrichment plants that have requested
14 to use a similar concept in the construction of their
15 facilities.

16 ADMIN. JUDGE JACKSON: Just to give me a
17 little feel for the practical implication, does this
18 in essence give the applicant more flexibility on --
19 or alleviate some regulations that just wouldn't make
20 sense for a fuel cycle facility? What is the
21 practical -- what do you gain by this exemption? What
22 would the applicant gain in terms of efficiency or
23 something?

24 MR. JOHNSON: All right. The practical
25 reason for doing this is that in some cases enrichment

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1 plants require very specialized equipment that isn't
2 normally available through suppliers that have
3 equivalent of a nuclear quality assurance program, in
4 accordance with Part 50 Appendix B.

5 And a lot of suppliers, just for a single
6 piece of equipment, may not be willing to develop such
7 a program for a one-time activity. So what this
8 regulation allows is it allows a licensee to procure a
9 specialized piece of equipment that isn't normally
10 available under a nuclear quality assurance program
11 and perform by itself, do its own dedication process
12 that is -- would make it equivalent to having the
13 supplier have done the quality assurance on it.

14 ADMIN. JUDGE JACKSON: Thank you. That is
15 helpful. Let's talk a little bit about the tiedown
16 clause, page 23 of the pre-filed testimony. You have
17 listed basically a number of documents, then, that are
18 covered and in essence tied down by this clause. And
19 the first one is the license application.

20 I noticed that I didn't see the ISA
21 summary or ISA explicitly on this list. Is it tied
22 down because it is part of the license application, or
23 no?

24 MR. JOHNSON: No, it's not, and that's
25 because under the regulations the ISA summary is not

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1 part of the license application and is not considered
2 a licensing basis document.

3 ADMIN. JUDGE JACKSON: Okay.

4 MR. JOHNSON: And I believe the rationale
5 for putting that requirement is that it is intended to
6 be a dynamic document that is going to change over the
7 future, and it was felt that it was unnecessary to
8 make this a requirement of -- a mandatory requirement
9 of a license. And an additional reason is that so
10 much of the ISA is done in documentation at the
11 facility.

12 The ISA summary is just that. It's a
13 summary of the integrated safety analysis, and it does
14 not include all of the information that supports that
15 summary document. So for practicality reasons, there
16 were concerns during the rulemaking process as to how
17 it should be made mandatory or not made mandatory.
18 And it was decided at that point that it would not
19 become a formal part of the license application.

20 And what we are doing is we are just
21 recognizing what is stated in the regulations, that it
22 would not be part of the license.

23 ADMIN. JUDGE JACKSON: Thank you. That's
24 -- I understand your logic. And if you'd go over to
25 the next page and --

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MR. JOHNSON: Excuse me. Can I add some

2 additional things? What we have tried to do is we
3 have tried to look at the ISA summary, and, where we
4 felt that there were commitments that were made in the
5 ISA summary, we have gotten the applicant to put those
6 commitments in the license application.

7 So, for example -- let me give you an
8 example. Where the ISA summary references a
9 particular code in the standard, we have made sure
10 that those codes and standards are also presented in
11 the license application. And in Chapter 3 of the
12 license application, there is a table that documents
13 all of the codes and standards that have been
14 committed to by the applicant.

15 So what we have done is we have tried to
16 take the commitments that are embodied in the ISA
17 summary and making them formally a part of the
18 application which can be tied down.

19 ADMIN. JUDGE JACKSON: Okay. Thank you.
20 If you go to the next page of the pre-filed testimony,
21 it continues that list related to the tiedown. And if
22 you go up to Item G, I found it curious that the
23 validation report would be tied down. And this is the
24 validation report for the Monte Carlo code that would
25 be used for the criticality analysis.

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[REDACTED] I think that is what prompted me almost to
2 ask the question, because that seemed like a next
3 level down type of very specific document. And I was
4 -- I didn't understand why that would be tied if the
5 results that might come from criticality calculations
6 weren't tied down. Could you give me some insight as
7 to why Item G is in the tiedown?

8 MR. JOHNSON: Yes. The criticality safety
9 people recognize that the validation report is a very
10 important part of their analysis and the conservative
11 basis -- conservatism that is based into the overall
12 analysis, specifically in calculating margins of
13 subcriticality. And changes to that document could
14 potentially change the conservatism in how the margin
15 of subcriticality is calculated and ultimately used.

16 And as I mentioned yesterday, when we look
17 at criticality, we try to inform the review based on
18 the overall hazards. And a great deal of our review
19 with respect to criticality involves the overall
20 conservatism that is embedded in the calculations and
21 the assumptions that are used.

22 For example, the enrichment plants that we
23 have licensed so far basically don't take credit for
24 reflection. You know, they make assumptions on
25 moderator being present when it isn't expected to be

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present. And all of these conservatisms build up a confidence that the criticality program is actually going to function properly. And when you start removing some of those conservatisms from your calculations, and the way you do your validation, it could affect the comfort level that our criticality safety reviewers have in the overall program at the facility.

So they feel that it is very important that this be memorialized, so that any changes that are made to that validation report don't affect the overall conservatism that was inherently a part of the review that they conducted.

ADMIN. JUDGE JACKSON: Thank you. One last question relating to this area G. It is interesting to me that it is dated September 4, 2009, and another one January 13, 2010. And yet I thought that the validation report was a dynamic report that could change over time. I was curious as to why you didn't just tie down the report instead of specifying a particular date, which looks like it would freeze it in time.

MR. JOHNSON: Well, in this case, the September 4th version was the one that was first submitted with the application. There were some

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1 comments that were made as part of the license
 2 application review process that resulted in some
 3 revisions that were submitted on January 13th. And if
 4 future changes are made, we would expect that those
 5 changes would be submitted to us, and we would either
 6 update it by page changes or reflect a new document in
 7 this tiedown condition.

8 But what is why -- when we go to inspect a
 9 facility, you know, if there are changes that are made
 10 to these documents, we want to be -- we want to make
 11 sure that we are looking at the current document. And
 12 so it is incumbent upon the licensee, as they make
 13 changes to these documents, to -- and part of the
 14 change process involves submitting these changes to
 15 us, so that we can update the dates, which would
 16 enable our inspectors to make sure that they have the
 17 relevant and most current documents on which to base
 18 their inspections.

19 ADMIN. JUDGE JACKSON: Thank you. I guess
 20 my last question, then, would come back to Ms.
 21 Seymour. Given the importance of this area of
 22 experimental validation and the fact that it is a
 23 matter for the tiedown clauses, I assume that your
 24 inspection capability would include the skills to
 25 evaluate the adequacy of experimental validation.

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1 MS. SEYMOUR: Yes. But I would like to
2 clarify my earlier answer also. When you asked who
3 would do the criticality inspections, and I believe I
4 indicated it was just headquarters inspectors, and I
5 would like to clarify that because basically the
6 headquarters inspectors are looking at code
7 validations, running models, et cetera, making sure
8 they are in agreement with what the licensee has
9 proposed, so they do the criticality analyses,
10 et cetera, the basis of the criticality safety
11 program. And that is very -- it takes an expert to do
12 that with a specific type of background, and so they
13 do that type of work.

14 Regional inspectors and operations
15 inspectors who may not be nuclear criticality safety
16 engineers, but they are engineers, will look at some
17 implementation of the program -- spacing requirements,
18 posting requirements, et cetera.

19 So I didn't want to leave you with the
20 thought that regional inspectors did not look at
21 criticality safety. They look at the implementation
22 of it. But the headquarters inspectors also look at
23 the implementation of it, but they look at the actual
24 mathematical basis for why -- for the program.

25 So we do have in headquarters inspectors

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1 With the background to look at those codes, and they
2 run models. And I am not a criticality safety
3 inspector, but we do have that expertise in
4 headquarters at this time.

5 ADMIN. JUDGE JACKSON: Thank you. No
6 further questions.

7 CHAIRMAN RYERSON: Thank you. Ms. Davis,
8 I have a question or two about the staff's
9 environmental analysis. To summarize, if I understand
10 your testimony, the staff has ultimately the Board is
11 required to balance the anticipated environmental
12 consequences of a license as against the advantages,
13 the productivity of the proposed facility.

14 And your testimony, if I understand it, is
15 that in doing that balance the staff was able to
16 completely disregard voluntary commitments. And based
17 upon the commitments which are mandatory, and based
18 upon all of the other factors, the staff's evaluation
19 was a positive one. Is that correct?

20 MS. DAVIS: Many of the -- let me make
21 some clarification here. Many of the voluntary
22 measures that we see in the EIS at this point, because
23 we don't know the status of GLE's permits, obtaining
24 other federal, state, and local permits, many of those
25 are considered voluntary at this point. If they

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1 eventually do become mandatory, then we have assurance
 2 that the facility would be operated -- constructed and
 3 operated in accordance with various -- not only our
 4 regulations but also the regulations that are overseen
 5 by other federal agencies that are considered
 6 protective of human health safety and the environment.

7 The voluntary measures that ultimately --
 8 for example, GLE proposed that it would use low sulfur
 9 fuel in GE vehicles driving back, a lot of this is --
 10 would be a voluntary extra effort, but would be very
 11 hard to track and wouldn't necessarily be tracked by
 12 another agency, let alone the NRC.

13 I want to make sure that I captured that
 14 appropriately. I don't think we are -- we are not
 15 intending to say that we disregard, where there is
 16 just no ability for us to go back and check, because
 17 the NRC regional staff's focus is on radiological
 18 health and safety.

19 CHAIRMAN RYERSON: Yes. I didn't mean
 20 "disregard" in a negative way, that you weren't doing
 21 what you were supposed to be doing. Let me try to
 22 rephrase it. In other words, you did not consider the
 23 purely voluntary commitments to be essential to your
 24 balancing operation. In other words, you were able to
 25 look from your standpoint at the proposed advantages,

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1 the potential environmental adverse effects. And even
2 without regarding the potential mitigating aspects of
3 voluntary commitments, you are able, in your judgment,
4 to say this is okay, this is something that should go
5 forward.

6 MS. DAVIS: Yes, Your Honor.

7 CHAIRMAN RYERSON: Okay. Have you worked
8 on other environmental assessments or environmental
9 impact statements at the NRC?

10 MS. DAVIS: Yes, I have. I have 10 years
11 of experience, primarily in the Division of License
12 Renewal -- Reactor License Renewal.

13 CHAIRMAN RYERSON: In other cases -- let's
14 call them closer cases, does the NRC weigh in any way
15 -- have you ever weighed in any way the voluntary
16 commitments? In other words, kind of discount them,
17 saying, "Well, they don't have to do this, but, you
18 know, they are saying they will and there is some
19 value to that." Or do you disregard them at all -- in
20 all cases when you are required to balance between the
21 positive and negative impacts?

22 MS. DAVIS: For example, the applicant has
23 agreed to voluntarily condition its license with a
24 proposed license condition for Section 106 compliance.
25 You know, while it is not voluntary, it is required by

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1 statute, you know, it is in setting forth a process
 2 for how it would deal with issues that arise during
 3 construction and operation. In other facets of the
 4 review, voluntary measures, where they are possibly
 5 going above and beyond -- necessarily you may not give
 6 them credit -- I mean, it is different because
 7 commitments are not legally binding and tracking, but
 8 you look at what process an applicant has -- here is
 9 the proposed project.

10 You look at the environment, the affected
 11 environment, what is -- what are they proposing to do?
 12 What resources are in the area? What procedures do
 13 they have in place? For example, do they have a
 14 procedure in process that actually details what they
 15 are supposed to do if they have an unanticipated
 16 discovery or some similar situation?

17 If they have the methods and processes in
 18 effect, then we have reasonable assurance that they
 19 will operate safely in the future. Many of the
 20 voluntary measures -- I'm trying to categorize this
 21 correctly -- that they have proposed that are kind of
 22 above and beyond and hard to track, I don't
 23 necessarily weigh heavily in the analysis per se.

24 CHAIRMAN RYERSON: But you would -- in
 25 some instances, you'd give them some weight. What I'm

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1 trying to establish, at least in my mind, is that from
 2 your standpoint it is a pretty conservative approach
 3 to say, "We don't really need to look at or monitor
 4 the voluntary commitments," because looking at what is
 5 legally required and looking at the effects that will
 6 occur considering what is legally required to mitigate
 7 any adverse environmental effects, balancing that
 8 against the potential benefits of the facility, it is
 9 frankly kind of an easy call. Is that a fair
 10 characterization of what you are saying or --

11 MS. DAVIS: I wouldn't necessarily call it
 12 an easy call. But I would say we have reasonable
 13 assurance that the environment -- radiological health
 14 protection safety and the environment, that it would
 15 be operated -- constructed and operated safely with
 16 implementation of the mandatory measures, which are,
 17 you know, set up to be protective of the human
 18 environment.

19 CHAIRMAN RYERSON: And in your judgment,
 20 the voluntary measures -- from an environmental
 21 standpoint, this is from the -- from a NEPA
 22 standpoint, the voluntary measures are not necessary
 23 to your essentially positive conclusion.

24 MS. DAVIS: They are above -- in some
 25 cases, they are above and beyond. But we looked at

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1 everything, but the mandatory measures are protective.

2 CHAIRMAN RYERSON: Right. I understand.
3 Thank you.

4 Mr. Johnson, just a couple of questions.
5 First, it is my understanding there is no present plan
6 at all for material control and accountability.
7 Correct?

8 MR. JOHNSON: I'm not quite sure I
9 understand your question that there is --

10 CHAIRMAN RYERSON: Has no --

11 MR. JOHNSON: There is a fundamental
12 nuclear material control plan that was submitted as
13 part of the application, and that was reviewed and is
14 addressed -- I believe it's in Chapter 12 of the
15 safety evaluation report.

16 CHAIRMAN RYERSON: Okay. I thought that
17 was subject to further approval or --

18 MR. JOHNSON: I will -- there is a part of
19 that program that involves the -- specifying the types
20 of detection systems and their locations, et cetera,
21 that was not addressed in the application. And that
22 is the piece of it that is needed, and it is dependent
23 on the final design of the facility. And that is the
24 piece that would be submitted for our review and
25 approval prior to them getting license material.

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1 CHAIRMAN RYERSON: And would that be in
2 the form of a proposed license amendment?

3 MR. JOHNSON: Yes.

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4 CHAIRMAN RYERSON: And so it would be
5 subject to everything we talked about yesterday --

6 MR. JOHNSON: Yes. Yes.

7 CHAIRMAN RYERSON: -- as a process. Thank
8 you.

9 And I think the answer to this is probably
10 terribly obvious, but when you were describing the
11 tiedown requirements and including the application,
12 obviously, the ER -- the environmental report -- is
13 not within the application for purposes of that
14 statement.

15 MR. JOHNSON: Yes. The license
16 application is a specific title that GLE used for that
17 document. In other applications, that same document
18 has been titled Safety Analysis Report, but GE chose
19 to call it the license application document, although
20 to me it is somewhat confusing because, from my
21 perspective, the license application includes all of
22 the licensing basis documents. And it would also
23 include the ER as part of the license application.

24 But their terminology for what other
25 people call the safety analysis report, they have

chosen to call the license application.

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1 CHAIRMAN RYERSON: Thank you. And my last
2 line of questions I think relates to this insurance
3 issue. Is it your testimony that currently, before
4 the proposed enrichment facility is constructed, there
5 is a 1,600-acre site, as I recall, and it has a fuel
6 fabrication facility on it. I don't recall what else
7 GLE may have on it, but is the \$200 million liability
8 coverage -- it is obviously on the fuel fabrication
9 facility. Is it on other aspects of that site?
10

11 MR. JOHNSON: I don't know the details of
12 the wording in the policy, but there are other
13 activities that take place on the Wilmington site.
14 There is an aircraft engine facility, there is some
15 engineering facilities, there is also a service
16 facility that does service work for components that
17 come in from reactor facilities.

18 But it is my understanding that that
19 service component facility does not require liability
20 insurance. But the policy itself is oriented toward
21 the fuel fabrication facility and any liability
22 effects from that, if there was an accident.

23 CHAIRMAN RYERSON: Wouldn't it seem to be
24 the case that the risks potentially covered by a
25 liability policy would be significantly increased by

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1 putting a second facility under the same policy? In
2 other words, if there's \$200 million now that covers
3 the fuel fabrication facility, aren't there additional
4 risks involved, and might not more coverage be
5 appropriate?

6 MR. JOHNSON: Well, that is something that
7 we had discussed in the review of the application.
8 And the reviewer had reviewed documentation from
9 American Nuclear Insurers, which told us that the
10 maximum policy that they were willing to write for the
11 entire facility, that would include both the fuel fab
12 facility and the enrichment plant, was \$200 million.

13 And I believe the reasons for that had to
14 with trying to allocate risk between the two
15 facilities and their inability to do that at this
16 point. But their information to us is the maximum
17 amount that they are willing to write for that site is
18 \$200 million. And the reviewer agreed that that was
19 sufficient to meet the regulatory requirements.

20 CHAIRMAN RYERSON: Do you know if there
21 was any discussion of the possibility of finding
22 another insurance company to provide excess liability
23 coverage above the -- what I assume is a primary
24 policy?

25 MR. JOHNSON: I don't know the answer to

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that.

CHAIRMAN RYERSON: Judge Garcia, did you have another question?

ADMIN. JUDGE GARCIA: Yes. Mr. Johnson, on page 13 of your oral testimony concerning license conditions, you mentioned that for the IROFS only analog equipment would be used. Is that correct?

MR. JOHNSON: That's correct.

ADMIN. JUDGE GARCIA: Is there an inherent advantage to using only analog equipment?

MR. JOHNSON: Yes. It's -- the advantage is it's simple. An example is you have -- say one of your IROFS is -- if the temperature in a feed cylinder exceeds a certain temperature level, the heater in the enclosure will cut off. This is a very simple system. You have a thermocouple or some other temperature sensor. It generates a certain voltage, which trips a heater. There is no software or programming that is required. It is a very simple system.

But once you get into digital controllers where there is the ability to program this device to do different things, you need to be very aware of the quality assurance that is inherent in the software and in the programming. You have to look at whether or not the device may introduce additional accident

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1 sequences or trips or other events that haven't been
2 evaluated before, and it complicates the review. So
3 by staying with analog devices, it made the review
4 very simple for the instrumentation and control
5 reviewer.

6 ADMIN. JUDGE GARCIA: Okay. Thank you.

7 I have one other question for Ms. Davis.
8 Concerning Table 5.2, the potential voluntary
9 measures, it was noted in the testimony that some of
10 these would significantly lower impacts in some areas,
11 and I wonder if you could mention which specific
12 measures would -- and what their effects would be if
13 they were implemented.

14 MS. DAVIS: There were -- I would have to
15 -- I would actually have to look at the table. But in
16 certain areas where they were providing extra --
17 sorry. Thank you.

18 ADMIN. JUDGE GARCIA: Thank you. That is
19 page 5-14.

20 CHAIRMAN RYERSON: Do we need an exhibit
21 number on that? Do we have the exhibit number?

22 MS. SAFFORD: It is Exhibit Number
23 NRC 003.

24 CHAIRMAN RYERSON: Thank you.

25 MS. DAVIS: Your question again, Your

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1 Honor?

2 ADMIN. JUDGE GARCIA: You had mentioned
3 that some of these in the written testimony would have
4 substantial impact on -- well, would lower the impact
5 substantially, and I wondered which ones would
6 specifically do that.

7 MS. DAVIS: I think we said in the
8 testimony that it could lower. I don't know if the
9 word "substantial" is used. I would have to go back
10 to --

11 ADMIN. JUDGE GARCIA: "It will lower" is
12 what you said.

13 MS. DAVIS: It could lower, but it would
14 not likely alter the conclusions within our EIS and --

15 ADMIN. JUDGE GARCIA: I understand.

16 MS. DAVIS: -- many measures -- I would
17 probably have to take some time to go back and look at
18 the table for regards to air quality, some of the
19 posted speed limits, you know, transportation, for
20 example, where -- let me find this real quick. I
21 apologize.

22 For example, in land use application of
23 best management practices, which at this point, you
24 know, would likely reduce -- I mean, at some point we
25 do assume that they probably would be utilizing best

[REDACTED]

[REDACTED]

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1 management practices, as most construction sites
 2 implement those. Those could be an area, but it
 3 wouldn't necessarily alter the conclusion. It could
 4 be lower, but it wouldn't -- you know, that is what I
 5 would probably stick to. It could be lower, but
 6 implementation of mandatory measures are protective of
 7 the public health and safety and the environment.

8 ADMIN. JUDGE GARCIA: Okay. Thank you.

9 CHAIRMAN RYERSON: Judge Jackson?

10 ADMIN. JUDGE JACKSON: No further
 11 questions.

12 CHAIRMAN RYERSON: All right. We thank
 13 the entire panel for your testimony. I believe, Ms.
 14 Seymour, you do not testify again, so you are free to
 15 stay or go, as you wish.

16 MS. SEYMOUR: Thank you.

17 CHAIRMAN RYERSON: Who else do we have?
 18 Ms. Davis, you testify on the next topic, so I'm
 19 afraid we have to ask you to leave during the
 20 testimony of the GLE witnesses on Topic 5. And, Mr.
 21 Diaz and Mr. Johnson, you testify again I think on
 22 Topic 6. So if you wish, you may remain during the
 23 testimony on Topic 5, but you should excuse yourselves
 24 during the GLE testimony on Topic 6.

25 Thank you.

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[REDACTED]

(Whereupon, the witnesses were excused.)

2 Give us one moment, please.

3 (Pause.)

4 What the Board proposes, unless someone
5 feels the need for a break at this point, we should
6 have the GLE witnesses on Topic 5 in the courtroom?

7 MR. SILVERMAN: Yes, Your Honor.

8 CHAIRMAN RYERSON: Unless the fixed
9 presentations are going to be extraordinarily long,
10 our proposal is that we proceed with the presentations
11 by those witnesses, and then we will take a lunch
12 break, and the Board will ask its questions of those
13 witnesses.

14 MR. SILVERMAN: That may be just fine.
15 You may want to allow -- the first presentation will
16 be by Mr. Michael Schwartz on Topic 5A, and you may
17 want to see where we are after he completes that.

18 CHAIRMAN RYERSON: Okay.

19 MR. SILVERMAN: It is kind of separate
20 from the others.

21 CHAIRMAN RYERSON: All right.

22 MR. SILVERMAN: Otherwise, we could
23 certainly do them all.

24 CHAIRMAN RYERSON: Okay.

25 MR. SILVERMAN: That may be a good point

[REDACTED]

[REDACTED]

[REDACTED]

1 to break, too, after his. [REDACTED]

2 CHAIRMAN RYERSON: After his? Okay.
3 We'll see how it goes, then. So we will take
4 testimony starting with the GLE witnesses on Topic 5.

5 Okay. Ms. Oliver, you are still under
6 oath. And if the other three witnesses would please
7 raise your right hands. Do you swear or affirm that
8 the testimony you are about to give in this proceeding
9 will be the truth, the whole truth, and nothing but
10 the truth?

11 ALL: I do.

12 CHAIRMAN RYERSON: Thank you. And it's
13 our understanding you will begin, Mr. Schwartz, with a
14 presentation?

15 MR. SCHWARTZ: Yes.

16 CHAIRMAN RYERSON: Thank you. And I just
17 would note for the record that this is GLE Exhibit --
18 it's too blurry to read. Is that 113? No, oh, 013.
19 GLE 13. Thank you.

20 MR. SCHWARTZ: Turning to Slide 2, in
21 response to the Board's request for additional
22 testimony regarding the need for future enrichment
23 capability, Energy Resources International prepared a
24 detailed analysis of the requirements for uranium
25 enrichment services over the period 2012 to 2035.

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1 This analysis, which was previously submitted to the
2 Board, accounts for the near-term and potential long-
3 term effects of the events of the last several years,
4 including the Fukushima Daiichi accident, the world
5 economic downturn, and growing expectations for the
6 availability of low-cost natural gas.

7 Scenarios were considered with and without
8 the proposed new enrichment facilities that may be
9 built and operated in the United States, including the
10 GLE commercial facility, and expectations were
11 identified for the entire world and separately for the
12 United States.

13 I will review the highlights of the report
14 at this time and respond to any questions.

15 Moving to Slide 3, let me begin with our
16 forecast of installed nuclear generation. ERI
17 estimates that the impact of the Fukushima accident
18 will be about a four-year slippage in our previously
19 expected level of installed world nuclear generation
20 by 2030.

21 However, in ERI's reference forecast, even
22 after accounting for events over the last several
23 years, we still expect a 58 percent increase in
24 worldwide installed nuclear generation capability
25 through 2035, and a nine percent increase in the U.S.

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1 during the same period.

2 I would also like to point out that the
3 ERI forecast of installed nuclear generation is
4 conservative when compared to other forecasts. In
5 fact, it is about nine percent below the average of
6 all other forecasts during the 2030 to -- 2020 to 2030
7 time period.

8 One of the contributors to this difference
9 is that ERI assumes that Japan will gradually reduce
10 its commitment to nuclear power, where others expect a
11 stronger recovery.

12 Slide 4.

13 Let's look at what this means with regard
14 to requirements forecast for uranium enrichment
15 services. Based upon our reference forecast for
16 installed nuclear generation, world enrichment
17 requirements during the 2031 to 2035 period reflect a
18 76 percent increase relative to the present and a 37
19 percent increase in the U.S. during this same period.

20 We find our reference forecast of
21 enrichment requirements is also conservative as
22 compared to other available forecasts. In fact, it is
23 about 16 percent below the World Nuclear Association
24 reference forecast during the 2016 to 2030 timeframe.

25 This is a result of differences in

1 forecasts of installed nuclear generation, tails
2 assays, and assumptions regarding nuclear fuel cycle
3 design.

4 Slide 5, please.

5 During the past year, the level of
6 uncertainty has grown regarding two proposed U.S.-
7 based enrichment facilities. In particular, consider
8 the USEC American Centrifuge Plant, which was awarded
9 an NRC license in April 2007 and had expected initial
10 operation in 2014 followed by ramp-up to 3.8 million
11 SWU per year capability by 2018.

12 However, the American Centrifuge Plant
13 financing remains uncertain, and, according to the
14 Department of Energy, technology-related questions
15 remain open, placing its future prospects and schedule
16 in question.

17 There is also the AREVA Eagle Rock
18 enrichment facility, which was awarded a conditional
19 DOE loan guarantee in May 2010 and an NRC license in
20 October 2011 for a 6.6 million SWU per year facility.
21 However, prospects and schedule remain uncertain
22 following the project being placed on indefinite
23 suspension by AREVA in February 2012. The status was
24 reconfirmed by AREVA within the past week.

25 I should also note that capacity made

1 available for enrichment is expected to continue to be
2 slightly lower than the license capacity for some
3 enrichers due to their use of underfeeding to produce
4 uranium for sale in the markets.

5 Turning to Slide 6.

6 Outside the United States, there also have
7 been some changes during the past year, with others
8 expected during the next several years. AREVA's
9 George Besse I gaseous diffusion plant was permanently
10 shut down on June 7th of this year. AREVA's new
11 George Besse II plant became operational in April 2011
12 and is presently ramping up to 7.5 million SWU per
13 year over the next five years.

14 Expansion is continuing at Urenco's three
15 European facilities, with steady-state annual capacity
16 of 14.7 million SWU expected to be reached by the end
17 of this year.

18 The U.S.-Russia HEU agreement ends in
19 2013. Expansion by Rosatom is continuing as expected.
20 However, Rosatom's sales in the U.S. and Europe
21 continue to be constrained by trade loss.

22 Expectations for indigenous Chinese
23 enrichment capacity have increased significantly over
24 the past several years, to reflect significant
25 increase in expectations for enrichment requirements



1 and China's desire for self-sufficiency.

2 Ongoing use of plutonium and uranium
3 recycle are expected as a long-term source of supply,
4 amounting to about 2.1 million SWU per year
5 equivalent.

6 Slide 7, please.

7 This figure assumes the ERI reference
8 forecast requirements for enrichment services in base
9 supply. It also assumes that the proposed AREVA Eagle
10 Rock enrichment facility, the GE-Hitachi Global Laser
11 Enrichment Facility, and USEC's American Centrifuge
12 Plant are not constructed.

13 The gap that is expected to develop, and
14 then grow between enrichment supply and enrichment
15 requirements, is apparent in this figure, beginning
16 within about five years.

17 Slide 8, please.

18 First, let's review the issue of supply
19 adequacy on a world-based perspective. Under the ERI
20 reference forecast, at least one of the proposed
21 sources of supply -- either AREVA's Eagle Rock
22 facility, GE's GLE facility, or American Centrifuge
23 Plant -- is necessary to meet world requirements
24 through 2035, but with little margin.

25 Under the ERI high forecast, all three

1 proposed sources of supply are necessary to meet world
2 requirements through 2025, but are not adequate to
3 meet world requirements through 2035. Under the ERI
4 low forecast, none of the proposed sources of supply
5 are necessary to meet world, not U.S., requirements
6 through 2035.

7 And I would like to note that there is an
8 error in that third bullet. The "U.S." is a typo; it
9 should read "world" consistent with the title on this
10 slide.

11 If we were to assume the World Nuclear
12 Association's reference forecast, which is referenced
13 by many organizations, then all three proposed sources
14 of supply are necessary to meet world requirements
15 through 2030.

16 Turning to Slide 9 now, let's consider
17 supply adequacy looking only at the United States.
18 Under the ERI reference forecast, all three of the
19 proposed sources of supply are necessary to meet U.S.
20 requirements through 2035.

21 Under the ERI high forecast, all three
22 proposed sources are necessary to meet U.S.
23 requirements for the same period. However, even this
24 would not be adequate to meet projected requirements
25 during the 2016 to 2025 period. Under the ERI low

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1 forecast, at least two of the three proposed sources
2 of supply are necessary to meet U.S. requirements
3 through 2035.

4 And, again, if we were to assume the World
5 Nuclear Association reference forecast, then all three
6 proposed sources of supply are necessary to meet U.S.
7 requirements through 2030.

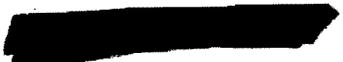
8 Again, I apologize, there is a typo in the
9 fourth bullet. "World" should read "U.S."

10 Moving on to Slide 10.

11 This summary table is provided as a
12 convenient way to review the results. Those scenarios
13 in which a supply shortage is forecast to occur have
14 been highlighted in yellow. Under the ERI reference
15 forecast, we see that all three proposed facilities
16 are needed to avoid a shortage in the United States of
17 U.S.-based supply during the 2016 to 2035 time period.

18 Under the same reference forecast, at
19 least one of the proposed sources of supply is
20 necessary to meet world requirements through 2035, but
21 even then with little margin.

22 While not shown here, all three of the
23 proposed sources of supply are necessary to meet world
24 requirements through 2030 under the World Nuclear
25 Association's reference forecast.



1 Given the previously noted uncertainties
2 with the proposed AREVA Eagle Rock Enrichment
3 Facility, and the USEC American Centrifuge Plant, the
4 Global Laser Enrichment Commercial Facility is clearly
5 needed.

6 This concludes my prepared presentation on
7 Topic 5A.

8 CHAIRMAN RYERSON: Thank you, Mr.
9 Schwartz.

10 Mr. Silverman, did you have an
11 observation?

12 MR. SILVERMAN: No. I was just going to
13 say that we -- the remaining slides, there are only 18
14 slides. You may want to --

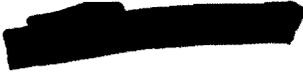
15 CHAIRMAN RYERSON: I think it probably
16 makes sense to finish the presentations, and then we
17 will go to lunch.

18 MS. OLIVER: I will be speaking from GLE
19 Exhibit 18. So if we turn to Slide 2, today we will
20 be discussing the alternatives analysis which was
21 presented in the environmental report, as well as the
22 cost-benefit analysis. We will be addressing the
23 effects of delayed construction. I will briefly
24 discuss GLE facility electrical requirements, and then
25 we will discuss implementation of mitigation measures.

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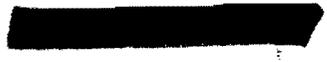
On Slide 3, when preparing the environmental report, there was an alternatives analysis that was done. And the types of alternatives that we looked at included design, technology, the site location, and then the facility location with on -- within the site.

We compared those to the no-action alternative. We quantified, where we could, the benefits of the proposed action. We calculated the environmental cost of the proposed action, quantified, when we could. And then, we also did a comparison of the proposed action versus the no-action alternative.

On Slide 4, the no-action alternative means that GLE does not construct or operate the proposed uranium enrichment facility. Enrichment services would continue to be provided by current suppliers. Approximately 80 percent of those suppliers are foreign. No further alterations would occur to the Wilmington site due to the GLE facility. And no further benefits or costs to the region or nation would accrue.

Slide 5.

There are, however, some benefits of the proposed action. Those include positive socioeconomic impact, both locally as well as a ripple effect across



1 the state. There would be an increase in tax revenue,
2 both locally and across the state. GLE would provide
3 another domestic source of uranium enrichment
4 services. It would also deploy the first next
5 generation enrichment service in the United States,
6 and it would advance U.S. national energy security
7 policy objectives.

8 On Slide 6, we show the resource areas
9 that we looked at in the environmental report. We
10 determined the environmental cost in each of these
11 resource areas. And based on the GLE evaluation in
12 the environmental report, we came up with four areas
13 where we had small to moderate impacts. The rest of
14 the areas were small.

15 And I would just like to remind you what
16 moderate impacts indicates, and that would be impacts
17 to a resource that will not destabilize that resource.
18 And in the case of GLE, the majority of the resource
19 areas where we found small to moderate impacts, those
20 impacts were characterized as temporary or mostly
21 during construction activities.

22 On Slide 7, the comparison of the proposed
23 action to the no-action alternative, GLE found in the
24 environmental report that the proposed action was
25 preferable to the no-action alternative, and that was



1 verified in the NRC staff final environmental impact
2 statement.

3 The reasons outlined why the proposed
4 action is preferable to the no-action alternative
5 include those that we have discussed earlier. We
6 would meet future demand for enrichment services, we
7 would advance national energy policy, we would
8 introduce a next generation enrichment technology into
9 the United States, and, in addition, we would yield
10 positive socioeconomic impacts to the area.

11 On Slide 8, I briefly discussed the site
12 selection process. The site selection process is
13 approximately a seven-step process. One of the last
14 steps is a qualitative cost-benefit. The steps that
15 are included in the site selection process include
16 identification of candidate sites, an initial
17 screening of those candidate sites, a core screening
18 of those candidate sites. Finally, a site
19 reconnaissance, followed by a fine screening, followed
20 by a cost-benefit -- qualitative cost-benefit
21 analysis.

22 The key factors that led us to the
23 Wilmington site over the Morris site, which were the
24 two sites that passed the fine screening step, those
25 key factors included the existing nuclear

1 infrastructure, provided some benefits to the
2 Wilmington site over the Morris site.

3 For example, we have existing radiation
4 protection programs, environmental management
5 programs, emergency preparedness programs, that we
6 could build upon in order to collocate another nuclear
7 facility on that same site.

8 There is a greater cost savings to GE to
9 put this site at the Wilmington site. There were
10 slightly smaller adverse impacts to water, air, and
11 ecology for the Wilmington site over the Morris site,
12 but slightly higher positive impacts in the
13 socioeconomic areas.

14 In summary, for site selection, no
15 obviously superior site was identified, and GE chose
16 the Wilmington site as the preferred site for their
17 uranium enrichment facility.

18 I am going to turn it over to Katherine
19 Heller to discuss the cost-benefit analysis.

20 MS. HELLER: Your Honor, I am Katherine
21 Heller. I'm a senior economist at RTI International.

22 I am going to begin on Slide 9 to discuss
23 question 5C, the cost-benefit analysis. And I will
24 begin with a general discussion of the methodology of
25 cost-benefit analysis, and then follow up with some

1 more specific information about the cost-benefit
2 analysis that we conducted for the GLE project.

3 Cost-benefit analysis is a widely used
4 economic method for evaluating the overall impact of a
5 project, policy, or regulation on society's well
6 being. To conduct a cost-benefit analysis, the first
7 step is to identify and characterize all costs or
8 negative impact and benefits or positive impact of the
9 project relative to expected baseline condition.

10 A subset of the costs and benefits may be
11 quantifiable and may be able to be valued in dollar
12 terms. Costs and benefits include the private costs
13 and benefits which accrue to the project proponent or
14 the firm that is implementing the project, and public
15 or external costs and benefits which accrue to other
16 members of society. The total benefits and costs to
17 society as a whole are the sum of the two.

18 The overall objective is to determine
19 whether the project has a positive net benefit to
20 society. That is, that its benefits will exceed its
21 costs.

22 Moving on to the second bullet, for the
23 GLE project specifically, we conducted a cost-benefit
24 analysis following guidance in NUREG-1748, Section 6.
25 We identified both private and public benefits and

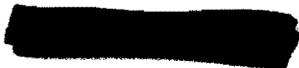
1 costs, which are defined as positive and negative
 2 impacts relative to the baseline -- in this case, the
 3 no-action alternative. Generally, the private
 4 benefits and costs were treated in a quantitative and
 5 value -- dollar value manner, whereas the public
 6 benefits and costs were only able to be characterized
 7 qualitatively.

8 Slide 10, please.

9 Slide 10 describes the location of the
 10 cost-benefit analysis within GLE's environmental
 11 report. Section 7 of the environmental report
 12 presents the overall cost-benefit assessment, with an
 13 emphasis on the external or public benefits and costs,
 14 which are generally treated qualitatively. The
 15 private benefits and costs are presented in
 16 proprietary Appendix U of the environmental report.

17 Slide 11.

18 As indicated on Slide 11, GLE's
 19 proprietary Appendix U evaluates private benefits and
 20 costs in monetary terms. It presents the revenues,
 21 which are the private benefits to GLE, and the private
 22 costs of construction, operation, and decommissioning.
 23 Qualitatively, both the benefits and the costs are
 24 estimated to be moderate, and the benefits exceed the
 25 costs during the operating period, and overall for the



1 project.

2 The external benefits and costs were
3 assessed in generally qualitative terms, and are
4 estimated to range from small to large. We used the
5 same general definitions of small, moderate, and large
6 as I used for impact and defined in Appendix B of
7 10 CFR Part 51.

8 Our findings are summarized on the next
9 slide.

10 Slide 12 summarizes the public benefits of
11 the proposed project. The first benefit that we
12 identified was contributing to energy security.
13 Currently, more than 80 percent of enriched uranium
14 used in the United States is imported. The GLE
15 project would increase the supply of domestically
16 produced uranium and reduce our using an advanced
17 uranium enrichment technology. Because this issue is
18 of national importance, we consider this benefit of
19 GLE to be large.

20 Second, without additional enrichment
21 capacity, as Mr. Schwartz described, analysts project
22 a possible shortfall of enriched uranium. GLE's six
23 million SWU would help to fill that gap. This is
24 another issue of national importance, and, therefore,
25 also a large benefit.

1 Third, by permitting increased use of
2 nuclear power generation in this country, the project
3 has the potential to reduce air emissions from fossil
4 fuel generation, which we consider a moderate benefit.

5 The SILEX technology uses less energy per
6 SWU than conventional enrichment, which is also a
7 moderate benefit. The estimated economic impacts
8 within the region of interest are also projected to be
9 moderate. Construction employment could reach 680
10 workers, and 350 workers will be employed each year
11 for more than 30 years during operations. They would
12 pay more than \$400,000 in income tax annually and more
13 than \$300,000 in sales tax to state and local
14 governments.

15 We focused our assessments on the direct
16 employment and payroll impact of the project. But we
17 recognize that because employees will spend money on
18 goods and services in the region, and GLE will
19 purchase some of their materials and supplies within
20 the region, that the actual economic impact of the GLE
21 project would be larger than the direct impacts, which
22 are simply the employment, spending, and output of the
23 GLE project itself.

24 We did not in the ER, in the main ER,
25 attempt to quantify the indirect or induced impact of

1 the GLE project. But we did, in one of the requests
2 for additional information, identify the employment
3 multipliers and other multipliers that would apply.
4 And we estimate that during the construction period
5 the total impact on employment could be as much as 1.3
6 times GLE's employment, and the -- during operations
7 it could be as much as 3.2 times GLE's employment.

8 The estimated state and local taxes, while
9 a benefit, are a small share of current tax receipts,
10 so we regard those impacts as small.

11 Overall, we concluded that the GLE project
12 would result in significant benefits -- public
13 benefits, ranging from small increases in state and
14 local tax revenues to increased energy security and
15 adequate enrichment capacity, which are national in
16 scope.

17 Next slide, please.

18 We also considered the public or external
19 costs of the project. These external costs are the
20 estimated environmental impact of the GLE project,
21 which have already been presented on Slide 6 and
22 discussed by Ms. Oliver. They range in scale from
23 small to moderate.

24 Considering the estimated private benefits
25 and costs, and the public or external benefits and

1 costs, our assessment concluded that the proposed GLE
2 project would be preferable to the no-action
3 alternative. That is, constructing and operating the
4 GLE project would yield positive net benefits for
5 society as a whole.

6 Slide 14.

7 So, to summarize our overall conclusions,
8 the cost-benefit analysis reported in the ER was
9 conducted prior to the global economic recession and
10 the Fukushima event. While we did not analyze the
11 costs and benefits -- reanalyze the costs and
12 benefits, we did consider whether there would be
13 sufficient demand for GLE's enrichment services. And
14 in that regard, we reviewed recent projections,
15 including Mr. Schwartz's report.

16 The projected demand for enrichment is
17 lower than it was pre-Fukushima event and pre-
18 recession. However, it is projected to grow
19 substantially over the next 20 years, and, in fact, is
20 at least as high as the projections were when we wrote
21 the ER, the environmental report.

22 Due to this projected growth, additional
23 enrichment capacity from GLE and other new enrichment
24 facilities will be needed. Both national policy
25 objectives and the commercial benefits of the multiple

1 supplies of advanced technologies for domestic
2 enrichment emphasize the need for the GLE facility.
3 Based on our assessment of both public and private
4 benefits and costs, and considering current market
5 conditions, we conclude that the benefits of the
6 proposed project exceed the cost.

7 Ms. Oliver will now discuss our response
8 to question 5E.

9 MS. OLIVER: On Slide 15, the Board noted
10 that GLE has delayed its pre-construction activities
11 which were assumed to happen before we receive the
12 license from the Nuclear Regulatory Commission. We
13 have delayed the pre-construction activities.
14 However, we do not have time to compress the
15 construction schedule to offset these delays. And,
16 therefore, we don't expect the environmental impacts
17 to increase on an annual basis, but, rather, remain as
18 they were when they were analyzed in the environmental
19 report.

20 Slide 16.

21 The Board did ask a question about GE
22 facility electrical requirements. GE has been
23 discussing the electrical requirements for the new
24 facility with Progress Energy, and Progress Energy has
25 assured us that they do have sufficient capacity to

1 meet the new facility's electrical requirements, as
 2 well as continue to meet the capacity for the existing
 3 facilities on the Wilmington site. In order to do
 4 this, Progress Energy will have to upgrade their
 5 existing feeder lines and terminals to the Wilmington
 6 site.

7 GLE and Progress Energy entered into a
 8 preliminary written agreement in February of 2009.
 9 And while GLE did not end up working towards the dates
 10 that we had in the 2009 letter for planning and
 11 preliminary design work, we have had discussions with
 12 Progress Energy as recent as last September, and
 13 Progress Energy does intend to enter into another
 14 agreement with GLE once we get to the point where we
 15 can make a commercialization decision and then come up
 16 with a revised construction schedule.

17 I'm on Slide 17 now.

18 So to switch back to mitigation measures,
 19 GLE has listed out in Table 5G-1 and Table 5G-2 the
 20 commitments from the FEIS. So these include
 21 mitigation measures that GLE has identified, as well
 22 as those mitigation measures that the NRC staff has
 23 identified. GLE will implement those mitigation
 24 measures whether they are mandatory, required by
 25 another federal, local, or state agency, or if they



1 were voluntary.

2 If GLE finds a reason that they cannot
3 implement one of the voluntary commitments, we will
4 perform an analysis based on our five factors that we
5 discussed previously. We will document that in our
6 compliance checklist, which will be made available to
7 the NRC.

8 On page 18, just to sum up what the four
9 of us have said this morning, GLE has evaluated
10 alternatives to the proposed action. Our cost-benefit
11 analysis weighed private and public benefits against
12 the costs, both environmental and private. The cost-
13 benefit analysis indicates that the proposed action is
14 preferable to the no-action. The GLE facility will
15 serve to meet private and public needs.

16 And, in addition, the Fukushima event and
17 current economic conditions do not alter the need for
18 the GLE commercial facility.

19 This concludes our presentation.

20 CHAIRMAN RYERSON: Thank you. We thank
21 all of the members of the panel for your
22 presentations, and we will have questions after lunch.

23 A couple of logistics -- first, notes made
24 today -- and I will let Ms. Jenny tell me if I'm
25 wrong, but I did not hear today any classified

1 information. There may be some non-public
2 information, which would be -- should be, obviously,
3 treated appropriately, but I did not hear any
4 classified information today. And Ms. Jenny did not
5 inform me there was any classified information, so
6 today's notes you are welcome to keep as you wish.

7 We should pick a time. Would 1:30 be
8 acceptable? Sounds like it's acceptable to the NRC
9 staff. Mr. Silverman, is that fine for you?

10 MR. SILVERMAN: That is fine.

11 CHAIRMAN RYERSON: So we will resume at
12 1:30 with our questions of this panel.

13 Thank you.

14 (Whereupon, at 12:15 p.m., the proceedings
15 in the foregoing matter recessed for lunch.)
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1 A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

2 (1:30 p.m.)

3 CHAIRMAN RYERSON: We are back on the
4 record.

5 Mr. Silverman, did you have something?

6 MR. SILVERMAN: Of course. Just one minor
7 correction that we wanted to point out in the
8 testimony before you get into your questioning. Ms.
9 Heller would like to clarify a missing item.

10 CHAIRMAN RYERSON: Certainly.

11 MS. HELLER: In Table 5 of our written
12 testimony which is on pages 42 and 43, which is a
13 list of all of our cost and benefits. I have noticed
14 that historical and cultural impacts have been
15 omitted from this table.

16 However, they are present in Slide 6 of the
17 presentation, but there should be a row that
18 indicates that we expect those impacts to be small.

19 CHAIRMAN RYERSON: Thank you, Ms. Heller.

20 All right. We are continuing now with the
21 Judges' examination of the GLE witnesses on Topic 5,
22 and we begin with Judge Jackson.

23 ADMIN. JUDGE JACKSON: Thank you.

24 Mr. Schwartz, I think I will start with
25 you. I have some questions.

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1 First, we'd like to say that the Board
2 appreciated the updated analysis that you provided in
3 your report. I found that to be helpful, and I'd
4 like to direct a few questions toward that initially.

5 My first two questions actually are from
6 pages 9 and 10 of that report, which is GLE-014.
7 Let's see. Go down and there should be some bullets.
8 Let's make that page 9. There are a couple of
9 bullets on page 9. There's six; now we're getting
10 close.

11 At the bottom, there we go, it says, "Plant
12 Specific for the U.S.," and it's talking about fuel
13 cycle lengths that were used. So I'm going to have a
14 few questions about some of the assumptions that go
15 into the projections that you have in your report.

16 And my first one had to do with the fuel
17 cycle length. It wasn't clear to me what we assume
18 for the fuel cycle lengths in the U.S. Then did they
19 increase or did you project an increase or did you
20 just use the current average?

21 MR. SCHWARTZ: Sure. The fuel cycle
22 lengths for the plants in the United States are
23 consistent with the way they presently operate their
24 plants. For the most part they're either on a
25 nominal 18-month refueling frequency or 24-month.

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1 The pressurized water reactors tend, with some
2 exceptions, to the 18-month cycles. Boiling water
3 reactors tend more toward 24-month cycles, and we
4 maintain that same approach.

5 ADMIN. JUDGE JACKSON: All right. Thank
6 you.

7 It wasn't clear to me whether or not you
8 had tried to project that out, 235 with some increase
9 or not.

10 All right. The bullet just above that
11 bullet on the same page, if you could bring it down,
12 talks about burn-up rates, burn-up levels, and it
13 talks about 53 gigawatt days per metric ton. Still
14 it wasn't clear to me. What were you using for the
15 U.S. projection then for the burn-up rate?

16 MR. SCHWARTZ: Sure. The burn-ups are, you
17 know, as we had indicated there. We let those tend
18 to increase up to the level indicated, which on the
19 average were the 53 gigawatts --

20 ADMIN. JUDGE JACKSON: Okay.

21 MR. SCHWARTZ: -- per metric ton, which is,
22 you know, consistent with the approach that's been
23 taken. Some of the units in the United States are
24 operating at about that level, have been for some
25 time and have indicated no intention of going beyond

1 UNCLASSIFIED that.

2 ADMIN. JUDGE JACKSON: Okay. Thank you.

3 Now, maybe we could turn to your PowerPoint
4 charts. Look at the chart on page 5.

5 MR. SCHWARTZ: Yes.

6 ADMIN. JUDGE JACKSON: I have a few
7 questions there. If you'll start at your first
8 bullet, you talk a little about the Paducah plant.
9 Could you clarify the issue of pre-produced
10 inventory? How large is that, and is that earmarked
11 for a particular customer or what?

12 MR. SCHWARTZ: Certainly. I don't have off
13 the top of my head the specific number, but the
14 approach used for that, if the same thing that was
15 done for the Areva George Besse I, which also is a
16 gas diffusion plant which was just recently shut
17 down, and the same situation with Paducah.

18 One cannot generally operate those at
19 extremely low levels of production. So what happens
20 is they operate at a higher level consistent with
21 their more economic level of production even if they
22 don't have customers as they're getting ready to shut
23 down, but they recognize they'll be ramping up the
24 new plant. For instance, in the case of Areva, it's
25 the George Besse II centrifuge enrichment plant,

1 which is now being ramped up, and with regard to
2 USEC, its intent would be to, you know, bring on line
3 the American Centrifuge Plant.

4 In each case there's a transition between
5 shutting down the old plant and starting up the new
6 plant. So what happens is to the extent there is
7 capability to do so, the companies will use the older
8 plant. They'll produce a little bit more than they
9 may have customers identified for, and they'll use
10 some of that enrichment services in the form of EUP
11 (phonetic) to actually meet future orders that would
12 otherwise be served fully by the new plant.

13 I mean, these aren't significant
14 quantities, but it's just, you know, that's the way
15 to do it.

16 ADMIN. JUDGE JACKSON: I assumed it would
17 be a small effect --

18 MR. SCHWARTZ: That's correct.

19 ADMIN. JUDGE JACKSON: -- in the overall
20 scheme of things.

21 MR. SCHWARTZ: Yes, it is.

22 ADMIN. JUDGE JACKSON: All right. Thank
23 you.

24 I was wondering about the LES facility in
25 New Mexico. Are there plans to ramp up to their full

2 Are they firm? Is that something that
3 there's good evidence that that will happen?

4 MR. SCHWARTZ: I believe so. They are now
5 in the process of ramping up to their current license
6 capacity, and they have indicated that, while not
7 necessarily formally, that the intent is to increase
8 beyond that, and that's why we've used the higher
9 number. We feel that that's realistic, and over time
10 they will more than likely increase capacity to the
11 higher level.

12 ADMIN. JUDGE JACKSON: Okay. Now, you
13 mentioned something in your verbal testimony here
14 earlier about the Eagle Rock facility. Had there
15 been an announcement just this past week regarding
16 their delay?

17 MR. SCHWARTZ: Yes. It was really another
18 statement made, which largely reiterated what they
19 had said earlier in the year, and in this particular
20 article, they had more specifically noted that what
21 they were looking for was a potential financial
22 participant in the project. That's really, I think,
23 the key to that project going ahead on a timely
24 basis. They would like somebody to help share the
25 financial burden.

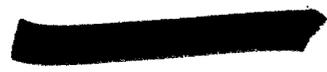
1 ADMIN. JUDGE JACKSON: All right. Thank
2 you.

3 Just quickly, in the last bullet you talk
4 about under-feeding. Could you expand on that a
5 little bit and the potential impact?

6 MR. SCHWARTZ: Yes. The under-feeding is
7 basically where the operator of the enrichment plant
8 operates a facility at a lower tails assay than what
9 they have contracted with their customer to provide.

10 The customers will have to provide the uranium feed
11 materials to be enriched, and depending on what the
12 tails assay is, they would provide more or less
13 uranium, and they'd end up purchasing more or less
14 enrichment services to end up with this same final
15 product, which is, you know, certainly about
16 enrichment services.

17 What has happened over the last several
18 years is that a number of the enrichers have taken
19 advantage of the fact that they can contract with a
20 customer at one tails assay, receive the appropriate
21 amount of uranium and, you know, bill them for the
22 appropriate amount of enrichment services, but then
23 operate the facility at a lower tails assay. In so
24 doing what happens is they will use more enrichment
25 services than contracted for, but in exchange they'll



1 end up with more natural uranium, which they won't
2 have to use on behalf of that client, and that allows
3 them to have a salable product, which they can turn
4 around and in addition to their enrichment services,
5 which they will sell, they now are able to sell
6 natural uranium into the market as another product.

7 And depending on the respective prices at
8 which they would sell enrichment services versus
9 uranium, they can see a financial benefit to actually
10 using that enrichment capability to essentially
11 create additional uranium which they can then sell.

12 ADMIN. JUDGE JACKSON: Thank you.

13 I guess my last question in this vein is on
14 the next page. That would be the chart on page 6,
15 and the last bullet on that has to do with recycle,
16 and I just wanted to ask did you have any projection
17 that would cause recycle to increase in any
18 countries, or did you just assume it would stay at
19 current levels?

20 MR. SCHWARTZ: No. Actually this reflects
21 some increase over time, and this is really the long-
22 term number, and it's based on, you know, what
23 various countries have indicated their plans are as
24 adjusted for changes that have taken place in the
25 last couple of years, and based on the information

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available to us and where we saw various programs
2 headed, we thought this was a reasonable assessment
3 of what the long-term recycle might contribute in
4 terms of offsetting enrichment requirements.

5 ADMIN. JUDGE JACKSON: All right. Thank
6 you.

7 If we could go to the second set of charts
8 then that the applicant showed, and if we would go to
9 Chart 5, this may be, Ms. Oliver, this might be your
10 area. The second to last bullet talks about the
11 deployment of next generation enrichment technology
12 that is exclusive to the U.S.

13 What is that exclusivity based on? Is
14 there an agreement or --

15 MS. OLIVER: There is. There's a 1-2-3
16 agreement that was signed by the United States and
17 Australia, referred to as the SILEX Treaty, and per
18 the terms of that agreement, only GE has rights to
19 commercialize the facility in the United States, with
20 the caveat that the commercial facility can only use
21 the enriched uranium for peaceful purposes. So no
22 weapons type enrichment, no enrichment that would go
23 into the reactor that would create tritium and then
24 be used for weapons.

25 ADMIN. JUDGE JACKSON: But there is a

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clause that SILEX couldn't be used by another company

2 in another nation?

3 MS. OLIVER: Yes, exactly. It is exclusive
4 to General Electric commercializing the technology.
5 The treaty is.

6 ADMIN. JUDGE JACKSON: All right. Thank
7 you.

8 I guess my last general question, it comes
9 up in different ways, but are there constraints on
10 where GLE could market these enrichment services?
11 Could they be marketed outside the U.S.

12 MS. OLIVER: As far as I know, there are
13 not any constraints. So we can market enrichment
14 services both domestically as well as globally.

15 ADMIN. JUDGE JACKSON: All right. Thank
16 you.

17 Those are my questions.

18 CHAIRMAN RYERSON: Thank you, Judge
19 Jackson.

20 Judge Garcia.

21 ADMIN. JUDGE GARCIA: Yes, thank you.

22 Mr. Schwartz, I wanted to ask you about
23 your PowerPoint 3 slide, and I just wanted to clarify
24 a point. In your oral testimony, I thought I heard
25 you say that this assumes Japan will be using lower

amounts of nuclear energy. Were other countries factored into this analysis?

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MR. SCHWARTZ: Yes, they certainly were. This was done on a country-by-country basis. The reason for my statement with regard to Japan, in particular, is because that is such a significant contributor at present to use of nuclear power and requirements and, therefore, that tended to stand out as a difference among the different forecasts.

ADMIN. JUDGE GARCIA: Okay. Thank you.

I'd like to go on to your chart, Slide 7, and I wondered if you could help us appreciate what you're showing there. What assumptions were made in making this chart?

MR. SCHWARTZ: Certainly. The black flowing that runs along the top, which is marked ERI Reference Requirements, is based on a, as I said, country-by-country analysis of what different programs were looking like, how various countries were planning to develop or expand upon or terminate nuclear power programs, and then using the various fuel cycle assumptions that we talked about at the beginning of Judge Jackson's questions, go ahead and turn that into enrichment requirements.

So those are the enrichment requirements



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1 that are shown there. The various colored segments
2 that show up are for each individual supplier and in
3 some cases individual facilities, what their present
4 -- what our present expectation was for their current
5 and future capability to supply enrichment services
6 on the world market, and as well as in some cases,
7 for instance, you'll see there on the left side the
8 notation regarding HEU. You know, this was the U.S.-
9 Russia HEU agreement, which is scheduled to conclude
10 the middle of next year. So that goes away as a
11 segment of supply.

12 Well, let me stop at that.

13 ADMIN. JUDGE GARCIA: Okay. Thank you.

14 No further questions.

15 CHAIRMAN RYERSON: Thank you.

16 Ms. Oliver, I would like to refer to your
17 testimony. I guess it's in Exhibit 12.

18 Can you call that up, Andy? Page 36,
19 particularly at the top of page 36.

20 You cite in your testimony this Department
21 of Energy document that emphasizes some potential
22 benefits of a domestic uranium enrichment capability,
23 but particularly in light of your comments about the
24 limitations in the SILEX Treaty for peaceful
25 purposes. I'm just curious whether some of these

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1 uses may not be permissible.

2 For example, the second bullet, "Near Term
3 for the National Security Tritium Production
4 Mission," would any production from the GLE facility
5 be allocated for that purpose?

6 MS. OLIVER: No, and you are correct that
7 the second and third bullet on that page would not be
8 applicable to GLE. GLE would not be able to
9 participate in those activities under the terms of
10 the current treaty.

11 CHAIRMAN RYERSON: Thank you.

12 So the GLE production would be allocated
13 solely to commercial civilian reactors?

14 MS. OLIVER: Nuclear fuel, yes, sir.

15 CHAIRMAN RYERSON: Nuclear fuel, and is
16 there any requirement or encouragement for GLE to
17 sell its production to domestic U.S. users, or is it
18 really pretty much whatever the market will bring?

19 MS. OLIVER: I'm not aware of any
20 encouragement from government agencies, encouraging
21 us to sell it domestically, but I will caveat that
22 with there is a lot of interest domestically, and so
23 GLE is in the process of finalizing contracts with
24 domestic customers.

25 CHAIRMAN RYERSON: Thank you.



1 And I just have a question or two for Mr.
2 Schwartz. Looking at your statistics and the numbers
3 that your projections are based on, it seemed to me
4 that a number come from the World Nuclear Association
5 or other groups that some might argue would have an
6 optimistic bias perhaps to their projects, and I was
7 wondering if you considered that and if so, how you
8 accounted for that.

9 MR. SCHWARTZ: Certainly. I would agree
10 with you that there certainly is an optimistic bias,
11 which is the reason that we developed our forecasts
12 of requirements independent of them, and we really do
13 not utilize their forecast in that regard.

14 What I've done though is, in providing a
15 basis for comparison with our forecast, identified
16 those that have been prepared by other organizations,
17 and they are the only organization out there that
18 come close to publicly releasing a detailed
19 discussion of their forecast for enrichment services.

20 So they were the ones on which we based our
21 comparison.

22 The summary table at the end of this
23 presentation, as well as our figures, are all based
24 on our own internally generated analyses and
25 forecasts, but we did include the WNA forecast as a



1 basis for comparison and to highlight the fact that
2 for those that would accept that as being a
3 reasonable forecast for the future, and when I say
4 it's not reasonable, it's just not completely
5 consistent with the way we would look at it; that it
6 results in high requirements for enrichment services
7 both in the U.S. and worldwide and, therefore,
8 results in a higher need for new facilities such as
9 the GLE facility.

10 CHAIRMAN RYERSON: Thank you, Mr. Schwartz.

11 Judge Jackson, did you have any further
12 questions?

13 ADMIN. JUDGE JACKSON: Not for this panel.

14 CHAIRMAN RYERSON: Judge Garcia?

15 ADMIN. JUDGE GARCIA: Yes, I had one
16 question to Ms. Oliver regarding the impact of delay
17 in preconstruction activities.

18 Has a new schedule been put together?

19 MS. OLIVER: It has not. No, we don't have
20 a schedule. We are continually reevaluating the
21 factors that go into determining that schedule, but
22 at this time there is not.

23 ADMIN. JUDGE GARCIA: Okay.

24 CHAIRMAN RYERSON: Well, again, we thank
25 the panel for your --

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MR. SILVERMAN: Your Honor, one minute with the panel?

CHAIRMAN RYERSON: Please, certainly.

MR. SILVERMAN: Thank you.

(Pause.)

MS. OLIVER: May I correct the record, please? In response to --

CHAIRMAN RYERSON: Certainly. Ms. Oliver.

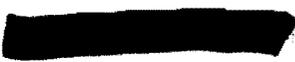
MS. OLIVER: -- one of Judge Jackson's questions, I said that the 1-2-3 treaty is what allows GLE to commercialize the facility. While we do have a 1-2-3 treaty, that's between the United States and SILEX. The 1-2-3 allows SILEX to go to countries that have the 1-2-3 with Australia. So that's right now just the United States.

But we have a separate document that's called the Technology and Commercialization Licensing Agreement with SILEX. So that's the contrast between SILEX and GLE, and that's the document that requires the technology to only be commercialized by GE.

CHAIRMAN RYERSON: I see. So the source of that is the contract and not the actual treaty.

MS. OLIVER: Not the actual treaty, correct.

CHAIRMAN RYERSON: Thank you.



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We thank the panel for your testimony. I think some of you we will hear from again, but you're all welcome to sit in the audience for the time being if you would like.

Thank you.

All right. So, Ms. Safford, are we ready with the staff witnesses --

MS. SAFFORD: Yes, and we'll --

CHAIRMAN RYERSON: -- on Topic 5? Shall we take a little break until two o'clock?

MS. SAFFORD: Certainly. We'll go get them.

CHAIRMAN RYERSON: Thank you.

(Whereupon, the proceedings in the foregoing matter went off the record at 1:55 p.m. and went back on the record at 2:01 p.m.)

CHAIRMAN RYERSON: Welcome back. So we have now the NRC staff panel on Topic 5.

Ms. Davis, you've already been sworn, and so if I could ask the other two gentlemen, please raise your right hand.

Do you swear or affirm that the testimony you are about to give in this proceeding will be the truth, the whole truth and nothing but the truth?

MR. AVCI: I do.

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MR. ALLISON: I do.

2 CHAIRMAN RYERSON: Thank you.

3 And my understanding is you plan to begin
4 with a presentation. Am I correct?

5 MS. DAVIS: Yes, Your Honor.

6 CHAIRMAN RYERSON: Please proceed.

7 MS. DAVIS: Good afternoon. Again, my name
8 is Jennifer Davis, and I'm the Environmental Project
9 Manager for the review of GLE's license applications
10 for the proposed GLE facility, and I oversaw the
11 preparation of NUREG-1938.

12 The purpose of our testimony today will be
13 to provide information about the NRC staff's
14 evaluation of the proposed GLE facility, alternatives
15 analysis, cost-benefit analysis, and NRC staff
16 recommendations regarding the proposed action, and
17 the FEIS, and about the impact of GLE potentially
18 compressing its construction schedule as a result of
19 it not having commenced preconstruction activities.

20 I will be presenting the staff's testimony
21 for Topics 5A and 5D. My presentation for this topic
22 will focus on this NRC staff analysis for the purpose
23 and need for the proposed facility.

24 Dr. Halil Avci to my left of Argonne
25 National Laboratory will be presenting Topics 5B and

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2 Mr. Tim Allison on my right, also from
3 Argonne National Laboratory , will be presenting
4 Topic 5C, which is the cost-benefit analysis.

5 Next slide, please. Next slide again. I
6 apologize.

7 The proposed action is the NRC issuing a
8 license that would allow GLE to construct, operate,
9 and eventually decommission a laser based uranium
10 enrichment facility near Wilmington, North Carolina.

11 The need for the proposed facility was based on the
12 need for enriched uranium to fulfill electricity
13 generation requirements in the United States, the
14 need for domestic supplies of enriched uranium for
15 national energy security objectives.

16 The need for enriched uranium that would be
17 generated by the proposed GLE facility would be used
18 in commercial U.S. power plant. In the FEIS, the NRC
19 staff used forecasting data issued by the U.S. Energy
20 Information Administration, herein referred to as
21 EIA.

22 EIA collects, analyzes, and disseminates
23 independent and impartial energy information to
24 promote sound policy making, efficient market, and
25 public understanding of energy and its interaction

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economy and the environment.

2 In EIA's annual Energy Outlook 2010 with
3 projections to '25 report, it states that U.S.
4 commercial nuclear power plants supply approximately
5 20 percent of the nation's electricity requirements.

6 In its 2011 annual Energy Outlook report, EIA
7 projects for the reference case based on established
8 policies and current trends that by 2035 domestic
9 electricity demand is projected to grow by 30
10 percent.

11 As future demand for electricity increases,
12 the need for enriched uranium to fuel commercial
13 nuclear power plants is also expected to increase.

14 Next slide, please.

15 The NRC staff's analysis for the need for
16 the proposed yearly facility in the FEIS considered
17 forecast of demand for enriched uranium and nuclear
18 power capacity generation in the United States. More
19 recent EIA reports, such as EIA's annual Energy
20 Outlook for 2011 with projections to 2035 also
21 suggest that nuclear capacity in generation with the
22 United States would continue to grow. In its annual
23 Energy Outlook for 2012, early release overview, EIA
24 estimates that nuclear generating capacity will
25 increase in 2010 and then will decline in 2035 due to

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1 the retirement of the plants.

2 The NRC staff's analysis for the need for
3 the proposed facility also considered the number of
4 combined license applications actively being reviewed
5 by the NRC and expects to be submitted in the future.

6 Additionally, in early 2012, the NRC issued
7 the first combined licenses to construct and operate
8 four new nuclear power plant units.

9 The EIS forecast of nuclear generating
10 capacity combined with applications from industry for
11 construction and operation of new plants suggests a
12 continuing demand for enriched uranium in the United
13 States.

14 Next slide, please.

15 The NRC staff also considered contributions
16 from different sources that currently supply enriched
17 uranium to meet U.S. demand. According to EIA's May
18 2011 uranium marketing annual report, domestic
19 production of enriched uranium currently fulfills 16
20 percent of U.S. demand. The Paducah gaseous
21 diffusion plant in Paducah, Kentucky, operated by
22 USEC, Incorporated's subsidiary, United States
23 Enrichment Corporation, is the primary uranium
24 enrichment facility operating in the United States.

25 As discussed in the FEIS and in response to

1 Question 39 of the Board's initial questions, in 2007
2 the Department of Energy projected that all gaseous
3 diffusion enrichment operations in the United States
4 would cease in 2012. According to USEC,
5 Incorporated, they were evaluating whether it is
6 economically feasible to continue operation at the
7 Paducah gaseous diffusion plant.

8 On May 15th of this year, DOE announced the
9 finalized details of the transfer of depleted uranium
10 to Energy Northwest that will be enriched at Paducah
11 during the next year. This arrangement will allow
12 operations at Paducah gaseous diffusion plant for
13 another year.

14 However, there is still some uncertainty
15 regarding whether Paducah will continue to operate
16 beyond this additional year.

17 Another source of enriched uranium in the
18 United States is the National Enrichment Facility, or
19 NEF, in Lea County, New Mexico. The facility began
20 operations in June of 2010. As of the beginning of
21 April 2012, NEF was operating 16 cascades with a
22 capacity of approximately one million separative work
23 units per year.

24 The facility is expected to reach its fully
25 NRC license capacity of three million SWU by October

1 2013. In addition, the licensee is considering plans
2 to expand the total capacity to 5.9 million
3 separative work units, or SWU, per year.

4 Currently foreign sources supply
5 approximately 84 percent of the U.S. demand for
6 enriched uranium. Under Megatons to Megawatts
7 Program, USEC implements the 1993 government-to-
8 government agreement between the United States and
9 Russia. It calls for Russia to convert 500 metric
10 tons of highly enriched uranium from dismantled
11 nuclear warheads into low enriched uranium. This
12 program currently supplies approximately 37 percent
13 of U.S. demand. This agreement is scheduled to
14 expire by 2013.

15 Other countries that produce and export
16 enriched uranium to the United States include China,
17 France, Germany, the Netherlands and the United
18 Kingdom. These imports fulfill approximately 47
19 percent of the U.S. demand for enriched uranium. Of
20 note is that approximately half of the U.S. demand
21 for enriched uranium is currently supplied by the
22 Megatons to Megawatts Program and the Paducah gaseous
23 diffusion plant, both of which are not expected to be
24 available beyond 2013.

25 In March of 2011, USEC, Incorporated,

1 signed an agreement with a Russian corporation,
2 TENEX, for low enriched uranium to be supplied to
3 USEC from Russian commercial enrichment activities.
4 Under the terms of this new agreement, the supply of
5 low enriched uranium will begin in 2013, and it will
6 increase until it reaches a level in 2015 that
7 includes a quantity of separative working that's
8 equal to approximately one-half the level currently
9 supplied under Megatons-to-Megawatts Program.

10 The level of supplied low enriched uranium
11 could eventually reach the level of supply under
12 Megatons-to-Megawatts Program, but only if TENEX and
13 USEC mutually agree to increase the purchases and
14 sales of separative working to that level.

15 Next slide, please

16 With regard to the Fukushima Daiichi
17 accident, NRC staff recognizes that there are many
18 uncertainties regarding the effects of the accident
19 on nuclear power growth and the demand for enriched
20 uranium in the United States and around the world.
21 However, current information suggests that nuclear
22 power will continue to grow globally, but at a slower
23 rate than anticipated before the accident.

24 The EIA's International Energy Outlook 2011
25 report notes that electricity generation from nuclear

power worldwide in the reference case will increase
2 from 2.6 trillion kilowatt hours in 2008 to 4.9
3 trillion kilowatt hours in 2035. As previously
4 discussed, the EIA also estimated that nuclear
5 generating capacity in the United States would
6 increase.

7 It should be noted that EIA's report does
8 not reflect the possible ramifications of the
9 Fukushima Daiichi accident with long-term global
10 development of nuclear power. However, the report
11 notes that while long-term implications of the
12 disaster at Fukushima Nuclear Power Plant for the
13 world nuclear power development are unknown, some
14 countries, Germany, Switzerland and Italy, have
15 already announced plans to phase out or cancel all
16 their existing and future reactors. Those plans and
17 new policies or other countries that may adopt in
18 response to the disaster at the Fukushima Daiichi
19 plant, although not reflected in the International
20 Energy Outlook 2011 projections, indicate that some
21 reduction in the projection for nuclear should be
22 expected.

23 Also, the International Atomic Energy
24 Agency, or IAEA, report published in August of 2011,
25 "Energy Electricity and Nuclear Power Estimates for

1 the Period up to 2050," which takes into
2 consideration the effects of the Fukushima Daiichi
3 accident, notes that the world's installed nuclear
4 power capacity in both the low and high projections
5 is expected to grow in 2030, but at an amount lower
6 than predicted in the 2011 report.

7 Nonetheless, IAEA predicts that the number
8 of operating nuclear reactors in the world is
9 expected to increase in both projections of this
10 report. Furthermore, countries such as China, India,
11 United States and France are maintaining nuclear
12 power as part of their energy portfolio and/or
13 developmental plan.

14 In conclusion, the staff recognizes that
15 Fukushima Daiichi has affected global nuclear growth,
16 but as noted, current information still suggests that
17 nuclear power will continue to grow globally, though
18 potentially at a slower rate than anticipated prior
19 to the Fukushima Daiichi accident.

20 Next slide, please.

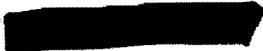
21 In the FEIS, NRC staff reviewed the
22 different sources of enriched uranium currently used
23 to meet U.S. demand. Additional potential future
24 domestic sources of enriched uranium have emerged in
25 the U.S. in recent years. The staff recognizes the

1 uncertainty surrounding the construction of USEC,
2 Incorporated, American Centrifuge Plant, or ACP as
3 I'll refer to it from this point on, and AREVA
4 Enrichment Services, LLC, Eagle Rock Enrichment
5 Facility, and took this uncertainty into account in
6 the FEIS.

7 As discussed in USEC's U.S. Securities and
8 Exchange Commission Form 10-K submittal, USEC will
9 need significant additional funding to complete
10 American Centrifuge Plant. As mentioned in our
11 pre-filed testimony, USEC applied for a \$2 billion
12 loan guarantee under DOE's program in July 2008.
13 Instead of moving forward with a conditional
14 commitment for a loan guarantee, DOE proposed a two-
15 year cost share research, development and
16 demonstration program to enhance the technical and
17 financial readiness of subterfuge technology for
18 commercialization.

19 DOE indicated that USEC's application for a
20 loan guarantee would remind pending during this
21 program. DOE has given USEC no assurance that a
22 successful research, development and demonstration
23 program will result in a loan guarantee.

24 On October 12th, 2011, the NRC issued a
25 license to AREVA for construction and operation of a



1 gas centrifuge uranium enrichment facility I
2 Bonneville County, Idaho. On December 13th, 2011,
3 AREVA announced that it was putting construction of
4 the facility on hold due to financing issues. In the
5 FEIS the staff considered the impact that would
6 result if all licensed enrichment facilities -- that
7 would be NEF, American Centrifuge and Eagle Rock --
8 and the proposed DOE facility are constructed and
9 operated at their maximum rated or anticipated
10 production limits, and that Paducah is shut down.

11 The total projected annual domestic
12 enrichment capacity would equal 22.3 million
13 separative work units which would exceed the
14 projected annual domestic demand. However, given the
15 uncertainties regarding the construction and
16 operating schedule of domestic licensed enrichment
17 facilities, this projected level of extra capacity
18 would provide the needed assurance that enriched
19 uranium would be reliably available for commercial
20 U.S. power plants.

21 Additionally, the NRC staff considered
22 statements made by DOE in the National Nuclear
23 Security Administration that indicated that having a
24 domestic sources of enriched uranium is important to
25 U.S. national energy security.



1 The proposed GLE facility could play an
2 important role in insuring the nation's ability to
3 maintain a reliable economical domestic source of
4 enriched uranium consistent with national energy
5 policy objectives.

6 This concludes my presentation.

7 MR. AVCI: Good afternoon. My name is
8 Halil Avci. I'm an employee of Argonne National
9 Laboratory, and for this environmental review I was
10 responsible as the project team lead for overseeing
11 all Argonne activities supporting the NRC staff's
12 preparation of the FEIS under a technical assistance
13 contract with NRC.

14 Since May 16th, 2012 court order under
15 Topic 5(b, the Board requested a brief review of the
16 alternatives analyses with emphasis on the action
17 alternative. This presentation is in response to
18 that request.

19 Next slide please.

20 As indicated on this slide, the NRC is
21 required to conduct an alternatives analyses in its
22 EISs, and one of the alternatives analyzed has to be
23 the no action alternative. In this FEIS, the NRC
24 staff analyzed in detail the proposed action and the
25 no action alternative.

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1 There were other alternatives that the NRC
2 staff considered but did not analyze in detail.
3 These other alternatives are discussed in the FEIS
4 and in the NRC staff's pre-filed testimony. I will
5 also review them briefly later in this presentation.

6 Next slide, please.

7 Under the no action alternative, the NRC
8 would not issue a license that would allow GLE to
9 construct and operate the proposed GLE facility at
10 the Wilmington site.

11 The staff assumed that uranium enrichment
12 services would continue to be performed by existing
13 domestic and foreign suppliers. More specifically,
14 as indicated by Ms. Davis earlier, the NRC staff
15 assumed that under the no action concept, the Paducah
16 gaseous diffusion plant and the National Enrichment
17 Facility would continue to supply enrichment
18 services, and the American Centrifuge Plant and the
19 Eagle Rock Enrichment Facility may also provide
20 enrichment services in the future.

21 The NRC staff also assumed that the
22 preconstruction activities covered by GLE's exemption
23 request would take place at the Wilmington site under
24 the no action alternative, as well as under the
25 proposed action.

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As described in the FEIS, Section 1.4.1,

2 and in the staff's pre-filed testimony in response to
3 Question No. 13 in the pre-filed testimony of the
4 staff at Topic 5, GLE submitted an exemption request
5 to the NRC, and the NRC approved this exemption
6 request. This exemption allowed GLE to conduct
7 certain preconstruction activities, including site
8 clearing, site grading and erosion control, building
9 of storm water retention ponds, access roadways,
10 guard houses, utilities, parking lots, and
11 administrative buildings not used to process, handle
12 or store classified information.

13 In response to the NRC staff's request for
14 additional information, GLE indicated that the
15 activities undertaken under the exemption may include
16 all of the activities identified in the exemption
17 request, but that the actual work to be completed and
18 the schedule for these activities were uncertain at
19 that time.

20 Based on this information and in order to
21 be able to capture all potential impacts that could
22 occur at the Wilmington site under the proposed
23 action, as well as no action alternative, the NRC
24 staff assumed that all of the preconstruction
25 activities identified in the exemption request would

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occur regardless of the NRC's decision to license the proposed GLE facility and thus would be part of no action alternative, as well as the proposed action.

Next slide, please.

On this slide and the next, we discuss the environmental impacts of the proposed action and the no action alternative and compare the two. Because the NRC staff assumed in the FEIS that preconstruction activities would occur under both the proposed action and the no action alternative, any impacts associated with the preconstruction activities are assumed to have already occurred under the proposed action and the no action alternative.

Under the proposed action, additional impacts would occur from the NRC authorized construction, operation, and eventual decommission of the proposed GLE facility, whereas under the no action alternative, no additional impacts would occur at the Wilmington site.

Consequently, the environmental impacts at the Wilmington site would be greater under the proposed action than under the no action alternative.

Under the proposed action, the analysis conducted by the staff showed that the impacts in most resource areas would be small. The only resource areas in

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1 which impacts would be small to moderate are historic
2 and cultural resources, air quality, ecological
3 resources, noise and transportation.

4 Moderate impacts would be primarily
5 associated with the preconstruction and construction
6 activity.

7 Next slide, please.

8 The staff's analysis showed that the
9 impacts on the no action alternative in most resource
10 areas would also be small. Because of the assumption
11 that the preconstruction activities would occur under
12 both the proposed action and the no action
13 alternative, the impacts in the same five resource
14 areas, namely, historical and cultural resources, air
15 quality, described resources, noise and
16 transportation, would be somewhat less than those
17 under the proposed action, but still small to
18 moderate under the no action alternative also.

19 However, these impacts were incorrectly
20 designated to be small in the FEIS.

21 To the NRC staff's knowledge, GLE has not
22 conducted any preconstruction activities to date. If
23 GLE does not conduct any preconstruction activities
24 prior to the NRC's licensing decision, which seems
25 likely, all the impacts that would be associated with

1 the no action alternative at the Wilmington site
2 would essentially be zero or small in NRC staff NRC
3 impact classification terminology.

4 As a result, the small impact designation
5 or all the impacts under the no action alternative in
6 the FEIS accurately reflects the present
7 circumstances.

8 For the proposed action, the FEIS after it
9 states the impacts, because if a license is issued
10 for the proposed GLE facility, the preconstruction
11 activities would have to be performed before the NRC
12 authorized construction can begin.

13 As discussed in more detail in my pre-filed
14 testimony on Topic 5 in response to Question No. 14,
15 the NRC staff assigns three significance levels to
16 impacts in EISs, namely, small, moderate and large.
17 A moderate impact in the resource area means the
18 environmental effects in that area would be
19 sufficient to noticeably alter important attributes
20 of the resource by not destabilizing them.

21 As is usually the case, most of the impacts
22 designated as moderate in this FEIS would be either
23 temporary, for example air quality impacts, either
24 dust emissions would occur only during the
25 preconstruction and construction activities, and/or

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their severity would be further reduced by employing
2 additional voluntary mediation measure.

3 For example, transportation impacts could
4 be reduced by staggering shift changes at the various
5 facilities on the Wilmington site or by increasing
6 carpooling by the employees.

7 Because of this information about moderate
8 impacts, the NRC staff did not consider the
9 differences in impacts between the proposed action
10 and the no action alternative to be significant,
11 regardless of whether GLE conducted preconstruction
12 activities before the NRC licensing decision is made.

13 Based on this consideration and due to the
14 fact that as a result of the cost-benefit analyses,
15 the NRC staff determined that the proposed action
16 would better meet the purpose and need than the no
17 action alternative would, the NRC staff's
18 recommendation regarding the proposed action in the
19 FEIS would not change even if no preconstruction
20 activities were to occur under the no action
21 alternative.

22 Next slide, please.

23 The NRC staff considered a range of
24 alternatives, including alternative sites outside of
25 the Wilmington site, alternative locations within the

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1 Wilmington site, alternative sources of low enriched
2 uranium and alternative technologies available for
3 uranium enrichment.

4 In terms of siting, the NRC staff reviewed
5 the site selection process used by GLE and determined
6 that GLE's process was rational and objective. Based
7 on this review, the NRC staff also determined that
8 none of the alternative sites outside of the
9 Wilmington site or the other potential alternative
10 locations within the Wilmington site would be
11 environmentally preferable to the location selected
12 by GLE within the Wilmington site for the proposed
13 GLE facility.

14 In regards to alternative sources of
15 enriched uranium and alternative technologies for
16 enriching uranium, the NRC staff considered a range
17 of alternatives as discussed in Sections 2.3.2 and
18 2.3.3 of the FEIS, and concluded that the only
19 alternative that would meet the purpose and need for
20 the proposed GLE facility would be the use of gas
21 centrifuge technology instead of GLE's proposed laser
22 based technology.

23 The NRC staff conducted a qualitative
24 assessment of the alternative of using gas centrifuge
25 technology at GLE's proposed location within

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1 Wilmington site in Section 2.3.4 of the FEIS. Based
2 on this qualitative assessment, the NRC staff
3 concluded that employment gas centrifuge technology
4 in place of the proposed laser based technology would
5 not be environmentally preferable.

6 Next slide, please.

7 As a result of alternatives analysis in the
8 FEIS, the NRC staff concluded that there was no other
9 alternative sites or technologies that would be
10 environmentally preferable or superior to the site
11 and the technology proposed by GLE. In comparing the
12 proposed action to the no action alternative in the
13 FEIS and as discussed previously in this
14 presentation, the NRC staff concluded that even
15 though the environmental impacts associated with the
16 proposed action were incrementally higher than the
17 impacts associated with the no action alternative.
18 The differences were not significant.

19 And finally, the NRC staff concluded as a
20 result of the alternatives analyses and the cost-
21 benefit analysis in the FEIS that the overall
22 benefits of the proposed GLE facility would outweigh
23 the environmental disadvantages and costs associated
24 with it.

25 And this concludes my presentation.

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1 CHAIRMAN RYERSON: Thank you.

2 MR. ALLISON: Good afternoon. My name is
3 Tim Allison, also with Argonne National Laboratory.
4 I'm going to present a brief review of the cost-
5 benefit analysis.

6 First slide, please.

7 In general, the cost-benefit analysis
8 provides an analytical framework for assessing the
9 likelihood the benefits of the project will exceed
10 its costs and thus provide a net positive benefit.

11 The NRC's environmental impact statements
12 are required under 10 CFR 5171(d), unless accepted
13 under 10 CFR 5175, to include an analysis that
14 considers the economic, technical and other benefits
15 and costs of the proposed action and alternatives,
16 and to indicate what other interests and
17 considerations of the federal policy are relevant.

18 NRC conducts cost-benefit analyses using
19 guidance provided in the Section 5.7 of NUREG-1748
20 entitled "Environmental re. License for Licensing
21 Actions Associated with access programs.
22 Accordingly, the cost-benefit analysis performed for
23 the FEIS was intended to do two things: firstly, to
24 evaluate the no action alternative and proposed
25 action in terms of their respective costs and



1 benefits; and secondly, to compare the resulting
2 costs and benefits to determine the alternative most
3 likely to provide the greater benefits.

4 Next slide, please.

5 There are various aspects of the
6 methodology used in the analysis. The first is the
7 separation of private costs and benefits from
8 societal costs and benefits. Private costs and
9 benefits are those that impact the applicant with the
10 proposed project while societal costs and benefits
11 affect society as a whole.

12 Private costs and benefits can be
13 quantified, while societal costs and benefits can
14 only often be partially quantified.

15 Private costs are those associated with the
16 construction, including preconstruction, start-up,
17 operations, and decommissioning of the proposed
18 facility, and are analyzed quantitatively. All
19 monetary costs and benefits were expressed in dollars
20 for the most recent year prior to the analysis being
21 conducted in order to adjust the data to allow for
22 the impacts of inflation.

23 The cost contingencies with allowances for
24 increased in the cost of specific items, such as
25 steel, expected to occur separately from inflation

1 are included. Private benefits or the revenue that
2 GLE would expect to receive from the sale of the
3 enriched uranium during the operational life of the
4 proposed facility and analyzed quantitatively.

5 Some of the societal costs associated with
6 the proposed facility could not be quantified. These
7 included impacts on land use, historical and cultural
8 resources, visual resources, air quality, geology and
9 soils, water resources, ecological resources, noise,
10 transportation, public and occupational health and
11 waste management.

12 Next slide, please.

13 As discussed in Chapters 4 and 7 of the
14 FEIS, the majority of the environmental impacts
15 associated with the proposed GLE facility were found
16 to be small. As a result, these impacts were seen to
17 have a minor impact on the overall societal costs.
18 Some societal costs are quantifiable, such as the
19 local and state tax incentives that we have been
20 provided in support of the proposed GLE facility.
21 There are also societal benefits that can be
22 quantified, such as the direct and indirect regional
23 economic benefits of the proposed facility.

24 Direct impacts include employment income
25 that would be generated at the facility, local

1 property taxes, state and local sales taxes, state
2 individual and corporate income taxes and federal
3 income taxes.

4 Indirect regional economic benefits include
5 the income and employment that would be generated by
6 spending of project related wages and salaries and by
7 local vendors providing materials, equipment and
8 services. These benefits are measured in the
9 counties around the proposed facility.

10 Next slide, please.

11 The non-quantifiable societal benefit would
12 be the contribution of the proposed facility to
13 national energy policy objectives, in particular, the
14 need to expand domestic sources of enriched uranium,
15 increasing national energy security, and the need to
16 introduce a technology that has the potential to have
17 smaller environmental impacts. However, it was not
18 possible to quantify these benefits.

19 Also, the costs and benefits were
20 quantified to the extent possible. Quantifiable
21 costs and benefits were summed to provide the net
22 benefit of the proposed action and no action
23 alternative with the non-quantifiable costs and
24 benefits factored qualitatively into the analysis.

25 Next slide, please.



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1 The overall result of the cost-benefit
2 analysis was the quantifiable benefits associated
3 with each stage of the proposed GLE facility would
4 exceed quantifiable costs, outweighing the next
5 benefits associated with the no action alternative.
6 Although there were non-quantifiable societal costs
7 that were factored into the analysis, the majority of
8 these costs were found to be small.

9 Additional non-quantifiable societal
10 benefits of the proposed action, those related to
11 meeting national energy policy objectives, were also
12 considered qualitatively in the analysis.

13 Next slide, please.

14 One limitation of the analysis is that
15 certain impacts were not considered. This is because
16 the effects of these impacts were assumed to be
17 approximately equal to the proposed action and no
18 action alternative. The impacts of preconstruction
19 activities, for example, were too small to materially
20 affect the results of the analysis, and visual
21 impacts, for example.

22 In addition, the cost-benefit analysis does
23 not estimate the economic effects of the cheapest
24 source of enriched uranium or assess the impact of
25 lower enriched uranium prices or the ration of

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1 nuclear and non-nuclear power in the domestic
2 economy, on overall power demand and price, or on the
3 potential economic benefits to consumers and
4 suppliers.

5 That concludes the presentation.

6 MS. DAVIS: Okay. My name again is
7 Jennifer Davis. I'm presenting the staff's
8 recommendations, Topic 5(d).

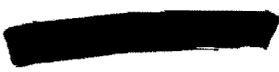
9 Next slide, please.

10 The NRC staff considered the impacts from
11 preconstruction and construction operations and
12 decommissioning of the proposed GLE facility in the
13 FEIS. No impacts were found to be large for the
14 proposed action.

15 The NRC staff found that the environmental
16 impacts of the proposed action would generally be
17 small. Moderate impacts would be primarily
18 associated with preconstruction and construction
19 activities.

20 In addition, the applicable environmental
21 monitoring program and the proposed mitigation
22 measures would eliminate or substantially lessen any
23 potential adverse impacts of the proposed action.

24 In addition, as explained during Dr. Avci's
25 presentation on Topic 5(b), even though the



1 environmental impacts associated with the proposed
2 action are incrementally higher than the impact
3 associated with no action alternative, the
4 differences are not significant.

5 Further, the NRC staff determined that the
6 proposed action is preferable to the no action
7 alternative because the proposed action would better
8 fulfill the need for the proposed -- better fulfill
9 energy policy goals, such as the need for enriched
10 uranium to fulfill electricity generating
11 requirements in the United States and the need for
12 domestic supplies of enriched uranium for national
13 energy security.

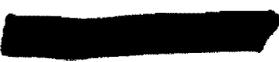
14 Next slide.

15 The NRC staff concluded that the overall
16 benefits of the proposed GLE facility would outweigh
17 the environmental impacts and costs associated with
18 the construction, operation, and decommissioning of
19 the proposed DOE facility. As discussed in Section
20 2.4 of the FEIS and the purpose and need of the
21 alternatives and the cost-benefit analysis sections
22 of the staff pre-filed testimony, and after weighing
23 the impacts of the proposed action and comparing
24 alternatives, including the no action alternative,
25 the NRC staff in accordance with 10 CFR 51.91(d)

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1 recommended that unless safety issues mandate
2 otherwise, the proposed license be issued to GLE.

3 That concludes my portion of the
4 presentation.

5 CHAIRMAN RYERSON: Thank you.

6 MR. AVCI: In its May 16, 2012 court order
7 under Topic 5(e), the Board asked the following
8 question: in light of GLE's not having begun
9 preconstruction activity, will the schedule for
10 completing construction be compressed?

11 And if so, will the environmental impact of
12 construction activities, therefore, increase on an
13 annual basis?

14 This next presentation is responsive to the
15 second part of the question. In response to the
16 Board's question, this particular question, the staff
17 reviewed the impacts analyses conducted for the FEIS
18 to see how the impacts would change on an annual
19 basis if GLE were to compress its construction
20 schedule.

21 The specific results of this review were
22 stated in my pre-filed statement on Topic 5 in
23 response to Question 25. The results can be
24 summarized as shown on this slide.

25 Impacts in some resource areas, for

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1 example, air quality, ecology, noise, transportation,
2 public and occupational health, waste management, and
3 social economics would increase on an annual basis.

4 Impacts in some resource areas, for example
5 geology and soil and surface water, may actually
6 decrease on an annual basis, whereas impacts in other
7 areas, for example, land use, historical and cultural
8 resources, environmental justice, and accidents will
9 not change.

10 Overall, the impact conclusion on FEIS will
11 not change, and this concludes my presentation. I
12 believe this is the end of the presentation for Topic
13 5.

14 CHAIRMAN RYERSON: Okay. We thank the
15 panel for each of your presentations. Thank you.

16 We'll begin questions from Judge Jackson.

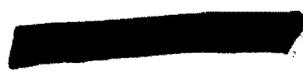
17 ADMIN. JUDGE JACKSON: Thank you.

18 I'd like to ask just a few questions that
19 relate to factors that went into your balancing cost
20 and benefit for this project. A place to start would
21 be on the third page of your pre-filed testimony
22 where in your answer to Question 6 in the second
23 paragraph down it says, "The enriched uranium that
24 would be generated by the proposed GLE facility would
25 be used in U.S. commercial nuclear power plants," and

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1 when it refers to the FEIS.

2 The first question: does that represent a
3 binding commitment or an assumption for the needs
4 analysis or what?

5 MS. DAVIS: It was implied that it would
6 supply enriched uranium to domestic nuclear power
7 plants. We recognize that, you know, that is the
8 established need for an additional source of domestic
9 enriched uranium production capacity, and that was
10 the implication. That was implied in the EIS.

11 ADMIN. JUDGE JACKSON: Well, did the staff
12 consider what the impact would be if product were
13 sold on the international market or not?

14 MS. DAVIS: We recognize that GLE would not
15 be prohibited from selling overseas. We were gauging
16 it based upon whether or not the proposed action
17 would meet the national policy objectives that are
18 established by the current administration and also
19 the Energy Policy Act, as well.

20 ADMIN. JUDGE JACKSON: Okay. I think in
21 the same vein we've heard testimony and have had
22 evidence entered that dealt with the international
23 market for enrichment as well as the U.S. market, and
24 when you do the needs analysis, the focus has been
25 on the U.S. market. I just wanted to ask what

1 relevance do you see the international market having
2 in making the balance as to whether or not to proceed
3 with this project is -- is a good idea.

4 MS. DAVIS: What we have looked at is that
5 currently we import most of -- most of the supply of
6 enriched uranium to the United States is foreign
7 sources. We recognize that there are countries out
8 there that are building their nuclear program so they
9 could potentially be buying or not selling as much to
10 the United States in the future.

11 Also, Megatons-to-Megawatts, which is also
12 another foreign source, is set to expire. The new
13 agreement is going to supply less than what the
14 current program does, but it does not meet the energy
15 policy objective of domestic source, but also meeting
16 the national security objective of, you know, having
17 production in a possible surplus here in the United
18 States.

19 We were considering that as other areas may
20 phase nuclear out, there could also be, especially in
21 China and India and other developing countries, the
22 demand for worldwide could increase.

23 ADMIN. JUDGE JACKSON: Okay. Thank you.

24 The fact that this is introducing a new
25 technology, a new enrichment technology, is cited as

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1 a potential benefit in some of the testimony, some of
2 the pre-filed testimony. I just wanted to ask:
3 what's the staff's view on the importance of that, of
4 bringing this new technology on board?

5 MS. DAVIS: We recognize that that is one
6 of the policy objectives of the administration. You
7 always want to see advancement in technologies
8 because we do see economies and efficiency of the
9 overall process. Essentially, you know, the staff
10 noted in the ER provided by GLE it was provided with
11 statements, you know, that state the advantages of
12 this technology.

13 You know, we're not privy to a lot of the
14 information behind that that shows the advantages.
15 We are relying on statements provided by the license
16 applicants that say that this is a reliable upgraded
17 technology. It's more energy efficient than, say,
18 gaseous diffusion. But I go around with some -- but
19 the staff focused its purpose and need analysis on
20 the additional domestic source of uranium in meeting
21 the national energy security policy objective.
22 That's what we focused mostly on.

23 ADMIN. JUDGE JACKSON: Thank you.

24 MS. DAVIS: If I could add one thing, I
25 apologize. You know, in absence of being able to

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1 independently verify some of these statements, you
2 know, because it is a highly classified technology,
3 that is why the staff did not use that per se as a
4 factor in the purpose and needs for our analysis.

5 ADMIN. JUDGE JACKSON: Thank you.

6 I'd like one of you to address the issue of
7 how to mix the qualitative cost-benefits with the
8 quantitative. It's in the pre-filed testimony. You
9 mentioned it. I'd like to see if you could give us
10 an idea of how does that take place.

11 Here you have something that's
12 quantitative. Over here is some qualitative goods
13 and bads. How do you put those together in coming up
14 with an overall balance or solution?

15 MR. ALLISON: Well, in the final analysis
16 you're looking to add up the quantitative aspects of
17 the national alternative and the proposed action to
18 see what the overall net benefits of the two are, but
19 obviously within that you've got some qualitative
20 costs and benefits, which you consider by discussing
21 them as is required by NUREG-1748.

22 But if they can't be quantified for
23 whatever reason, and there are various reasons for
24 that, that's as far as you go with it.

25 I think it's important for policy makers

1 and the public to realize that the non-quantifiable
2 cost and benefits are appreciated and can be
3 discussed, but unfortunately for whatever reason,
4 they can't be quantified and so are not included in
5 the overall net benefit calculus at least as a result
6 of the cost-benefit analysis.

7 ADMIN. JUDGE JACKSON: But they are
8 considered.

9 MR. ALLISON: They are considered, but if
10 they can't be quantified, then it's obviously
11 difficult to go beyond that, and so you're left with
12 establishing the net positive benefit based on what
13 can be quantified in the analysis.

14 ADMIN. JUDGE JACKSON: All right. Are you
15 saying that they wouldn't ever trump the quantifiable
16 part? Basically they provide arguments or support
17 one way or the other, but you don't have a mechanism
18 for --

19 MR. ALLISON: Well, I should have said when
20 you're looking at societal costs, societal costs if
21 you recall have various environmental impacts.

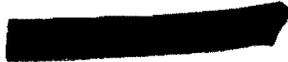
22 ADMIN. JUDGE JACKSON: Which were?

23 MR. ALLISON: They were adverse, but they
24 were classified by the NRC system as either small or
25 small to moderate. If any of those environmental

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impacts have been larger, for example, then you have
2 to place more weight on those impacts when it came to
3 balancing out the overall costs and benefits.

4 You might have to try and actually go
5 beyond just leaving them as non-quantifiable costs
6 and try to establish some sort of way of monetarizing
7 those environmental costs. That's quite difficult
8 intellectually and politically quite controversial
9 because there are various aspects to the evaluation
10 of environmental costs.

11 There are various socioeconomic factors,
12 such as political viewpoints, gender, education, that
13 affect the way that individuals would value a
14 particular environmental impact, and so the
15 quantification is problematic for this project
16 because all of the environmental costs were either
17 small or small to moderate. We didn't feel in the
18 final analysis that they would impinge on the overall
19 conclusion of the analysis.

20 ADMIN. JUDGE JACKSON: All right. Thank
21 you. I just wanted to see what your thinking was on
22 how you put that together. Thank you.

23 CHAIRMAN RYERSON: Thank you, Judge
24 Jackson.

25 Judge Garcia, did you have questions?

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ADMIN. JUDGE GARCIA: Yes, one or two.

I wanted to ask your help in understanding the comparison between the proposed action and no action alternatives. It was my understanding that you concluded that there was essentially no difference, and that seemed hard to appreciate in the sense that for the FEIS it was assumed there would be some preconstruction activities. At this point we realize there won't be. So I'm just trying to understand how there could be basically no difference between the action/no action alternatives, given that there's not going to be any preconstruction activities at this point.

MR. AVCI: I can address that.

Not that there is no difference; there are differences. It's just that the differences are not significant. We recognize that if there is no preconstruction, then there will not be any of those moderate impacts that we're discussing, the EIS. So as a result, the impacts under no action alternative would be small, whereas under the proposed action you would have those stated moderate impacts. So there would be differences.

However, based on the consideration of what moderate impacts are, how they occur, and what their

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1 effects are, we concluded, the staff concluded in the
2 EIS and they conclude now that those impacts would
3 not be significant enough to basically favor one
4 alternative proposed action or no action on the
5 proposed action solely on the basis of the impacts'
6 results.

7 ADMIN. JUDGE GARCIA: Okay.

8 MR. AVCI: So the differences are there,
9 but they are small.

10 ADMIN. JUDGE GARCIA: All right. So could
11 you help us understand how you're using the word
12 "significant"? What does something have to be before
13 it becomes significant?

14 MR. AVCI: Generally impacts are like
15 permanent or if the differences are large. As we
16 look at the impact definitions or NRC's small,
17 moderate, large, so any impacts that are considered
18 to be large by definition, of course, is large and
19 would be a significant concern for the staff in order
20 to proceed with whatever alternative that impact is
21 associated with.

22 And also some moderate impacts are
23 temporary, as indicated. The impacts occur during
24 the preconstruction or construction phase or they
25 disappear like air quality impacts, or impacts could

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1 occur at this point, but they do recover later after
2 the action has concluded, like in the case of
3 economical impacts. Let's say, for example, you may
4 be creating noise that may disturb the wildlife and
5 they avoid the area during the construction phase,
6 but after you're done with the construction, they
7 would return to the area. So that would be
8 considered a moderate impact.

9 So those are the kind of considerations
10 that went into making the conclusion that the
11 differences were not significant. But the
12 differences are there.

13 ADMIN. JUDGE GARCIA: All right. Thank
14 you.

15 CHAIRMAN RYERSON: The Board has no further
16 questions, I believe, of this panel, and I probably
17 should emphasize something I said yesterday. I'm not
18 sure if everyone was here for it, that of course,
19 this process is the end of the long process where we
20 received sworn answers to our initial 75 or 100
21 questions, and then we received pre-filed written
22 testimony obviously on all of these topics.

23 So one should not draw too many inferences
24 from our questions or lack of questions at this
25 stage. We appreciate your testimony very much.

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1 Thank you.

2 MR. AVCI: Thank you.

3 CHAIRMAN RYERSON: And I believe none of
4 you are testifying on Topic 6. So in consultation
5 with the NRC counsel, you are free from the Board's
6 standpoint; you are free to stay or go as you wish.

7 MS. DAVIS: Thank you.

8 CHAIRMAN RYERSON: Thank you.

9 (The witnesses were excused.)

10 CHAIRMAN RYERSON: Mr. Silverman.

11 MR. SILVERMAN: I'm sorry, Your Honor.

12 CHAIRMAN RYERSON: Oh, no problem. I see
13 you're consulting on important matters, I'm sure.

14 MR. SILVERMAN: I apologize.

15 CHAIRMAN RYERSON: We are now ready for the
16 GLE witnesses on Topic 6. I guess there are some
17 staff witnesses who should not be in the courtroom
18 and hearing room. Are we clear on that, Ms. Safford?

19 MS. SAFFORD: I believe they've left.

20 CHAIRMAN RYERSON: Okay.

21 MS. SAFFORD: Karl Fischer, Matt Bartlett
22 and Stan Echols and Tim Johnson.

23 CHAIRMAN RYERSON: Okay. Very good. And
24 if you have your witnesses, we can proceed, but it
25 has been almost an hour, so I will ask counsel

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1 whether you would like a break.

2 MR. SILVERMAN: Staff doesn't need a break.
3 We're ready to go.

4 CHAIRMAN RYERSON: Excellent. Well, let's
5 proceed. Ms. Oliver, I would remind you you are
6 still under oath. I believe, Ms. Matthews, you are
7 under oath, correct?

8 And who else do we have here? We have Mr.
9 Stahl and Mr. Alexander. If you would raise your
10 right hand, please.

11 And do you swear or affirm that the
12 testimony you are about to give in this matter will
13 be truth, the whole truth, and nothing but the truth?

14 MR. ALEXANDER: I do.

15 MR. STAHL: I do, Your Honor.

16 CHAIRMAN RYERSON: Thank you.

17 And our understanding as before is that
18 we'll begin with a presentation. Am I correct?

19 MR. STAHL: That's correct, Your Honor.

20 CHAIRMAN RYERSON: Proceed.

21 MS. OLIVER: Excuse me. Can I please make
22 one clarification to my testimony for Topic 5?

23 CHAIRMAN RYERSON: Certainly.

24 MS. OLIVER: With respect to the export or
25 sale of enrichment services from GLE, I just wanted

1 to clarify that there are some restrictions on
2 exports of enrichment services both for the U.S. as
3 well as for Australia, and so the list of acceptable
4 exports is in the 1-2-3 treaty.

5 CHAIRMAN RYERSON: Thank you.

6 MR. STAHL: Good afternoon. We're
7 providing testimony this morning on Topics 6A and 6C
8 regarding the GLE Environmental Monitoring Program,
9 or EMP.

10 CHAIRMAN RYERSON: And if I can just
11 interrupt, just for the record, that's GLE Exhibit
12 24.

13 MR. STAHL: GLE Exhibit 24. Thank you,
14 Judge.

15 Witnesses providing testimony from RTI
16 International are to my right Joe Alexander; to my
17 left, Kimberly Matthews; and myself, Andrew Stahl;
18 and providing testimony from GLE is Julie Oliver
19 seated to my far right.

20 On Slide 2, we describe the contents of our
21 presentation. To begin I will present an overview of
22 the GLE Environmental Monitoring Program. We then
23 will continue by providing an overview of the three
24 key environmental pathways: air, surface water, and
25 groundwater.

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1 for each of these pathways we'll discuss
2 how radiological and non-radiological effluents and
3 emissions will be monitored, and we'll discuss the
4 environmental media associated with each of these
5 three key pathways.

6 We then will review how GLE will manage and
7 track the monitoring program data and we'll conclude
8 with the discussion of how GLE will apply the
9 monitoring results. Specifically we will explain how
10 GLE plans to correct problems if results are near or
11 out of compliance with relevant requirements.

12 Next slide, please.

13 Now, looking at Slide 3, GLE's
14 environmental monitoring program has been developed
15 and will be implemented in order to protect the
16 public, workers and the environment in conformance
17 with 10 CFR Part 20 and other local, state and
18 federal requirements.

19 The purpose of the GLE EMP is to detect
20 effluents and emissions at or below regulatory
21 limits. This will be accomplished by monitoring at
22 points of release with verification monitoring being
23 performed in more distant sampling locations.

24 The GLE Quality Assurance Program applies
25 to the entire GLE business, including the

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1 Environmental Monitoring Program. The Quality
2 Assurance Program will require that proper sampling,
3 analytical and reporting procedures are in place;
4 instruments are properly maintained and calibrated;
5 laboratories participate in third party inter-
6 comparison programs; and that fields and laboratory
7 monitoring results are reviewed through a quality
8 assurance process to evaluate validity.

9 Next slide please.

10 As discussed on Slide 4, the EMP will be
11 administered through the GLE environment health and
12 safety function, or EHS function. The GLE EHS
13 function serves as an internal, unbiased third party.

14 For example, anyone within the GLE EHS function has
15 the authority to enforce shutdown of any GLE process
16 or facility.

17 Within the GLE function, the environmental
18 protection manager oversee day-to-day activities, and
19 this environmental protection manager reports to the
20 EHS manager who has overall EHS responsibility. The
21 EHS manager, in turn, reports directly to the GLE
22 president and CEO.

23 The EMP can be modified on an as needed
24 basis to maintain effectiveness, and such changes
25 will be evaluated in accordance with the GLE Change

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1 Management Program. EMP changes might be based on a
2 number of factors, including operations, vendor
3 information, removal of materials, and regulatory
4 actions.

5 As an example, should future GLE facility
6 modifications warrant an additional exhaust stack,
7 then the EMP would be appropriately expanded to
8 include monitoring of the stack.

9 Next slide, please.

10 We will now provide an overview of the key
11 environmental pathways beginning with the air pathway
12 on Slide 5. The prevailing atmospheric conditions in
13 the region of the proposed GLE facility is dominated
14 by the position of the polar front associated with
15 the jet stream and the position of a large
16 subtropical area of high pressure called the Bermuda
17 high.

18 The atmospheric conditions in the region of
19 the proposed GLE facility resulting from these
20 features are summarized from data collected at the
21 Wilmington International Airport. The prevailing
22 wind speed at the airport is nine knots, which is a
23 little more than ten miles per hour. On an annual
24 basis, the wind direction at the Wilmington
25 International Airport is predominantly southwesterly,



1 that is, blowing from the southwest to the northeast.
2 However, during fall and winter months, wind
3 directions are often northerly.

4 These directions are all displayed on the
5 wind rose presented in Figures 6-2 and 6-3 of the
6 pre-filed testimony.

7 The air monitoring components of the GLE
8 Environmental Monitoring Program was established in
9 consideration of these local atmospheric conditions.

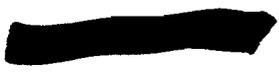
10 Next slide, please.

11 Slide 6 describes air monitoring for
12 radiological emissions. Potential radiological
13 emissions occurring within the GLE operations
14 building from enrichment process activities will be
15 contained within the building process areas and
16 vented through GLE's high efficiency multistage
17 emission control system.

18 The sample strategy involves monitoring of
19 exhaust gases, moving through the control system at
20 the vent stack. Monitoring of the monitoring program
21 also includes monitoring of ambient air at 11
22 locations, as well as monitoring soil to assess for
23 potential deposition from air transport.

24 Stack monitoring will be conducted
25 continuously using filters. Initially the filters

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1 will be removed daily and analyzed for gross alpha
2 activity. It is anticipated that initial results
3 will support reducing the frequency of filter
4 collection and analysis to weekly.

5 Ambient air monitoring will similarly be
6 conducted at 11 locations with filters removed and
7 analyzed weekly for gross alpha activity and uranium
8 isotopes.

9 The ambient air monitoring locations are
10 mostly based on the wind rose. Nine of the 11
11 monitors will be positioned along the controlled
12 access area fence line. Three of these monitors will
13 be positioned to the north of the GLE stack,
14 considering the southwesterly predominating winds.
15 Three of them will be positioned to the south to
16 monitor the fall and winter northerly winds, and two
17 will be positioned to the west and to the east to
18 monitor less dominant easterly and westerly wind
19 directions.

20 In addition to the nine control access area
21 fence line monitors, one monitor will be positioned
22 at the location of highest potential GLE impact at
23 the property line, which was identified through
24 modeling.

25 And finally, one monitor will be located

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1 approximately a half mile west northwest as a
2 background monitoring location. This location was
3 positioned along an uncommon wind direction and is in
4 the direction from the proposed GLE facility away
5 from the active global nuclear fuel manufacturing
6 operations.

7 In addition, shallow soil samples will be
8 collected and analyzed for total uranium
9 semiannually. These monitoring locations are
10 positioned along the southwesterly and northerly
11 predominant wind directions.

12 Next slide, please.

13 Slide 7 describes air monitoring for non-
14 radiological emissions. Clearly, we'll obtain an air
15 permit from the Division of Air Quality of the North
16 Carolina Department of Environment and Natural
17 Resources. This permit will be required because
18 gaseous emissions from GLE operations may contain
19 hydrogen fluoride, which is regulated by the Division
20 of Air Quality as a toxic air pollutant.

21 To assess for hydrogen fluoride emissions,
22 GLE will monitor exhaust gases from the GLE process
23 building stack for flora. The exhaust gases will be
24 continuously monitored using filters. Initially the
25 filters will be removed daily and analyzed for

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1 fluoride. It is anticipated that initial results
2 will support reducing the frequency of filter
3 collection and analysis to weekly. This monitoring
4 will be performed as specified in the Division of Air
5 Quality air permit.

6 I'll now turn the presentation over to Ms.
7 Matthews to discuss the surface water pathway
8 beginning with Slide 8.

9 Thank you.

10 MS. MATTHEWS: Good afternoon. I'm
11 Kimberly Matthews. I'm a research scientist with RTI
12 International.

13 I will begin the discussion of the surface
14 water monitoring with an overall description of the
15 surface water setting for the proposed GLE facility
16 and the Wilmington site.

17 The Wilmington site is located in the
18 Northeast Cape Fear River sub-basin which has a
19 drainage area of approximately 1,700 square miles and
20 encompasses eight counties in the lower coastal plain
21 of North Carolina. The Northeast Cape Fear River is
22 the nearest named water body to the proposed GLE
23 facility and forms the southwest property boundary of
24 the Wilmington site.

25 At the Wilmington site, the Northeast Cape

1 Fear River is approximately 600 to 1,100 feet wide,
2 and is tidally influenced. Approximately six miles
3 downstream from the site the Northeast Cape Fear
4 River joins the Cape Fear River to form the Cape Fear
5 River Estuary near the City of Wilmington before
6 entering the Atlantic Ocean.

7 The Wilmington site itself is drained by
8 several small streams and an effluent channel that
9 are shown in Figure 6-4 of the GLE pre-filed
10 testimony. The effluent channel begins in the
11 eastern portion of the site and flows west to the
12 site dam and connects to the unnamed tributary number
13 one to the Northeast Cape Fear River. The site dam
14 marks the approximate boundary between the manmade
15 effluent channels and the natural stream channels.

16 The extreme eastern portion of the site
17 flows north to an unnamed tributary to Prince George
18 Creek, and Prince George Creek discharges into the
19 Northeast Cape Fear River.

20 The Northeast Cape Fear River is not used
21 for drinking water either at the Wilmington site or
22 anywhere downstream of the discharge for the
23 Wilmington site.

24 The four environmental media that are
25 monitored, the surface water pathways are surface

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1 water, wastewater effluents, storm water runoff, and
2 sediment. On Slide 9 I'll discuss the monitoring
3 program for the radiological and non-radiological
4 effluent releases. The radiological water quality
5 parameters, gross alpha, gross beta and uranium will
6 continue to be monitored by GNFA or GLE at three
7 locations. One location on the Wilmington site is in
8 the effluent channel at the site dam, and the two
9 other locations are in the Northeast Cape Fear River.

10 The first is 17 miles upstream from the
11 Wilmington site and one is just downstream from where
12 the unnamed tributary number one enters the Northeast
13 Cape Fear River at the GE docks.

14 Sampling for radiological water quality
15 parameters will be done in accordance with North
16 Carolina standard procedures and applicable best
17 practices. Non-radiological surface water quality
18 parameters, such as pH, temperature and nutrients,
19 will be monitored at approximately the same three
20 locations.

21 GNFA or GLE will monitor the effluent
22 channel at the site dam, while non-radiological
23 monitoring of the Northeast Cape Fear River is
24 conducted by the Lower Cape Fear River Program, as
25 specified in the Wilmington site wastewater NPDES

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1 permits.

2 Should GNFA or GLE choose not to
3 participate in this group, then they would conduct
4 the monitoring in accordance with the permit.

5 Ms. Oliver will now discuss the wastewater
6 effluent monitoring.

7 CHAIRMAN RYERSON: Thank you.

8 MS. OLIVER: I'm on Slide 10.

9 So for wastewater effluents, I'm going to
10 talk about this in terms of two different types of
11 effluents. The first one I'll discuss is process
12 wastewater effluents, and the second will be sanitary
13 wastewater effluents.

14 For process wastewater effluents, GLE has
15 an on-site treatment system to remove uraniums as
16 well as fluorides. The uranium is removed by
17 adjusting the pH and allowing the uranium
18 particulates to precipitate out.

19 The fluoride is removed by adding a salt,
20 allowing the fluorides to precipitate out,
21 evaporating off the effluent and then releasing it.

22 When the water is released from the GLE
23 facility, it's monitored in accordance with the
24 effluent permit allowances by both the NRC as well as
25 the state. The treated process water is collected

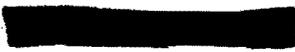
1 daily, and then it's discharged to the on-site lagoon
2 treatment system. This discharge is combined with
3 other effluents from facilities that operate on the
4 Wilmington site.

5 The monitoring of this effluent is going to
6 be done in accordance with the GNFA, which is the
7 collocated fuel fabrication facility monitoring
8 location. So GNFA and GLE will have to enter into a
9 memorandum of agreement or a memorandum of
10 understanding to work out the details of how we're
11 going to accomplish sharing of data.

12 So to move on to sanitary wastewater
13 treatment, the Wilmington site has its own sanitary
14 wastewater treatment facility. That facility was
15 upgraded about five years ago, and when it was
16 upgraded GLE was in the conceptual stage at that
17 time, and so that facility was built with capacity to
18 accommodate the GLE facility.

19 So the wastewater effluent from the
20 sanitary treatment system, because this is a new
21 treatment system, it treats it very well. It comes
22 very clean. That effluent is recycled into the
23 cooling tower for the GNFA facility.

24 Should demand indicate that there's extra
25 wastewater, we will also route some of that treated



effluent into the GLE cooling towers.

I will turn it back over to Ms. Matthews now.

MS. MATTHEWS: As Ms. Oliver just discussed the monitoring that's required by the Wilmington site NPDES permit for wastewater, GNFA also has an NPDES permit for the discharge of storm water from the site. This existing permit currently requires the monitoring of three storm water discharge out-falls, two that discharge to the Northeast Cape Fear River, the unnamed tributary to the Northeast Cape Fear River, and one that discharges to the unnamed tributary to Prince George Creek.

Monitoring is required two times a year during a representative storm and is analyzed for lead, oil and grease, pH and total suspended solids.

The North Carolina Department of Environment and Natural Resources may modify this permit for the proposed new facility and add additional out-falls and parameters.

In addition to the monitoring required by the permit, GLE will monitor storm water runoff and the UF-6 cylinder storage pads that will be corrected in the holding pond. Before it can be released to the wet detention pond, the water will be monitored.

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So the purpose of the pond is to detain that runoff in the event of the release of uranium.

So once the water has been monitored and reviewed, it will be released to the required wet detention pond that treats runoff from the entire proposed facility, and based on the existing NPDES storm water permit, analytical monitoring of the water from the wet detention pond is not required. However, visual inspection and regular maintenance are required.

So the fourth surface water media to be monitored is sediment. Sediment will be monitored by GNFA or GLE twice a year and scrap samples will be collected and analyzed from the effluent channel downstream of the wastewater outfalls and then further downstream in the unnamed tributary number one to the Northeast Cape Fear River.

Mr. Alexander will now continue with groundwater pathway.

MR. ALEXANDER: Good afternoon. Joseph Alexander, Senior Geologist and Project Director with RTI International.

I'd like to first talk about the hydrogeologic setting to give an overview of the groundwater monitoring program. So starting on Slide

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1 12, the site is within the North Carolina coastal
2 plain physiographic province, which is an eastward
3 dipping and eastward thickening wedge of sediments
4 and sedimentary rocks.

5 There are six regional aquifers in the
6 vicinity of the site, but not all are present beneath
7 the site. The site groundwater studies have focused
8 on two aquifers and a confining layer that is shown
9 by the conceptual drawing at the bottom of Slide 12.

10 Starting at the ground surface, the yellow
11 colored sediments are surficial alluvial sediment
12 representing the surficial aquifer. Beneath those
13 are the clay of the PD formation, which forms the
14 semi-confining unit at the site. And then the upper
15 sands of the PD formation shown in green in this
16 diagram represent sands of the PD formation, which we
17 refer to as the principal aquifer.

18 The surficial aquifer is directly recharged
19 by rainfall, and the water table is very close to the
20 land surface, averaging about nine feet throughout
21 the site. The surficial aquifer discharges into
22 streams and swampy areas, as shown by Figure 6-10,
23 the water table map in our pre-filed testimony.

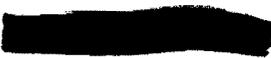
24 The semi-confining unit, again, is formed
25 by the marine clay of the PD formation, and it

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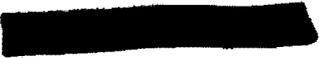
1 underlies the surficial aquifer in the eastern
2 portion of the site. It acts as a semi-confining
3 layer or an aquitard to the underlying principal
4 aquifer where it's present.

5 It is absent in the GLE study area based on
6 investigations that have been performed in 1980 and
7 2007 and most recently in 2010 in the GLE study area.

8 The principal aquifer also known as the PD
9 aquifer is sand and some semi-consolidated sandstone
10 and limestone, and it has an increasing silt content
11 with depth. The upper portion is more permeable than
12 the lower silty portions and provides water for
13 process water at GE, but also for potable water for
14 GE and the surrounding communities.

15 The principal aquifer is recharged by
16 leakage through the semi-confining layer where
17 present and also direct rainfall in the GLE study
18 area. The principal aquifer discharges to the
19 Northeast Cape Fear River and to swampy areas and
20 wells, as shown by the groundwater elevation contours
21 in Figure 6-11 of the pre-filed testimony.

22 On page 13 of the presentation, I'll now
23 talk briefly about the Groundwater Monitoring
24 Program. There are currently eight monitoring wells
25 at the GLE site. Thirteen additional wells will be



1 added for a network of 21 wells. These are seven
2 clusters of three wells each. The A suffix
3 identification will monitor at or near the water
4 table and the BNC will be progressively deeper within
5 the principal aquifer.

6 One cluster is positioned near the main GLE
7 operations building. This is the LF-2 series
8 cluster, which also at the high point of the
9 groundwater mound that is in the GLE project area.
10 These three wells of the LF-2 series will be slightly
11 up gradient of the GLE operations. The remaining six
12 clusters of wells will be positioned to cover the
13 perimeter of the proposed GLE facility and in down
14 gradient locations.

15 The wells and the flow arrows are shown in
16 Figure 6-12 of the pre-filed testimony, and these six
17 clusters, again, provide perimeter coverage.

18 Groundwater sampling that is planned for
19 these 21 wells is summarized in Table 6-2 of the
20 pre-filed testimony, and these will be samples that
21 are collected quarterly and be part of the GLE
22 Environmental Monitoring Program. The samples will
23 be collected after a typical purging of the wells of
24 three well volumes, and then samples will then be
25 analyzed for total uranium and fluoride.

1 If the results of uranium exceed the GLE
2 threshold at 0.02 parts per million, then subsequent
3 quarterly sampling will be analyzed for gross alpha
4 and gross beta activity.

5 I'd like to point out two typos if I could
6 please on page 13 of the presentation under the
7 second bullet. It should read one cluster instead of
8 two, and the second sub-bullet under bullet two
9 should read six clusters instead of five.

10 I now turn the remainder of the
11 presentation back over to Julie Oliver.

12 MS. OLIVER: So my next few slides discuss
13 what happens to the environmental monitoring data
14 after we collect it. So we've collected this data.
15 We've sent it to the lab, and now we get data back.
16 What is it that we do with this data?

17 The first thing that we do with it is this
18 data is now a quality record. So it falls under our
19 Quality Assurance Program, and under our Quality
20 Assurance Program, we establish procedures that
21 review, handle, retain, retrieve and maintaining
22 records. The records can include results of test and
23 inspections of equipment, including environmental
24 monitoring equipment.

25 The data then goes into a program specific

1 relational database. So this is specific to the
2 environmental monitoring program. We would prefer
3 data entry to come in electronically, as opposed to
4 doing hand entering into our database.

5 The data within the database is tracked by
6 database modules. These modules will allow us to
7 sort, retrieve, report, graph, trend and run
8 calculations on the data. The modules are designed
9 to insure that we have sample completeness as well as
10 the timely reviews of our results.

11 Slide 15, please.

12 We've established internal action levels,
13 and these internal action levels are an established
14 value or level where GLE will take some action to
15 identify if we have any issues with the samples. The
16 primary purpose is to provide margin and identify any
17 off-standard conditions.

18 The levels will be specified in procedures
19 based on guidance from regulations, reg guides,
20 vendor information, best professional judgment,
21 minimum detection limits, and historical data from
22 trends.

23 On Slide 16, should we have an anomalous
24 result from some sampling data, we would first begin
25 with a decision of whether or not we need to initiate

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1 immediate or long-term remedial action. So we would
2 take a look at if it's one sample. We may choose to
3 re-sample and re-analyze and see if we had some sort
4 of issue with our laboratory.

5 The investigation would also include a
6 careful scrutiny of the timing of the incident to see
7 if there's any trend with the handling of the data or
8 the analysis.

9 We would enter the issue into the
10 corrective action program. The correction active
11 program captures precursor, similar or significant
12 issues possibly involving non-compliances.

13 And finally, we would perform follow-up
14 actions to verify that we have proper implementation
15 of any corrective actions, preventive actions, or
16 continuous improvement items that we've identified as
17 part of our investigation.

18 This concludes our presentation on Topic 6.

19 CHAIRMAN RYERSON: Thank you. Thank you,
20 all members of the panel, for those presentations.

21 Let the Board just take a moment.

22 (Whereupon, the proceedings in the
23 foregoing matter went off the record at 3:24 p.m. and
24 went back on the record at 3:32 p.m.)

25 CHAIRMAN RYERSON: We shall resume with

1 questions of GLE's panel on Topic 6, starting with
2 Judge Garcia.

3 ADMIN. JUDGE GARCIA: Good afternoon. I
4 would like to start with your pre-filed written
5 testimony, if we could. That is GLE 023. And if we
6 could go to page 17. And what I'd like to do is hone
7 in on this diagram. And my question to you is, how
8 close is the nearest monitoring station to any
9 residential area?

10 MR. STAHL: Yes. The nearest monitoring
11 station would be the fence line ambient air
12 monitoring location located in the northeast corner
13 of the controlled access area.

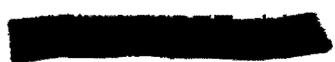
14 ADMIN. JUDGE GARCIA: Okay. And do you
15 have a sense of how far that is?

16 MR. STAHL: It's approximately 3,000 feet,
17 Your Honor.

18 ADMIN. JUDGE GARCIA: Okay. All right. If
19 we could now turn to Figure 6.3 on page 19. And my
20 questions have to do with the -- how did you decide
21 that two soil sites were appropriate?

22 MR. STAHL: The two pairs of sampling
23 locations for soil were selected along the
24 predominant wind directions.

25 ADMIN. JUDGE GARCIA: Okay. Well, when I



1 looked at that rose diagram that you made, it seemed
2 to me they were in the vicinity of the predominant
3 locations, but they are not -- I mean, the main --
4 like, for instance, going towards the north from the
5 red dot, your stations are slightly to the east of
6 north, which would be the predominant location. Is
7 that right?

8 MR. STAHL: Yes, Your Honor. That's
9 correct. The intent was to somewhat average along
10 the parts of the rose diagram that you see in the
11 north and northeast quadrant.

12 ADMIN. JUDGE GARCIA: And so you felt that
13 two sites were sufficient in this -- for this purpose
14 of monitoring the soil.

15 MR. STAHL: Yes, Your Honor. That is also
16 partly based on the existing data set that has been
17 generated over the many years at -- from the Global
18 Nuclear Fuel --

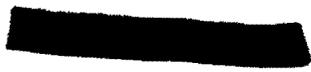
19 ADMIN. JUDGE GARCIA: Ah.

20 MR. STAHL: -- Facility.

21 ADMIN. JUDGE GARCIA: And where are those
22 sites?

23 MR. STAHL: I would have to check the
24 environmental protection instructions.

25 ADMIN. JUDGE GARCIA: Okay. That would be



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good to know.

MR. STAHL: Okay.

ADMIN. JUDGE GARCIA: So that we could compare them. Great. Are these sites also near roads?

MR. STAHL: "These sites" meaning the locations that were depicted on 6-3?

ADMIN. JUDGE GARCIA: Yes.

MR. STAHL: There is a road that traverses the property line to the north, that is right along the orange property boundary line displayed on Figure 6-3. The white feature extending northeast/southwest on Figure 6-3 that the southern pair of soil sampling is located on is actually the power line.

ADMIN. JUDGE GARCIA: Ah, very good. So at least the southern side wouldn't be influenced by any traffic per se.

MR. STAHL: That's correct.

ADMIN. JUDGE GARCIA: Okay, good. It was mentioned in the pre-filed testimony that approximately four inches of soil would be sampled. Is that correct?

MR. STAHL: The sample would be collected from within the upper four inches, yes.

1 ADMIN. JUDGE GARCIA: Okay. It is not --
2 you are not going to take the entire four inches.

3 MR. STAHL: No. We would exclude the
4 uppermost sediment soil.

5 ADMIN. JUDGE GARCIA: You would exclude the
6 uppermost. Isn't that where you would be catching
7 the material that is coming out of the stacks or
8 stack?

9 MR. STAHL: Your Honor, I would like to
10 review the exact wording in the monitoring section of
11 the environmental report.

12 ADMIN. JUDGE GARCIA: That would be good,
13 because I had the impression from reading the written
14 testimony that you were going to take four inches of
15 sediment, and then analyze that and come up with a
16 value. So I just wanted some clarification on that.

17 (Pause.)

18 Are you going to get back to us on that or
19 should I --

20 MR. STAHL: I can get that right now.

21 ADMIN. JUDGE GARCIA: Okay.

22 (Pause.)

23 MR. STAHL: Yes, Your Honor, in the
24 environmental report, Section 6.1.5, you're correct
25 that our intent is to collect soil from the upper

1 four inches, and that would constitute the sample
2 sent for analysis.

3 ADMIN. JUDGE GARCIA: So perhaps whatever
4 is coming out a stack might be diluted by -- well,
5 what happens to the uranium, let's say, that is
6 coming out of the stacks and falls to that site? Is
7 that going to be chemically mobile, and so it would
8 penetrate down through the soil? Is that what is
9 anticipated? Or what do you envision?

10 MR. STAHL: Yes. Yes, Your Honor. Since
11 the sampling is semiannual, there would be ample
12 opportunity, due to precipitation, for any deposited
13 uranium on the ground surface to infiltrate to
14 certain depth.

15 ADMIN. JUDGE GARCIA: So this material
16 would be chemically mobile.

17 MR. STAHL: The uranium can be dissolved to
18 a certain extent, and mobilized downward into the
19 soil.

20 ADMIN. JUDGE GARCIA: Okay. All right.
21 Moving on to page 23, Figure 6.5. I would like to
22 ask a similar question about how these two sites were
23 selected for sampling water, surface water.

24 MS. MATTHEWS: So the upstream and
25 downstream locations on the Northeast Cape Fear

1 River, those two locations or --

2 ADMIN. JUDGE GARCIA: Well, you mentioned
3 that there were two sites -- the testimony mentions
4 two sites that were to be collected. But you're
5 right, in your presentation you did mention three.
6 So I was thinking about the black dots on Figure 6.5.

7 MS. MATTHEWS: These are all sites that
8 are currently monitored by GNFA. And since the
9 surface water pathways would be similar, that those
10 would be the adequate locations, and that is part of
11 the reason. The other is accessibility. So as far as
12 the upstream site, a lot of the area along the river
13 is forested on both sides, and so accessibility had to
14 play a factor in their site selection as well. And
15 the downstream location is the GE dock.

16 So your upstream location is upstream of
17 where -- it had to be upstream of where Prince George
18 Creek enters Northeast Cape Fear River, and then you
19 are limited with some accessibility. And then,
20 downstream you wanted it as close as possible to the
21 unnamed tributary where the SDAM location is.

22 ADMIN. JUDGE GARCIA: Okay. So there was
23 no need or interest in monitoring the unnamed
24 tributary.

25 MS. MATTHEWS: The unnamed tributary

1 between Prince George Creek -- or unnamed tributary to
2 the Northeast Cape Fear River, the SDAM site, that is
3 monitored. So there's three locations for surface
4 water.

5 ADMIN. JUDGE GARCIA: Okay.

6 MS. MATTHEWS: Both radiological and non-
7 radiological.

8 ADMIN. JUDGE GARCIA: I am having trouble
9 interpreting the figures.

10 MS. MATTHEWS: So there's -- the UPST is
11 the upstream location. The GEDK is the downstream
12 location at the GE dock. And then, the one within the
13 orange boundary representing the Wilmington site, that
14 is labeled SDAM, is the one that is collected at the
15 site dam.

16 ADMIN. JUDGE GARCIA: Okay. All right.
17 If we can move on to Figure 6.8 on page 29. I
18 wondered, you propose to analyze for uranium. In what
19 form did you expect the uranium to be at in this site?

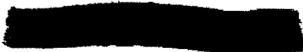
20 MS. MATTHEWS: Total uranium.

21 ADMIN. JUDGE GARCIA: Total uranium.

22 MS. MATTHEWS: Yes.

23 ADMIN. JUDGE GARCIA: Okay. And will it
24 be transported to site mainly by air?

25 MS. MATTHEWS: No. This is the water --



1 the surface water pathway, so anything that would be
2 bound to sediment.

3 ADMIN. JUDGE GARCIA: So you're thinking
4 it would mostly come by --

5 MS. MATTHEWS: From the wastewater.

6 ADMIN. JUDGE GARCIA: Wastewater.

7 MS. MATTHEWS: Or --

8 ADMIN. JUDGE GARCIA: Okay.

9 MS. MATTHEWS: -- storm water runoff.

10 ADMIN. JUDGE GARCIA: Okay. I would like
11 to now switch to groundwater, if we may, and look at
12 Figure 6.9. We were told about two principal aquifers
13 -- the surficial one and the main aquifer.

14 MR. ALEXANDER: We refer to the main
15 aquifer as the principal aquifer, so just --

16 ADMIN. JUDGE GARCIA: Okay. Thank you.

17 MR. ALEXANDER: -- two aquifers --
18 surficial and principal.

19 ADMIN. JUDGE GARCIA: Okay. Effectively,
20 in the GLE reason, is there any reason to say there
21 are two aquifers?

22 MR. ALEXANDER: No. It acts as one.

23 ADMIN. JUDGE GARCIA: It acts essentially
24 as one.

25 MR. ALEXANDER: Acts as one under water

2 ADMIN. JUDGE GARCIA: Right. Okay. You
3 mentioned in your testimony, your oral testimony, that
4 the clay -- the silt content increases down depth in
5 the per-D sands?

6 MR. ALEXANDER: The PD sands.

7 ADMIN. JUDGE GARCIA: PD, thank you.

8 MR. ALEXANDER: The PD sands, and, yes, it
9 becomes siltier with depth.

10 ADMIN. JUDGE GARCIA: Are there any
11 intervals within that unit that are potential
12 aquacludes?

13 MR. ALEXANDER: None that we have seen in
14 the GLE study area.

15 ADMIN. JUDGE GARCIA: So, overall, the
16 porosity and permeability just simply decreases with
17 depth.

18 MR. ALEXANDER: Decreases with depth. The
19 upper portion of the PD formation is more permeable
20 than the lower silty portion.

21 ADMIN. JUDGE GARCIA: Okay. So
22 effectively a spill on the site, if it were to reach
23 the water table, it would then --

24 MR. ALEXANDER: It would traverse down and
25 then laterally.

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ADMIN. JUDGE GARCIA: Right. Okay. What

2 is the quality of water like in these aquifers?

3 MR. ALEXANDER: In the GLE study area, it
4 has been unaffected by any industrial practices.
5 There are no organic contaminants, there is no
6 inorganic contaminants, based on a few baseline
7 samples that have been collected.

8 ADMIN. JUDGE GARCIA: So how would you
9 characterize the quality of water in the --

10 MR. ALEXANDER: It's good quality.

11 ADMIN. JUDGE GARCIA: It's good quality.

12 MR. ALEXANDER: Yes.

13 ADMIN. JUDGE GARCIA: So it's potable
14 water.

15 MR. ALEXANDER: It would be potable.

16 ADMIN. JUDGE GARCIA: Okay. Even though
17 it is not -- it's not used for that purpose?

18 MR. ALEXANDER: It is not used
19 specifically in that area. This PD aquifer is used
20 for potable water by GE Wilmington. They have three
21 potable wells on the east side of Castle Hayne Road,
22 and it is also used for domestic purposes north and
23 northeast of the site.

24 ADMIN. JUDGE GARCIA: But, in general, how
25 would you characterize the flow of water in this

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1 region? Is it away from those sites towards GLE site?

2 MR. ALEXANDER: No, it is actually the
3 opposite, Your Honor. It flows from the GLE site in
4 ~~opposite~~ -- in all directions.

5 ADMIN. JUDGE GARCIA: Oh, I see. Okay.
6 Interesting. So if we can move to page 32 and Figure
7 6.10, I wonder if you could help me understand this
8 figure.

9 MR. ALEXANDER: Yes. This -- go ahead,
10 I'm sorry.

11 ADMIN. JUDGE GARCIA: No. As I read this
12 figure, you have some solid lines and some dashed
13 lines, is that correct?

14 MR. ALEXANDER: That is correct, Your
15 Honor.

16 ADMIN. JUDGE GARCIA: I had trouble
17 inferring -- there didn't seem to be many of the lines
18 around the GLE site that were solid. There is the one
19 high, but not too many other solid lines. So is there
20 a lot of interpretation in creating this figure?

21 MR. ALEXANDER: There are only four
22 existing well clusters in the GLE study area --

23 ADMIN. JUDGE GARCIA: Ah.

24 MR. ALEXANDER: -- at this point.

25 ADMIN. JUDGE GARCIA: And could you

1 identify where those are for us?

2 MR. ALEXANDER: Yes. One is in the
3 uppermost bulls-eye, if you will, the high elevation.
4 I think that is showing as Elevation 22. If I may
5 refer to another map, I will --

6 ADMIN. JUDGE GARCIA: Yes, certainly.

7 MR. ALEXANDER: Yes. The highest
8 elevation there at this point in time, which was a
9 groundwater elevation above -- feet above mean sea
10 level in 2007 was Elevation 22. And there is a little
11 dot -- yes, thank you, someone enlarged that -- a
12 little dot just to the right of that 22 is one
13 monitoring well, or a well cluster, I should say. It
14 is actually three wells.

15 And then, there are two wells just to the
16 west and southwest of that dot that represent two
17 other existing well clusters. And so where we had
18 sparsity of data we used dashed lines.

19 ADMIN. JUDGE GARCIA: Okay. Well, in
20 particular, what I'm wondering about are your green
21 arrows, and your confidence level in both drawing
22 those arrows and showing them all to be the same
23 length, because it gives one the impression that the
24 water is going to flow more or less evenly in all
25 directions.

MR. ALEXANDER: The green arrows were just

2 meant to depict the generalized direction of flow at
3 right angles to the groundwater contours.

4 ADMIN. JUDGE GARCIA: Right. In some
5 diagrams of this type, the arrow lengths give an
6 indication of the relative velocity that the water may
7 flow.

8 MR. ALEXANDER: You're right, Your Honor.
9 In this case, it was only meant to be a generalization
10 of the direction of groundwater flow.

11 ADMIN. JUDGE GARCIA: Right. So as you
12 look at this figure now with the inferred contours,
13 what would you say was the likely dominant direction
14 of flow for the site?

15 MR. ALEXANDER: For the GLE site or the
16 Wilmington site?

17 ADMIN. JUDGE GARCIA: GLE site, sorry.

18 MR. ALEXANDER: For the GLE site, I would
19 have to say it is equal, it is in all directions, Your
20 Honor.

21 ADMIN. JUDGE GARCIA: Equal in all
22 directions. So you wouldn't say that there might be a
23 tendency for water to flow more in the westerly
24 direction, southwesterly direction, or maybe to the
25 north?

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1 MR. ALEXANDER: It's in all of those
2 directions, Your Honor.

3 ADMIN. JUDGE GARCIA: Okay. My looking at
4 that figure would suggest that it is -- there is not
5 much tendency to flow east. Those contours are widely
6 spaced. And given the sparsity of your data, I might
7 have difficulty supporting such.

8 MR. ALEXANDER: Well, a little less to the
9 east, more to the north and west, and clearly to the
10 southwest where the gradients become steeper as you
11 come closer to the discharge to the swampy area near
12 the Northeast Cape Fear River.

13 ADMIN. JUDGE GARCIA: Well, my emphasis
14 here is to suggest that -- the importance of knowing
15 the actual gradients and understanding how the water
16 is going to flow if indeed there should be a spill.
17 And at this point, I would suggest that there is some
18 uncertainty in this.

19 MR. ALEXANDER: It will be supplemented by
20 additional wells, Your Honor, which are shown in
21 another figure, which is our intent as well, to
22 collect more data before the final well locations are
23 selected.

24 ADMIN. JUDGE GARCIA: Can we go to that
25 next figure, then?

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1 MR. ALEXANDER: Yes. That would be --

2 ADMIN. JUDGE GARCIA: Page 34?

3 MR. ALEXANDER: That would be page 35,
4 actually, which is --

5 ADMIN. JUDGE GARCIA: Ah.

6 MR. ALEXANDER: -- the one that shows the
7 monitoring locations, the proposed monitoring
8 locations. And I apologize, this one is a little
9 difficult to read, and a lot of different arrows,
10 because we have multiple aquifers that we are trying
11 to represent.

12 ADMIN. JUDGE GARCIA: So can you help us
13 understand this figure?

14 MR. ALEXANDER: Yes, Your Honor. First, I
15 will point out the northeast trending black dashed
16 line. That is the line that approximates the -- where
17 the semi-confining unit or the PD clay ends. It is
18 not present to the west of that. And then, the -- in
19 this case, the purple flow arrows are showing
20 groundwater flow.

21 If you'll hold for just a second, please.
22 The purple are where -- showing the groundwater flow
23 in the direction where the clay is absent. The red is
24 showing the approximate direction of groundwater flow
25 where the clay layer is present, and the blue is



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1 showing the areas where the principal aquifer is
2 flowing, the multiple directions. And in this case,
3 the green dots represent new monitoring well
4 locations, which would increase the confidence of
5 groundwater flow.

6 ADMIN. JUDGE GARCIA: Okay. How were
7 these sites chosen for these new wells?

8 MR. ALEXANDER: They were chosen based on
9 a judgmental sampling, realizing this was a mound, to
10 have perimeter coverage, and based on our knowledge of
11 the site hydrogeology, which we have for several
12 decades.

13 ADMIN. JUDGE GARCIA: Okay.

14 MR. ALEXANDER: And knowing how
15 groundwater flows.

16 ADMIN. JUDGE GARCIA: You mentioned that
17 at each site there would be three wells drilled, and
18 they would penetrate the different depths. In your
19 testimony, you mentioned that one of the wells --
20 shallow one -- would go down to the water table.

21 MR. ALEXANDER: That's correct.

22 ADMIN. JUDGE GARCIA: And what about the
23 two other?

24 MR. ALEXANDER: They would be
25 progressively deeper, and to the more permeable sands

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1 that represent the upper portion of the principal or
2 the PD formation.

3 ADMIN. JUDGE GARCIA: Is there some
4 indication at this point how much deeper they will be?

5 MR. ALEXANDER: Yes. Based on the
6 investigation data that we have so far, the one
7 cluster would most likely be in the 30 foot to 40 foot
8 depth, and another may go as deep as 50.

9 ADMIN. JUDGE GARCIA: Oh, okay. And what
10 is that based on?

11 MR. ALEXANDER: That is based on a
12 transitional change that we see in the formation.
13 There are some unconsolidated limestone materials at a
14 depth of around 40, 50 feet.

15 ADMIN. JUDGE GARCIA: Oh, so --

16 MR. ALEXANDER: So a transitional change,
17 and wanting to make sure that we are monitoring more
18 permeable units.

19 ADMIN. JUDGE GARCIA: Is the limestone
20 more permeable?

21 MR. ALEXANDER: Yes, it would be.

22 ADMIN. JUDGE GARCIA: Oh. So it's
23 limestone sand?

24 MR. ALEXANDER: It's a sand with
25 unconsolidated limestone -- lime-type material in it.

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ADMIN. JUDGE GARCIA: Oh.

MR. ALEXANDER: Yes. It's not a competent limestone bed.

ADMIN. JUDGE GARCIA: Okay.

MR. ALEXANDER: But it is more permeable than the overlying and underlying sands.

ADMIN. JUDGE GARCIA: Will these wells be lined?

MR. ALEXANDER: I'm not sure I follow your question.

ADMIN. JUDGE GARCIA: If you are going to drill a hole, and you want to sample water from it, how do you know what depth you are sampling water from?

MR. ALEXANDER: Oh, there will be a screen that isolates the actual monitoring zone with depth, and the upper portion will be grouted in the annular space, so that there is no interchange. That is the way the current LF series wells are installed in that area.

ADMIN. JUDGE GARCIA: Good. Lastly, I understand -- well, correct me, is baseline data being collected at this point in terms of pre-construction/pre-operation for these areas?

MR. ALEXANDER: There have been some

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baseline samples collected. It is not on a routine
2 monitoring program, because there is no contamination
3 there. But as part of the GLE monitoring program, a
4 monitoring program will be established so that there
5 is sufficient baseline sampling on a routine basis
6 before pre-construction starts.

7 ADMIN. JUDGE GARCIA: Very good. I pass.

8 MR. STAHL: Excuse me, Your Honor. If I
9 might, just to get back to Judge Garcia's questions
10 about soil sampling, I have the additional information
11 on those sampling locations --

12 ADMIN. JUDGE GARCIA: Thank you.

13 MR. STAHL: -- you had asked about
14 regarding Global Nuclear Fuel's environmental
15 monitoring program. GNF monitors at seven locations
16 at the site -- soil uranium analyses -- and those
17 locations are presented in the supplement to Global
18 Nuclear Fuel's environmental report, which I believe
19 would be an exhibit that has been submitted.

20 MR. SILVERMAN: One second, please. That
21 is not -- I don't believe we have made that an
22 exhibit. It was a supplement, again, to the GNFA?

23 MR. STAHL: Yes. This would be Global
24 Nuclear Fuel's environmental report supplement that
25 was submitted to the NRC. It is dated March 30, 2007.

1 MR. SILVERMAN: We could, Your Honor, if
2 you are interested in looking at that information --

3 ADMIN. JUDGE GARCIA: I'd be interested in
4 seeing that page.

5 MR. SILVERMAN: We provide the ML
6 accession number --

7 ADMIN. JUDGE GARCIA: Okay.

8 MS. SIMON: -- for you.

9 ADMIN. JUDGE GARCIA: Good.

10 MR. STAHL: And I can describe that there
11 is -- four of their seven monitoring locations for
12 soil are onsite, and three are offsite. And one other
13 clarification I would like to make from the testimony
14 I provided earlier -- the soil sampling locations
15 displayed on Figure 6-3 of the pre-filed testimony,
16 the road that exists along the north property boundary
17 of the GLE facility along the orange line that is
18 displayed on the figure, has little to no traffic.

19 It is an access road mostly for the
20 private hunting grounds that exist to the direct north
21 and northwest of the GLE facility. There is no real
22 public access. As a matter of fact, I am pretty sure
23 that it is gated at Castle Hayne Road, and that there
24 is limited access to that road.

25 ADMIN. JUDGE GARCIA: Okay. Thank you.

CHAIRMAN RYERSON: Judge Jackson?

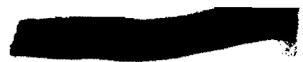
ADMIN. JUDGE JACKSON: I have a quick supplemental question to one of Judge Garcia's questions. If we could go to Figure 6-2, page 17, pre-filed testimony, the one that shows the nine air sampling stations. You talked about the location and prevailing wind direction, and so on. How far are these monitoring stations from the ground level?

MR. STAHL: The monitoring locations would be near the ground level, I think. I might defer to Ms. Oliver to answer that question.

MS. OLIVER: Assuming that we use a similar type of air monitoring station that currently exists at the GLE -- at the GNF site -- and of course that would be subject to vendor availability -- and those are a couple of meters off the ground.

ADMIN. JUDGE JACKSON: Okay. I just noticed that a lot of them are pretty close to the stack. I'm just -- do you do any kind of modeling just to show that prevailing winds wouldn't carry effluents over these monitors. You have data, practical experience you are modeling that helps you to know that they are -- they are adequate to catch air effluents in any direction.

MR. STAHL: Yes, Your Honor. There has



1 been modeling of both radiological and non-
2 radiological constituents. I would need to have some
3 time to review the results of those to --

4 ADMIN. JUDGE JACKSON: Okay. No, I was
5 just wondering if you did some plume-type modeling
6 from the stack just to make sure that you wouldn't
7 somehow bypass these monitoring stations.

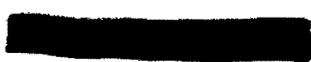
8 MR. STAHL: Yes. There has been modeling.

9 ADMIN. JUDGE JACKSON: And, similar, a
10 question for the -- my last question is for the
11 groundwater situation where we talked about the seven
12 three-well clusters. In selecting the depth, I
13 wondered if -- I assume you have some kind of
14 modeling, plume modeling, to make sure that that depth
15 is enough to catch a plume --

16 MR. ALEXANDER: There has been --

17 ADMIN. JUDGE JACKSON: -- in a radial
18 direction.

19 MR. ALEXANDER: There has been extensive
20 modeling at the site, Your Honor, groundwater flow and
21 groundwater contaminant transport modeling. And as
22 part of that, we have calibrated our models based on
23 water levels and formation information with depth.
24 And in siting the actual depths of these well screens,
25 we will look at model results and also additional



1 field data that will be collected.

2 ADMIN. JUDGE JACKSON: Thank you.

3 CHAIRMAN RYERSON: Just a clarification of
4 something that was not clear to me on the monitoring
5 of wastewater from sanitary sewage system. Is that
6 monitored for radiologic constituents as well as other
7 substances?

8 MS. OLIVER: Just one moment while we
9 confer.

10 (Pause.)

11 The answer is no, Your Honor, there is no
12 radiological monitoring required by the NPDES permit
13 for that outfall.

14 CHAIRMAN RYERSON: Okay. So it is not
15 required by that permit, and it is not done
16 voluntarily?

17 MS. OLIVER: It isn't. There is a very
18 low chance that radiological constituents would get
19 into the sanitary wastewater system, because it is
20 separated from contaminated systems on the site. So,
21 for example, the shower water, you know, where you
22 would have workers that go shower off and they have
23 contamination, that would go down the radiological
24 process water pathway.

25 So the only thing going down the sanitary

1 wastewater is truly sanitary wastewater and stuff that
2 comes out of your kitchens, and so forth.

3 CHAIRMAN RYERSON: Is there any history of
4 a problem with the sewage system at nuclear fuel
5 facilities that you are familiar with?

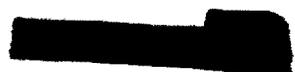
6 MS. OLIVER: I know that there has been
7 issues at nuclear fuel facilities with accumulation of
8 radionuclides at domestic wastewater treatment
9 systems. I am not aware of any issues with the
10 current Global Nuclear Fuel facility detecting
11 radionuclides in its sanitary wastewater system.

12 CHAIRMAN RYERSON: Okay. Judge Garcia, do
13 you have a question?

14 ADMIN. JUDGE GARCIA: Yes. I would like
15 to follow up on Judge Jackson's question. I remember
16 some vague details about the height of the GLE
17 facility, that it is going to be a fairly tall
18 building. And I wondered if you could inform us on
19 the height of the stack or the height of the top of
20 the stack where the possible materials might be
21 emanating from that might be caught in the traps.

22 MS. OLIVER: It will take just a minute.
23 We'll have to refer back to the environmental report
24 on that.

25 (Pause.)



1 MR. STAHL: Your Honor, the modeling that
2 we performed assumed a stack height of between 50 and
3 75 feet above ground surface.

4 ADMIN. JUDGE GARCIA: Fifty to 75 feet.
5 Okay. I thought the top -- the height of the building
6 was higher than that.

7 MS. OLIVER: It is. The building is about
8 200 feet. But the way that the -- if you think of it
9 as two blocks stacked side by side, that is how the
10 facility is going to look. So the taller portion of
11 the building will be on one side, and then the smaller
12 portion of the building, which will contain what we
13 refer to as our utility corridor, which includes our
14 HVAC and our stack -- final stack, final filter bank
15 before it goes into the stack, will be on the shorter
16 portion of the building.

17 ADMIN. JUDGE GARCIA: I see. Okay. Was
18 the modeling that was done, did it take into account
19 this variable height building structure?

20 MR. STAHL: The emission point was
21 positioned 50 to 75 feet. The presence of the taller
22 portion of the building may have been factored into
23 the model. I would have to check on that.

24 ADMIN. JUDGE GARCIA: Okay. I think it
25 would be useful to have a copy of this modeling



1 program results, so we have an appreciation for how
2 rigorously it was done.

3 MR. STAHL: The modeling results performed
4 by RTI International, by GLE, were presented to the
5 NRC as a response to an RAI.

6 ADMIN. JUDGE GARCIA: And do you have any
7 more information on how I would find that, ML number
8 or --

9 MR. SILVERMAN: We should be able to track
10 that down, if it was -- certainly, if it was in
11 response to an RAI to the staff. One second, Your
12 Honor.

13 (Pause.)

14 ADMIN. JUDGE GARCIA: Thank you.

15 CHAIRMAN RYERSON: Any more questions?

16 (No response.)

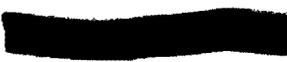
17 Thank you. We appreciate your testimony,
18 and this panel is excused.

19 (Whereupon, the witnesses were excused.)

20 I think we have -- we have just one more
21 panel to go, and I assume we need five minutes to get
22 them?

23 MS. SAFFORD: Yes. Just a few minutes and
24 we'll get our witnesses.

25 CHAIRMAN RYERSON: We'll start at 4:10.



1 Thank you.

2 (Whereupon, the proceedings in the
3 foregoing matter went off the record at 4:05 p.m. and
4 went back on the record at 4:13 p.m.)

5 CHAIRMAN RYERSON: Our last panel. Let's
6 see who we have. Mr. Johnson and Mr. Diaz, you have
7 been previously sworn. I just remind you of that.
8 And we have three newcomers -- Mr. Fischer, Mr.
9 Bartlett, and Mr. Echols. If you would raise your
10 right hand, please? Do you swear or affirm that the
11 testimony you are about to give in this proceeding
12 will be the truth, the whole truth, and nothing but
13 the truth?

14 ALL: I do.

15 CHAIRMAN RYERSON: Thank you. And are you
16 going to begin with a presentation for us? Is that
17 our understanding?

18 MR. FISCHER: Yes, sir.

19 CHAIRMAN RYERSON: Please proceed.

20 MR. FISCHER: Good afternoon, Your Honors.

21 This is a presentation on the sixth topic identified
22 in the May 16, 2012, Board Order entitled
23 Environmental Monitoring Program.

24 CHAIRMAN RYERSON: Just for the record, I
25 will identify that you are referring to what has been



1 marked as NRC Exhibit 116.

2 MR. FISCHER: Correct.

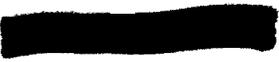
3 CHAIRMAN RYERSON: Thank you.

4 MR. FISCHER: Slide 2, please.

5 I am Karl Fischer, certified health
6 physicist and senior health physicist at the
7 University of Michigan. Between 2009 and 2012, I
8 served as the deputy team lead and document manager at
9 Argonne National Laboratory on its contract with the
10 NRC staff to provide technical assistance for the
11 preparation of the environmental impact statement.

12 The Board's request in Topic 6 is in three
13 parts: a) review the key elements of the
14 environmental monitoring program, including how
15 hazardous and radiological effluent releases into the
16 atmosphere, surface water, and groundwater will be
17 tracked; b) present the NRC staff's rationale for
18 concluding that proposed measures are adequate; and
19 c) discuss specifically how the applicant and the NRC
20 will use the results of the monitoring program to
21 correct problems and ensure ongoing compliance with
22 environmental requirements.

23 Tim Johnson and I have the lead for the
24 presentation on Part A of this topic. Tim Johnson,
25 Matthew Bartlett, and Stan Echols have the lead for



1 Part B of this topic. And Jose Diaz has the lead for
2 Part C of this topic.

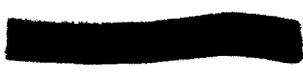
3 Next slide, please.

4 Applicants such as GE-Hitachi Global Laser
5 Enrichment, LLC, herein referred to as GLE, have
6 access to NRC guidance that identifies the need and
7 requirements for radiological effluent environmental
8 monitoring programs that are applicable to fuel cycle
9 facilities, such as the proposed GLE facility.

10 NRC guidance documents used by GLE to
11 develop -- and the NRC staff to review -- the
12 environmental report and the proposed radiological
13 effluent environmental monitoring program, include
14 NUREG-1748 and NUREG-1520.

15 NUREG-1748 provides guidance to the staff
16 for its review of the environmental report -- the
17 ER -- and for development of the staff's environmental
18 impact statement, herein referred to as the EIS.
19 NUREG-1748 also discusses environmental information
20 that should be considered by applicants in preparing
21 the ER.

22 Section 5.6.1 and 6.6.1 provide guidance
23 on items to include in a description of the
24 radiological monitoring program in the EIS and the
25 environmental report, respectively. The staff used





1 this guidance in conducting the environmental review
 2 and preparing Chapter 6 of the FEIS, which is entitled
 3 Environmental Measurement and Monitoring Programs.

4 NUREG-1520 is the NRC's standard review
 5 plan for reviewing a license application for a fuel
 6 cycle facility. As part of the staff safety review,
 7 the staff used the acceptance criteria found in
 8 Section 9.4.3.2.2, entitled Effluent and Environmental
 9 Monitoring, to evaluate the adequacy of GLE's proposed
 10 radiological effluent and environmental monitoring
 11 program as documented in Section 9.3.2 of the safety
 12 evaluation report.

13 NUREG-1520 is not used in the staff's
 14 environmental review or in preparation of the final
 15 environmental impact statement. Additional NRC
 16 guidance documents available to applicants that are
 17 relevant to radiological effluent and environmental
 18 monitoring are Regulatory Guide 4.1 -- I'm sorry,
 19 4.15, which describes an acceptable method for
 20 designing a program to ensure the quality of
 21 radiological effluent and environmental monitoring
 22 results; Regulatory Guide 4.16, which describes an
 23 acceptable method for the development and
 24 implementation of radiological effluent monitoring
 25 programs, and for monitoring effluents and reporting



1 data; and NUREG-1302, which provides guidance for
2 design and implementation of radiological effluent and
3 environmental monitoring programs.

4 Next slide, please.

5 The environmental monitoring program at
6 the proposed GLE facility will consist of two
7 components -- monitoring of gaseous and liquid
8 effluents at the point of release, and monitoring of
9 various environmental media in the vicinity of the
10 proposed facility. Both effluent and environmental
11 monitoring activities would include radiological and
12 non-radiological analyses.

13 Effluent monitoring addresses the
14 monitoring, recording, and reporting of data for
15 contaminants emitted from specific points at the
16 proposed GLE facility. Effluent monitoring is
17 designed to confirm the effectiveness of effluent
18 controls and verify that operations have no
19 detrimental radiological impact through continuous
20 sampling at all release points for both airborne and
21 liquid effluents.

22 Physical samples collected for analysis
23 would include exhaust vent air sampler filters and
24 treated liquid effluent from the Wilmington site final
25 process lagoon facility.

1 Environmental monitoring addresses the
2 monitoring of general environmental media in the
3 vicinity of the proposed GLE facility, including
4 ambient air, groundwater, storm water, surface water,
5 sediment, and soil. This vicinity would include
6 locations within and outside the GLE site boundary.
7 Environmental monitoring is performed to verify the
8 validity of effluent monitoring results, to verify
9 that containment and effluent controls are working
10 properly, and to provide a means for evaluating the
11 impacts from GLE operations on local environment.

12 Because General Electric already conducts
13 effluent and environmental monitoring for existing
14 facilities at the Wilmington site, and possesses
15 several years of monitoring experience and baseline
16 data, the existing General Electric monitoring program
17 would be expanded to include the proposed GLE
18 facility, and would then be known as the expanded
19 monitoring program.

20 The slides that follow present the
21 features of the effluent environmental monitoring
22 activities.

23 Next slide, please.

24 As mentioned earlier, effluent monitoring
25 focuses on sampling of effluents at discharge points

1 at the proposed GLE facility. Radiological monitoring
2 of effluent releases would be performed to comply with
3 federal and state regulations that require monitoring
4 and reporting of radionuclides in gaseous and liquid
5 effluents released to the environment from specific
6 points at the proposed GLE facility.

7 Radiological effluent monitoring for the
8 proposed GLE facility is based on the regulatory
9 requirements, the existing monitoring program at the
10 Wilmington site, and the NRC guidance documents
11 discussed earlier in this presentation. Radiological
12 effluent monitoring activities include semiannual
13 reporting to the NRC.

14 Non-radiological monitoring of chemical
15 constituents and physical parameters in effluent
16 releases would be performed to comply with the
17 requirements contained in permits issued by other
18 agencies and in other agencies' regulations.

19 Permitted agencies include the North
20 Carolina -- I'm sorry, permitting agencies include the
21 North Carolina Department of Environment and Natural
22 Resources Division of Air Quality and Division of
23 Water Quality.

24 Effluent monitoring activities would be
25 modified as necessary to maintain collection and



reliability of data based on changes to regulatory requirements or facility operations. An overview of the proposed effluent monitoring is presented on this slide, including the locations, type, analysis, and frequency of each effluent to be monitored.

All effluents from the proposed GLE facility would be discharged only through monitored pathways. Gaseous effluent would be discharged from a single point -- the ventilation system exhaust stack. Following the guidance in Regulatory Guide 4.16, and the North Carolina Department of Air Quality air permit, GLE would continuously monitor the facility stack for gross alpha activity in hydrogen fluoride.

Radiological analysis would occur daily after startup, decreasing to weekly if monitoring results demonstrate consistently low activity. Analysis for hydrogen fluoride would occur weekly.

Liquid effluent would be discharged from a single point. After treatment at the proposed GLE facility to remove uranium and fluoride, treated processed wastewater would be sent to the Wilmington site final process lagoon facility for final treatment, monitoring, and discharge.

This facility is the final treatment location of all processed wastewater effluent

1 generated by facilities on the Wilmington site. So
2 released effluents would not be limited to those
3 generated at the proposed GLE facility.

4 Following state regulations, permit
5 requirements, and the guidance in Regulatory Guide
6 4.16, General Electric would continuously monitor
7 liquid effluent for total uranium, gross alpha and
8 beta activity, technetium-99, and other physical
9 parameters required by the National Pollutant
10 Discharge Elimination System permit for the Wilmington
11 site. I will herein refer to that as the NPDES.

12 Because the Wilmington site has a permit
13 to reuse treated sanitary wastewater effluent as
14 makeup water in site cooling towers, no discharge of
15 treated sanitary wastewater effluent from the proposed
16 GLE facility is anticipated. Should discharge to
17 surface waters become necessary, the existing
18 Wilmington site NPDES permit would allow the
19 resumption of discharges, and the discharge outfall 2
20 would be monitored in accordance with the NPDES
21 permit.

22 Next slide, please.

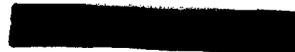
23 Environmental monitoring activities for
24 the proposed GLE facility would involve monitoring for
25 contaminants in various environmental media near the

1 facility. General Electric already conducts
 2 environmental monitoring for existing facilities at
 3 the Wilmington site, and environmental sampling for
 4 new sampling locations would be initiated prior to
 5 startup of the proposed GLE facility to establish
 6 background and baseline data.

7 As noted earlier in this presentation,
 8 environmental monitoring activities would include
 9 radiological and non-radiological analyses. GLE would
 10 submit a semiannual report of the radiological
 11 environmental monitoring program to NRC, including the
 12 concentrations of GLE-related radionuclides released
 13 to the environment and found in environmental samples.

14 This chart summarizes the type, number,
 15 locations, analysis and frequency of the media
 16 sampling included in the environmental monitoring
 17 program as discussed in the previous slides.

18 Environmental monitoring activities would
 19 include the following. Continuous particulate air
 20 monitoring -- 11 continuous air monitors would be
 21 deployed for collection and analysis of a weekly
 22 composite. Nine of these air monitors would be
 23 deployed in predominant wind directions. An
 24 additional air monitor would be deployed at the
 25 Wilmington site boundary where the highest potential



1 offsite impact is predicted to occur.

2 Treated process wastewater effluent --
3 locally treated processed wastewater effluent from all
4 facilities at the Wilmington site would be sent to the
5 Wilmington site final process lagoon facility for
6 final treatment, monitoring, and discharge.
7 Monitoring of the effluent in outfall 1 would include
8 daily, weekly, and quarterly composite sample
9 analysis. Additional monitoring at outfall 1 would
10 address NPDES requirements.

11 Groundwater -- 13 new monitoring wells
12 would be installed in the vicinity of the proposed GLE
13 facility to complement eight existing wells in the
14 area. These 21 wells would be arranged in seven
15 groups on the basis of groundwater flow directions
16 with wells installed at three depths for each group.

17 Sampling would be performed quarterly
18 beginning prior to the startup of operations, until
19 sufficient data is collected -- sufficient data are
20 collected to justify adjustment of the sampling
21 frequency. Additional sampling would be performed if
22 uranium concentration in a well exceeds a defined
23 threshold.

24 Storm water -- storm water runoff from the
25 UF-6 cylinder storage pads would be collected in a

1 lined holding pond and monitored prior to release to
2 the GLE storm water wet detention basin. Storm water
3 monitoring at the Wilmington site is conducted
4 semiannually at storm water outfalls during storm
5 events under the Wilmington site NPDES storm water
6 permit.

7 Surface water -- monthly samples of the
8 Wilmington site effluent channel at the site dam, the
9 Northeast Cape Fear River 17 miles upstream of the
10 Wilmington site, and the northeast Cape Fear River at
11 the Wilmington site dock downstream of the effluent
12 channel discharge point, would continue to be analyzed
13 monthly. Sediment in the effluent channel downstream
14 of outfall 1 would continue to be analyzed
15 semiannually.

16 Soil -- four new sampling locations would
17 be added to supplement the existing soil sampling
18 locations at the Wilmington site. Semiannual sampling
19 would commence prior to startup in order to establish
20 baseline data at these new sampling locations.

21 Direct radiation exposure -- direct gamma
22 radiation exposure would be monitored quarterly to
23 assess the offsite dose from stored UF-6 cylinders and
24 other facility operations, and to demonstrate
25 compliance with NRC and state radiation protection

1 requirements. Dosimeters would be deployed at
2 strategic locations along the boundaries of the UF-6
3 cylinder storage pads, and along the fence line of the
4 proposed GLE facility.

5 Next slide, please.

6 This slide shows the locations for ambient
7 air monitoring, including the nine air monitors and
8 predominant wind directions, and an air monitor at the
9 Wilmington site boundary where the highest potential
10 offsite impact is predicted to occur.

11 Next slide, please.

12 This slide shows the liquid effluent
13 discharge points at the Wilmington site. As noted in
14 a previous slide, all treated processed wastewater
15 effluent generated by facilities at the Wilmington
16 site is released at outfall 1. Most environmental
17 monitoring activities are conducted at the site dam.

18 Next slide, please.

19 This slide shows the locations for
20 groundwater monitoring, notably the seven groups of
21 wells at the proposed GLE facility site. A map
22 showing the four new soil monitoring locations is
23 available in Chapter 6 of the environmental report.

24 Next slide, please.

25 The North Carolina Division of Water

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1 quality conducts water quality monitoring in the Lower
2 Cape Fear River Watershed, maintaining two monitoring
3 locations along the Northeast Cape Fear River upstream
4 and downstream of the Wilmington site. Monitoring
5 parameters include metals, arsenic, biochemical oxygen
6 demand, chloride, dissolved oxygen, fecal coliform,
7 nitrogen, pH, salinity, phosphorous, suspended solids,
8 and temperature.

9 The North Carolina Division of
10 Environmental Health, Radiation Protection Section,
11 also conducts routine environmental sampling and
12 analysis within the vicinity of the Wilmington site,
13 primarily due to the operation of the existing Global
14 Nuclear Fuel America's facility on the Wilmington
15 site.

16 The Radiation Protection Section
17 environmental surveillance program includes low volume
18 air sampling and sampling of vegetation, sediment,
19 soil, surface water, and groundwater. In addition,
20 water quality monitoring in the Lower Cape Fear River
21 Watershed is performed for the Lower Cape Fear River
22 Program, a collaboration of the University of North
23 Carolina at Wilmington, the North Carolina Department
24 of Environment and Natural Resources, industry, and
25 the public.

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Physical, chemical, and biological measurements are routinely collected at 34 sites within the Cape Fear River estuary, and Lower Cape Fear River Watershed, including the Lower Cape Fear River at the Wilmington site dock downstream of the effluent release, the effluent channel discharge point.

This concludes my presentation on Part A of Topic 6. I will now turn the presentation over to Mr. Johnson for Part B.

CHAIRMAN RYERSON: Thank you, Mr. Fischer.

MR. JOHNSON: Thank you very much. The purpose of my discussion is to talk about the regulatory requirements related to effluent monitoring. Karl talked about environmental monitoring. This relates to effluent monitoring.

And the regulatory requirements specific to effluent releases are in 20.1302. 20.1302 requires compliance with the effluent release numbers in Appendix B to Part 20. There are also requirements in 10 CFR 70.59, requiring a semiannual release report to be submitted to the NRC.

The applicant has also committed to using Regulatory Guide 4.16 in its effluent release program. This regulatory guide addresses issues such as how to

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1 do sampling, appropriate quality assurance, quality
 2 control methods, establishing minimum detectable
 3 activity levels, calibration of instruments used in
 4 laboratory analysis, how to perform calculations to
 5 develop exposure estimates, and reporting.

6 In addition to the semiannual release
 7 reports required under 70.59, GLE has also committed
 8 to doing an annual ALARA assessment in which all
 9 provisions of the ALARA program, including effluent
 10 releases, would be evaluated with the intent on
 11 identifying whether or not there are new issues that
 12 come about from the release programs, and whether or
 13 not changes needed to be made either in the programs
 14 or in the design of the processing equipment.

15 Based on the results of the effluent
 16 monitoring programs, if issues are identified that
 17 need correction, GLE would enter them into their
 18 corrective action program, in-process them as
 19 necessary, and take whatever measures are necessary to
 20 ensure that all of their releases end up being in
 21 compliance with the requirements for ALARA as well as
 22 those in 10 CFR Part 20.

23 MR. ECHOLS: The NUREG-1520 review was
 24 conducted of applicant's environmental protection
 25 measures against the acceptance criteria found in

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1 Chapter 9 of NUREG-1520. We concluded that the
2 acceptance criteria have been met. The list is
3 underneath one of those sections.

4 Now, we have summarized the applicable
5 portions of the ER and the LA, as well as other
6 chapters within the SER, Chapters 4, 11, and 3 of the
7 ISA -- and the FEIS as they relate to this.

8 MR. BARTLETT: Good afternoon. My name is
9 Matt Bartlett. I am a health physics reviewer in
10 NMSS.

11 Operations at the proposed GLE facility
12 will generate wastes, which can be grouped into three
13 main categories of solid waste, liquid waste or liquid
14 effluents, and air effluents. The solid wastes
15 include low level radioactive wastes, which will be
16 consistent with uranium contaminated equipment, such
17 as personal protective equipment used, HEPA and HEGA
18 filters, and pigtails, et cetera.

19 GLE will collect these contaminated
20 materials into disposal containers for onsite storage,
21 survey, and eventual transfer to a licensed disposal
22 facility. The applicant commits to comply with the
23 disposal requirements in 10 CFR 10.2006 and
24 Appendix G. These requirements address the transfer
25 of low level radioactive waste to a licensed disposal

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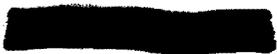
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1 facility.

2 The liquids contained -- the liquid waste
 3 contained -- containing radioactive contaminants are
 4 generated through maintenance and decontamination
 5 activities. These liquids are collected, sampled, and
 6 treated to decrease the contamination below the
 7 release limits required by 10 CFR 20.1301 and 20.1302,
 8 and Appendix B. These requirements limit the exposure
 9 to a member of the public due in part to liquid and
 10 airborne releases.

11 The airborne contamination is generated
 12 through maintenance activities, the changeout of
 13 source and product cylinders, et cetera. This
 14 contamination is routed through ventilation systems,
 15 which is filtered and sampled prior to release. The
 16 applicant has committed to ensure the air effluents
 17 are below the release limits required by 20.1301,
 18 .1302, and Appendix B. These release limits ensure
 19 that doses to the public remain below the regulatory
 20 limit of 50 millirem in a year.

21 In addition to complying with the
 22 radiation release limits in Part 20 Appendix B, GLE
 23 has also committed to implement the ALARA requirements
 24 in 20.1101(b), and to minimize contamination
 25 consistent with 2014.06(a). The facility will work to



1 minimize the contamination and effluents below the
2 release limits as much as is reasonably achievable.

3 Next slide, please.

4 The NRC review of the license application
5 and the integrated safety analysis summary provided
6 the staff with adequate assurance that the applicant
7 will comply with the regulations. This is due in part
8 to the license application complying with the
9 acceptance criteria in the standard review plan,
10 NUREG-1520.

11 In addition, GLE commits to follow NRC
12 guidance, including Reg Guide 8.37. This regulatory
13 guide reiterates the ALARA principle and provides
14 guidance for applying ALARA to both liquid and
15 airborne radiation effluents.

16 In addition, the application describes the
17 radiation protection program, which relies on
18 qualified radiation protection staff, written
19 procedures, dose monitoring, and contamination
20 control.

21 The radiation protection program for
22 effluents involves three components: containment,
23 cleaning, and counting. Air effluents are minimized
24 through containment in enclosed work areas, sealed
25 equipment, and ventilation control. Contaminated

1 liquids are collected to holding tanks for treatment,
2 and then directed to containment ponds prior to
3 release.

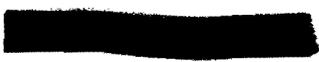
4 Both liquid and air effluents are filtered
5 to remove contamination. Air effluents are passed
6 through high efficiency particulate air filters and
7 high efficiency gas absorber filters used to remove
8 contaminants. Liquids are treated to precipitate
9 uranium and evaporate fluoride products below
10 regulatory limits.

11 Once effluents are released, the applicant
12 commits to monitor direct radiation around the
13 facility, conduct air sampling, and monitor both
14 groundwater wells and surface water on a regular
15 basis.

16 Compliance with the NRC's guidance and
17 implementation of a radiation protection program for
18 containing, cleaning, and counting effluents provides
19 reasonable assurance of compliance with the regulatory
20 requirements for the effluents.

21 MR. DIAZ: My name is Jose Diaz. I am a
22 senior fuel facility project inspector with the
23 Division of Fuel Facility Inspection, the Region II
24 office in Atlanta.

25 Our function is to support the



1 construction program during the ORR inspections and
2 help them on whatever technical expertise they may
3 need to complete that portion of the inspection. Once
4 the applicant receives the license, because the ORR
5 process is complete and waste is satisfactory, then my
6 division will be in charge of performing the
7 operational inspections. We use the same basis for
8 the ORR that was use for the operational safety and
9 safeguards inspections.

10 The NRC has an inspection program that
11 incorporates the Inspection Manual Chapter 2600, which
12 in this particular case covers three inspection
13 procedures covered activities that relate to the
14 environmental monitoring program. They are the
15 radiation protection program, radiation protection
16 inspection procedure, IP 88030; effluent control and
17 environmental protection, IP 88045; and radioactive
18 waste management, IP 88035.

19 In my testimony, there is detailed
20 information as to the objectives of those procedures
21 and what areas they will cover.

22 Next slide. Next one.

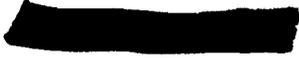
23 As of the result of the operating of the
24 facility, the results of the environmental protection
25 program can indicate that the program is being

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1 effective. The argument that I have here is that if
2 everything goes well, and something goes bad, the
3 program should show indications of such type of

1 finding is identified, it gets placed in the system.
2 When the next inspector goes on to perform a followup
3 inspection on that particular area, they will
4 familiarizes themselves with what was found before,
5 and the locations we can also have staff accessible to
6 talk about it, include those issues in our inspection
7 plans. And then we will proceed to ensure that we
8 review whatever findings were identified previously,
9 and then we ensure that they have implemented proper
10 corrective actions and solved the situation.

11 Inspection findings can be identified
12 also, literally, as a result of the core inspection
13 program that we have. On occasion, they could be also
14 part of self-revealing events that we get notified,
15 and for those occasions like that we also conduct
16 reactive inspections. This type of inspections are
17 inspections that are not on schedule, but based on
18 whatever it is that we are reviewing, might trigger us
19 to go and do an inspection.

20 And, again, the NRC enforcement policy is
21 used to ensure that licensees return to compliance
22 when we identify environmental monitoring problems.

23 That's all that I have.

24 CHAIRMAN RYERSON: Thank you. Does that
25 conclude the presentation of the panel?

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1 MR. JOHNSON: Yes, it does.

2 CHAIRMAN RYERSON: Thank you. We will
3 begin, then, with questions from Judge Garcia.

4 ADMIN. JUDGE GARCIA: Good afternoon. I
5 would like to ask a few questions. First, starting
6 with the air monitoring program, we heard earlier that
7 a program was filed with NRC regarding modeling of the
8 air quality around the plan, and particularly
9 exhausting from the stacks. And I wondered if any of
10 your team members had looked at this modeling program
11 to assure that the locations and elevations of the
12 monitoring stations are adequate.

13 MR. ECHOLS: I looked at the locations of
14 the predominant wind directions to assure that they
15 would -- the locations would pick up anything coming
16 from the stack in the areas of concern, particularly
17 to -- if you located someone to the most predominant
18 location to calculate a dose to that person, to see if
19 it was within regulatory limits.

20 As far as the modeling itself, no.

21 ADMIN. JUDGE GARCIA: Okay. And it is our
22 understanding that modeling results were filed with
23 the NRC, and I just wanted to have some confidence
24 from your team that this has been looked at and that
25 you feel confident that they have done an appropriate

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1 job of locating not only the site of the monitoring
2 station but also the height, given that the elevation
3 of the stack and the configuration of the building
4 could influence where is the appropriate place to be
5 monitoring the air.

6 MR. FISCHER: Your Honor, I would like to
7 add that the monitoring locations, the monitoring plan
8 that you are referring to, it was reviewed in the EIS.
9 We did not comment on it, but what we did, the
10 environmental review staff did perform its own air
11 monitoring, its own modeling of the stack, and
12 locations around the facility, and that is documented
13 in Chapter 4 of the environmental impacts of the FEIS
14 -- the results of that monitoring. I'm sorry, the
15 results of the modeling.

16 ADMIN. JUDGE GARCIA: And so was this
17 using the building configuration and the height of the
18 stack?

19 MR. FISCHER: This was using the height of
20 the stack. I can't answer whether it used the
21 building configuration or not. I don't have that
22 information.

23 ADMIN. JUDGE GARCIA: Okay.

24 MR. BARTLETT: I know that as part of the
25 accident analysis the HP reviewer did independent

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1 modeling during -- under an accident condition of
2 releases, using -- verifying -- using RASCAL, which is
3 an NRC code, to verify the -- you know, the release
4 during an accident. In terms -- I don't know if they
5 verified the measurement spots around the facility.

6 ADMIN. JUDGE GARCIA: I guess what I'm
7 looking for is some confidence from your team that,
8 yes, this program not only looks good on a map, but
9 also, in the third dimension, it is appropriately
10 located.

11 MR. ECHOLS: You are speaking to the
12 elevation of the monitors and taking into account the
13 wake effect?

14 ADMIN. JUDGE GARCIA: Yes. Exactly.

15 MR. JOHNSON: I don't believe the RASCAL
16 monitoring that was done for the accident analysis
17 took into effect wake effects. I believe it is very
18 difficult to model those in a -- in the existing codes
19 that are used, so I don't really know how that was
20 taken into effect.

21 ADMIN. JUDGE GARCIA: Okay.

22 MR. BARTLETT: I do know that the RASCAL
23 modeling that was done did assume worst-case
24 conservative, you know, estimates. But --

25 ADMIN. JUDGE GARCIA: It just would be

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1 terrible if the stuff was flowing over the monitors
2 and never picked up. So I just wanted to make sure
3 that this is being considered.

4 Next, I want to turn attention to the
5 storm water monitoring. How does one do this in
6 principle? It is supposed to be done twice a year.
7 Somebody on the GLE team goes out and after a storm,
8 whatever time that storm might happen, is that your
9 understanding of how it is done?

10 MR. FISCHER: Yes, sir. It is my
11 understanding that the monitoring is done at the
12 outfall during a storm event twice a year.

13 ADMIN. JUDGE GARCIA: And are storms
14 normally in one season? Would they be only summertime
15 events, or would they occur any time of the year?

16 MR. FISCHER: Unfortunately, I don't have
17 the information about the actual time of the year that
18 they do that monitoring.

19 ADMIN. JUDGE GARCIA: I just wondered how
20 well spread out they are, if they are focused in one
21 season. We don't know.

22 MR. FISCHER: I don't have that
23 information. Sorry.

24 ADMIN. JUDGE GARCIA: Okay. If we go to
25 page 9 of your testimony, the oral testimony, the

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1 groundwater monitoring locations -- oh, I'm sorry,
2 that's the written. I'm looking for the oral, the
3 PowerPoint.

4 Right. What I'm interested in, these --
5 your two sink points, apparent sink points, in this
6 figure -- one near the center and one off towards the
7 southeast a bit -- what is your understanding of these
8 two low areas?

9 MR. JOHNSON: Could you repeat the
10 question, please?

11 ADMIN. JUDGE GARCIA: Right. I am
12 wondering about the -- why there are these two low
13 areas in the groundwater configuration.

14 MR. JOHNSON: I believe that is -- the
15 contours are primarily developed based on the
16 groundwater sampling levels and the topography of the
17 site.

18 ADMIN. JUDGE GARCIA: Could these
19 locations be those of wells that are being used by
20 location sites?

21 MR. JOHNSON: I believe that the wells
22 that are used as production wells for the facility are
23 off the site map here.

24 ADMIN. JUDGE GARCIA: Okay.

25 MR. JOHNSON: They are to the east of

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Castle Hayne Boulevard, which would show up east of
2 the property line.

3 ADMIN. JUDGE GARCIA: Okay. How well
4 characterized is the groundwater flow in this region,
5 would you say?

6 MR. JOHNSON: I am not a hydrologist, but
7 based on my look at that -- the contours here, the
8 contours here are really -- maybe the map looks more
9 exaggerated than it is. It's -- the site, as you saw
10 when you visited, is a fairly level site. The
11 contours on that map are two foot contours, so it may
12 look steeper than it really is.

13 But, again, I believe the levels here are
14 -- were derived based on data from the existing wells
15 and with the topography also figuring into the contour
16 of development.

17 ADMIN. JUDGE GARCIA: Has your team seen a
18 detailed groundwater modeling analysis for this site?

19 MR. JOHNSON: In the safety review, I
20 don't believe we looked at that. I would have to ask
21 Karl what they looked at for the environmental aspect.

22 MR. FISCHER: Your Honor, Karl Fischer.
23 As you can see on this map, there are a number of
24 monitoring wells located within the Wilmington site
25 boundary. And in the affected environment section of

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1 the FEIS, Chapter 3, we did -- we did characterize the
2 groundwater environment and the monitoring that has
3 been done to date to characterize groundwater levels
4 and groundwater quality.

5 ADMIN. JUDGE GARCIA: So my question is,
6 how well known is it? Do you feel it is well known,
7 so that if there was a spill we could predict with
8 some confidence where it would go?

9 MR. FISCHER: Based on my understanding of
10 the affected environment, I would say, yes, it is well
11 known.

12 ADMIN. JUDGE GARCIA: Okay.

13 MR. JOHNSON: I would like to also point
14 out that there has been a substantial amount of
15 groundwater monitoring done in association with some
16 previous contamination that was caused by the fuel
17 fabrication facility. And that is something that is
18 continually evaluated by the GE people in an effort to
19 understand where this contamination is going and how
20 fast it is going.

21 ADMIN. JUDGE GARCIA: thank you.

22 CHAIRMAN RYERSON: Judge Jackson?

23 ADMIN. JUDGE JACKSON: I have, thankfully,
24 one question. The staff is often faced with the
25 difficult decision of deciding how much is enough or

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1 what is sufficient and what is adequate. And just
2 coming back to finish off this groundwater monitoring
3 program, the applicant has come in with proposals for
4 seven clusters of 21 wells. And, presumably, the
5 staff has agreed that that is an adequate system to
6 detect contamination in the groundwater. Is that
7 correct?

8 MR. ECHOLS: Yes.

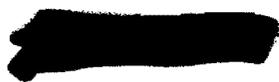
9 ADMIN. JUDGE JACKSON: Okay.

10 MR. ECHOLS: And we note that they are set
11 at three different levels to take into account there
12 are drought and flood conditions, and that is why it
13 is not just at a single level for all of the wells.

14 ADMIN. JUDGE JACKSON: Right. Okay. Here
15 is my question. How do you decide that that is
16 sufficient? What if they come in with five sets
17 instead of seven or 12 instead of seven? How -- and I
18 know you have acceptance criteria and you have reg
19 guides and you have regs and standard -- all that
20 stuff. But how do you -- how did you decide that this
21 array of 21 wells was adequate?

22 MR. ECHOLS: Well, from my perspective, it
23 was also -- the same question came up on the TLDs at
24 the perimeter as to how many -- is 15 good? Why not
25 20? And so on.

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1 And these -- this monitoring program is
2 very similar to others at LES and USEC, stack
3 monitoring, continuous monitoring, that sort of thing.
4 So all of these fit a fairly consistent pattern.

5 And I went back to the various project
6 managers at these sites, and I said, "Look, can we --
7 we approved these at one point. And we have the NRC
8 oversight and conducting various audits, the state is
9 doing the same thing, there are public meetings. Has
10 anything come up that would lead you to question the
11 programs, either from the state or from yourselves or
12 the audits?" And the answer has been no, nothing,
13 that they have all been adequate for their purpose.

14 I even looked at the -- in the EIS just to
15 see if there were any public concerns raised about
16 this, and none were related to the environmental
17 monitoring program. So based upon this one, and also
18 compared to others that have the same requirements,
19 they are consistent with those.

20 ADMIN. JUDGE JACKSON: Okay. So you are
21 just saying, looking at other facilities that have an
22 operating history, this appears to be an adequate
23 number to -- no contamination has necessarily slipped
24 through the net or caused a problem.

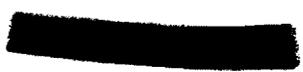
25 MR. ECHOLS: Right. I mean, you'd have to

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1 postulate some incredibly narrow plume to go between
2 the TLDs, and that sort of thing. So it seems to be a
3 reasonable array. It seems to be a reasonable program
4 and meets the regulatory criteria established in the
5 reg guides and in the regulations itself.

6 ADMIN. JUDGE JACKSON: Thank you.

7 CHAIRMAN RYERSON: I have just one last
8 question. It's a three-part question, and I will
9 direct it to whoever is most qualified to answer. It
10 is our understanding from GLE that the sanitary sewage
11 effluent is not monitored for radiologic constituents.
12 And my three-part question is, is the NRC staff aware
13 of that? Is that a matter of concern to you? And, if
14 not, why not?

15 MR. JOHNSON: That is something that we
16 evaluated. But it is our understanding that the
17 sanitary sewage system is not connected in any way
18 with any of the other radiological areas, and is
19 completely isolated from them. And because of that,
20 no additional monitoring would be necessary.

21 CHAIRMAN RYERSON: Thank you, Mr. Johnson.
22 So you have looked at that issue, and you are
23 satisfied on that.

24 MR. JOHNSON: Yes. That is discussed in
25 the license application and in the environmental

1 report.

2 CHAIRMAN RYERSON: Thank you. Any more
3 questions? Judge Garcia? Judge Jackson?

4 (No response.)

5 All right. Thank you for your testimony,
6 all of you, and the panel may step down.

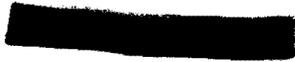
7 (Whereupon, the witnesses were excused.)

8 Counsel, if you will indulge the Board for
9 just a moment, we will confer while the panel does
10 step down and address a few administrative matters
11 before we finish.

12 (Pause.)

13 CHAIRMAN RYERSON: All right. A few final
14 matters. If I may begin with you, Mr. Silverman. I
15 believe there are one or two outstanding requests from
16 Judge Garcia for specific information. And I just
17 want to be sure that Judge Garcia and you are clear as
18 to what those are and how those will be resolved.

19 MR. SILVERMAN: Yes. It would probably be
20 better if Judge Garcia restated them than if I tried
21 to restate them. But we think we have them, and our
22 intent would be to follow up as promptly as possible
23 after the hearing with something submitted on the
24 record to address all of your open issues. There were
25 two or three -- a document reference and any other



1 information we can provide, for example, on the issue
2 of the stack location and the air modeling as a result
3 of the higher building.

4 But if you would like to restate those to
5 be sure they are clear, otherwise I think our experts
6 generally have them.

7 ADMIN. JUDGE GARCIA: Okay. That was
8 certainly one clear one was the air monitoring. The
9 other one was groundwater, to see the modeling that
10 has been done on that.

11 MR. SILVERMAN: Okay.

12 ADMIN. JUDGE GARCIA: If a document has
13 been compiled, I would like to see that.

14 MR. SILVERMAN: Understood. We'll check
15 on that. So, yes, it would be our intention to try to
16 provide that all in one submittal as soon as possible
17 to the Board.

18 CHAIRMAN RYERSON: Okay. Thank you, Mr.
19 Silverman.

20 I think as I indicated the first day, it
21 is our intention, since the transcript will not be
22 immediately available to everyone, until it is
23 expunged of classified material, we will issue a short
24 order admitting the documents as discussed the first
25 day. There will be one slight variation in that I

1 think I may have said we would use your final exhibit
2 lists as your last exhibits. We will make them Board
3 exhibits, because we will probably modify them by
4 giving exhibit numbers to the NRC staff testimony.

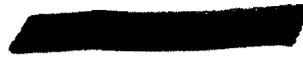
5 So since we will have the final edit on
6 them, we will call them Board exhibits, not party
7 exhibits. That is the only slight difference.

8 Transcript corrections, again, I think we
9 briefly talked about the first day. We will be
10 treating the entire transcript for the time being as
11 restricted -- Secret Restricted Data, because it will
12 have to be classified other than that in due course.

13 So our proposal for transcript corrections
14 is to have our law clerk notify you when we have at
15 least a copy or two -- a paper copy or two of that
16 transcript to be treated in its entirety for the time
17 being as Secret Restricted Data.

18 And we will be asking that each of the
19 parties send a representative here to hopefully joint
20 agree upon truly substantive transcript corrections,
21 which can then be made probably most easily as a
22 separate document that just recites those important
23 substantive changes, if any, in the transcript as
24 prepared by the reporters.

25 So you will be hearing more from the law

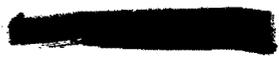


1 clerk about that, and that's the way we propose to
2 handle that.

3 The Board decision is, as I'm sure you
4 will recall under the scheduling order -- we certainly
5 do -- due August 31st. And we hope and fully expect
6 to meet that deadline. We do not expect to make life
7 easier for ourselves than we have made life for you
8 these past many weeks. So we will make every effort
9 to meet that deadline.

10 There may be some challenges in that.
11 Again, we will be dealing with a transcript that will
12 be initially classified, and we will have to get at
13 least portions of it unclassified perhaps to issue our
14 decision.

15 Again, I think as I said yesterday, it is
16 our hope that our actual decision can be written in a
17 way that is totally public. That may not be possible.
18 We don't simply know. We simply do not know that yet.
19 So we also may have to produce two versions of the
20 final decision, which could complicate life for us.
21 But we have some time between now and August 31st, and
22 so that is our hope and expectation -- to have a
23 decision by August 31st. If we are not going to meet
24 that deadline, we will issue a notice to let you know
25 that.



1 I think that is -- yes, related to that,
2 as I have also said, we do not anticipate doing
3 detailed findings of fact. Given the Commission's
4 direction as to our role here, we will make findings
5 on the five issues that everyone has agreed we should
6 as a Board decide. So while I'm not telling anyone
7 you can't submit proposed findings of fact, you may
8 not find that terribly useful.

9 Frankly, I don't think the Board feels it
10 needs necessarily any further filings from the
11 parties. But if you wish to file memoranda -- what is
12 your thinking on that? I'll start with you, Mr.
13 Silverman.

14 MR. SILVERMAN: May I have a couple of
15 moments?

16 CHAIRMAN RYERSON: Certainly.

17 MR. SILVERMAN: Thank you.

18 (Pause.)

19 Your Honor, we are certainly not
20 interested in filing extensive findings of fact. We
21 understand your preferences. They may sense under the
22 circumstances. We are struggling a little bit about
23 exactly what -- whether to just say, "No, we are not
24 going to file anything at all, or file a little bit of
25 something." I mean you know, in all --

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CHAIRMAN RYERSON: I know that is hard,

Mr. Silverman.

MR. SILVERMAN: Yes. In all honesty, the concern would be is, if the Board had a concern that it was struggling with in any way, shape, or form, we would want the opportunity to be able to address that. I mean, of course, you can -- we can try to address that. Typically, the way we would address that is we would look back over the record, and, in submitting findings of fact, even abbreviated ones addressing the six issues, we would hopefully have captured those.

That is one way to do it -- keep it as short and sweet as possible. I think we could live with nothing at all, but, you know, that --

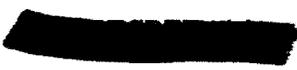
CHAIRMAN RYERSON: I tell you what, you don't have to make a final decision until you hear what the preference of the NRC staff is. How about that?

MR. SILVERMAN: Okay.

CHAIRMAN RYERSON: NRC staff?

MS. SAFFORD: Unfortunately, I think the preference of the NRC staff is not that far afield from what Mr. Silverman is suggesting. I would take note that I think when we originally talked about scheduling we had mentioned I think it was July 27th

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1 is a Friday, and originally thinking of findings of
2 fact, way back in the original scheduling that we had
3 sort of designated that date or thereabouts for the
4 parties to file anything post-hearing.

5 So one thought would be to perhaps have
6 the parties -- if we feel there is an issue or issues
7 that we would like to clarify for the record or
8 address, to file by that date; and, if not, then not
9 submit anything.

10 CHAIRMAN RYERSON: You are absolutely
11 right. The last scheduling order talks about proposed
12 findings of fact on July 27, and I think we also in a
13 subsequent order said, "Well, we will talk about it
14 after the hearing." I mean, if that date works --
15 that is fairly soon, relatively soon. If that date
16 works for you, to confer and file -- frankly, I hate
17 to give you unfettered largess, but I -- you know, if
18 you feel it would be useful to file something with the
19 Board, you are certainly entitled to do that by
20 July 27th. But, honestly, we don't think we really
21 need another filing. We have an awful lot as it is.

22 MR. SILVERMAN: Okay. And, Your Honor, if
23 we did conclude that some sort of filing was in order,
24 do I take it that it doesn't necessarily have to be in
25 the form of findings of fact? It could be -- you



1 mentioned some sort of a memorandum or something. Of
2 course, it would track back to the record in some
3 fashion, but maybe something more abbreviated and not
4 the typical format of detailed findings of fact.

5 CHAIRMAN RYERSON: Right.

6 MR. SILVERMAN: And we can pick and choose
7 perhaps.

8 CHAIRMAN RYERSON: Exactly. Consider
9 yourself empowered to file anything that you think the
10 Board would be helpful by -- by July 27th, so we have
11 it well in advance of our deadline, recognizing,
12 really, don't feel you need to just to do it.

13 MR. SILVERMAN: Got it, yes.

14 CHAIRMAN RYERSON: Because we do feel at
15 this point that we have what we need, and there is
16 always the option, if there is a specific point as we
17 struggle through our decision, we have the option of
18 asking you to address a specific point, as we did with
19 the D.C. Circuit decision that came up and we said,
20 "Well, why don't we get the parties' views on that?"
21 And so we have.

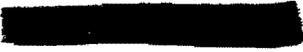
22 MR. SILVERMAN: Yes.

23 CHAIRMAN RYERSON: Okay. Is there
24 anything else of an administrative matter? I will
25 talk a little bit about security one last time as we

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1 break up, but anything else of an administrative
2 matter we need to talk about?

3 MR. MOLDENHAUER: Yes, Your Honor.
4 Yesterday, you asked a question as to -- a detailed
5 question as to whether Mr. Joe Hunt, in his affidavit,
6 had actually meant to include a response to SER
7 question 18. He did. We spoke to Mr. Hunt, and we
8 have an email to that extent. So he intended his
9 affidavit to include SER questions 17, 18, and 19.

10 CHAIRMAN RYERSON: Okay. And your
11 representation to that effect on the record here is
12 fine for us. You don't need anything further.

13 MR. MOLDENHAUER: Thank you, Your Honor.

14 MR. SILVERMAN: And I'm sorry -- and also,
15 Your Honor, it seems to us that -- what we'd like to
16 be able to do is get the transcript from the court
17 reporter as soon as possible, even if we are treating
18 the entire thing as classified. And we can talk
19 certainly with the court reporter about how fast that
20 can be made available, but the process for that would
21 be for -- the same way we have transmitted classified
22 information before. It would be sent to the
23 appropriate address at -- for GLE that materials have
24 gone back and forth in preparation for this hearing.

25 The sooner we get that, the sooner we will

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1 have a little bit better informed decision about
2 whether we want to file anything at all.

3 CHAIRMAN RYERSON: Yes. We will probably
4 through our law clerk, or through the reporter
5 actually, get back to you on that. We are -- because
6 of the level of security with that transcript, we are
7 having it prepared here, not at the regular offices of
8 the reporter. So we will have to work around that in
9 some fashion.

10 MR. SILVERMAN: Okay. I take it that
11 means it will likely take more time than an expedited
12 transcript.

13 CHAIRMAN RYERSON: Yes. I think the
14 answer is yes.

15 MR. SILVERMAN: Okay.

16 CHAIRMAN RYERSON: We can talk to the
17 reporter afterwards.

18 MR. SILVERMAN: Okay. Thank you.

19 CHAIRMAN RYERSON: Okay. Anything else
20 before I make a last warning on security? Any other
21 points? Mr. Silverman, any other administrative
22 matters?

23 MR. SILVERMAN: No, Your Honor.

24 CHAIRMAN RYERSON: All right. Ms.
25 Safford?

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1 MS. SAFFORD: No, your Honor.

2 CHAIRMAN RYERSON: Okay. So, and I will
3 say one more thing before I get to the security aspect
4 of it. I want to express the Board's appreciation of
5 the witnesses' participation and all counsels'
6 participation. It has been very professional, which
7 makes our job much easier.

8 My very last word, which Ms. Jenny will
9 hopefully appreciate, is, while we had no classified
10 information today -- I think that anyone is aware of
11 -- we clearly did yesterday. So everyone who was
12 present yesterday has a continuing obligation to
13 protect and guard that classified information.

14 There have been other categories of non-
15 public information, not necessarily classified, I'm
16 sure. I suspect maybe aspects of the GLE contract; I
17 don't know about that specifically, but certainly
18 throughout the record there are many aspects of non-
19 public information beyond classified.

20 And so if you have any doubt whatsoever as
21 to whether you should be talking about that, confer
22 with the appropriate counsel or your information
23 officer or whoever -- somebody in authority to talk to
24 you about that. The best thing is not talk about
25 anything, but maybe that's not always practical.

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Any other comments or --

MR. SILVERMAN: One moment, Your Honor.

CHAIRMAN RYERSON: Yes.

(Pause.)

MR. SILVERMAN: Nothing else, Your Honor.

Thank you.

CHAIRMAN RYERSON: Thank you, Mr. Silverman. Ms. Safford?

MS. SAFFORD: Nothing from staff.

CHAIRMAN RYERSON: Okay. Thank you.

(Whereupon, at 5:13 p.m., the proceedings in the evidentiary hearing were concluded.)

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)

GE-HITACHI GLOBAL LASER)
ENRICHMENT FACILITY LLC)
(GLE Commercial Facility))

Docket No. 70-7016-ML

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **OFFICIAL TRANSCRIPT OF THE EVIDENTIARY HEARING HELD ON THURSDAY, JULY 12, 2012** have been served upon the following persons by Electronic Information Exchange.

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**OFFICIAL TRANSCRIPT OF THE EVIDENTIARY HEARING HELD ON THURSDAY,
JULY 12, 2012**

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[Original signed by Evangeline S. Ngbea]
Office of the Secretary of the Commission

Dated at Rockville, Maryland
this 5th day of October 2012