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1612 K St. N.W., Suite 300

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

PUBLIC MEETING WITH PALISADES

Lake Michigan College
2755 East Napier Avenue
Benton Harbor, Michigan

Monday, May 23, 1994

The above-entitled public meeting, convened at
7:00 p.m.

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P R O C E E D I N G S

[7:00 p.m.]

1
2
3 MR. MARSH: Good evening, ladies and gentlemen. My
4 name is Tad Marsh, and I will be serving as the Moderator
5 for this evening's meeting. I am the Nuclear Regulatory
6 Commission's Project Director for the Palisades Nuclear
7 Plant, and my office is located in Rockville, Maryland at
8 the Headquarters for the NRC.

9 There are three main purposes for our gathering
10 this evening. First, we have asked Consumers Power to
11 present in a public forum, the results of their recent
12 examination regarding the Palisades Spent Fuel Plant Pad
13 Location with respect to seismic and other selected natural
14 hazards such as flooding or erosion at the Palisades site.

15 Second, we will give you a status report on NRC's
16 independent assessment on the same subject. Third, we want
17 to hear and to respond to your questions and concerns
18 regarding these analyses.

19 The preliminary results of NRC's independent
20 assessment are documented in the Draft Safety Assessment,
21 issued on May 18, 1994. Copies of that report are available
22 tonight in the back of the room. The NRC report is draft,
23 because we have more work to do. Although we have inspected
24 the Palisades Dry Cask storage site and prepared our own
25 independent assessment, we will also review the licensee's

1 analysis and incorporate those results into our own final
2 safety analysis. In addition, we will discuss any public
3 comments we receive tonight in the NRC's final document.

4 Before we begin the formal presentations there are
5 a few administrative details. We have reserved this room
6 until 10:00 o'clock this evening. Consumers Power will
7 present their analysis first followed by the NRC's
8 presentation of its independent assessment. We have
9 structured this evening's meeting so that about half of the
10 time will be available for formal presentations and the
11 other half of the time available for questions and answers.

12 At the end of the meeting, a few minutes before
13 10:00 o'clock, I will turn the meeting over to Mr. John
14 Zwolinski who is the NRC's designated executive responsible
15 for this issue, to tie up any loose ends and to summarize
16 our next few steps in this matter. To ensure plenty of time
17 for questions and comments from the public and to make the
18 format work efficiently, we have asked you to hold your
19 comments and questions until after the formal presentations.

20 We have provided 3x5 cards and pencils in the back
21 of the room for you to write your questions. A member of my
22 staff will pick up these cards and bring them to the podium.
23 Just as you write your questions down raise your hand, and
24 he will come and pick them up and bring them to the podium
25 so that we can keep the information flowing.

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1 For those of you who prefer to state your
2 questions orally, there are microphones available for your
3 use. Please identify yourself and your affiliation when
4 providing comments and questions. Also, if you would prefer
5 that your question be directed to a particular individual
6 please so indicate. Otherwise, when I get the questions I
7 will pass them to who I think is appropriate.

8 This meeting is being transcribed. It is our
9 intent to address all pertinent questions concerning the dry
10 cask storage pad raised during this evening's meeting.
11 However, should time not permit this, they will be addressed
12 in NRC's final safety assessment on this subject. We will
13 issue an overall summary of this evening's meeting and the
14 transcript in the next few weeks.

15 Since some of you may not be familiar with it, I
16 will give a brief historical background which leads to
17 tonight's meeting.

18 Last year the licensee loaded two dry casks with
19 spent fuel assemblies at the Palisades site. The particular
20 casks used were the VSC-24, which had previously been
21 approved by the NRC in an April, 1993 final rule under NRC's
22 regulations, specifically Part 72 to Title X of Code of
23 Federal Regulations, 10 CFR. At about the time Consumers
24 began to use the casks questions were raised about the
25 possible effects of natural hazards at the Palisades site.

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1 In responding to these concerns, the NRC began
2 looking at the behavior of the pad at Palisades under normal
3 conditions, at the long term effects of erosion, and at the
4 possible consequences of an earthquake that might cause
5 motion of the sand flow or around the pad. In March of
6 1994, Consumers Power committed to analyze in greater
7 detail, the stability of the pad and foundation. The NRC
8 staff elected to conduct an independent assessment and to
9 discuss the results of its review at a public meeting near
10 the Palisades site, and this is that meeting.

11 The storage casks at Palisades are physically
12 separated from the operating nuclear reactor itself, which
13 is covered under Part 50 of the 10 CFR. Part 50 is
14 specifically focused toward ensuring safe design and
15 operation of the reactor and the balance of plant, including
16 the behavior of the plant during and after adverse natural
17 phenomena.

18 The presentations tonight have to do with the
19 safety of the storage pad and the foundation area at the
20 Palisades site. The real issue is whether there is anything
21 about the pad or the site in terms of erosion, earthquakes,
22 et cetera, that might compromise the safety of the VSC-24
23 casks. That is going to be our focus this evening.
24 Although anyone is free to raise any questions they want, we
25 think the most productive use of time is to stay within the

1 issues that pertain directly to the Palisades site.

2 You should all be aware that the Attorney General
3 of the State of Michigan and other parties have challenged
4 NRC's rulemaking approving the VSC-24. That challenge is
5 currently before the Sixth Circuit Court of Appeals in
6 Cincinnati. The NRC's overall responsibility is to ensure
7 the safe operation of the Palisades Nuclear Plant, and that
8 following a potential significant event Palisades would be
9 able to operate safely and the pad and cask arrangement
10 would still be able to perform its safety function due to
11 any postulated interactions.

12 During loading of the casks, NRC Headquarters
13 staff and resident inspectors reviewed the licensee's
14 procedures and observed the cask actually being loaded.
15 Because of the concerns raised by Dr. Mary Sinclair from
16 Don't Waste Michigan and by Dr. Ross Lansman from the NRC
17 Region III staff, Mr. Zwolinski on April 5, 1994, led an NRC
18 audit of the licensee's analysis in determining the
19 effective earthquake and erosion on the storage pad and its
20 impact on the dry casks, and to have a close look at the
21 storage cask and pad construction, its surrounding sand
22 dunes and its relative location to the lake shore.

23 As a result of this audit, the NRC recommended
24 that the licensee perform additional soil borings near the
25 pad to obtain data to be used in addition to other analyses.

1 NRC also recommended that the licensee perform surveillance.
2 of the storage pad and surrounding slopes, to detect any
3 possible change in elevation or slope.

4 Again, earlier today, myself and several other NRC
5 managers and staff members toured the facility and paid
6 particular attention to the casks and to the storage pad.
7 Although our staff and consultants are familiar with the
8 Palisades Dry Cask Storage Facility and have completed the
9 draft safety assessment based on our independent work, our
10 plan is to perform a detailed review of the licensee's
11 analysis of the storage pad, and to incorporate that report
12 with our own assessment and the public comments that we
13 expect to receive tonight into a final safety assessment to
14 be published later.

15 The licensee intends to perform additional cask
16 loading in the future. Based on the results of our own
17 technical assessment to date and our understanding of the
18 reported results from the licensee's analysis, the staff has
19 found no reason why the licensee should not proceed.
20 However, as is our normal practice if safety concerns or
21 other information becomes available which would question
22 additional cask loading, the NRC will take the appropriate
23 actions.

24 Before we begin the formal presentations, I would
25 like to introduce members of the NRC staff that are at the

1 head table. Again, my name is Mr. Tad Marsh, Project
2 Director for Palisades, from NRC Headquarters. To my left
3 is Mr. John Zwolinski, Assistant Director for Region III
4 Reactors at NRR in Headquarters. To John's left is Mr.
5 Charlie Haughney, Chief of the Storage and Transport Systems
6 Branch, NMSS and also in Headquarters.

7 To Charlie's left is Mr. Goutam Bagchi, Chief of
8 the Civil Engineering and Geosciences Branch, NRR. To the
9 left of Dr. Bagchi is Dr. Robert Rothman, Section Chief for
10 the Geosciences Section in the Civil Engineering and
11 Geosciences Branch in NRR. To his left is Dr. Carl
12 Costantino, Professor of Civil Engineering, City University
13 of New York and the Director of Soil Mechanics Laboratory.

14 I would like to turn the meeting over this evening
15 to Mr. Bob Fenech, Vice President for Nuclear Operations at
16 Consumers Power, who will begin the presentation for
17 Consumers Power.

18 MR. FENECH: Good evening. I am Bob Fenech. I am
19 the Vice President of Nuclear Operations for Consumers Power
20 Company. Returning to this area, I have been back in
21 Michigan now, for about three months. I was born and raised
22 in Michigan. It's great to be back. In fact, my family is
23 moving into our home today.

24 I would like to start by introducing the head
25 table of Consumers Staff. At the far end of the table is

1 Mike Morris, President and Chief Executive Officer of
2 Consumers Power Company. To his left is Dave Joos, Senior
3 Vice President of Nuclear Rates and Marketing. To his left,
4 Dr. Surendra Singh, Senior Principal Engineer. To his left,
5 Dr. Rolpe Jenkins, Senior Supervisory Engineer, Consumers
6 Power Company. To my immediate right is Tom Palmisano,
7 General Manager of the Palisades Nuclear Power Plant.

8 Let me begin by thanking the Nuclear Regulatory
9 Commission for providing this opportunity to discuss issues
10 related to the temporary storage of spent fuel at the
11 Palisades Nuclear Plant. I appreciate the presence of the
12 public and the media. I feel that this forum will provide
13 an excellent opportunity to provide information that will
14 enable you to become more familiar with the temporary dry
15 fuel storage process and the safeguards we have employed to
16 ensure continued safe storage on site.

17 Frankly, there is no activity that we engage in at
18 the Palisades Nuclear Plant that is more important than the
19 safeguarding, safe use, and safe storage of nuclear fuel,
20 whether inside the plant or in casks.

21 For those of you who may be unaware of the manner
22 in which this meeting came about, let me take a few minutes
23 to provide a short history. In March of this year the
24 Nuclear Regulatory Commission expressed an interest in
25 information supporting the earthquake capabilities of the

1 dry cask storage casks. The casks have been exhaustively
2 analyzed for their capabilities during all likely events as
3 I will explain later, but the pad upon which the casks are
4 placed had not formally received an earthquake analysis.

5 Similarly, the NRC expressed an interest in
6 erosion information for the site which is 465 feet from Lake
7 Michigan and 40 feet above the water line.

8 [Slides.]

9 MR. FENECH: This is the Palisades site. It's
10 located about five miles South of Southaven and 20 miles
11 North of St. Joseph, Michigan. This building houses the
12 reactor, and it's called our containment. This area in here
13 are our office spaces, and to the North of the site are the
14 casks. This is the pad that we will be talking about in the
15 storage casks. As you can see, the casks lie some 465 feet
16 from the shore and about 40 feet above water line.

17 This is a better shot, and overview of the casks
18 themselves. You see a number of casks there. Two of them
19 are loaded with fuel at this time, these two. The others
20 are emplaced fabricated, and we will be loading them in the
21 near future.

22 We felt that we had thoroughly addressed the
23 circumstances that would affect the safe temporary storage
24 of the fuel when the pad was built, in 1991. However, we
25 recognized that there was an opportunity to provide further

1 assurance to our employees, the regulators and the public,
2 that temporary safe storage of spent fuel would not be
3 adversely affected by erosion or an earthquake.

4 Let me say here, that sometimes in the nuclear
5 industry we are put into a catch 22 position, a bit of an
6 awkward position. When the public raises a concern that we
7 look at and feel that we have already addressed, we have two
8 choices. The first is to defend our position and say we
9 have already looked at that, and it's fine. When we do
10 that, we are accused of being unresponsive and not being
11 proactive.

12 The second choice is to go ahead and do further
13 analysis to assure the public that everything is fine. When
14 we do that we are often then pointed at and told that we are
15 guilty of not having done an adequate job the first time,
16 otherwise we wouldn't be performing other analyses. In this
17 case we fell into the latter case, and felt that we wanted
18 to go ahead and be proactive. We wanted to be responsive,
19 so we went ahead and performed further analyses. We do not
20 in any way feel that what we had done initially was
21 inadequate.

22 On March 22nd we notified the NRC of our decision
23 to perform formal earthquake and erosion analyses of the
24 storage pad. We used existing construction period data as
25 input for that analysis. We confirmed that the safe storage

1 ability of the dry fuel storage and casks would not be
2 adversely affected by erosion or earthquakes.

3 We went on to review our findings with the NRC in
4 April. Together we concluded that additional soil boring
5 tests would further enhance our analysis. We decided to
6 perform the additional tests and collect new data to
7 independently confirm our previous conclusion, that
8 earthquakes or erosion would not have an adverse impact on
9 our temporary safe storage abilities.

10 Through a series of comprehensive and technical
11 evaluations of the existing and newly acquired data, our
12 employees confirmed that the continued safe storage of spent
13 fuel in dry casks would not be adversely impacted by erosion
14 or any earthquake which may occur, and that the dry fuel
15 storage pad would continue to support the casks.

16 In the next few minutes we will provide a summary
17 of the findings of our recent analysis. It is my
18 understanding that the NRC will provide a more technical
19 summary of their analysis accompanied by their conclusions
20 which are similar to ours, according to the draft report
21 that the NRC released to the public and to Consumers Power
22 Company on May 18.

23 When we are through, I hope that you will have a
24 better understanding of the issues that have been raised and
25 that you understand the conclusions that we have reached;

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1 that dry casks at Palisades are safe and the storage pad for
2 dry casks is safe. Furthermore, there is no basis, no
3 regulation or need for constructing the pad any differently
4 than what we have already done. That is Consumers Power
5 Company's independent conclusion.

6 As Vice President of Nuclear Operations for
7 Consumers Power Company let me say, if there was anything
8 out there that I felt or we felt was inadequate we would be
9 making changes at this time. There simply isn't anything
10 that falls into that category. With that said, I want you
11 to know that I welcome the input from the public on this
12 issue. I promise you, any significant issues raised tonight
13 that have not been included in our evaluation will be
14 addressed. We are committed to safety in every aspect of
15 our business.

16 Now, I would like to have Tom Palmisano, General
17 Manager of the Palisades Plant, provide a more detailed
18 accounting of the activities relative to the construction of
19 the dry fuel storage casks and our recent analyses. Tom
20 will provide a short history of the issue that will include
21 the need for dry cask storage and the initial testing of the
22 storage pad site. He will also provide a summary of the
23 data that was recently collected by us during our
24 evaluation, and explain the conclusions that were derived
25 from studying the pad site.

1 MR. PALMISANO: Thank you, Bob. Good evening,
2 everyone. I am Tom Palmisano, General Manager of the
3 Palisades Plant. I have been a long time resident of the
4 area, and I really appreciate the turnout tonight. These
5 are certainly important issues, and I am glad to see the
6 number of people that turned out to hear our discussion.

7 As Bob mentioned, there is no greater
8 responsibility that we have at Palisades other than the
9 safety of our employees and the general public. We take
10 that responsibility very seriously. We are proud of the
11 safety culture we have within Consumers Power Company and
12 specifically at the Palisades Plant.

13 We have been recognized in seven of the past eight
14 years as the safest combination electric and gas utility in
15 the country by the National Safety Council. The Palisades
16 plant is consistently among the safest work sites within the
17 Company. Safety is a primary reason why we looked at
18 various locations when we consider the most appropriate site
19 for placement of the dry fuel storage facility.

20 I was very involved in the planning and
21 implementation of the dry fuel storage program, and would
22 look to every potential safety, security and environmental
23 concern and determined that the best site of the pad is
24 where it is currently located. Each of the dry fuel storage
25 casks weighs 130 tons. They are big, but they are

1 tremendously stable and safe. Like you, I want them to stay
2 that way.

3 One underlying question here is, does Consumers
4 Power Company consider the dry fuel storage pad to be safe.
5 The answer is clearly yes, we do. We have looked at this
6 extensively and we consider it absolutely safe and a good
7 location for the pad and cask system.

8 As Bob has said, there is no basis or no
9 regulation or no need to modify the pad. We know that we
10 built it the right way. Our initial analyses and our recent
11 analyses have confirmed that. Let me provide a little
12 history of the dry fuel storage project at Palisades and
13 explain what type of data we collected, to allow us to
14 arrive at our conclusion, that the dry fuel storage pad
15 would be a safe facility for the temporary storage of spent
16 fuel at Palisades, and what we have recently done to confirm
17 that conclusion.

18 Our spent fuel has been historically stored on
19 site in a spent fuel pool, as is the case with all nuclear
20 facilities. When Palisades was built in 1971, the spent
21 fuel pool was designed to hold approximately five years'
22 worth of fuel storage. It was to be held on site for a
23 period of time until it could be shipped offsite and be
24 processed by the Federal government. The Federal government
25 at that time was committed to recycling or reprocessing of

1 nuclear fuel. However, during the Carter Administration
2 this option was eliminated for the nuclear industry in the
3 United States.

4 At that point, the nuclear industry was forced to
5 create more space for spent fuel storage in their spent fuel
6 pools. There is a limited amount of space available at any
7 nuclear power plant for storage of spent fuel. Therefore,
8 Congress passed the Nuclear Waste Policy Act of 1982, which
9 specified that the Federal government was to take possession
10 of all spent fuel from civilian nuclear reactors by the year
11 1998. A national waste repository was to be set up to
12 receive this spent fuel.

13 In 1987, Congress designated the State of Nevada
14 would host that facility. A national nuclear waste
15 repository has yet to be built; however, spent fuel
16 continues to be accumulate at reactor sites. We are working
17 with the Michigan Attorney General and others to pressure
18 the Department of Energy to fulfill its obligation to
19 provide such a repository and accept our spent nuclear fuel.

20 Similarly, we are a member of a coalition of
21 utility companies that have been working to establish an
22 interim monitored retrievable storage facility. A national
23 or regional monitored retrievable storage facility would be
24 very similar to the dry fuel storage system that we have at
25 Palisades.

1 Until the government does provide such a national
2 repository or an interim solution site is established
3 elsewhere, there are only a few options for continued
4 temporary storage of spent fuel on site. These basic
5 options are construction of a new spent fuel storage pool,
6 disassembling consolidation of fuel rods, and on site dry
7 fuel storage.

8 We looked at all of these options and physical
9 limitations, considerations for the amount of fuel handling
10 needed and our interest in keeping radiation exposure to our
11 employees as low as possible, eliminated construction of a
12 new spent fuel pool as a viable option. Fuel rod
13 consolidation was reviewed in detail. This involves
14 disassembling of fuel assembly and consolidating fuel rods
15 for storage in a smaller space.

16 Because of the amount of fuel handling that would
17 be required by our employees and the complicated logistics
18 involved in the eventual offsite shipment of that spent
19 fuel, we eliminated that as an option as well. Dry fuel
20 storage became our choice because of its safe operation, its
21 simple design and its high level of security, and also there
22 was experience within the industry with dry fuel storage.
23 Furthermore, loading spent fuel into dry casks keeps
24 radiation doses to our employees low compared to the other
25 options. Dry fuel storage lends itself to future offsite

1 shipment.

2 Although the casks are safe, as I mentioned
3 earlier, we would have preferred to ship the spent fuel to a
4 site designated by the Federal government for safe storage.
5 Since that is not yet available, temporary on site dry cask
6 storage is the safest and best alternative. Of the several
7 dry fuel storage systems available we selected a storage
8 system designed by Sierra Nuclear Corporation. This was a
9 proven system based on proven technology. The system was
10 licensed by the Nuclear Regulatory Commission prior to its
11 installation and use at Palisades.

12 [Slides.]

13 MR. PALMISANO: This is a slide of the site that
14 Bob just went over. I just want to highlight a couple of
15 things. There are a number of considerations in siting the
16 dry fuel storage pad, and we looked at several locations.
17 Some of the considerations we included in our evaluation,
18 number one, distance from the pad to the plant itself. The
19 dry casks are loaded in this vicinity of the plant and
20 transported to the storage pad.

21 Secondly, they wanted the location to allow for
22 optimal security. This is adjacent to the plant site
23 itself, and we can provide the appropriate level of security
24 required for the pad. Thirdly, we wanted the soil structure
25 below and around the pad to have enough support and

1 stability to withstand the weight of the loaded casks and
2 the pad.

3 All of those factors combined caused us to choose
4 this as the optimal location for the dry fuel storage pad.

5 With all of the criteria for placement of the pad
6 satisfied, we had a geotechnical analysis performed for the
7 proposed pad site by a company called Material Testing
8 Consultants out of Grand Rapids, an independent consultant
9 company. The analysis was reviewed by Consumers Power
10 Company and the cask vendor.

11 The report indicated that our current pad site
12 would be appropriate for the pad and predicted a total slab
13 settlement of approximately three-quarters of an inch.
14 Compaction of the soil beneath the pad was performed to
15 strengthen the foundation soil. Afterward we had another,
16 yet independent consulting company, Sterniman and Associates
17 of Southaven, perform soil compaction tests to verify the
18 soil strength.

19 The pad, itself, was constructed by J.A. Jones
20 Construction Company. This is a large construction company,
21 well established, with a lot of experience in designing and
22 building concrete structures. The pad construction project
23 occurred without any problems.

24 Our monitoring activities at the pad site is
25 focused on the dry cask storage system as a system, ensuring

1 the proper operation and freedom from obstructions on the
2 pad and around the casks. We now also have a separate pad
3 monitoring program being developed that I will explain later
4 in a little more detail during my presentation.

5 We began using the pad for storage of spent fuel
6 last year. We loaded two casks last year, and we plan to
7 load an additional 11 casks this year. The ventilated
8 storage cask system employs a passive design with no pumps,
9 no valves, or other moving parts. The system is completely
10 sealed and the mass of the cask precludes any structural
11 failure due to a tornado, earthquake, flood, fire,
12 environmental extremes or impact fire projectile.

13 Let me get into the issues that have recently been
14 raised and get to the actual purpose for this meeting.

15 [Slide.]

16 MR. PALMISANO: As you can see from this slide and
17 Bob has already mentioned, the pad site itself is located
18 465 feet from the water line of Lake Michigan, and it's
19 about 40 feet above an elevation from the water line.
20 Concerns about the effect of erosion on the ability of the
21 cask to safely store spent fuel and the pad itself to
22 withstand the effects of an earthquake have been brought to
23 our attention.

24 As Bob Fenech mentioned, we made the decision to
25 enhance our previous analysis of the pad by engaging in

1 comprehensive technical analysis of the current
2 circumstances that could affect the pad site with particular
3 attention to evaluating data associated with the effects of
4 erosion and earthquakes. It is my understanding that the
5 NRC has also performed a comprehensive technical analysis,
6 independent from ours, to further supplement their past
7 analyses and conclusions.

8 This is the pad site, as Bob has already
9 mentioned. I just want to mention that the two casks which
10 we loaded last year are located on the left of the slide.
11 The remaining casks are empty, awaiting to be loaded this
12 year.

13 Let me address the erosion issue first, and
14 explain our findings. As you can see from this photograph,
15 there is a substantial amount of sand around the dry cask
16 storage pad. This is an overhead photo. These are dunes on
17 the South side, the East side and the North side of the pad.
18 The pad itself, is 195 feet long and 30 feet wide. It is a
19 three foot concrete pad with steel reinforcement, and it's
20 immediately surrounded by a 20 foot zone of asphalt which is
21 the yellow striped area in the photograph.

22 The erosion concern raised involves whether wind
23 or rain could allow the dunes adjacent to the pad to move
24 over the pad and envelope the casks, or if Lake Michigan
25 could erode the soil below the pad. The objective of the

1 team of engineers, led by Dr. Rolpe Jenkins of Consumers
2 Power Company and Dr. Surendra Singh of the engineering firm
3 of Sarge and Lunde, was to document any expected effects of
4 natural erosion in the area where the dry fuel storage pad
5 is built, and confirm that the storage pad would not suffer
6 any detrimental effects.

7 Dr. Jenkins' team found that shifting sands have
8 not been a problem during the nearly 30 years that the plant
9 has been in existence. The elevation and shape of the dunes
10 remain about the same as they were 28 years ago, thanks to
11 the extensive growth of trees and grass on the dunes. In
12 this photograph, and there are some photographs around the
13 room that I hope you have had a chance to look at and
14 afterwards take a look at, the dunes have heavy growth of
15 vegetation, particularly trees and dune grass.

16 The comparisons that our team did for elevations
17 of the dunes near the dry fuel storage site showed that
18 elevations have remained consistent over the last 30 years.
19 Again, you can see the trees and grass that exist on the
20 dunes. These keep the dunes very stable and hinder shifting
21 of sands. You can also see that the pad, again, is well
22 back from Lake Michigan, 465 feet from the lake and
23 approximately 40 feet above the water level.

24 If you haven't visited the plant you might think
25 that the casks are much closer to the water than they

1 actually are. You may want to come out and take a look for
2 yourselves sometimes, and we would certainly be glad to
3 accommodate that.

4 As I mentioned, there are three potential soil
5 erosion mechanisms, lake level and wave effects, wind
6 erosion and rain erosion. Dr. Jenkins' team erosion
7 evaluation considered the man made shore protection near the
8 plant. On the North side of the plant site we have a very
9 heavy erosion protection system. This is armor stone
10 revetment. In fact, this is sand in front of the armor
11 stone revetment and much of this area of our erosion
12 protection is covered with sand that has accumulated.

13 The evaluation that our team did considered the
14 shore protection, the distance to the storage pad, and the
15 lake levels that have occurred since 1860. The highest lake
16 levels ever recorded were at an elevation of 582.5 feet
17 above sea level. We built the shore protection for the
18 entire plant, to a level of 586 feet above sea level, to
19 account for the highest historic water levels and to account
20 for any storm surge.

21 The lake would have to breach that stone and
22 concrete barrier to begin eroding the beach. Even if
23 uncharacteristically high lake induced erosion were to occur
24 on the beach, the distance and the elevation of the pad from
25 the lake would allow us adequate time -- and by time, I mean

1 months or years -- to employ numerous methods to calm that
2 erosion.

3 Dr. Jenkins' team determined that the current
4 protection and the placement of the dry cask storage pad 465
5 feet from the lake, is appropriate to counter any threat of
6 erosion from Lake Michigan.

7 In order to address the effects of wind on the
8 area surrounding the pad, the team conducted an evaluation
9 that included consulting knowledgeable individuals within
10 Consumers Power Company and the Michigan Department of
11 Natural Resources Coastal Protection Coastal Program Unit,
12 which is the State of Michigan's agency responsible for
13 coastal dune issues. It is accepted that vegetation
14 increases the impact of wind on sand dunes.

15 When we constructed the pad we were able to
16 maintain a great deal of vegetation in existence, as I
17 already mentioned. All around the pad you can see trees and
18 dune grass in existence. The dunes are heavily forested
19 with mature trees, and that helps to keep the area very
20 stable. Similarly, the shape of the pad site and its
21 proximity to the lake allows for prevailing winds to carry
22 sand inland, away from the pad site. In the event of a
23 blow out which is a crater like opening which is forced into
24 the sand dune over a period of months or years, the sands
25 again would be blown inland, away from the casks or cleared

1 away by our employees.

2 The threat of erosion as a result of rain was
3 determined to be of less a concern than the impact of wind
4 on the storage facility. Dune grass and trees stabilized
5 the ground around the pad. Any potential wash out's would
6 be avoided by the asphalt apron which is around the pad.
7 Again, this is the area in yellow stripe, that's a 20 foot
8 wide asphalt apron. This will stabilize the area from
9 surface erosion and any under mining would occur under the
10 asphalt before it would reach the pad foundation.

11 Dr. Jenkins' team evaluation found that rain or
12 wind erosion would be long term effects and could be
13 corrected through sand removal or barrier construction if
14 needed. However, we recognize the need to have a monitoring
15 program for erosion of the storage facility. Several
16 measurement devices are installed and will be utilized to
17 determine any vertical or horizontal movement of the storage
18 pad. Similarly, the surrounding sand dune slopes will be
19 periodically examined and surveyed for early signs of slope
20 instability and any degradation.

21 Signs of shifting at the top of the slopes and
22 evidence of bulging of the slopes will be checked and
23 recorded. We will use the information collected from those
24 procedures to determine if any corrective actions are
25 necessary.

1 Along with erosion, seismic activity -- that is
2 earthquakes -- was raised as a potential area of concern.
3 Among its other good qualities the present system was
4 selected because of its simple operation and its robust
5 design that provides safe storage in all likely events. At
6 130 tons apiece, the loaded casks with their tremendous
7 mass, provide optimal protection to the spent fuel inside
8 them and the outside environment. The storage pad was
9 designed and constructed to support the continuous load of
10 all the casks.

11 In March of this year we conducted an additional
12 analysis of the dry fuel storage pad using existing data.
13 Dr. Jenkins' analysis showed that the pad would continue to
14 support the casks in all likely events, including an
15 earthquake. The analysis was extensive. The team looked at
16 the vulnerability of the sand dune slope, the strength of
17 the ground beneath and around the storage pad and the
18 strength of the pad itself. Dr. Jenkins' analysis confirmed
19 our earlier judgment, that the pad would withstand an
20 earthquake of maximum level of intensity anticipated for
21 this area.

22 In April of this year the evaluation was offered
23 to the NRC. After their review, the Jenkins' team performed
24 additional soil borings adjacent to the storage pad, to
25 further enhance the level of data to support our

1 conclusions. These were deeper borings at the pad location.
2 The data collected from those soil borings was used to
3 perform new analyses, and that analyses confirmed our
4 earlier conclusions.

5 Let me explain a little bit about the soil boring
6 process that Material Testing Consultants of Grand Rapids
7 used to conduct soil borings. Soil boring involves drilling
8 exploration holes into the ground and extracting soil
9 samples at various levels or placing pressure on an
10 instrument driven into the ground to assess soil strength at
11 any given level. It is a process by which one can determine
12 the density and content of the soil at specific levels and
13 locations below the surface. Precise conclusions can then
14 be drawn from the soil characteristics.

15 We were dealing with time tested and reliable
16 techniques and information when it comes to concrete and
17 sand. We know how the materials react under virtually all
18 conditions, earthquakes and otherwise, and under any given
19 load. We now have three sets of soil boring data, from
20 1966, 1989 and 1994. The 1966 soil borings were deep soil
21 borings. There were taken all around the plant site but
22 none were directly under the current pad location.

23 The 1989 soil borings were taken directly under
24 the pad location but they were shallower, not as deep.
25 These borings were used to evaluate local soil compaction

1 under the pad and did not extend to the water table. The
2 1994 soil borings were deep borings, taken at the East and
3 West ends of the existing storage pad, and to a depth of
4 approximately 80 feet from the surface. The water table
5 begins at a level approximately 30 feet below the storage
6 pad and then declines to the lake level.

7 We used soil boring samples above and below the
8 water table to establish a current soil profile, that gives
9 special attention to the effects of an earthquake on the pad
10 site.

11 [Slide.]

12 MR. PALMISANO: This is a cross section of the
13 earth underneath the storage pad and sloping down to the
14 lake. Let me just explain very quickly here what we are
15 looking at. First of all, the heavy black line there is the
16 storage pad itself. The first layer of sand, from here to
17 here, is characterized as medium dense dune sand. The
18 dashed line here that says "WL", that's the water line.
19 That's the water line below the pad through the cross
20 section.

21 The next area is very dense sand. The last area
22 is very dense silty sand. This is what the combination of
23 deep and shallow borings have shown, to characterize the
24 area below the pad.

25 In our soil profile, Dr. Jenkins' team determined

1 that there are areas of thin localized areas of layered soil
2 below the water table -- basically the water line there --
3 that are susceptible to a phenomena called liquefaction.
4 Liquefaction occurs when violent shaking in the earth causes
5 the ground below the water table to react more like a liquid
6 than a solid. Liquefaction is typically associated with
7 fine saturated sands at or below the water table. Again,
8 Dr. Jenkins' team determined that there are thin, very
9 localized, areas of soil susceptible to liquefaction.

10 Again, these would be areas that are very thin or
11 localized, near the water line.

12 This level of soil that is susceptible to
13 liquefaction can withstand the continuous pressure of soil
14 on top of it. However, like liquid, this soil may offer
15 very little resistance to large lateral earthquake-induced
16 shearing forces. In an earthquake soil layers can be
17 displaced relative to one another, and can result in
18 associated soil settlement of the soils above it.

19 The result is that an liquefaction could provide a
20 diminished level of support during an earthquake. The depth
21 of the layer, the size of the layer and the density of the
22 other layers, helps to determine the effect of liquefaction
23 on any given structure that it supports. By taking samples
24 of the soil at various levels below the pad and at numerous
25 locations near the pad, Dr. Jenkins's team was able to tell

1 a great deal about what exists for the pad.

2 The Jenkins' team analysis determined that an
3 earthquake at the pad site could result in liquefaction in
4 those thin localized areas of soil layers below the storage
5 pad and could lead to some settling of the pad. However,
6 even during an earthquake of a magnitude in excess of
7 anything likely to occur in this areas, our analyses show a
8 possible total pad settling of approximately three inches.
9 In the worst of circumstances the three inches of settlement
10 would occur directly in the middle of the pad. The impact
11 on the pad would be so minimal that it would not be visible
12 to the naked eye, may not be visible to naked eye, when you
13 look at a pad of 195 feet long, 30 feet wide and a three
14 inch settlement in the center. It would be very difficult
15 to even see it's that small.

16 The maximum effect of three inches of settlement
17 would be less than a three degree tilt of the pad. The pad
18 would maintain its structural integrity and the 130 ton
19 casks would remain stable and upright. Finally, Dr. Jenkins
20 also looked at the potential impact of liquefaction on the
21 dunes in the area of the storage pad during an earthquake,
22 to determine if the dunes above the pad would slope onto the
23 pad. The team found that some movement on the sand on the
24 North and South side may occur but would not impact the pad
25 or the casks at all.

1 All of our analyses and conclusions were submitted
2 to the NRC on May 12. We have copies of the cover letter in
3 the back table, and the analyses itself is about a two inch
4 thick document which we have submitted to the NRC. We have
5 found that during any natural occurring event such as
6 erosion or earthquakes, the storage pad will continue to
7 support the casks containing spent fuel and our storage
8 casks will continue to operate as designed.

9 I look forward to hearing your questions and
10 comments following the NRC's presentation. We will try to
11 answer any questions that you may have.

12 AUDIENCE SPEAKER: Are we going to hear Mary
13 Sinclair's side.

14 MR. PALMISANO: Again, I will look forward to
15 hearing your questions and comments after the NRC speaks.

16 AUDIENCE SPEAKER: We just have an --

17 MR. MARSH: We will have an opportunity at the end
18 of the meeting for questions and answers. We have a card
19 from Dr. Sinclair.

20 AUDIENCE SPEAKER: Didn't they make some
21 allegations that is the reason behind this whole meeting?

22 MR. MARSH: Yes, ma'am. That's true.

23 AUDIENCE SPEAKER: Then, why aren't they allowed
24 to tell us that themselves. You are responding to
25 questions, that we don't even know what the questions were.

1 How can we have a fair picture if we don't hear Mary
2 Sinclair make her own allegations so we can know what it is
3 that you are responding to.

4 MR. MARSH: Dr. Sinclair did say to us in --

5 AUDIENCE SPEAKER: I think this is very unfair to
6 us.

7 MR. MARSH: She did want to make some specific
8 comments --

9 [Applause.]

10 MR. MARSH: Dr. Sinclair has said that she has
11 some specific comments she would like to make, and we would
12 be glad to offer to her that time.

13 AUDIENCE SPEAKER: Can we at some point or do we
14 have to hear all of the people speak first?

15 MR. MARSH: Ma'am, the plan was for --

16 AUDIENCE SPEAKER: I do have to work.

17 MR. MARSH: The plan was for Consumers to speak.
18 We have about 40 minutes worth of presentation, and then we
19 are going to have the floor open to comments and questions
20 from Dr. Sinclair or anyone. That was our thought.

21 AUDIENCE SPEAKER: What we are saying is, whose
22 plan?

23 MR. MARSH: We thought that up.

24 AUDIENCE SPEAKER: Didn't they file, and aren't
25 they --

1 MR. MARSH: Yes.

2 AUDIENCE SPEAKER: The question is before we hear
3 the response -- this seems real backwards to hear the answer
4 before we know the questions.

5 AUDIENCE SPEAKER: There's so much repetition.

6 MR. MARSH: I am sorry for the repetition. You
7 are kind of hearing duplicity in analysis. Dr. Sinclair,
8 are you in the audience? If she could give us an
9 encapsulated presentation of what her thoughts are we would
10 not respond to that, because we want to give you a
11 presentation on -- I think we can do that. We have a script
12 to follow.

13 AUDIENCE SPEAKER: Are we supposed to do that
14 without cutting up public speaking time? Is it possible to
15 do that without also cutting out public speaking time?

16 MR. MARSH: There's going to be an hour and one-
17 half of public speaking time. We won't cut that off, up
18 until 10:00 when we lose the room. Let me continue with the
19 presentation. May I do that?

20 MR. FENECH: In a one-half hour presentation we
21 have summarized our findings and conclusions. The
22 conclusions that have been done have drawn on time tested
23 and established engineering practices and principles. We
24 have complete confidence in the safe storage program at
25 Palisades and invite you to come and see the storage site.

1 We will be happy to answer your questions, following the
2 NRC's presentation.

3 MR. MARSH: For the NRC's presentation I would
4 like to remind you that the safety evaluation report in the
5 back of the room does have basically, the presentation that
6 we are going to give.

7 Let me introduce Mr. Goutam Bagchi, who will begin
8 the technical staff's presentation.

9 DR. BAGCHI: Thank you. I am Goutam Bagchi, --

10 AUDIENCE SPEAKER: Mary Sinclair can make that
11 statement now, the one we would like to hear, the
12 allegations to which you are all responding.

13 MR. MARSH: We did have this orchestrated, and if
14 you don't mind, we would like to stick to our script. We
15 have an hour and one-half allocated --

16 AUDIENCE SPEAKER: It's all orchestrated, and we
17 don't like it.

18 AUDIENCE SPEAKER: We can orchestrate as well.
19 It's a public meeting. We should have input. Now is a good
20 time.

21 MR. MARSH: Yes, ma'am. We did have a public
22 meeting notice where we said this is what our plan was. We
23 are going to have a presentation, this is our agenda, and we
24 would like to stick to that.

25 AUDIENCE SPEAKER: Yeah, but you didn't have any

1 place on there for anything we would like to add to respond.

2

3 MR. MARSH: May we continue with our presentation,
4 please.

5 AUDIENCE SPEAKER: We will do that. Give us a
6 period of time after you are through.

7 MR. MARSH: Yes, we will.

8 AUDIENCE SPEAKER: How about half hour, half hour,
9 instead of waiting an hour and one-half. You all get to
10 speak for an hour and one-half and then she gets to talk. I
11 think you have worked it out fine, for the NRC.

12 DR. BAGCHI: My name is Goutam Bagchi. I am the
13 Branch Chief of Civil Engineering. I have a degree of
14 Bachelor of Civil Engineering and Masters of Science in
15 Structural Engineering and Masters of Science in Mechanical
16 Engineering. I have been a registered professional Engineer
17 in New York, Pennsylvania and Massachusetts. My
18 professional experience spans about 30 years, out of which
19 25 years is in the nuclear field.

20 [Slides.]

21 DR. BAGCHI: This evening I am going to talk about
22 the assessments that were performed by the NRC. I do need
23 to talk about the structural capability of the concrete
24 storage cask which is called the VSC-24.

25 The VSC-24 is the concrete cask, and it is being

1 used at the Palisades site. It is important to understand
2 its capability so that we can have a comprehensive feeling
3 about the safety of the cask and the support pad
4 combination, the seismic hazard at the Palisades site, the
5 site stability, the lake level, wave action, wind erosion,
6 soil stability near the storage pad, soil liquefaction,
7 slope stability that are shallow and deep seeded as well.

8 I am going to talk about the general site
9 stability, and the seismic hazard will be presented by Dr.
10 Robert Rothman, Seismologist of NRC staff, and soil
11 stability near the storage pad location will be discussed by
12 Professor Carl Costantino, who is our consultant.

13 A few fundamental concepts with respect to the
14 cask. The cask is completely passive, it's a rugged system,
15 and it contains only reduced heat generation aged spent
16 fuel. There are many values to the nuclear material within
17 the spent fuel storage facility. The cladding, for
18 instance, that's the first line of barrier for the nuclear
19 material, the sealed metal cylindrical container that the
20 assemblies are put together inside -- then there is a thick
21 reinforced concrete protective cask. Inside the cask there
22 is a very thick steel shell protecting the steel containment
23 itself. There is conservative radiation shielding, and
24 there are redundant vents that provide convective cooling.

25 I want to describe just a little bit as to what we

1 are talking about here. This is the sealed steel
2 container. The thickness of this steel shell is one inch.
3 Inside the shell itself there are spent fuel assemblies that
4 are supported inside baskets. This is the reinforced
5 concrete cask itself. It's 29 inches thick, reinforced by
6 rather substantial reinforcing steel bars. That is the one
7 and three-quarter inch thick steel shell that protects the
8 concrete as well.

9 This is the storage pad. The storage pad has
10 thickness, anywhere from 24 inches to 36 inches, again
11 reinforced. It's the safety of this pad and how it is
12 supported by the soil that is the focus of our independent
13 review, and that's what we are talking about here.

14 [Slides.]

15 DR. BAGCHI: The word "radioactive waste facility"
16 conjures up the vision of all kinds of bad things. So, it's
17 very important for us to understand the difference between
18 the dry storage cask and the radioactive waste facility.

19 In the radioactive waste facility there is
20 reliance on primarily natural barriers. Impermeable clear
21 lining is provided to prevent groundwater infiltration.
22 Containers are generally designed for shipping and handling
23 loads. That is permanent storage.

24 In contrast to that, the dry storage casks that we
25 are talking about has engineered protection, highly valued

1 and redundant design. There is defense in depth protection
2 against unacceptable consequences, and the cask is designed
3 against extreme and highly unlikely loads. It is only for
4 the purpose of interim storage.

5 Please, ladies and gentlemen, keep that in mind.

6 The next few slides were indicated so that we
7 could communicate with you very easily -- nobody worries
8 about earthquake around here, so why are we talking about
9 earthquake. If I knew that you don't have any concern about
10 earthquakes I wouldn't include some of these slides. Let me
11 go over this very quickly.

12 [Slides.]

13 DR. BAGCHI: The intensity of an earthquake is a
14 measure of how strongly the ground has shaken at a point of
15 observation, and it is graded from a low to high scale.
16 These are called by roman numerals, I to XII. It's a
17 subjective indication of the effect of ground motion on
18 humans and manmade construction. The magnitude on the other
19 hand, is the measure of energy release. For each unit of
20 increasing magnitude the energy release is greater by a
21 factor of 30.

22 I am showing you this map for illustrative
23 purposes. Dr. Rothman will go over this with respect to the
24 seismicity around the site. On this map I noted some
25 magnitudes of earthquakes, starting from less than one to

1 five; five was the largest ever recorded around here. Let's
2 assume that we are talking about an earthquake at this
3 point. That is the location where the earthquake has
4 occurred. That earthquake would be termed in terms of
5 magnitude. If you were to follow what the effect of that
6 earthquake was at this point maybe the modified intensity of
7 that earthquake here would be intensity four and further
8 down it would be intensity two or less.

9 That's the difference between magnitude and
10 intensity. Let's put it away, and go to another concept
11 here.

12 [Slide.]

13 DR. BAGCHI: This is for illustrative purpose
14 only. This is a naturally recorded earthquake ground
15 motion. Here, we are talking about acceleration. At this
16 point velocity, and at this point displacement. If this is
17 recorded along a length of time, then we call it a time
18 history. Using this time history we develop design
19 guidelines.

20 Again, I want to point out, this is also for
21 illustrative purpose only. It has no relevance to this
22 site, just to communicate with you some of the concepts that
23 are used in earthquake engineering design. If one were to
24 take those time histories and use very simple oscillators
25 that have their natural frequencies at these points and we

1 shook it by that ground motion and recorded the maximum
2 response of those oscillators, either going up or going down
3 and simply ignored the signs and put the maximum response on
4 this kind of plot, acceleration in the vertical direction
5 and frequency in the horizontal direction, then we get this
6 kind of a plot.

7 For design purposes, these curves are smoothed out
8 by joining the high points. You can see that in developing
9 the design criteria there is some conservatism in developing
10 the smooth response factor.

11 This is relevant for the site. The curve at the
12 top that you see is the curve that was used for generalizing
13 of the VSC-24, the casks that we are talking about. In the
14 horizontal axis we have the frequencies, the natural
15 frequency of vibration. In the vertical direction we have
16 acceleration due to gravity. If the total acceleration due
17 to gravity is 1G, then this is 100, this is 110, and this is
18 1G.

19 You can see that the site response spectrum design
20 basis earthquake design spectrum is way below the licensing
21 basis for the general casks. The dry casks, as I pointed
22 out by my figure and spoken to by other speakers before me
23 as well, very rugged system. It is so rugged, that this
24 high frequency coincides at this point. To the right of
25 this point high frequencies are not amplified at all by the

1 earthquake. On the left hand side they amplify somewhat,
2 but that does not affect the cask itself.

3 The gentleman who said he does not worry about
4 earthquake around this area is absolutely right, earthquake
5 doesn't control the design of this cask. Eighteen inch
6 drop, those are the design conditions that challenge the
7 cask. The cask is so rugged.

8 NRC in its design philosophy considers things that
9 are even improbable, but that is the defense in depth that
10 is built into the philosophy of NRC regulations. We have
11 requirements for handling the casks while it's being lifted.
12 There are all kinds of precautions taken, procedures being
13 written up, and even then we postulate that if there is some
14 handling accident and the cask were to drop from the
15 vertical position, 80 inch drop is something that the cask
16 designer would have to consider.

17 Similarly, while the cask is being transported in
18 a horizontal direction, 18 inch drop would have to be
19 considered. The 18 inch drop produces an impact load that
20 is orders of magnitude higher than seismic. One order of
21 magnitude is ten times, two orders 100 times, and three
22 orders, one thousand times.

23 Because of this kind of loading there is a
24 potential for damage to the concrete of the casks, no damage
25 to the spent fuel, no adverse public health and safety

1 concern. Should such a drop occur -- there has been none to
2 date -- there is a requirement for the cask to be inspected
3 for fitness in service. If it is declared fit at that point
4 it would be put back in service. Of course, for 18 inch
5 drop there is no damage whatsoever.

6 The generic cask seismic design basis -- let me
7 emphasize again -- ^{0.25}~~2.5~~G, safe shutdown earthquake design
8 basis, rigid cask, very high natural frequency of vibration,
9 seismic not governing in the design at all. Let me look at
10 this emotional issue of casks tipping over.

11 The licensee has certified that at ^{0.25}~~2.5~~ G there is
12 no tipping over of the cask. I have reviewed the
13 calculation myself, and I have convinced myself that the
14 threshold for the tipping over of the casks is substantially
15 higher than 2.5G. Even if the cask were to tip over there
16 is no adverse consequence on public health and safety.

17 AUDIENCE SPEAKER: Snake oil.

18 DR. BAGCHI: Site stability. There is no changing
19 the general condition at the site. Environmental impact
20 statement that was submitted for the reactor license is
21 valid today, as it was then. Other general site conditions,
22 lake level. The verification of the lake level under
23 extreme conditions was verified by the Corps of Engineers,
24 serving as consultants to the Atomic Energy Commission,
25 predecessor to the Nuclear Regulatory Commission. That's

1 the basis, it remains valid today.

2 This consideration of the lake level included the
3 effect of long wave oscillation of the lake surface which
4 causes wave and potential for flooding of a site. In this
5 case there is so much margin to the pad location, that it
6 does not even enter into the picture as a concern.

7 As pointed out earlier by earlier speakers, shore
8 lines are protected by rock embedment. These rock embedment
9 were designed by using Corps of Engineer's procedures. Wave
10 action is totally disappeared at the shore lines. There is
11 a large separation in elevation and horizontal distance to
12 the storage pad location. There is conservative margin
13 against wave driven erosion.

14 Wind driven erosion, I really cannot add anymore
15 than what was said earlier. There is little or no change in
16 26 years at the site. The site topography has been found to
17 be stable. There is heavy vegetation and existing dunes.
18 You can see from the picture we visited the site again this
19 afternoon and re-affirmed, that is the case. On top of all
20 of that, there is monitoring and surveying of slopes that
21 would give an early indication of whether or not there is
22 any potential for slope instability.

23 Location of the storage pad. Long term metastatic
24 loading. The type of soil we have here, the fine sand type
25 of soil, there is very negligible settlement after

1 construction. It is not expected to settle on a long term
2 basis at all. There is a substantial margin on the bearing
3 capability of the soil itself. With respect to the seismic
4 dynamic loads as pointed out earlier, we have determined
5 that there will be slight settlement of soil under the
6 storage pad. I need to point out something here. It was
7 indicated that the storage pad is 30 feet wide and 195 feet
8 long. Instead of being a continuous 195 feet long strip it
9 has a complete construction joint in the middle, so it's
10 roughly less than 100 feet by 30 feet. This construction
11 joint would alleviate any potential problem should there be
12 any settlement.

13 The type of workload that can cause this type of
14 soil liquefaction and potential settlement of three or four
15 inches is five times ten to the minus five minus five per
16 year. Said another way, it's once in 20,000 years.

17 Let me summarize my presentation by some key
18 conclusions. Ladies and gentlemen, please keep in mind the
19 vast difference between a waste facility and engineered dry
20 storage casks that has been used here at the Palisades
21 storage site. We are only talking about interim storage in
22 VSC-24. The design is extremely rugged, and is not
23 controlled by seismic requirements. It is monitored, and
24 it's observable.

25 There is no adverse public health and safety

1 consequence even if the cask were to overturn. The
2 Palisades site design basis is conservative, based on the
3 use of most current methods, current hazardous estimates,
4 and this will be talked about by Dr. Rothman. There is no
5 change in size environment. Environmental impact assessment
6 for the reactor license remains valid today.

7 There is substantial margin at the location of the
8 pad from lake induced erosion, and we find no adverse
9 consequence from wind erosion. Monitoring and surveillance
10 of the slope provides additional assurance. Thank you for
11 your time.

12 DR. ROTHMAN: I am Robert Rothman. I am the
13 Section Chief of the Geosciences Section of the Civil
14 Engineering and Geosciences Branch. My background is, I
15 have a Bachelors Degree in Geology. I have a Masters of
16 Science and Ph.D. in Geophysics. I have been involved in the
17 profession for over 30 years. In the last 15 years I have
18 been involved in the evaluation of nuclear facility sites.

19 [Slides.]

20 DR. ROTHMAN: I would just like to reiterate what
21 a response spectrum looks like. We are going to be looking
22 at several of these. This is a safe shutdown earthquake
23 spectrum that was developed for the Palisades site for its
24 licensing, back about 25 years or so ago. This is the
25 design basis response spectrum for the dry storage cask.

1 We have frequency on the horizontal axis and acceleration on
2 the vertical axis.

3 I would like to go into a little bit of the
4 background of the design basis for the Palisades site. The
5 U.S. Coast and Geodetic Survey acting as advisors to the
6 Atomic Energy Commission reviewed the seismology for the
7 Palisades site back in the late 1960's and early 1970's.

8 They considered the site geology as sand dunes and
9 concluded that a modified intensity six with a peak ground
10 acceleration of one-tenth of a G could occur during the
11 lifetime of the plant, which they assumed to be about 40
12 years. They also concluded that a modified intensity seven
13 with peak ground acceleration of two-tenths of a G was the
14 maximum potential earthquake for the site. That, we now
15 call the safe shutdown earthquake for the site.

16 In the construction permit safety evaluation
17 report the AEC said that the site is in a region of low
18 seismic activity and concurred on the ground motions
19 concurred by the U.S. Coast and Geodetic Survey. The
20 operating safety evaluation report confirmed this position.

21 We will talk a little bit about the seismicity of
22 the site. Palisades is in the Michigan Basin of the Central
23 stable region tectonic province, which is an area of low
24 seismicity. The largest historic earthquakes and the
25 tectonic province of the 1929 Attica, New York earthquake

1 which had a magnitude of about 5.2 -- and this earthquake
2 was over 400 miles from the plant -- in 1937 they had a
3 magnitude between 5 and 5.3. This earthquake is about 170
4 miles from the plant. The closest earthquake to the site
5 had a magnitude of 3.6. It occurred on October 1, 1899, and
6 it was about 18 miles from the site. Magnitude 3.6
7 earthquakes don't cause damage.

8 [Slides.]

9 DR. ROTHMAN: I would like to show you this map
10 that Dr. Bagchi showed you. Here is the location of the
11 Palisades plant. This is the 1899 magnitude 3.6 earthquake,
12 and this is the Anna/Ohio earthquake from 1937. The Attica
13 earthquake is way off the map, as this only shows
14 earthquakes within 200 miles of the plant. This map was
15 prepared for us by the U.S. Geological Survey at my request,
16 and it shows all earthquakes that they have in their
17 database.

18 Considering the site geology, Palisades site is
19 underlined by dune sand and glacial deposits of dense till,
20 terminal and ground moraine and lake deposits. The lake
21 rock is a Mississippi shale, at elevation 450 feet which is
22 about 100 feet below the surface. There are no known
23 capable faults or active faults in the site region. A
24 capable fault is one that is able to disrupt the surface.
25 Active faults are those that have earthquakes or have had

1 them within the last 50,000 years.

2 I would like to discuss the vibratory ground
3 motion now. That's the design basis for the plant.
4 Palisades was designed, constructed and licensed before our
5 current regulations for nuclear power plants, which is Part
6 100 of the 10 CFR. It's Appendix A to that Part. We also
7 have a standard review plan that is currently in action.

8 Using the current regulation and the standard
9 review plan the largest earthquake in the tectonic province
10 which cannot be associated with a known tectonic structure
11 which in our case is the 1937 Anna/Ohio earthquake which has
12 a magnitude of about 5.25, is assumed to occur at the site.
13 This is a major conservatism, because we have no indication
14 at all that earthquakes occur near the site. We estimate
15 the ground motion using the 84 percentile of a soil site
16 database for magnitude 5.25 earthquakes.

17 If we do this and compare the response spectra, we
18 see that this is the response spectrum for the cask, this is
19 the original SSE response spectrum, and the lowest one is
20 the response spectrum we would get if we were to do the site
21 review using the current NRC regulation. You can see that
22 the current results would be lower than those that were used
23 by the Coast and Geodetic survey 25 years ago.

24 We also have a way of looking at the safe shutdown
25 earthquake and probabilistic space. Over the last few years

1 the Lawrence Livermore National Laboratory has been
2 performing probabilistic seismic hazard estimates for the
3 NRC, and they have done all 69 sites East of the Rockies.
4 Some safety decisions are made using the medium probability
5 of exceeding the safe shutdown earthquake ground motion but
6 it's more conservative to use the mean probability of
7 exceeding the safe shutdown earthquake ground motion.

8 For most of the sites East of the Rockies, the
9 return period for the safe shutdown earthquake is on the
10 order of 1,000 to 10,000 years. Here is a plot of the
11 probabilistic median earthquakes for this site. This is the
12 1,000 year, 2,000, 5,000 and 10,000. You can see that the
13 design basis spectrum for the Palisades site ranges from
14 about 20,000 year return period up to probably something on
15 the order of 100,000 years.

16 Using the more conservative estimate of the return
17 period year of safe shutdown earthquake, here are using the
18 mean estimate of the earthquake. We have the 1,000, 2,000,
19 5,000 and 10,000 year earthquake. We can see the return
20 period of safe shutdown earthquake for the Palisades plant
21 ranges from about 7,500 years at high frequencies to well
22 over 10,000 years at longer periods or lower frequencies.

23 In conclusion, we can say based on our
24 probabilistic estimates there is negligible likelihood of
25 the ground motion at the site being larger than the SSE.

1 Even if we were to use the current regulation the safe
2 shutdown motion determined in the late 1960's is still
3 appropriate for the Palisades site.

4 DR. BAGCHI: Next, Dr. Costantino.

5 DR. COSTANTINO: Being the last speaker, I will
6 try to go through this fast. I know that you have other
7 interests. To establish pedigree here, I am a Professor of
8 Civil Engineering at City University of New York. I have
9 been a professor for some 30-odd years, I think. I have
10 been active in the seismic field for an extensive number of
11 years.

12 We were asked to take a look at the data
13 available, with Brookhaven Labs and see if we could make a
14 judgment on the potential effect of an earthquake or design
15 basis earthquake on both liquefaction potential, potential
16 damage to the pad, and potential slope stability. I would
17 like to quickly summarize some of the findings. Some of it
18 may be a little repetitious, since you have heard some of
19 the other information presented by Consumers.

20 The topics we were asked to look at are
21 liquefaction potential of the soils under the pad, potential
22 settlement effects from the shaking if there will be
23 settlement, and the question is how much for a given design
24 earthquake and what causes the settlement. Then, a
25 potential local stability failure of the slopes immediately

1 adjacent, and look at the possible deep seeded effects, can
2 the pad move out into the lake and that kind of situation.

3 The basis of the information we had and the basis
4 we used to make the judgments really come from a set of
5 borings that were provided to us. You heard the description
6 of what a boring was. Basically all it is, is a description
7 of the soil under the plant. Based on the samples and the
8 effort it takes to drive the samples we have an estimate of
9 the strength of the soil under the plant.

10 The borings that we have available are a number of
11 borings which were taken a number of years ago, together
12 with these two recent borings, one taken on the East side of
13 the plant of the pad and one on the West side of the pad.
14 Here is Lake Michigan. These dimensions are several hundred
15 feet between boring lines.

16 If you look at all the boring data in this
17 vicinity the only borings that show a potential problem or
18 indicate potential softness are these two borings on the
19 east side of the pad. There is no significant softness
20 indicated in any of borings taken west of the pad, between
21 the pad and the lake.

22 As an example I make this little computer plot.
23 Basically, this is the two new borings and this is the old
24 boring close by.

25 AUDIENCE SPEAKER: Much too boring.

1 DR. COSTANTINO: No, I want to show you something.
2 Obviously, you are not going to see the numbers. Here is
3 the groundwater table. This is the loose dune sands above.
4 These are the stiffest soils, which we are not concerned
5 with. It's only in these two borings we have strengths
6 which are low enough to be of concern, obviously.

7 We looked at that. Based on that data we looked
8 at a series of issues. One was a settlement potential. We
9 concur with the estimate made by Sarge and Lunde. The
10 estimated settlement, we don't see any potential impact on
11 settlement greater than three to four inches underneath the
12 pad. We then looked at a series of potential slope
13 failures.

14 These are the North/South slopes. We also looked
15 at an East/West slope. Here is the pad and here is Lake
16 Michigan, and we were interested in can we realistically
17 consider a major slide. We also looked at a variation of
18 that East/West slope where this is a South/East,
19 Northeast/Southwest, where there was going to cut out for
20 temporary construction and temporary structures located at
21 this elevation, can we have major concern with that slope.

22 Just to summarize, and I won't go through too much
23 of the detail since you are anxious to get on with these
24 other questions. The conclusions are, number one,
25 settlements are no greater than three to four inches. We

1 can expect under the design basis earthquake shallow
2 failures. On the Southwest slope would reasonably expect a
3 failure to move the slope out about ten feet, move it in
4 toward the pad about ten feet. Fortunately, the pad is
5 maybe 75 feet from the crest of the slope, so we don't see
6 that as having a major impact on the slope.

7 The deep seeded effects and safety factors, the
8 demand capacity ratios for the design basis earthquake are
9 greater than 1.3 in the East/West direction. The typical
10 values used in the industry for years is 1.1, so we would
11 have no particular concern with the deep seeded earthquakes
12 in the East/West direction or the pad slipping out into the
13 lake.

14 In the North/South directions, I will put up on
15 little figure. We were interested in deep seeded
16 earthquake. We made some conservative estimates of
17 potential liquefiable zone. This would be a classic deep
18 seeded failure. This is the North side slope. The pad sits
19 over there. Fortunately, existing in that evaluation is the
20 South side slope which acts as a counterbalance to the North
21 side slope.

22 The conclusion is, we don't expect for the design
23 base earthquake to have a significant impact on deep seeded
24 liquefaction or deep seeded liquefaction failures of the
25 slopes adjacent. We do expect on the design basis

1 earthquake, some shallow -- five to ten feet, which don't
2 appear to be significant from the pad's perspective. I
3 think that would summarize the basis of our findings.

4 MR. MARSH: Thank you, very much. I would like to
5 first emphasize that the technical work that you have heard
6 tonight has been totally developed independently from the
7 licensee's assessment. The NRC has used the data that the
8 licensee has developed but the technical work that was done
9 by Brookhaven and by the City University of New York has
10 been totally independent.

11 Although the answers are the same these were done
12 completely -- in fact, this evening is the first time the
13 licensee has heard our presentations, our technical work and
14 likewise, this is the first time that we have heard the
15 licensee's technical work.

16 At this point, let me turn over the meeting to
17 you, to hear any questions or concerns that you have. We
18 did not get any cards aside from Dr. Sinclair, that said she
19 has a prepared list of comments. Do you have a card, sir?

20 AUDIENCE SPEAKER: Isn't she going to speak?

21 AUDIENCE SPEAKER: I can make a presentation.

22 AUDIENCE SPEAKER: There are people who wish to
23 speak but haven't written out a card.

24 MR. MARSH: That's not necessary, ma'am. You can
25 step up to the microphone and give your question.

1 MS. SINCLAIR: I brought a series of questions but
2 also some background, because all of this is very confusing
3 and very complex. I have tried to summarize what actually
4 has been going on so that you have a better picture when you
5 leave here tonight of the whole story.

6 In order to correct the record that was set forth
7 in the draft safety assessment that you will find in the
8 back of this room, I would like to point out that in the
9 first letter that Mr. Zwolinski wrote to me to say that they
10 had decided to do this study, he said that I had called
11 someone in the NRC in March of 1993, expressing concerns
12 about the specifications for the storage pad.

13 But in the draft statement it says that it's
14 because I made a call in July of 1993 to someone in the NRC
15 expressing concerns about the storage pad, that they had
16 gone ahead with it. So, I think they should try to clarify
17 that in their own records. I have no recollection of either
18 call, although I have called about a lot of things.

19 However, I want to make this point. Many months
20 before this cask was licensed which was in April of 1993, I
21 had raised questions about the cask storage pad being in a
22 shifting sand dunes area. Months before the cask was
23 licensed I had asked for specifications of the storage pad
24 from every source with some responsibility for it, and I was
25 denied an answer. It is much before this period of time

1 that these questions were raised and we had no answers.

2 The Michigan Department of Natural Resources which
3 issued a permit that designated this site as a high risk
4 erosion area said, it was not their responsibility to tell
5 me or to specify anything for the site because the Nuclear
6 Regulatory Commission preempted all those decisions. So
7 then I called Mr. Frederic Stertz of the NRC to ask him in
8 what report I might find those specifications. He said that
9 that was not NRC's concern, because VSC-24 cask that they
10 were licensing was a generic cask and it could go anywhere,
11 and that the site was not important. That was all left up
12 to the utility.

13 So, I went to the site, Palisades Plant in the
14 fall of 1992, about eight months before the cask was
15 licensed. I asked the engineer who showed me around if he
16 could tell me where the construction plans and
17 specifications for the storage pad could be found. He said
18 many private contractors had worked on the pad and that the
19 information was not available to the public.

20 This is just one of the numerous kinds of
21 questions that citizens have attempted to ask about the site
22 but these questions were not answered during the comment
23 period because the NRC maintained that the site was not
24 important, this was a generic cask, therefore, the questions
25 did not need to be answered in detail.

1 I have also prepared a statement, and then I have
2 some questions. My statement is to give you further
3 background on what is happening here. This is really a very
4 strange meeting that we are attending here tonight. The
5 casks for the dry cask storage facility at Palisades have
6 been licensed as generic casks for over a year, and two
7 casks are loaded. A generic cask means it can be placed
8 anywhere because the site is of no particular significance.

9 These casks have been licensed only for storage of
10 high level nuclear waste which will be highly toxic for
11 centuries. It is one thing for them to say this is just
12 interim storage, it is another thing for you to know that
13 they are licensed for storage only. There is no provision
14 for offsite transport. Of course, there is no repository to
15 ship it to.

16 NRC's action at Palisades could result in 18 high
17 level nuclear waste dumps being established on the shores of
18 the U.S. side of the Great Lakes as watershed with no public
19 comment or input permitted after this procedure is over.
20 Attorney General Frank Kelly of Michigan, Lake Michigan
21 Federation and Don't Waste Michigan, are in the middle of a
22 lawsuit against the NRC for denying the public an
23 opportunity for a public hearing on the construction of
24 these casks before they were licensed.

25 Such a hearing would have required a full

1 environmental impact statement to be prepared and such a
2 hearing would also have required a careful review of the
3 site of the nuclear storage pad at Palisades on which the
4 cask was to be placed. Having denied such a hearing for
5 almost two years before the VSC-24 cask was licensed, now
6 the NRC is assuring us that it has decided within recent
7 weeks to make an independent evaluation of the site and has
8 hired its own consultants to do it.

9 The NRC is making this claim a year after the
10 agency licensed this cask as generic. The fact is, the NRC
11 in preparing this report had a vested interest in affirming
12 their licensing process. Any decision is under a great
13 burden when it is made under these conditions. That is,
14 where the credibility of the agency to license and regulate
15 this dangerous technology is at stake and where millions of
16 dollars have already been spent on this project.

17 Its claim to be objective or independent becomes
18 questionable. The study was also done in haste. The
19 consultants first came to the site the first week of April.
20 Now, by the middle of May, a period of six weeks, they have
21 come up with a sizeable document that purports to be a
22 definitive study of one of the most unique and complex
23 geologic environments in the world, Lake Michigan's famous
24 sand dunes.

25 However, now that the NRC has reviewed the site

1 with its consultants the agency has in effect conceded a
2 central issue of our lawsuit. That is, this is a unique
3 environment of great importance to many people, and should
4 have had a site specific evaluation. The NRC sent their
5 letter to the Court of Appeals stating that it was making an
6 independent assessment of the Palisades dry cask storage
7 site. By this action the NRC itself has opened the door for
8 new issues to be raised by all parties in the lawsuit. We
9 do have some very important new issues to present to the
10 Court.

11 To name only a few, for example, Mr. Adamkas in
12 December of 1993 -- he's chief administrator of Region III
13 of BPA out of Chicago -- wrote to James Taylor of the NRC,
14 asking for more environmental information because of the
15 importance of Lake Michigan and the Mississippi River as
16 natural resources for the whole nation and the source of
17 drinking water for millions of people. This action supports
18 our position, that a site specific NEPA review was required.
19 This letter was sent to the Court by our attorneys as one of
20 our new issues.

21 We can now also advise the Court about two
22 important in depth studies that were made of the Palisades
23 area. The U.S. Army Corps of Engineers made a study of all
24 the Great Lake shoreline at the request of the International
25 Joint Commission. The Court designated a considerable

1 stretch of the shoreline near the Palisades area as a high
2 risk erosion area stating: "Erosion and bluff recession will
3 continue regardless of lake level controls or structural
4 shore protection measures."

5 In 1988, the State of Michigan's Low Level
6 Radioactive Waste Authority also ordered an in depth study
7 to be made of all Michigan reactor sites including Palisades
8 by an independent consulting firm in Ann Arbor, Michigan.
9 The State was attempting to find a site for low level
10 radioactive waste facility which Michigan was still a member
11 of the Midwest Compact. The study found that none of these
12 reactor sites was suitable for such a facility, in part
13 because they would not meet NRC's siting objectives and
14 criteria and the overall goals of NRC's performance
15 objectives.

16 The conclusions of both of these studies appear to
17 directly contradict the findings of NRC's draft safety
18 assessment which is being discussed here. These facts
19 indicate that a public hearing with the opportunity to
20 evaluate through cross examination these conflicting data
21 should certainly be in order. It also demonstrates the
22 value of a public hearing on important site specific issues
23 before huge amounts of money are spent and some unfortunate
24 actions have been taken.

25 In addition, we can now raise questions about

1 whether the VSC-24 cask was indeed a generic cask as is
2 claimed and as it was licensed. We can point to the fact
3 that at both reactor sites where there are plans to use the
4 VSC-24, at Point Beach in Arkansas I, changes must be made
5 to the cask design in order to be able to use it. The
6 vendor, Sierra Nuclear Corporation, has asked the NRC for
7 permission to amend the certificate of compliance for the
8 VSC-24 to make those changes.

9 In fact, for Arkansas I, Sierra Nuclear
10 Corporation has asked for an exemption to 10 CFR 72.234, in
11 order to be able to go ahead and construct casks according
12 to a different design, to accommodate the longer fuel at the
13 reactor and to meet the timetable of the utility and its
14 spent fuel problem. The exemption was granted. This
15 exactly repeats what happened at Palisades, where an
16 exemption was granted to allow these casks to be built
17 before there was a first certificate of compliance for these
18 casks.

19 The NRC does not know how to accommodate these
20 necessary changes in design, and still claims that they have
21 licensed a generic cask that is under study by their lawyers
22 at the present time.

23 In addition the vendor, SNC, submitted Revision 1
24 to the safety analysis report in on June 14, 1993, less than
25 one month after the final rule licensing the VSC-24 cask was

1 issued, which would indicate that all the safety
2 considerations had not been resolved prior to releasing the
3 cask for loading it at Palisades.

4 Earlier, in August of 1992 during the comment
5 period for the VSC-24 cask, the NRC attempted to raise some
6 technical and safety questions with the vendor but they were
7 told by the vendor that he would prefer to have the design
8 approved as is and as soon as possible in order to complete
9 his work at Palisades. Obviously, he was accommodated by
10 his regulators, the Nuclear Regulatory Commission. In other
11 words, the casks were licensed before all the safety
12 questions were resolved.

13 It becomes increasingly clear that NRC's licensing
14 procedures for dealing with high level nuclear waste
15 disposal are in disarray. With so many requests for changes
16 in the design to suit unique site specific requirements at
17 other reactor sites, it plainly does not have a generic cask
18 for high level nuclear waste disposal and for a good reason.
19 U.S. reactors are of so many different designs and they have
20 different fuel types and vary so much in how they are
21 constructed on site, that a generic cask system apparently
22 cannot be designed to accommodate all these differences.
23 Nor do we have a generic environment in this country. It is
24 highly diverse and it must be respected if we are to
25 survive.

1 This is what the NRC should be telling Congress,
2 that high level nuclear waste dangers and toxics for
3 centuries cannot be licensed generically.

4 Then, there were some things mentioned that I
5 would like to go over.

6 [Applause.]

7 MS. SINCLAIR: There was a great deal of talk
8 about earthquakes but never once in anything that I have
9 written or any comments I have made or questions I have
10 asked, have I ever even used the word. I called Mr.
11 Zwolinski when he wrote me the first letter and I said, why
12 are you studying earthquakes. I don't recall anybody
13 raising that as an issue. Apparently, they decided to raise
14 it.

15 I just want to say that all this discussion about
16 earthquakes is not something that we brought in here.

17 The other thing is that these casks have never
18 been built or tested before. The first time that they were
19 going to be used at Palisades -- they were built before
20 there was a certificate of compliance which would have
21 established their criteria for construction, and this is one
22 of the aspects of our lawsuit.

23 They keep saying that this is interim storage, but
24 the fact is that there is no offsite provision for
25 transport. There's a GAO study that says they can license

1 these casks or the spent fuel for 140 years, which is a
2 pretty long time. I do have some questions. In order to
3 give everybody else a chance, I will hold off on them. I
4 appreciate this opportunity to make a statement, so that
5 everybody understands what's going on a little bit better.
6 Thank you.

7 [Applause.]

8 MR. MARSH: Dr. Sinclair, as you were giving your
9 comments I was trying to jot down the things that you were
10 saying, and it became obvious that what we need to do is to
11 look through the transcript and think carefully about what
12 you have said, and to assure that we have addressed them.
13 Many of the things that you have said are, of course, the
14 subject of the lawsuit. Many of them are also things that
15 you have written to us in your April 20 letter.

16 Many of the issues, we believe we have answered to
17 our satisfaction. We will go back to the record to make
18 sure that we will appropriately address your concerns.

19 For example, the letter that you referred to going
20 from the Environmental Protection Agency Regional V
21 Administrator to Jim Taylor regarding the need for an
22 environmental impact statement, I know the agency thought
23 about that very carefully and wrote a detailed response back
24 to the Regional Administrator for the Environmental
25 Protection Agency outlining our process for the generic

1 rulemaking and outlining what licensees must do, the need
2 and justification for it.

3 I know that we are on record as responding to the
4 Environmental Protection Agency.

5 As to some of the reports that you referred to,
6 the Corps of Engineer Report and the Low Level Waste
7 Repository Report, we know these are reports that are
8 relevant and we intend to address those reports in our final
9 safety assessment. So, please be aware of that.

10 AUDIENCE SPEAKER: Are you answering questions and
11 comments?

12 MR. MARSH: She read her statement, ma'am. The
13 whole meeting is being transcribed. It will appear in the
14 transcription. Our intent is to go back through carefully
15 and make sure that we hit each one.

16 We have gotten some cards for some questions, in
17 addition to Dr. Sinclair's. If you have any more, Tony Hsia
18 and my staff will bring them up. Let me read the ones that
19 I have.

20 Is there any research being done which could
21 utilize the spent fuel for a use purpose thus eliminating
22 the need for casks all together. There have been some
23 studies done by the Department of Energy. I am not sure the
24 success of those studies to date. They involved basically
25 putting spent fuel back through other types of reactors and

1 seeing whether they can be made into some different type of
2 substance.

3 Perhaps members of the staff could help me, if any
4 more detailed studies are known.

5 MR. HAUGHNEY: I think the main problem with the
6 research for the use of spent fuel is, most of it focuses on
7 reprocessing either directly or by a slightly different
8 means. You are still left with the highly radioactive
9 fission products or at least most of them, and perhaps even
10 some of the elements above uranium on the atomic table.

11 Although you may be able to extract certain useful
12 elements that could be of use in a variety of activities or
13 undertakings, you still end up basically with spent fuel but
14 perhaps in a different form, and must dispose of most of
15 that material. I don't ever want to turn off the idea of
16 research, but as a practical matter it hasn't paid off.
17 From my own, personal view, it's not very promising.

18 MR. MARSH: Thank you.

19 AUDIENCE SPEAKER: Just a couple of
20 clarifications. At one point we heard that the pads was
21 briefly -- and then we heard that it was between two and
22 three feet thick.

23 MR. MARSH: Let me explain that.

24 AUDIENCE SPEAKER: That is uneven. You are
25 unclear, and that could be dangerous. Point one. Point

1 two, even though earthquakes were not in issue, the 1937
2 earthquake in Ohio is not the most recent. There was 5.0 to
3 5.1 in the mid-1980's. Third, it seems to me that the
4 celebrated 465 feet to the shores of Lake Michigan that we
5 heard often and we are supposed to be reassured about didn't
6 -- I don't believe that 400 feet is an important amount for
7 the substances that we are dealing with.

8 I also want to point out that a 30 foot water
9 table is not 465 feet, it's 30 feet. That is connected to
10 Lake Michigan.

11 MR. MARSH: Let me start from the beginning, if I
12 can, and please help me if I go astray. With respect to the
13 cross section of the pad, you have heard it referred to from
14 three feet thick to 24 inches thick. In fact, the cross
15 section of the pad does change. At the edges, in a cross
16 section perspective, it is three feet thick. Then, it
17 becomes thinner and in the center part of the pad it's 24
18 inches thick.

19 In a cross sectional sense it's not constant.

20 AUDIENCE SPEAKER: It becomes --

21 MR. MARSH: Looking at it from a cross section, if
22 it's 190 feet long and it's 30 feet wide, taking a slice
23 through the 30 foot way it varies from three feet to 24
24 inches.

25 AUDIENCE SPEAKER: The casks are then resting on

1 two feet and not three feet.

2 MR. MARSH: They in fact rest on a variety of
3 thicknesses. It starts at 36 inches and works its way over
4 to 24 inches.

5 DR. ROTHMAN: As far as the size of the earthquake
6 we use, we use the largest earthquake in the central stable
7 region, irrespective of when it occurred. You are reaching
8 a 5.0 and 5.1. We used 5.25, which is larger than that. We
9 take the largest one, not the most recent.

10 MR. MARSH: In fact, if there are more recent ones
11 that were larger on a design basis for the cask or for the
12 site, we would have to reassess the whole design basis for
13 the cask, the site, et cetera. We did take the most
14 conservative one we could.

15 With respect to the water table's location and the
16 475 feet, I believe the cask has been fully evaluated to
17 ensure that it will not leak any of its contents out of
18 itself down through the pad and down to the water table.
19 That, to our understanding, has been fully evaluated.

20 I do have some more cards to get to, if I can.

21 AUDIENCE SPEAKER: I am usually brief. My name is
22 Tanya, and I am Michigan Director of the Lake Michigan
23 Federation. I would like to make a couple of comments, and
24 then I have a couple of questions that I would like
25 addressed in writing if possible and orally tonight also.

1 Number one, I guess I would like to point out, if.
2 you would like public participation which I am not really
3 sure about, you need to make sure that we know where this
4 meeting is, whether it's -- I knew where it was because I
5 was here last time.

6 MR. MARSH: What did we do wrong? Did we not --

7 AUDIENCE SPEAKER: It was Lake Michigan College
8 which is several buildings, and that can be people late if
9 they are in the first building trying to figure out where it
10 is. You need to make sure you specify which room it is and
11 then you need to have signs.

12 MR. MARSH: We apologize for that.

13 AUDIENCE SPEAKER: You had a couple of signs in
14 here but the door that I came in there were no signs. If
15 you are interested in public participation, make sure we
16 know where the meeting is.

17 MR. MARSH: Thank you.

18 AUDIENCE SPEAKER: Next, and this is a comment
19 related to the NRC presentation. I am sorry, I have been to
20 many public meetings in the rather short time that I have
21 been involved in environmental issues, that's gibberish.
22 You don't get up and show charts and acronyms and expect
23 people to understand. I guess I am concluding that you
24 didn't want us to understand.

25 You are going to put an expert up there with 30

1 years of experience, that's going to say a lot more than the
2 charts. That is totally unacceptable and unappreciated.

3 As far as Consumers, --

4 MR. MARSH: May I respond to that?

5 AUDIENCE SPEAKER: To me, that's just an opinion.
6 I don't really think that we need to debate it. That's an
7 opinion of someone who is out in the community going to
8 meetings. That's the opinion of someone who puts on
9 workshops and holds conferences and doesn't really set out
10 to insult people who come to the meeting, which I think that
11 insulted us. We had to sit through graphs and gibberish.

12 I think you expected us to feel kind of dumb.
13 There's this expert up here who knows what he's talking
14 about. I think we relied on experts long enough, and most
15 of us have a lot of common sense. That's not something I
16 want to debate that's an opinion, and I hope you will take
17 my advice.

18 Related to Consumers presentation, in the recent
19 meetings that I have attended with Consumer presentations I
20 don't think I have ever heard the word safety used as much
21 as tonight. It's a lot better than a recent meeting where I
22 heard your vice president say that some of your safety
23 problems were related probably to the fact that you focused
24 more on competitiveness than safety.

25 I am glad that you are talking about safety, but

1 talking about safety is not a substitute for safety itself..
2 You are getting a lot better at this. As far as I am
3 concerned, it's still talk. I think we need to see your
4 feelings about safety reflected in your actions.

5 I do have a question. I am trying to figure out,
6 is the Jenkins team the same as the independent team in your
7 conversations?

8 MR. PALMISANO: You are talking with respect to
9 the NRC's independent team?

10 AUDIENCE SPEAKER: In respect to, you said you had
11 an independent team working on your analysis and you had a
12 Jenkins team.

13 MR. PALMISANO: I used the word independent
14 several times. Material Testing Services, before we built
15 the pad and independent company did soil compaction test.
16 The Jenkins team supported by Sarge and Lunde repeated
17 analyses. We did analyses in March and we did separate
18 analyses in April. That was basically done by the same
19 team.

20 I used independent principally with respect to the
21 construction of the pad, soil compaction tests and to
22 differentiate between the March 1994 and April 1994
23 analyses. The same group of people did the March and April
24 analyses for Consumers Power Company.

25 AUDIENCE SPEAKER: Did they do this for free, or

1 were they hired by somebody.

2 MR. PALMISANO: The analyses were led by Consumers
3 Power Company employees, Dr. Rolpe Jenkins, supported by
4 technical experts from Sarge and Lunde under contract, yes.

5 AUDIENCE SPEAKER: They were people that were
6 hired by you.

7 MR. PALMISANO: Consumers Power Company did the
8 analyses and is responsible for the analyses, and we bring
9 in the technical expertise to assure that we have the
10 appropriate expertise for the analysis.

11 AUDIENCE SPEAKER: I guess I was confused when you
12 said it was an independent team. To me, that's different
13 than someone that is hired by you. I have a couple of
14 questions. One of them is, with whom did NRC consult with
15 during the six week study.

16 MR. MARSH: Let me ask Dr. Bagchi to respond to
17 that.

18 DR. BAGCHI: Brookhaven National Laboratory.

19 AUDIENCE SPEAKER: That's who you consulted with?

20 DR. BAGCHI: Yes, the contract that we had, and
21 Professor Costantino.

22 MR. MARSH: Who is the subcontractor at Brookhaven
23 National Lab.

24 AUDIENCE SPEAKER: It was only six weeks, too. Is
25 there a list of parties consulted somewhere that I can get

1 hold of?

2 MR. MARSH: I believe our safety evaluation has
3 the author and the author's report as supplements to them,
4 and they are both here this evening.

5 AUDIENCE SPEAKER: That would be a complete list
6 of parties consulted in this six week review?

7 MR. MARSH: I believe so.

8 DR. BAGCHI: That's correct.

9 AUDIENCE SPEAKER: Was public comment sought
10 during any time of the review?

11 MR. MARSH: No. Beyond this evening having our
12 safety evaluation report published as a draft safety
13 evaluation and beyond you giving us feedback, that really is
14 giving us feedback on the safety evaluation report. As we
15 say, we do intend to --

16 AUDIENCE SPEAKER: That is after the fact. I
17 think you need to --

18 MR. MARSH: It is draft, please understand that
19 it's draft.

20 AUDIENCE SPEAKER: When you conduct a review and
21 give out your findings and then we have the opportunity to
22 respond, that's after the fact. That is not public
23 participation during the process. That's not true public
24 participation.

25 That's the same way with a lot of the things that

1 we work on. There is a Superfund Site and companies and
2 agencies have worked for two and three years and come up
3 with their opinions on something, and then expect the public
4 to change their minds in 30 days. This is after the fact.

5 Public comment was not sought during the six week
6 review.

7 MR. MARSH: I just have to say again, please, this
8 is a draft safety evaluation report. We are seeking your
9 thoughts and comments on this issue. We have said that we
10 will respond to those in our final safety evaluation report.

11 AUDIENCE SPEAKER: I guess I just need to know
12 during the six week review period.

13 MR. MARSH: No, ma'am, we did not have time.

14 AUDIENCE SPEAKER: Then, what documents --

15 MR. ZWOLINSKI: May I add, we did receive during
16 the last six weeks, additional information from individuals
17 such as Dr. Sinclair that we have not had an opportunity to
18 disposition.

19 AUDIENCE SPEAKER: Was it solicited? Was it asked
20 for and solicited?

21 MR. ZWOLINSKI: I believe in a telephone
22 conversation with Dr. Sinclair I explained the process that
23 we intended to undertake, and should she have any
24 information she would like to share with us we would
25 certainly take it under very aggressive interpretation and

1 in so many words I want to disposition it one way or the
2 other.

3 We have not had an opportunity to review a couple
4 of the documents that she has referred to this evening and
5 referred to in her letter to me of April 20.

6 AUDIENCE SPEAKER: You did ask a number of the
7 public for comments.

8 MR. ZWOLINSKI: An individual that we happened to
9 be discussing the issue with, that's true.

10 AUDIENCE SPEAKER: What documents were reviewed,
11 and is there a public list of the documents that are
12 reviewed?

13 DR. BAGCHI: There is a list of references in the
14 draft safety assessment, and that's available for your
15 information.

16 AUDIENCE SPEAKER: That's a comprehensive list of
17 documents reviewed?

18 DR. BAGCHI: The documents that formed the basis
19 of our judgment and use.

20 AUDIENCE SPEAKER: Did the 1979 EIS address
21 erosion and earthquakes?

22 MR. MARSH: Maybe Charlie Haughney can help me on
23 that, I am not sure.

24 MR. HAUGHNEY: The 1979 Environmental Impact
25 Statement -- are you talking about the generic environmental

1 impact statement for spent fuel storage?

2 AUDIENCE SPEAKER: The one that all the
3 environmental assessments to date refer back to, as far as
4 being an adequate environmental impact statement. Did
5 either of them address erosion and earthquakes?

6 MR. HAUGHNEY: If the generic one which was the
7 basis under which we first wrote Part 72 for spent fuel
8 storage, it was designed without any sites. It was a
9 nationwide thing, like any other generic environmental
10 impact statement.

11 AUDIENCE SPEAKER: So, it did not?

12 MR. HAUGHNEY: The point is, it wouldn't have
13 talked about a particular site. It certainly talked about
14 seismic design of spent fuel because we have seismic
15 criteria in the rule, we have tornado and other types of
16 natural phenomena. The site specific EIS analysis of those
17 kinds of natural phenomena you would find in the
18 environmental impact statement supporting the operating
19 license to the reactor plant.

20 AUDIENCE SPEAKER: Last question is, how do your
21 findings of this six week study relate to your other,
22 earlier, environmental assessments?

23 MR. HAUGHNEY: This review is a safety review for
24 a particular allegation of a potential safety problem. At
25 first flush it doesn't have a direct connection to the

1 environmental assessment.

2 AUDIENCE SPEAKER: I have two additional comments.
3 Like I said, I will be brief. One is, I live along the Lake
4 Michigan Shore line, not in the dunes, but I know people who
5 do. In fact, I know someone who, in the last ten years,
6 lost 70 of their 158 frontage. That has no relation to the
7 charge that you have on there. You have to look at what is
8 happening on the shore line and relate that to Palisades.

9 Last of all, I would urge you to make a real
10 commitment to public participation. It's not after the fact
11 comments, it's not presenting us with a lineup of experts
12 and trying to make us feel stupid. I think we are beyond a
13 lot of that at this point. This is the 1990's, as my son
14 tells me. I think we really need to look at how we make
15 these decisions, and you need to involve us in a real way.

16 MR. ZWOLINSKI: The format for the last six or
17 seven weeks was pretty much our making, the NRC's making,
18 and we attempted to include the public as best we could. In
19 so many words we felt a draft safety evaluation provided to
20 the public at least was communicating preliminary views.

21 As we are stating expressly, we are looking to
22 turn over all stones and not proceed without a stone
23 unturned.

24 AUDIENCE SPEAKER: But you have to understand when
25 you come up with findings, that's pretty conclusive. It's

1 going to be very difficult for members of the public to come
2 up here and dispute that, especially when probably most of
3 the media is gone by the time that we speak.

4 MR. ZWOLINSKI: Much of the analysis seems to
5 support that the pad cask arrangement is certainly
6 acceptable, I agree with that comment.

7 AUDIENCE SPEAKER: What I don't understand is,
8 it's like you can't have it both ways. Like Mary Sinclair
9 said, you can't think we are going to abide by a generic
10 siting and then turn around and do something minimal like a
11 six week study. Either abide by your generic system or do a
12 full fledged environmental impact statement that would
13 certainly take a lot more time and would involve the public,
14 as it should.

15 MR. ZWOLINSKI: But as you have heard this evening
16 what occurred was, questions were raised about the adequacy
17 of the siting of this particular facility, to the extent
18 that we chose to undertake a site specific evaluation.
19 Recognize, this is the first time the general license was
20 used. The licensee had performed its own evaluation. It
21 had a certain scope and depth. We chose to perform our own
22 assessment just to better understand and characterize what
23 is actually expected of a utility in performing these types
24 of assessments. That's another reason why we did our own
25 assessment which, by the way, is very unusual.

1 AUDIENCE SPEAKER: I know, but I still don't
2 understand why you didn't do it several years ago when the
3 issues were raised. It's not as if they are brand new
4 issues. What is wrong with doing a complete environmental
5 impact statement and really involving the public as they
6 need to be. People are just tired of having decisions
7 handed down to them.

8 MR. ZWOLINSKI: We certainly don't mean to talk
9 down to anyone. Unfortunately, some of our staff experts
10 may talk over people's heads, including our own sometimes. I
11 will accept that criticism, and next time we will do a
12 better job in that particular area.

13 AUDIENCE SPEAKER: To tell you the truth --

14 MR. ZWOLINSKI: We are attempting to solicit your
15 views as a citizen of the area, as well as everyone else.

16 AUDIENCE SPEAKER: I guess the last thing I wanted
17 to say is, they could be saying anything up there and we
18 would be looking at it and saying maybe yes, maybe no. It
19 really is pretty meaningless. I do hope that you look to
20 involving the public in a true sense.

21 MR. ZWOLINSKI: Thank you for your comment.

22 MR. MARSH: I do have a couple of cards that I
23 would like to read, if I can. What physical protection is
24 provided from the more likely unnatural hazard similar to
25 bombing of the World Trade Center during the long term

1 anticipated "temporary" storage for the VSC-24 casks at
2 Palisades.

3 Specifically, what protection has been provided to
4 the high level radiation material from a car bomb detonated
5 adjacent to the pad, and armor piercing shell fired from
6 atop the adjacent sand dunes from a bazooka or portable
7 rocket launcher or fired directly from the lake, or overhead
8 ariel bombs from helicopters. The resultant Chernobyl-like
9 scattering of high level radiation material could be
10 catastrophic to both Lake Michigan and much of the county.

11 In today's world's prudent engineering design
12 requires defensive design and construction methods when
13 potential large scale catastrophe would otherwise result.
14 The long term "interim temporary" storage of high level
15 radiation material in the VSC-24 casks is a classic case
16 where such design and construction is a necessity but
17 apparently completely lacking at present.

18 We were discussing earlier the security measures
19 that are taken at the Palisades site in the vicinity of the
20 cask. In partial response to these comments, you need to
21 know that the pad itself is part of the protected area and
22 is bounded by barbwire. It has intrusion alarms and other
23 protective measures to ensure that any encroachment would be
24 found.

25 Some of the issues you discuss though, about bombs

1 at the World Trade Center, the agency is looking very
2 carefully at its requirements in terms of protection against
3 car bombs, et cetera, partly because of the World Trade
4 Center and partly because of the Three Mile Island
5 situation. We are not done with that yet. That's before
6 the Commission.

7 There is a variety of things that are being
8 considered. Rulemaking and modifications to the
9 requirements in terms of how the plants would have to
10 protect against car bombs are being considered.

11 Mr. Fenech, can I ask you to supplement anything I
12 have said about the security measures in response to this
13 question? I don't want to answer it, because I know there's
14 more than the plant has than I am prepared to address.

15 MR. FENECH: I think you have addressed it well.
16 Of course, we consider information specific to our security,
17 safeguards information, and are not at liberty to discuss
18 any specific information. We have a very comprehensive
19 security plan. We follow that plan. I have been at
20 military establishments, and I know that the security
21 measures we have at the nuclear plants rivals most military
22 establishments I have seen.

23 It's an aggressive plan, and consistent with
24 everything you have said, Tad.

25 MR. MARSH: Thank you. We got several questions

1 from you for Consumers as a whole. Can I ask Mr. Fenech and
2 your staff to address those.

3 MR. FENECH: Yes. The first question is, despite
4 what Consumers Power says, nuclear power is not safe.
5 Chernobyl has demonstrated this very well. Why has this
6 company not explored a comprehensive plan to reduce
7 electric consumption and thus eliminate the need for this
8 plant and every other plant like it.

9 Consumers Power has in the past and will continue
10 in the future, to explore use reduction. We spent between
11 the years of 1991 and 1993 approximately \$100 million in
12 these types of programs. The Michigan Public Service
13 Commission recently approved the expenditure of some \$30
14 million a year toward the same use reduction.

15 Nevertheless, the growth of Michigan's economy and
16 electric usage is projected despite the efforts in
17 conservation to increase that approximately two percent a
18 year. We see an increase in these rather than a decrease.

19 The next question I will ask Tom Palmisano, the
20 Plant Manager, to answer.

21 How does Consumers Power explain the series of
22 mishaps and accidents resulting in serious violations of
23 state and federal law which have occurred continuously since
24 it was built. Why is it still in operation when it's clear
25 that it would never survive financially without the

1 corporate welfare of the Federal government.

2 MR. PALMISANO: With respect to the series of
3 mishaps and accidents resulting in serious violations of
4 state and Federal law, that's a good question. I know with
5 a lot of the events of the last 12 months or so some people
6 are legitimately concerned about what's been going on at
7 Palisades. We have tried to be very open and frank in some
8 of the public meetings last year.

9 We had the augmented inspection team and some of
10 the other meetings, and I am glad the one speaker commented
11 on our focus on safety tonight. We are listening to the
12 public.

13 A couple of comments. There are a number of
14 changes going on. We take safe operation of the plant very
15 seriously. I would like to emphasize that the NRC made it
16 clear in those meetings that they have criticized us for
17 events with a relatively low threshold before a safety
18 significant event could occur, and I think that made that
19 pretty clear. We have listened to them very intently and
20 listened to our own employees and have listened to the
21 public.

22 The performance at Palisades has not met our
23 expectation in recent times and that is changing. We are
24 striving to improve our performance. Never has the
25 operation of the plant presented a hazard to our employees

1 or to the public. There are events that we are not
2 satisfied with and we are taking measures to make sure they
3 don't occur again, but there have not been serious safety
4 violations per se that have ever put an employee or the
5 public at risk. I want to reassure you about that.

6 As far as continued operation and surviving
7 financially, the Palisades plant is an economically viable
8 plant. It's an important part of our generation mix at
9 Consumers Power Company. The whole issue corporate welfare
10 of the Federal government is one of these opinion type
11 statements that really isn't the purpose of tonight's
12 meeting.

13 I would really, just as the other speaker said,
14 not debate opinion. I am not going to open up a debate on
15 that type of opinion.

16 MR. ZWOLINSKI: Bob, if I could just amplify on
17 that for a second. As Tad in his opening comments alluded
18 to, the agency is performing a diagnostic evaluation team
19 and inspection at this plant. A rather comprehensive 18
20 person team has been out here for a total of three weeks.
21 They will be making a report on their findings next week.

22 When you take that activity which is quite
23 extensive for an agency to undertake, selected technical
24 issues, management changes including Mr. Fenech coming on
25 board and associated other senior management changes

1 including Mr. Palmisano's position, those organizational
2 challenges along with the technical issues are clearly
3 integrated in our thought. That's another reason why the
4 agency continues to be a presence at this site, to assure
5 that safe operation is always maintained, first and
6 foremost.

7 MR. FENECH: What will Consumers Power Company do
8 if the Federal government does not establish a national
9 nuclear dump site. The only solution is to shut Palisades
10 down until such a site is established.

11 We share the concern regarding a permanent storage
12 facility for high level nuclear waste. In fact, we are
13 working with the State Attorney General to put pressure on
14 the government to open a permanent facility. We are
15 confident that after listening to statements from Mrs.
16 O'Leary, that safe storage is in the future. We believe
17 that with the pressure that is being placed on the
18 government from the utilities as well as from the public, we
19 will end up with a facility in the near future.

20 AUDIENCE SPEAKER: That's the Mescalero's?

21 MR. ZWOLINSKI: Someone brought up the
22 Mescalero's. Again, because the government hasn't acted as
23 quickly as we would like in the area of storage, the
24 Mescalero's who are very concerned about the environment,
25 have studied this issue a great deal. They feel confident

1 that they could safely store high level waste on their land.

2 AUDIENCE SPEAKER: That's a lie.

3 MR. ZWOLINSKI: Let me add one comment about the
4 Mescalero's. We have been to their site and met with the
5 Chief and the council, along with 33 other utilities, all of
6 whom are very interested in establishing an additional
7 temporary storage site but nonetheless a single site rather
8 than multiple sites, which is where we may be headed on a
9 temporary basis. That is not acceptable to any of us in the
10 industry.

11 The comments you make is accurate, the Chieftains
12 are very clear to point out that they have not had a vote of
13 their people, but that the Council has been given the
14 authority to go forward with continuing study. We are
15 studying that with them.

16 AUDIENCE SPEAKER: They are being held hostage
17 with the threat of money and jobs, you know. Desperate
18 people take desperate actions.

19 MR. ZWOLINSKI: Once again we share your concern,
20 and we are working with the public and with the Attorney
21 General to put more pressure on the government. Based on
22 the words we hear and the actions we are starting to see
23 taking, we believe that movement is underway.

24 The next question I don't think is pertinent to
25 this meeting. Are there no women or people or color worthy

1 of contributing to the NRC or the Board of Consumers Power.
2 From the presence of 23 white men one would have to come to
3 the conclusion that there are not.

4 The last question I had was, how much has these
5 casks cost, who is paying for it, who will pay for their
6 eventual removal and transportation. If the consumer does
7 it, does it not make sense that the consumer play a role in
8 the future decision making of this plant. Would not the
9 most inexpensive choice be to shut the plant down.

10 Of course, the cost of the casks are incorporated
11 into our cost of doing business. We ask ourselves all the
12 time and have to report to our Board of Directors and our
13 Stockholders and go through the PSC, as to the cost of doing
14 business. If at any point it becomes clear that the cost of
15 running Palisades is not appropriate, we would certainly
16 consider an take action to shut the plant down.

17 MR. MARSH: Thank you, Mr. Fenech. I have one
18 last card. You have mentioned the term temporary or interim
19 storage several times in your discussions. What can we as
20 citizens do to move the government to create a site far away
21 from the water. Four hundred and sixty-five feet from the
22 water is nothing. We need all storage sites away from our
23 fresh water lakes.

24 I don't have a response to this. I guess this is
25 the Department of Energy concern, and we have discussed this

1 already. I don't have anymore that I can add to this.

2 AUDIENCE SPEAKER: I would like to start out by
3 saying that I do not consent to what's going on here. You
4 do a study, you do a report, the public has no opportunity
5 to review that prior. Yet, we come here and are supposed to
6 have informed questions on that. It should have been
7 distributed as a draft plenty of time ahead but it wasn't.

8 I don't believe in this manufactured consent. I
9 do not consent to what's going on here.

10 [Applause.]

11 AUDIENCE SPEAKER: Two years ago I was at the
12 Palisades plant nearby and went to the state park next door,
13 and some college students were up on the dunes. We asked
14 them, is there someplace we can go, a bluff that we can go
15 to, to see the lake. They said there used to be a bluff
16 over here but that is gone now. I have concerns there,
17 about the wind erosion and potential blow out as the Army
18 Corps of Engineers have suggested.

19 You mention that this is a heavy growth and
20 vegetation, very stable, elevation kept consistent. But all
21 the photographs I see are aerial views. I walked up to the
22 plant that fit these photographs. You can see by the
23 photographs that this dune that is sitting right next to
24 these casks is bare butt naked. The wind is going to come
25 in there and it's going to blow that sand right over this

1 barrier, this itty bitty barrier that's put in place to keep
2 that dune there. That's not going to work.

3 Regarding sabotage, I walked up to the fence and
4 took photographs and nobody was around. I have no
5 inclination of taking a bazooka or something along those
6 lines up there. But your safety and security is bullshit.

7 There is nothing preventing somebody from coming
8 in on a boat and taking a toe missile or what have you.
9 There are literally hundreds of these things floating in the
10 underground market. The CIA cannot find 300 of them. It is
11 a very much a potential problem, and you do need to take it
12 seriously.

13 Regarding sending it to the Mescalero's, it ain't
14 going to happen. Windocheno is a dictator, and he does not
15 have the support of his people. The State of New Mexico is
16 not going to have it. The Native Americans are not going to
17 have it. It just ain't going to happen. What you are going
18 to have here is interim temporary storage which the GAO says
19 is up to 140 years. That is not temporary. Make no mistake
20 about it, we are talking about a permanent high level
21 nuclear waste dump on the shores of Lake Michigan that is
22 subject to erosion of wind and soil and water, and I do not
23 consent to what's going on here today.

24 [Applause.]

25 MR. MARSH: Thank you for your comment.

1 AUDIENCE SPEAKER: Furthermore, I demand a public
2 hearing.

3 MR. MARSH: I don't have any further cards or any
4 other questions.

5 AUDIENCE SPEAKER: This year you said that there
6 were two casks loaded.

7 MR. MARSH: Yes, ma'am.

8 AUDIENCE SPEAKER: Next year, 11. Why the
9 increase. Where is it coming from?

10 MR. PALMISANO: We loaded two casks in 1993. We
11 will load another 11 casks in 1994, as we prepare to refuel
12 the reactor in 1995. We need the space in the spent fuel
13 pool, and the dry cask storage system was selected to allow
14 us to move fuel out of the spent fuel pool into dry cask
15 storage.

16 AUDIENCE SPEAKER: So, the reactor holds 11 casks
17 full of fuel rods?

18 MR. PALMISANO: Approximately to off load all the
19 fuel for the upcoming fuel outage, that's correct.

20 AUDIENCE SPEAKER: Wait a minute. You've got a
21 reactor and you are going to reload it this year, right?

22 MR. PALMISANO: In 1995.

23 AUDIENCE SPEAKER: You are getting all the rods
24 out and putting it in the cask, and that fills up 11 casks.

25 MR. PALMISANO: The equivalent of 11 casks, that's

1 right.

2 AUDIENCE SPEAKER: How often do you refuel?

3 MR. PALMISANO: About every 15 to 18 months.

4 AUDIENCE SPEAKER: So, how many -- 15 to 18
5 months. That means you are going to have 11 new casks every
6 year or every two years?

7 MR. PALMISANO: No. In 1995 we will take all of
8 the fuel out of the reactor to do maintenance. Two-thirds
9 of the fuel goes back in. Loading 11 casks is an unusual
10 amount for this period. After that there will not be nearly
11 that many loaded.

12 AUDIENCE SPEAKER: The fuel goes back, where?

13 MR. PALMISANO: Into the reactor.

14 AUDIENCE SPEAKER: You reuse it? You put it into
15 the cask and take it out of the cask and put it back in the
16 reactor?

17 MR. PALMISANO: No. Fuel out of the reactor goes
18 into the spent fuel pool, to provide enough space to take
19 all of the fuel out of the reactor in 1995. I will take old
20 fuel, decay fuel, out of the spent fuel pool and put it into
21 11 casks. It will stay in 11 casks. Then I will refuel the
22 reactor and will take two-thirds of the fuel back into the
23 reactor and continue operating the plant.

24 Loading 11 casks is an unusual number just for
25 this year.

1 AUDIENCE SPEAKER: It doesn't make sense to me.
2 You explain it so I can understand it.

3 MR. PALMISANO: I will explain it after the
4 meeting is over.

5 AUDIENCE SPEAKER: Another thing, you mentioned
6 earthquakes which there are faults in Michigan. There are
7 faults throughout this area. People have predicted when
8 California has the big one that it's going to affect the
9 Midwest. They have predicted -- geologists, modern
10 psychics, modern geologists -- the flow of the lakes is
11 going to fall all the way into Lake Michigan, which would
12 wipe right over where the casks are now and flow down the
13 Mississippi.

14 Whether or not that is right and whether the
15 predictions will happen or not, those are predictions. What
16 I am trying to say is, you know, you don't know. You can
17 make charts but you don't know what's going to happen. You
18 don't know how big a tornado is going to be. You don't know
19 a lot of things, you know. You can make charts and you can
20 try to make us feel safe. But there's a lot of things you
21 don't know.

22 In the Bible it says, you know, the foolish man
23 builds his house on sand.

24 [Applause]

25 AUDIENCE SPEAKER: Then, the winds come and they

1 wash the sand away. This is so poetic, because you are
2 building this on sand. It's not just these dry casks, it's
3 the whole industry. You are building our future on sand.
4 When the winds come and the rains come, whenever that is, a
5 terrorist, and earthquake, a flood, you know, that -- what
6 do you call it -- liquidification --

7 MR. PALMISANO: Liquefaction.

8 AUDIENCE SPEAKER: You said that it's more like
9 water, reacts like water. That's quicksand, you know,
10 quicksand on a pad, okay. When it happens, you know, you
11 don't know. With this nuclear industry, the whole industry
12 is sucking money out of the poor consumers, who see their
13 bills shoot up every month. I am one of them. I pay you
14 guys. I pay you guys with this big threat over my head just
15 because I am on electricity, unfortunately.

16 You are funneling your energies into this industry
17 that is not productive, life threatening, it's going to
18 cause more problems in the future. You could take your
19 brain and you could take your talents and whatever you don't
20 know, you could research with all the bright young kids in
21 college and people with alternative energies, and you could
22 set up systems with your energies instead of trying to save
23 a sinking ship. You could set up systems on rock which would
24 not hurt people in the future.

25 You know, you could make a turnaround. It's not

1 too late for that. Instead, you are spending all your time
2 on these charts and everything to try and cover up and make
3 people feel safe but it isn't working. I think you can see
4 that. I think you can see that we have real concerns.

5 A lot of these concerns haven't even been addressed
6 such as freezing and thawing, you know, that's not all that
7 thick, that concrete. Somebody with a hanglider could go
8 overhead and drop a bomb. I mean, somebody in a little
9 plane -- what are you going to do, shoot down all the planes
10 in the sky. I mean, you know, you can't protect it.

11 To me, I mean, you might as well draw x's on top
12 of all the casks. They look like targets. They sit there
13 out in the open. I mean, you know, what is it. If somebody
14 does terrorize you guys and hits those casks which I hope
15 never happens but could, I mean, think of all the people
16 that are going to be suffering for how many thousands of
17 years.

18 It's not something to smile about, it really
19 isn't, you know. You think about this country, America, this
20 is supposed to be a place where the people are the
21 government. We are supposed to have a say. We are supposed
22 to be free. How free are our children going to be if the
23 whole thing blows, you know. It's not something to smile
24 about.

25 [Applause.]

1 AUDIENCE SPEAKER: I live on the shoreline of Lake
2 Michigan, between the Palisades plant and Cooke plant. I
3 have lived there for 34 years. I am also a member of the
4 Board of Directors of the Lake Michigan Federation and have
5 been for eight years.

6 A couple of comments, and a couple of questions.
7 In the 34 years I have lived on Lake Michigan, I have lost
8 160 feet of beach. That 500 feet doesn't impress me very
9 much. The gentleman spoke on security. He is certainly
10 correct. You cannot protect your plant against a terrorist
11 Other than navy special workers unit 50 years ago the
12 equipment we had could have wiped you out. The terrorists
13 have the best equipment that's available.

14 My question is to the people from Consumers Power.
15 Why aren't you publicly and loudly raising hell with the NRC
16 to get rid of your waste storage problem. Your plant in
17 1971 was expected to store for only five years, and it's up
18 to 20. I have heard your PR people talk about another 15 or
19 20 years to solve the problems. Why aren't you raising hell
20 with the government to get rid of your problem instead of
21 storing it on the lands. You wouldn't have this hearing.

22 To the NRC, is it a truly political problem that
23 you can't use the sites out West. You own the land, you
24 made the studies, why can't you move the waste out there, or
25 are the safety concerns of the people in Arizona valid. If

1 so, they are certainly far more valid for those of us who
2 live on the shore of Lake Michigan. I would like to hear an
3 answer from Consumers and I would like to hear an answer
4 from you people. Thank you.

5 MR. FENECH: We share your concern, and it's a
6 valid one. We are raising hell with the government. We
7 have sent letters, we have worked with the Attorney General.

8 AUDIENCE SPEAKER: Stop faking it --

9 AUDIENCE SPEAKER: Let him answer my question.

10 MR. FENECH: We are pursuing the path that you
11 just described. We agree. Up until recently we were
12 assured that the storage facility would be available --

13 AUDIENCE SPEAKER: Bullshit.

14 MR. FENECH: We went on that assumption, based on
15 the guarantee of the government.

16 MR. MARSH: With respect to the Department of
17 Energy and the State of Nevada, let me ask Mr. Charlie
18 Haughney answer your questions about that site.

19 MR. HAUGHNEY: I need to ask a brief
20 clarification. Was the Western site you were referring to
21 the proposed venture with the Mescalero Apaches in Arizona
22 or is it the Department of Energy in Nevada.

23 AUDIENCE SPEAKER: Department of Energy site, sir.

24 MR. HAUGHNEY: Thank you. That site, it is
25 Federal property. As I recall, it's in the pre-application

1 stages where the Department of Energy will come to us as a
2 prospective licensee. I have to be honest and tell you my
3 own view is, a lot of the problems there are political, not
4 entirely but they are political, with a lot of opposition
5 from the local citizens and state officials in that region.

6 It's very rigorous and well developed opposition,
7 with some very bright people working on it. For a number of
8 years they succeeded in stopping the Department from even
9 drilling a fuel exploratory hole into the underground
10 geologic medium. That restriction has been lifted, and the
11 Department is now boring into the rock, in fact, in one
12 instance, with a large tunnel boring machine.

13 I will give you my own view on this matter. I
14 think it's a matter of national will to make the repository
15 work. We, and I mean not just the technical people, the
16 nation have been talking about a repository since the
17 1950's. We don't have one as yet. We have one in the very
18 early stages of gathering data to begin to write a license
19 application but it's not there yet.

20 It seems that every place that comes up as a
21 potential site the opposition is quite vigorous. Yet, we
22 have material that has been created over these decades up
23 until this date, and it needs to be disposed of. Our policy
24 is to dispose of it underground. We are working on it with
25 starts.

1 What I will say at least to date is not
2 satisfactory progress for people like us here in this room,
3 all of us. The potential technical problems haven't been
4 fully explored. It's possible that site in the exploratory
5 phase could get rejected for technical reasons, all the more
6 reason to get on with it. If it proves unsuitable from a
7 technical standpoint then there has to be another place. To
8 stop the process with excavation permits and all this sort
9 of thing is avoiding the issue of getting on with the
10 technical questions.

11 The site, there's a limit in the Nuclear Waste
12 Policy Act on the amount of material in tons that can be
13 placed in there. That limit is such that it would not be
14 able to handle all the civilian and military high level
15 waste. That limit is in there without any technical basis,
16 but it's a statutory provision.

17 Let's assume for a moment that the mountain is
18 large enough to hold all of the waste, let's take that as an
19 assumption, technically large enough. If it is, then
20 Congress would have to decide whether or not they wanted to
21 amend the Act to permit the licensing to allow all the waste
22 to be placed in there or they we would have to find another
23 site.

24 In a sense that cap is in there to tell the people
25 in the West that there will be another site sometime.

1 AUDIENCE SPEAKER: If we have these sites that are
2 repositories and waste and temporary storage and then
3 there's waste in pools and others, would that be the first
4 step. Would it still be considered that's okay because
5 there's a --

6 MR. HAUGHNEY: There's a complicated arrangement
7 that's called a Que. Literally, that's what it is. It's
8 turns that each plant has to shift to the repository or a
9 surface storage facility that's sometimes called an MRS,
10 monitored retrievable storage. There's none of those
11 either.

12 Conceptually and procedurally, there could be one.
13 There is a que. Perhaps the plant would mention where they
14 fit in that que. There is a DOE regulation that describes
15 that and how positions can be changed, traded between
16 utilities to move fuel. In a sense, it doesn't really make
17 much difference. The idea is to get it offsite. Whether
18 it's been in a dry storage cask or in a pool at Palisades or
19 wherever it happens to be, it doesn't really matter in
20 terms of that goal of getting it offsite. That is not an
21 issue.

22 The fact is, it needs to go to the Federal
23 repository. All of it does.

24 AUDIENCE SPEAKER: How is the waste moved?

25 MR. HAUGHNEY: It has to go in a certified

1 transportation cask. Dr. Sinclair was absolutely correct,
2 these storage casks at this time are not certified for
3 shipment by rail. They are not a certified transportation
4 package. There are some in existence, a few of them, and
5 they are rather small. There aren't very many. There are a
6 number of designs that we are just now receiving from the
7 department in terms of applications to review.

8 AUDIENCE SPEAKER: Why aren't you using those?

9 MR. HAUGHNEY: The smaller ones?

10 AUDIENCE SPEAKER: Yes.

11 MR. HAUGHNEY: Where are you going to send it?

12 AUDIENCE SPEAKER: Yucca Mountain.

13 MR. HAUGHNEY: Yucca Mountain isn't licensed to
14 receive high level waste.

15 AUDIENCE SPEAKER: Stop making it.

16 MR. HAUGHNEY: Even if we are stopped you still
17 have all the existing waste. The real problem is to get a
18 site for permanent disposal, and we don't have one. That's
19 a long story, but I have tried to summarize it.

20 MR. MARSH: Before we go on to another question,
21 did you want a response from the licensee as to where they
22 are in the cue?

23 AUDIENCE SPEAKER: No. I guess I was wondering
24 technically and politically we, in the Great Lakes have
25 waste in some type of confined storage. Is there others in

1 the country that would be first in line to get the national
2 repository -- there are other ways to send spent fuel. It's
3 easier to transport. You have not addressed how you are
4 going to get the waste out and how you are going to
5 transport it.

6 AUDIENCE SPEAKER: They don't know.

7 AUDIENCE SPEAKER: And, deal with it.

8 MR. MARSH: I think we don't know the answer to
9 that. I think that's sort of where we are.

10 AUDIENCE SPEAKER: Why don't you find out.

11 MR. MARSH: Yes, sir, we understand.

12 AUDIENCE SPEAKER: I have several questions here.
13 First of all, I would like to say that one thing that has
14 not been discussed here is how dangerous this stuff is and
15 how lethal it is, and that is why people have rejected sites
16 across the United States including the State of Michigan is,
17 this stuff kills people. And, you have to keep it isolated
18 from the food chain, from the very food that we eat, from
19 the very air that we breath, from the water that we drink
20 for hundreds of thousands of years.

21 We have no container that will do that. Even if
22 you put it under the ground, when that container breaks and
23 it will break, there is no container that we have that will
24 last that long. One trillionth of a gram of plutonium makes
25 cancer in rats 100 percent of the time. When that gets into

1 our water supply -- and it has already gotten into lots of
2 water supplies across the United States. It's not just
3 something that we theorize about. It's something that is
4 already happening from industry, from the nuclear power
5 plants from leaks.

6 Up in Big Rock which Consumers Power also owns,
7 they have a couple of plutonium plume that is headed toward
8 the lake. There are routine releases by all the power
9 plants throughout the United States into the air and into
10 the water. That happens routinely. Many of those
11 concentrate in the food chain just like DDT, and they
12 concentrate tens of thousands of times down low in the food
13 chain. By the time it gets to the people or birds we are
14 talking about dead babies and birth defects if you are
15 exposed to it.

16 You know what the International Joint Commission
17 for the Great Lakes for the United States and Canada has
18 said in this last meeting that they had, they said that they
19 recommended to both governments that they phase out all
20 radionuclides that have a half life longer than eight weeks.
21 Where does that put the nuclear power plants. Why would
22 they say that if they did not feel that our health and our
23 safety was not in danger.

24 MR. MARSH: I guess I can't respond to that
25 question and I am not sure the staff can, not knowing the

1 details of the study and what the assumptions were, and what
2 they did and how they did it.

3 AUDIENCE SPEAKER: I think maybe you better start
4 doing some reading. Maybe we should supply you with lists
5 of books and lists of authors and lists of lists.
6 Obviously, we are not reading the same things.

7 There are some other things, too. You are talking
8 about use reduction and all the money that Consumers Power
9 spent on use reduction. I might remind the audience and
10 Consumers that the only reason that you did that was because
11 the Michigan Public Service Commission, they required you to
12 do that. You took them to Court and you lost.

13 That could change. The reason why that happens
14 today is because first of all, nuclear costs are not figured
15 in whole cost accounting. When we talk about the bill that
16 the ratepayers get, that does not include all the costs of
17 the nuclear industry. That is absorbed by the U.S.
18 taxpayer. Well, guess who is the U.S. taxpayer. It's us.
19 We can change the way the rates are rigged, and you can help
20 in that process. You have lots of money. You have lots of
21 talent.

22 As people have pointed out here tonight, you can
23 help change it so -- the way the rates are rigged in
24 Michigan as in most states right now, the only way utilities
25 get more money is by selling more electricity. There is no

1 effort to conserve because nobody makes any money that way.
2 Change the way the rates are rigged. There are some people
3 who have done dynamite studies on how to change the way the
4 rates are rigged, where everybody wins, not just the
5 utilities but everybody wins.

6 Ann Marie Lovens who is going to be in the State
7 of Michigan in August -- or go to the Great Lakes Energy
8 Fair up in Travers City. Travers City Power and Light is
9 building wind or looking at building wind, I will say that.
10 Two new utilities are building wind. The two, Northern
11 States Power which is also attempting to build casks --
12 maybe I should say -- they are building wind. They are
13 building it on a site where the Union of Concerned
14 Scientists said they could get 100 percent of Minnesota's
15 electricity from.

16 WEPCO in Wisconsin, who is also attempting to
17 build casks, and also running into much public opposition.
18 They also are building wind.

19 How is it, when Michigan -- when Consumers Power
20 filed their last integrated resource plan they said wind is
21 impossible. Solar is impossible for any big utility. How
22 is it that these two other big utilities are building wind
23 power.

24 There were a couple of things here. One was,
25 today were at the plant, Mike Martin and I. We had quite a

1 long talk with Mr. McKee from your plant. He assured me
2 that you were wide open to the public. In that assurance, I
3 would like to ask a few questions.

4 In March or April the Herald ran an article that
5 referred to a study done on the storage pad. Well, none of
6 us had ever heard of that study. I called up Consumers
7 Power and I asked Mark Savage if we could have a copy of
8 that study. He said, sure, I will put it in the mail for
9 you. He gave me the numbers off that study which I have at
10 my house -- I don't have it here -- I don't recognize those
11 numbers at all. They weren't any NRC numbers that we had
12 ever seen before.

13 I called him up -- he sends me a letter that said
14 we couldn't have that study. You know what, there were four
15 numbers following that study. It was some letters and four
16 different numbers. Obviously, there is a whole bunch of
17 studies that are not available to the public. I called the
18 NRC and they said no, we can't help you. We have seen that
19 study but we can't get you that study because it's not in
20 the NRC document.

21 That means that there's a whole realm of studies
22 that is not open to the public. I would challenge you to
23 open your books and let the public in, if you really believe
24 that you are being open to the public.

25 MR. MARSH: Can I just make sure that we

1 understand what the report was. Can you, again, describe
2 the report. I want to make sure the transcript gets this.

3 AUDIENCE SPEAKER: It was on the storage pad. I
4 don't have the name of it here today. I don't have the
5 numbers.

6 MR. MARSH: Would you mind getting me that
7 information? I would just like to know what it is that is
8 at issue.

9 AUDIENCE SPEAKER: What is your name?

10 MR. MARSH: Tad Marsh. I am the Project Director
11 for Palisades.

12 AUDIENCE SPEAKER: One question that I had was, it
13 was assured to us that rods that were known to be leaking -
14 - known to be leaking -- would not be put into the casks.
15 This is a letter from Kay Dry. There were comments to the
16 NRC on the Code of Federal Regulations on the ISFSI's on
17 licensing requirements.

18 In here she's talking about -- one other thing.
19 You are talking about defense in depth and you are talking
20 about fuel cladding. We would like to tell the audience
21 that fuel cladding is only one, two-hundredths of an inch
22 thick. Not only have I read that but I have seen that
23 documented in the actual fuel at Palisades.

24 Let's see -- give me a second. One question that
25 I have is about helium leaks. There is a number that was

1 given for helium leaks, and we figured that out to be maybe.
2 about three liters a year. First of all, if helium can leak
3 out what can leak in. Second of all, if the helium does
4 leak out, what effect does that have on the casks. Maybe
5 somebody could answer that.

6 MR. HAUGHNEY: The helium is inside the double
7 seal welded steel canister, and it's in contact with the
8 outside of the cladding. It's placed in there as part of
9 the loading process. The fuel is dried and then it's
10 evacuated and backfilled with helium. It's about one
11 atmosphere pressure.

12 There is a technical specification on the helium
13 leak rate, and that is designed such that if it leaks at
14 that rate for the 20 year life of the approval of the
15 certificate that you still will not lose enough helium that
16 you will have any back transfer of air which would contain
17 oxygen. That's the concern that Ms. Hafner is asking about.
18 The oxygen over long periods of time would tend to produce
19 greater weights of corrosion on the cladding than helium,
20 which is an inert gas.

21 The second reason that helium is put in there is,
22 as a gas it's a relatively good conductor of heat, to remove
23 the heat from the spent fuel and out towards the outer
24 surfaces of the cask.

25 AUDIENCE SPEAKER: So, what would happen if the

1 helium leaks out?

2 MR. HAUGHNEY: Well, based on the specification
3 leak rate, nothing.

4 AUDIENCE SPEAKER: What happens if water leaks in?

5 MR. HAUGHNEY: How is water going to leak in to
6 the double sealed welded canister.

7 AUDIENCE SPEAKER: How is helium going to leak
8 out?

9 MR. MARSH: I think what he's saying is that the
10 system is pressurized inside. It's pressurized. If there
11 is a leak out, nothing can leak in until that pressure is
12 gone. Then, there could be leakage in. There's a
13 specification on how big a leak that can be, and that's
14 checked.

15 AUDIENCE SPEAKER: I guess the biggest thing that
16 I don't understand is, why do you continue to make lethal
17 waste when there is no place to put it. Even if there was a
18 place to put it, the thing is that we are willing to poison
19 other people's children. If we are going to send it
20 somewhere else we are going to poison some other part of the
21 earth.

22 If we are willing to poison other people's
23 children how can people live in good conscience making this
24 stuff, making more of it. What we need to do is what the
25 Nuclear Guardianship Project says, we need to guard every

1 inch of that that's already made. We need to make sure that
2 it doesn't leak out. We should quit making it, because we
3 have condemned every generation following us to guarding
4 this waste and watching it, every generation following us.
5 That's not a good situation.

6 Kay Dry is saying here that it seems to me the
7 only way a nuclear power plant licensee would be able to
8 confirm accurately the presence of absence of pinhole leaks,
9 cracks, swelling, defective welds or other flaws in the
10 cladding of each of the fuel rods in the spent fuel pool
11 before they put them in casks is, they would have to do a
12 through inspection performed of each rod in each irradiated
13 core at a hot cell laboratory.

14 The cost of such a project, however, in dollars,
15 times and workers' radiation exposure is incalculable. It
16 says that even assuming that ultrasonic scanning systems
17 were available and were technologically feasible for the
18 inspection of all the individual fuel rods, the following
19 example demonstrates that the cost of rod by rod inspection
20 would indeed be prohibitive.

21 According to an article in the October 1982 EG&G
22 Monitor it took about five minutes to scan the cladding of a
23 single four foot long fuel plate a few inches wide. Because
24 of extraordinary high radiation fields surrounding
25 irradiated reactor fuel rods all transducers and scanning

1 mechanisms would no doubt have to be operated by remote
2 control. Surely, not hot cell laboratories, trained
3 personnel or funds exist in the entire nation to even
4 contemplate such a massive inspection project.

5 We are talking about most reactors are looking at
6 higher fuel burn up, so we are talking about fuel that is
7 much more fragile and susceptible to problems.

8 The other question that I had -- yeah, you did say
9 that, that you would not put any fuel into the casks that
10 had known fuel leaks. What did you mean by known. That
11 means if you don't know about it, it's not known? How do
12 you test for that?

13 MR. PALMISANO: By known fuel leaks, the cask
14 design requires a visual examination. We go beyond that.
15 The two casks we loaded last week --

16 AUDIENCE SPEAKER: We can't hear you.

17 MR. PALMISANO: The certificate for the cask
18 design requires a visual inspection for fuel defects. For
19 the two casks we loaded in 1993, we selected fuel that we
20 had previously inspected by a technique we call sipping, to
21 ensure there were no defects. For the casks we are
22 preparing to load, I think your article from 1982 is dated.
23 Ultrasonic exams are possible and cost effective. We have
24 ultrasonically examined all the fuel that will go in the
25 casks for 1994, to ensure there are no defects.

1 AUDIENCE SPEAKER: Did you do that to the fuel
2 that was loaded in the first cask, rod by rod?

3 MR. PALMISANO: They were inspected by a technique
4 called sipping, which was previously used to determine any
5 fuel leaks. The cask we have loaded and the cask we intend
6 to load, we have checked the fuel to ensure there are no
7 known defects.

8 AUDIENCE SPEAKER: I don't believe that.

9 MR. PALMISANO: Kay, we did that. You may not
10 accept that, but --

11 AUDIENCE SPEAKER: I did not call you by your
12 first name. What is your first name?

13 MR. PALMISANO: My name is Tom.

14 AUDIENCE SPEAKER: That's good to know, Tom.

15 MR. PALMISANO: We have met before.

16 AUDIENCE SPEAKER: I really resent being called by
17 my first name, when we had the courtesy to call all of you
18 by your last names. We don't come up here and be familiar
19 with you, and I really resent your being familiar with us,
20 without asking us first.

21 MR. PALMISANO: I apologize then, that was my
22 mistake.

23 AUDIENCE SPEAKER: Thank you.

24 MR. PALMISANO: We did inspect the fuel. I
25 understand, you may not agree with the results, but we did

1 inspect the fuel.

2 AUDIENCE SPEAKER: What does that mean,
3 inspecting, in the first place. In the second place, what
4 does it mean when you are running fuel there through -- you
5 ran fuel through five times, five cycles. I grant you that
6 the stuff that's loaded now did not run five cycles.
7 Frankly, you have had leaking fuel in the past and that was
8 well noticed in your other document.

9 When you've got some leaking fuel rods how do you
10 know that they are not going to break down inside the casks
11 five years from now, ten years from now?

12 MR. PALMISANO: As I said, we inspected the fuel
13 loaded last year by a technique called sipping, to verify
14 there were no defects. The fuel that we are going to be
15 loading this year was inspected by ultrasonic techniques,
16 which are available now. We did inspect the fuel. I will
17 be glad to discuss it with you afterwards in more detail.

18 AUDIENCE SPEAKER: No. There's not much dialogue
19 here. I think the reason being, you really do not listen to
20 what we have to say. I think -- you know, there needs to be
21 big change. This is the first meeting we have had
22 microphones that worked, that people used from the NRC and
23 Consumers Power. That says a lot. This is the first night
24 meeting that we have ever had in my memory, and that -- but
25 you guys are paid to be here, whereas we are not.

1 I mean, we don't -- it's not fair. That's all I
2 have to say.

3 AUDIENCE SPEAKER: I just got a quick question.
4 This hasn't been addressed. You know, on Lake Michigan the
5 sun reflects off the water and it reflects off the sand. It
6 gets so hot that you can't walk on the asphalt or the
7 concrete. What about a meltdown. There's no real cooling
8 systems on those. They are passive. This really is going to
9 get hot there. It's really going to be hot.

10 What about it?

11 MR. MARSH: The basic principle as you know, is
12 the natural flow of air up through the bottom of the cask
13 and out through the top of the cask. That's the natural
14 flow.

15 AUDIENCE SPEAKER: What if it heats up, the
16 natural flow of air is going to be real hot.

17 MR. MARSH: It will be hotter air, you are
18 absolutely right. I think the specifications for casks
19 cover the whole range of air temperatures there could be on
20 the hottest possible day. On the hottest possible
21 environment there should be no problem.

22 AUDIENCE SPEAKER: Has that been tested on Lake
23 Michigan for that?

24 MR. MARSH: I don't believe that they tested for
25 that.

1 AUDIENCE SPEAKER: When they put in those fuel
2 rods into those casks when they are reloading, those are
3 going to be not spent fuel. Those are going to be active
4 fuel rods. What about them? Couldn't there be a meltdown
5 when they are doing that kind of stuff?

6 MR. HAUGHNEY: The loading is done underwater in
7 the pool.

8 AUDIENCE SPEAKER: They said they were going to
9 use the 11 casks for the loading and then they were going to
10 put it back in.

11 MR. HAUGHNEY: No. I think what the plant manager
12 was referring to was the fact that they had to make room in
13 the fuel pool to completely offload the core in order to do
14 maintenance inside the reactor vessel. They couldn't leave
15 anything inside the reactor vessel. To make that room they
16 are basically going to load about 11 dry storage casks, and
17 then they will have the room in the pool.

18 AUDIENCE SPEAKER: I just honestly think that it
19 gets really hot. I mean, that's a real hot place. I
20 honestly think that you are playing with fire.

21 MR. HAUGHNEY: The design of this cask includes
22 the effects of so-called solar insolation, or the input of
23 heat from the sun under a variety of conditions including a
24 day where the average temperature night and day is 100
25 degrees fahrenheit. That's average.

1 AUDIENCE SPEAKER: That's nothing, compared to
2 what it could get there.

3 MR. HAUGHNEY: Then, an extreme day of 125
4 degrees, without any shade.

5 AUDIENCE SPEAKER: I think it gets hotter than
6 that on the sand.

7 MR. HAUGHNEY: That's the air temperature, not the
8 temperature if you touch blacktop.

9 AUDIENCE SPEAKER: You see, you have those in
10 concrete. That concrete is going to heat up. That's going
11 to get real hot.

12 MR. HAUGHNEY: That's all part of the analysis.

13 MR. MARSH: We haven't convinced you. Why don't
14 we look again at what you are saying --

15 AUDIENCE SPEAKER: I don't think you have tested
16 them. Like we said, they are not tested. It's an
17 experiment. It's a nuclear experiment. We are concerned
18 about it.

19 MR. FENECH: Tad, I think maybe we confused her a
20 little bit on this off loading fuel into the storage area.
21 We have storage onsite that we used initially and have used
22 up until now that's called wet storage in our spent fuel
23 pool. During this year we are going to offload enough fuel
24 from that spent fuel pool -- it's all spent fuel -- into
25 casks, to be able to completely off load the reactor with

1 more active fuel, in your words.

2 The fuel that comes out of the reactor will go
3 back into the reactor, except that portion which is about
4 one-third that's completely spent. Whatever goes into the
5 cask now or in the future will have decay, will be spent
6 fuel that will have decayed at least five years. Nothing is
7 going right from the reactor into the dry cask storage.

8 AUDIENCE SPEAKER: I had a couple of more
9 questions, real briefly. One was, you know, you were
10 talking about answering our questions. There was -- last
11 year during the Federal Register process when the
12 certificate of compliance was out there, we had a bunch of
13 questions that were never answered by the NRC. When it came
14 out in print there was a whole bunch of questions that were
15 just deleted.

16 The other thing is, the whole process has stunk.
17 There was a time where we had 2,000 pages of information on
18 the casks given to us but you know, how it was given, it was
19 given, actually we didn't even have it. We didn't have it
20 accessible to us. I think we got it 12 days before the
21 public comment period ended, where we finally had it
22 accessible to us because most of it was -- there was a whole
23 bunch of pages that were illegible, so we had to ship back
24 and they had to -- actually, we got it from a Senator,
25 that's how we got the pages.

1 It was 2,000 pages to read in -- highly technical.
2 jargon to read in 12 days and comment on, and that was crap.
3 The other thing is, if you are so open to the public then
4 give us public hearings. If you are so open to the public,
5 give us public hearings. You are talking about a final
6 safety analysis report -- a final safety analysis report
7 should have been done before the cask was used.

8 The certificate of compliance should have been out
9 there before the cask was used. Now in Arkansas, you are
10 asking the same process, exempt them from the certificate of
11 compliance before the cask is built. It doesn't make much
12 sense.

13 She brought up a very good question, about heating
14 up. That is, the concrete is very easily for somebody to
15 destroy with a bomb or with any kind of mild explosive they
16 could do that. If that was broken off there then the
17 radiation fields that surround that cask would be pretty
18 darn high, and it would be real hard to get a crew in there
19 to do repairs. That's something that has not been
20 addressed.

21 MR. MARSH: Ladies and gentlemen, we are going to
22 lose the room soon. Can I ask for you to summarize your
23 questions quickly, please.

24 AUDIENCE SPEAKER: My name is Mike Paul Hanich,
25 and I live here in Benton Township next to the college and

1 am also a former employee of the Cooke Plant. The only
2 concern I have is on the casks. I don't know who can answer
3 this. I see seepage of liquids through concrete. I have
4 seen it personally with oil, at the Cooke Plant.

5 Now, what about with the dry casks, is there going
6 to be underground seepage. Can you give us some of the
7 dimensions of the cask, how thick is the concrete and can
8 water penetrate.

9 MR. MARSH: In response to that earlier in the
10 presentation there was a gentleman who showed the design of
11 the cask in terms of the sealed stainless steel container,
12 which is the interior of the concrete. That's a sealed
13 welded confinement capsule. There should be no leakage
14 outside that boundary.

15 MR. ZWOLINSKI: I would like to embellish on that
16 just for your edification. The licensee does have a
17 surveillance program in which they are on the cask site at
18 least three times a shift, looking for any abnormalities.
19 That would be in our understanding, quite remote. However,
20 the site security force in its rounds and operators on their
21 rounds are indeed tasked with looking at abnormalities. I
22 would consider that a significant one.

23 MR. FENECH: Mr. Zwolinski, I think you have
24 misstated what you meant. We do it three times a day, once
25 per shift.

1 MR. ZWOLINSKI: Thank you.

2 AUDIENCE SPEAKER: I would like to ask Consumers
3 Power Company this. Our lawyers told us that your lawyers
4 pledged to the U.S. Court of Appeals that you would be
5 prepared to put the waste that you put in the two casks back
6 into the spent fuel pool in the event that the Court ruled
7 against you. Now, there is so much information that has
8 come out and now is getting put before the Court, I think
9 it's very presumptuous of you to say you are going to load
10 another 11 casks this year when you have already pledged to
11 the Court that you were going to return the waste that is in
12 the cask already.

13 Are you prepared to return the waste as you
14 pledged to the Court, in the event that you lose the
15 lawsuit?

16 MR. FENECH: I think you are referring to a pledge
17 to the Court -- the way I recall reading the transcript --
18 at the time that was discussed we were asked whether we
19 could put the fuel back into the spent fuel pool, and the
20 answer was yes, at that time. It's still feasible. Whether
21 it's the right thing to do would have to be evaluated on its
22 own merit a this time.

23 AUDIENCE SPEAKER: However, you pledged that to
24 the Court when the Court was considering an injunction that
25 we had asked for, to halt the loading of the casks until the

1 issues that we had raised in the lawsuit were reviewed by
2 the Court. We have to believe that you probably
3 misrepresented yourself and what you can do to the Court if
4 you are saying now that it would have to be evaluated. You
5 should not have made that pledge unless you knew you could
6 do it.

7 MR. FENECH: I don't believe that we have made the
8 pledge.

9 AUDIENCE SPEAKER: We can look at the transcript.
10 Our lawyers, as you said, you read the transcript as our
11 lawyers did too, and that's what our lawyers told us when
12 the injunction was not granted. I think it's very
13 presumptuous for you to go ahead and say you are going to go
14 ahead and load 11 more since we are still in the Court with
15 this before you.

16 Then, I would like to say that everybody is
17 looking for a hole in the ground to bury this waste, but as
18 part of my studies at the university I interviewed Walter J.
19 McCarthy. At that point he was chief executive officer of
20 the FERMI-II plant. He said during that interview, he said
21 we should stop looking for a hole in the ground to put this
22 waste and try to forget about it. He said, this has to be
23 an above ground retrievable storage and we have to watch
24 this stuff every minute. We can never lose track of it.

25 Yucca Mountain is just an exercise in trying to

1 find a hole in the ground, you can forget about it. It's
2 just not going to work. Walter McCarthy is an engineer, has
3 been head of the project at the FERMI-II plant, and this was
4 his judgment, that we have to have it above ground and watch
5 it every minute. That's a direction that you should be
6 thinking about.

7 Then, you claim that there's no problem with
8 corrosion. I read two reports where corrosion is
9 intensified because of radiation in a wet climate. That's
10 what you have on the shore of Lake Michigan. Also, there
11 was another report that said that if there's corrosion
12 between the metal basket and the metal liner of the cask,
13 that you can never take that waste out, even if the cask now
14 functioned or whatever. You simply don't have the kinds of
15 equipment that can take it out.

16 We have asked questions about the tiles at the
17 bottom of the cask on which you are going to rest the metal
18 basket. We have asked how you check those tiles for their
19 strength. We have tried for a long time to get some answer
20 as to how those tiles are tested because if those tiles
21 crack the chance for corrosion is just that much greater.

22 The only report that we got was that they had
23 calculated the strength of these tiles based on a 200 pound
24 woman in two inch high heels, standing on them. I have this
25 right here. This is the only thing we had. To me, this is

1 so unprofessional. I can't believe that you are letting
2 something like this stand as a specification for something
3 as critical as that. I would like a response to that. I
4 mean, who is this 200 pound woman in two inch high heels, I
5 would like to see her.

6 MR. FENECH: I am afraid we will have to get some
7 of the data. We will be happy to respond to you, but it
8 will have to be after this meeting.

9 AUDIENCE SPEAKER: I hope you do, and I hope it's
10 a little more professional than this.

11 MR. FENECH: I would like to turn the microphone
12 over to John Zwolinski for summary comments.

13 AUDIENCE SPEAKER: I would like to know, some of
14 my questions have not been answered. I would like to know
15 whether they will be answered. What would be -- if the
16 concrete was broken around the cask what would be the
17 radiation field in there.

18 MR. ZWOLINSKI: Thank you for your question. In
19 fact, that leads into my summary comments. Obviously, the
20 forum tonight was a little bit different than you have
21 experienced in the past. The agency attempted to bring the
22 public into the forum. Perhaps in your mind we didn't
23 succeed to the extent I thought we were attempting or trying
24 to. Let me assure you, that the meeting is transcribed.
25 We will revisit the transcription and certainly address any

1 and all concerns that were raised in the transcription and
2 disposition those in the final safety evaluation report.

3 There is also going to be another report issued,
4 and that's one of this meeting itself, in which we will
5 summarize very in brevity and affix the transcription, and
6 that will be made publicly available within the next few
7 weeks.

8 It's our intent to issue a final safety evaluation
9 report on this entire project, taking into account not only
10 your comments but reviewing the licensee's work dated May
11 12th that's on the docket. We are ready to get that review
12 underway.

13 You may question the forum and the fact that we
14 did issue a draft document. Unfortunately, time did not
15 allow to allow months of study to the draft document. I felt
16 it was important to get on with this entire project. I first
17 came to it with a number of concerns. I, personally, feel a
18 number of the concerns have been dispositioned. Yet, I feel
19 the public needs to have their day in court. Yes, this is
20 not a hearing, but you will see answers to your questions in
21 our final safety evaluation.

22 With that said, I would like to thank you for your
23 time and your attendance. I trust the evening meeting did
24 meet with some measure of expectation. I thank Consumers
25 for being here also. Good evening.

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[Whereupon, the meeting concluded at 10:10 P.M.] .

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DOCKET NUMBER:

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