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# K-65 SILOS REMOVAL ACTION COMMUNITY WORKSHOP AND SITE SPECIFIC PLAN PRESENTATION AUGUST 16, 1990

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U.S. DEPARTMENT OF ENERGY

FEED MATERIALS PRODUCTION CENTER

K-65 Silos Removal Action Community Workshop

and

Site Specific Plan Presentation

August 16, 1990

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PRESENTERS:

Sue Wolinsky, ASI
Community Relations

Andy Avel, DOE Site Deputy Environmental Manager

Erskin Howard, DOE Site Engineer

Jack Craig, DOE K-65 Removal Action Manager

Tom Morris, Project Manager, Bechtel National

Randy Janke, Nuclear Engineering Program, University of Cincinnati

Mich Biancheria, Manager of Process and Procedure Integration, Westinghouse

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1 MS. WOLINSKY: Good evening. I would
2 like to welcome you to tonight's meeting. My name is
3 Sue Wolinsky. I'm doing community relations for the
4 Remedial Investigation and Feasibility Study, and I am
5 with Advanced Sciences, supporting the Department of
6 Energy in this study commonly known is the RI/FS.
7 Tonight's meeting is the third
8 community workshop that DOE is holding to discuss
9 removal actions, which are shorter focused cleanup
10 activities designed to remove or mitigate any threat
11 to the public health or environment that may have been
12 uncovered through the investigatory process of the
13 RI/FS and other environmental studies that have
14 occurred at the FMPC, Feed Materials Production Center.
15 This third workshop tonight is focusing
16 on the K-65 silos, and we will be having a detailed
17 presentation on the document that outlines the
18 Department of Energy's dealings with the silos in the
19 short term, and this document is called the
20 Engineering Evaluation/Cost Analysis, or as we say it,
21 the EE/CA, and it is the blue cover document on the
22 back of the table. Many of you I see have had some in
23 your hand when you came in this evening. There are
24 some copies on the back table if you don't have one



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1 yet.

2 Tonight, however, we're altering our
3 community workshop format just a little bit because we
4 have a short presentation that the Department of
5 Energy would like to share with you about the Site
6 Specific Plan, which is the green document on the back
7 table. If you haven't received one, I encourage you
8 during the break to go ahead and take a copy. Each
9 presentation tonight will be followed by a question
10 and answer period, and then we go into a formal
11 comment mode as it were. As we did in the last two
12 workshops earlier this summer, we had an opportunity
13 for folks to provide verbal comments. If you choose
14 not to provide verbal comments tonight, that does not
15 limit your opportunity to comment. You may still
16 comment on either document within the prescribed
17 public comment period.

18 For the K-65 EE/CA's, the public
19 comment period runs through the end of this month, the
20 30th I believe, and for the Site Specific Plan, the
21 public comment period runs through September 5th. We
22 have forms provided in the back of the room, these are
23 green -- this is rainbow night tonight folks -- for
24 both the Site Specific Plan and for the K-65's. If



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1 you choose to use them, that's fine. They're merely
2 for your convenience; they're not required. The back
3 of each form you'll notice has a return address. If
4 you choose to use it, simply staple it, pop a stamp on
5 it, and you can send it in. These are available in
6 the back of the room. If you need more, let me know,
7 we'll get them out for you.
8 So with the preliminaries aside, I
9 would like to introduce our speakers tonight, some of
10 whom you've seen many times in recent public meetings.
11 First we have Andy Avel. Andy is DOE's Site Deputy
12 Environmental Manager. He has a Bachelor's degree in
13 geology and has been with the DOE for seven years.
14 Next to Andy we have Jack Craig. Jack
15 is the manager for both the K-65 removal actions,
16 which we'll be discussing tonight, and Operable Unit 4
17 of the RI/FS, which also focuses on the silos. Jack
18 has a Bachelor's degree in civil engineering and has
19 been with DOE for two and a half years.
20 Next to Jack we have Randy Janke.
21 Randy is with the University of Cincinnati, and Randy
22 had been one of the primary co-authors in -- rainbow
23 time again -- the yellow book in the back of the room.
24 This is the preliminary risk assessment that the



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University of Cincinnati has prepared for the K-65 silos. This version of this document was released to the public in May and has been available on the public records since that time. We brought a few extra copies with us tonight.

MS. CRAWFORD: That was released in May?

MS. WOLINSKY: May 11, I believe.

MR. CRAIG: No, it was not. It was released August 15th.

MS. WOLINSKY: Oh, I'm sorry, it was published in May.

MS. CRAWFORD: I was going to say, we just got it.

MS. WOLINSKY: Mr. Janke has both a Bachelor's and Master's degree in nuclear engineering. He has five years of industry experience in radiological engineering, probabilistic risk assessment, and analysis of contaminant transport in the environment, keys areas of the K-65 silos.

And next to Mr. Janke we have Tom Morris -- no, I'm sorry -- Mick Biancheria. Mick is with Westinghouse, and he has a PhD in physical chemistry with more than 50 publications in his field.



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1 He has more than twenty years of management experience
2 with Westinghouse, and he has worked on the
3 development of the nuclear powered fuel. He's
4 formerly coordinator of one of the RI/FS operable
5 units, operable unit 2, and is principal engineer of
6 the K-65 EE/CA for Westinghouse. He is currently
7 Westinghouse's Manager of Process and Procedure
8 Integration. He's a member of the New York Academy of
9 Science and listed in Who's Who in Frontiers of
10 Science.
11 Last, but not least, we have Tom Morris
12 of Bechtel National. Bechtel authored the K-65 EE/CA
13 which we will be discussing tonight. Mr. Morris has
14 been a primary author of this publication. He is a
15 project manager with Bechtel and has 25 years of
16 experience in the nuclear arena.
17 These will be the primary technical
18 people speaking about the K-65 EE/CA's this evening.
19 In addition, we have with the
20 Department of Energy, Erskin Howard. Erskin will
21 discuss the Site Specific Plan this evening. He is
22 manager -- in addition to his responsibilities with
23 the Site Specific Plan, he is manager of the Remedial
24 Investigation/Feasibility Study, Operable Unit 2. He



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has a Bachelor's degree in civil engineering, and he has been with DOE for two years.

With the preliminaries aside, I guess we will begin the meeting. The format will be we will first discuss, as indicated in your agenda, first discuss the Site Specific Plan. Erskin has a very brief presentation to make, which in essence summarizes the Site Specific Plan that you have before you. He will then open the floor to questions and answers. At that point we will take formal verbal comments on the plan should anyone choose to make such comments. If you're going to make comments, I strongly encourage you to come up here to the microphone because that will help our court reporter who is here to take meeting notes tonight so we can get everyone's comments recorded accurately.

Following the brief portion of the meeting dealing with the Site Specific Plan, we'll go into the meat of tonight's meeting, which is the K-65 workshops. The format will be similar, presentation, questions and answers, and then an opportunity for formal comments.

Okay, Erskin. If you would like to report on the Site Specific Plan.



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While Erskin is setting up, I wanted to explain how we're dealing with the Site Specific Plan this evening, and that is there is a public comment period underway now since the plan was released at the beginning of this month. Rather than hold two separate public meetings, DOE thought it would be a little easier to discuss both in one night since the Site Specific Plan we were hoping could be discussed rather easily with the close timing of such presentations.

MR. HOWARD: I'm sure this will be very difficult for you to see.

Good evening. I would like to introduce myself again. As Sue mentioned, my name is Erskin Howard, and I work with the Department of Energy at the Feed Materials Production Center. As she mentioned, I'm a civil engineer and I have been with the Department for two years.

The reason that I'm here with you this evening is I would like to share with you the Environmental Restoration Waste Management Site Specific Plan. I would like to provide you a little insight in terms of what that document contains and basically what it is.

1 Basically what it is, is DOE's document
2 that outlines and lays out in black and white print a
3 30-year plan for cleaning up the DOE nuclear sites
4 around the country, and in this particular plan we're
5 dealing with FY 1991 through 1995. The nice thing
6 about this plan is it establishes an agenda for
7 compliance and cleanup against which we can measure.
8 Therefore, if we were to go to this document and look
9 at any given fiscal year, 1991, 1992, '93, '94, '95,
10 et cetera, there are definite milestones in here that
11 we measure ourselves against and that you can also
12 measure us against in terms of how well we're doing.
13 Additionally, the scope of this
14 document is broken up into three discreet areas.
15 There's a section in here on corrective activities,
16 and corrective activities is defined as those
17 activities that are necessary in order to bring a site
18 into compliance. An example of a corrective activity
19 might be stormwater runoff in the waste pit area, and
20 that's a project that we're going to collect all the
21 runoff in the pit area so it doesn't go into Paddy's
22 Run.
23 The next area that we cover in this
24 document is called environmental restoration, and



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1 basically what we do in that particular category is to
2 assess and do cleanups. You're very familiar with
3 this area because the Remedial Investigation/Feasibility
4 Study is a part of this, removal actions are a part of
5 this, and we just recently went out and secured the
6 services of an architectural engineering firm that's
7 going to do the remedial design. All that is covered
8 in this area of environmental restoration. Again, an
9 example of that would be K-65, which is removal, and
10 there will be plenty of discussion on that a little
11 later.
12 The third area is waste management
13 operations, and that deals with treatment, storage,
14 and disposal of current generated waste. So any waste
15 that we generate we handle under this particular area.
16 One example of that would be RCRA waste. Another
17 example of that would be current generated waste that
18 we send off and ship to a test site.
19 The intended use of this document,
20 there's a handout on the back table there, and this
21 sums it up very well. I've gone through and checked a
22 few of these things that are very specific to FMPC.
23 The other thing that I would like to
24 mention, there's another document, if you will, and



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1 it's called the Environmental Restoration Five-Year
2 Plan, and this is on a DOE headquarters level. And
3 each field office is required to prepare a Site
4 Specific Plan, and they take the information from here
5 for all of the field offices and they roll it up into
6 this big document, and this is on the summary level to
7 DOE as a whole. So what I was going to say here, I
8 pulled this from this Five-Year Plan. And this was
9 written by Secretary Watkins and it sums up very well
10 what I would like to say.
11 As I mentioned, the DOE has a 30-year
12 goal, and they are committed to cleaning up these
13 sites, but specifically these are things that they
14 would like to do applicable to Fernald. They would
15 like to comply with laws and regulations. In addition
16 to that, they would like to contain known contaminants
17 at inactive sites. Additionally, they support the
18 establishment of inter-agency agreements, and we have
19 one of those in place right now. Also, which is very
20 blurry here on the other side, implement programs to
21 minimize current waste. That's one of those
22 corrective activity items that I spoke of earlier.
23 Also very active and we're in the
24 process now of trying to change the DOE culture, and



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1 basically what we mean by that is we operated under a
2 code of secrecy for so long, now we're establishing
3 hopefully a good rapport with the public and with
4 industry in general, thereby opening up a dialogue for
5 communication.
6 Last, but not least, we would like to
7 continually examine the regulatory laws to make sure
8 that we're staying in compliance, we're doing our job
9 of making sure that we operate safely, so that there's
10 no adverse impact to the public, workers, or employees.
11 The last thing I would like to say on
12 this particular plan this evening is we encourage
13 public participation. What we're doing now and the
14 reason for being here tonight is this document was
15 actually published in February of 1990. However, it
16 wasn't officially released until July, the latter part
17 of July. We're now at the public comment period, and
18 we're bringing it here to you folks this evening so
19 that we encourage you to read it and please comment on
20 it, because one of the things we want to do is to
21 incorporate those comments into the next document that
22 will be issued. And that way everybody will feel good
23 about what's contained in here and everybody will be
24 aware of exactly what's in here. So if you would, if



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1 you would take the time to fill out one of the sheets
2 that Sue spoke about on the back table and turn it in,
3 we definitely appreciate it, and we will take a look
4 at those comments and incorporate them as appropriate.
5 That's all I have to say about this
6 document. If you have any questions, I would be happy
7 to entertain them at this time.
8 UNIDENTIFIED SPEAKER: You have annual
9 updates at the end of the year and you will measure
10 against and you will tell us how you stack up against
11 the plan then?
12 MR. HOWARD: Yes, yes. We do it every
13 year. We start working on the next document in
14 September.
15 UNIDENTIFIED SPEAKER: Will it cover
16 the five years out before you got done adding on more
17 like that?
18 MR. HOWARD: Yes. The way it works,
19 this document that I showed you is from '91 to '95.
20 The next document will deal from '92 to '96, and the
21 following from '93 to '97, and we'll just keep going
22 on like that and pick up a year every time.
23 Any other questions?
24 UNIDENTIFIED SPEAKER: The comments,



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1 are they due September 5th or don't we really have 30
2 days from today?
3 MR. HOWARD: The comment period closes
4 September 5th, so if you have any comments, you have
5 to have them in by close of business on September 5th.
6 Yes.
7 UNIDENTIFIED SPEAKER: It says a
8 commitment for 30-year goals. Has money been set
9 aside to mature for that period?
10 MR. HOWARD: The way the Department of
11 Energy funding works, it's three years out. That is,
12 we just received funding for FY '91. We've started
13 preparing to obtain funding for '92 and '93, so we
14 can't say that we have X amount of dollars for 30
15 years. What we do is we put in front of their eyes on
16 a constant basis exactly how much it will cost in
17 order to do the job. Here are all the projects we
18 plan on doing for any given time frame. These are the
19 dollars that it costs for us to do that, and so,
20 therefore, here are the regulatory drivers that are
21 pushing us to comply with these particular laws and
22 regulations, we need the dollars to do it, and we have
23 received the commitment that those dollars will be
24 there and that's how we operate.



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1 Are there any other questions?

2 UNIDENTIFIED SPEAKER: It seems to me

3 by a cursory looking at this that really this does not

4 contain the final plan; is that correct? In other

5 words, if you refer to the K-65 document later on,

6 you'll see that they present six different proposed

7 actions, but it states in there that they don't know

8 what the final plan is going to be, and it seems to me

9 that this is a non-plan, if you will, and I don't see

10 where this is going. I think what we want to do is to

11 see the bottom line in here stating that there will be

12 no hazardous radioactive waste on site when you're

13 done in 30 years, and I don't see that as a commitment.

14 MR. HOWARD: What this plan does, as

15 you're well aware, we have a bunch of commitments and

16 milestones, and we can go to the K-65 document, and

17 that deals specifically with K-65. But then we have a

18 RI/FS going on right now, we have five operable units,

19 and in each of those operable units there are several

20 subprojects, if you will. Well, there's separate

21 documentation that deals with each of those projects.

22 So what we try to do is to extract from those

23 documents on the summary level and try to put that in

24 here. So what you'll find is the high level milestone



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1 that says that K-65, the EE/CA will be issued on so
2 and so date. And that type of milestone will appear
3 in here instead of giving you what alternatives you'll
4 use in order to remove contents of K-65.
5 MS. CRAWFORD: Next year, in the next
6 one, that will reflect the decisions that were made
7 about K-65 and operable units, right?
8 MR. HOWARD: Yes, yes. What we do,
9 when we put this document together, it's based upon
10 the best available information we have at the time.
11 So next year when we have more information about K-65
12 and the alternative selected for removal, then that
13 will be incorporated into this document, but at this
14 point we can't incorporate it because we don't know
15 exactly what that alternative will be at this time.
16 MS. CRAWFORD: Historically are these
17 done or is this the very first time there's been a
18 Five-Year Plan and every year updating it, has this
19 ever been done before?
20 MR. HOWARD: There have been a variety
21 of plans that DOE has published, but this is the first
22 Site Specific Plan.
23 MS. CRAWFORD: What if it doesn't
24 work?



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1 MR. HOWARD: Well, it should work
2 based on the information that's contained in here.
3 It's based on the other plans that we're doing. It is
4 consistent with the other planning efforts that are
5 going on.
6 MR. AVEL: Lisa, this document that
7 Erskin is talking about is a planning document; it is
8 not a decision document. I think the Department of
9 Energy -- this is one of the first times you've seen a
10 document that tells the public and gives the public an
11 opportunity to comment on and be heard concerning what
12 DOE's plans are for the long range, and it's just not
13 from 1990 to '95. The commitment under this
14 administration is to carry that out, to give everybody
15 five years, at least five years of relatively detailed
16 knowledge about what DOE's plans are, and that's what
17 that document is.
18 And this gentleman was correct when you
19 pointed out that there's no bottom line to that
20 document with respect to whether the site will be
21 cleaned up totally or what. What that is, that tells
22 you what our best estimate of the amount of money that
23 it's going to take to do the work that we plan for the
24 next five years. And it's the work that we plan for



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1 the next five years. And what you're seeing I think
2 for the first time is the Department of Energy's
3 commitment to get more information to the general
4 public, to yourselves, and get more input into the
5 Department's planning of how it spends money and how
6 it does its business.
7 UNIDENTIFIED SPEAKER: Sir, seems to
8 me that along with this, if you're speaking about
9 cleaning up the present site, that there would be a
10 commitment that no more waste would be made out there
11 from the further making of bombs. Of course, you read
12 a lot of things in the paper. I read one statement
13 saying that there's some thought it would be re-opened
14 in order to fulfill certain contracts that we have.
15 Someone else in the Department of Energy, I forget the
16 person's name, said that we ought to keep on making
17 bombs to the middle of the next century.
18 What does this mean if there's no real
19 commitment? We have twice as many bombs where we can
20 wipe everybody off the map with what we got and what
21 other people have got. Certainly if this has any
22 meaning, there should be a commitment that no more
23 bombs are going to be made out there, I mean no more
24 materials in order to make a bomb. Otherwise it's



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1 just a lot of talk.

2 MR. AVEL: Again, what Erskin is

3 telling you is what the Department of Energy's plans

4 are for the next five years. Now, you can see in, not

5 necessarily in this document but in the other document

6 here, the one which is Department of Energy wide.

7 This one is Fernald, this one is Department of Energy

8 wide. If you want to look at production of weapons,

9 it should be in here. I'm not that familiar with this

10 document. But if the Department is spending money,

11 has plans for weapons production, it should be in here.

12 That's -- you're getting the opportunity to look at

13 these documents.

14 What we're talking about tonight is

15 what work we're going to do at Fernald, and that is in

16 here and how much we're going to be spending.

17 UNIDENTIFIED SPEAKER: How can you

18 carry anything on without some kind of coordination

19 between what's going to happen and what's happening?

20 MS. CRAWFORD: Andy, a lot of people

21 don't have that big fat document.

22 MR. AVEL: The document is in the

23 reading room and --

24 MS. CRAWFORD: And there's a 1-800



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1 number that you can call and have one sent to your
2 house too.
3 MR. AVEL: It's probably in the
4 document too. Anybody that would like copies, we can
5 make sure that you get copies of that document.
6 MR. HOWARD: Let me make one
7 distinction. These documents deal with environmental
8 restoration waste matters. They key in on those three
9 activities that I talked about here, corrective
10 activities, environmental restoration, and waste
11 management. It talks about how we're going to handle
12 the waste that we accumulate on site in terms of
13 treating it, storing it, disposing of it. It talks
14 about exactly how we're going to go about assessing
15 and characterizing the site. It talks about how we're
16 going to remediate the site. It talks about how we're
17 going to come into compliance. Those are the areas
18 that this document deals with.
19 UNIDENTIFIED SPEAKER: Does the
20 document deal at all with the future of the FMPC as
21 far as what they're going to use it for? Because the
22 update we all just received this week in the mail,
23 they were saying they were considering turning it into
24 a technological site researching ways of dealing with

1 waste in the future, and that immediately brought to
2 mind practice incinerators, et cetera, on the site. I
3 know Oak Ridge intends to do these model type projects.
4 Are they looking towards doing that in this thing?
5 MR. HOWARD: In this particular
6 document here, you will not find that in here, but
7 this again is milestones that we've identified for
8 each of these categories, and they're the same ones if
9 you talk about removal actions that we have on site,
10 K-65, plant 6 perched ground water, it talks about
11 those, it talks about Remedial Investigation/
12 Feasibility Study. It talks about removal action for
13 the five operable units. It talks about what we
14 actually have in the way of design for those operable
15 units for remedial action. It talks about those type
16 of things. It talks about removing waste that we have
17 on site to the vats. What we plan on decontaminating
18 the scrap piles that we have on site. It talks about
19 that type of operation.
20 MS. CRAWFORD: But it's just a plan,
21 it's not written in stone and it's not a guarantee
22 that it's going to be done.
23 MR. HOWARD: It's just a plan. But
24 one of the key things I said earlier when I first



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1 started, it's a plan whereby you can measure our
2 progress along with us measuring our progress.
3 They're milestones.
4 UNIDENTIFIED SPEAKER: I attended a
5 meeting with Joe Lagrow from DOE in Oak Ridge,
6 Tennessee on Fernald, and he said he pointed out to
7 Secretary Watkins there were three things, after all
8 this rhetoric, all the volumes of books, there's just
9 three simple things why Fernald has a problem,
10 narrowed it down to three things to Secretary Watkins.
11 Number one, we don't have the robots to get inside the
12 K-65 silos; the scientific technology has not been
13 invented. If we do have the technology, the money, we
14 don't have the money. If we have the technology, the
15 scientific technology, and we have the money, the
16 third thing rules everything out, there's no place to
17 go with it, nothing to do with it, nothing can be done.
18 So there's the three things that rules out all your
19 plans, everything else that you do. Check with Joe
20 Lagrow, Oak Ridge, Tennessee, you check with Secretary
21 Watkins before you get all involved.
22 You have all your scientific men up
23 here, UC, Xavier, all over. I've been following this
24 for 30-some years, and it is the worst catastrophy



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1 ever perpetrated on the American people. All we get
2 is more rhetoric, more volumes, more tests, more rah,
3 rah, rah, we're going to do this, we're going to do
4 that. Let's get some commitments. Let's get Bush
5 down here.
6 (Applause.)
7 MR. AVEL: Again, this document is the
8 opportunity for you to express your concerns on how
9 we're spending our money. You take a look at this,
10 and if you don't think the plans on how we're spending
11 money to clean the site up are adequate, now is your
12 opportunity to comment.
13 MS. CRAWFORD: Andy, we can comment on
14 it, we can comment and comment and comment on
15 everything, and it just --
16 UNIDENTIFIED SPEAKER: It's just
17 bringing people in different numbers, different
18 uniforms, but we hear the same crap for the last 30
19 years.
20 MR. AVEL: The people that are in here
21 now have the experience to clean up the projects that
22 are contaminated. The DOE has been very serious about
23 cleaning the site up.
24 MS. CRAWFORD: Then include it in



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1 writing and say this is our commitment. Don't give me
2 another plan.
3 MR. AVEL: Those commitments are in
4 the federal compliance stream, which you had the
5 opportunity to comment on, which tells, which lays out
6 how we intend to clean up the site and lays out the
7 schedules.
8 MS. CRAWFORD: How could you have
9 released that before you got this? This is really
10 getting confusing.
11 MR. AVEL: That is the plan for five
12 years, from 1990 to 1995, and sometime you've got to
13 start. We had to say we're going to start getting the
14 information to the public, we're going to start
15 demonstrating that we're cleaning our sites up.
16 You've got to start somewhere. This is one of the
17 areas where we are starting, and I see it as a very
18 good thing. Before 1990 you never had the opportunity
19 to see a plan that we're dealing with for five years.
20 UNIDENTIFIED SPEAKER: Right now the
21 new people that come in don't even have a chance --
22 UNIDENTIFIED SPEAKER: That is my
23 question. The point is he said this was released last
24 February, 1990, and reviewing it since it was

1 published in February and they just released it.
2 We're just now getting a copy. We've got 19 days to
3 make a comment.
4 MR. AVEL: This document when it came
5 out, when it was available in the meeting room, it was
6 advertised in the newspaper on August 5th. It's for
7 30-day comment. It was advertised the same time this
8 meeting was advertised.
9 UNIDENTIFIED SPEAKER: On August 5th?
10 MR. AVEL: Yes. It was advertised the
11 same time that the K-65 EE/CA came up.
12 UNIDENTIFIED SPEAKER: It's advertised
13 one day in the paper; if you happen to not get that
14 paper or if you go on vacation or something, you're
15 out of luck, you don't know that it's available.
16 MR. AVEL: And now we have a meeting,
17 we're answering your questions to help you come up
18 with comments.
19 UNIDENTIFIED SPEAKER: Now we have a
20 problem with EE/CA documents and they don't want to
21 give them to us.
22 MR. AVEL: All you've got to do is
23 call me if you have a problem.
24 UNIDENTIFIED SPEAKER: We have a major



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1 communication problem with the plant. It's been going
2 on for a long time, and this last couple of weeks has
3 frustrated us to death. When a document like these
4 things -- I got my site one in the mail -- but we're
5 not getting information that something exists that we
6 can start getting our hands on so we can do a comment
7 thing on it, and when we do know they exist, we have a
8 hard time getting a hold of it.
9 I called the plant on the EE/CA
10 document, and the secretary took the message, said
11 we'll mail it out, no problem. Nothing arrived. Then
12 I finally got the letter from Bobby Davis for Mr.
13 Westerbeck saying that copies would be available
14 tonight. We had to finally call Pete Kelly to get a
15 copy. Those of us that come to all of these meetings
16 for the last five and a half years and take the time
17 to do the comments I think deserve to receive these
18 documents through the mail without having to chase
19 them down. We don't have enough time to look at the
20 documents.
21 MR. AVEL: Vicki, all documents
22 scheduled to come out are published, they're in the
23 consent agreement, all those dates are laid out. I
24 think the point -- It was in the Enquirer.



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1 UNIDENTIFIED SPEAKER: We don't all
2 get the Enquirer every day. I still got last
3 Wednesday's and last Sunday's sitting on the end table
4 because I've been trying to read this stuff.
5 MR. AVEL: Maybe what we need to do is
6 have another round table on how to get this
7 information all out to you.
8 UNIDENTIFIED SPEAKER: We've lost half
9 our comment period time before most of these people
10 are getting these documents and they only have two
11 weeks now.
12 MS. McCORD: The problem, you know,
13 when the schedule is in the back, that helps a lot.
14 At least you know when the documents are coming. I
15 don't think that was the problem. I think it was
16 getting copies of it. It was that they knew that it
17 was coming out in August, that that was the start date.
18 It was getting the copy. Something out of the
19 ordinary happened this time.
20 MR. AVEL: You called me today for a
21 document; it's certainly here if you want.
22 MS. CRAWFORD: It is, but it's not
23 always that easy.
24 MR. AVEL: All you have to do is call

1 me.

2 MS. CRAWFORD: Now you're slighting

3 Pete. Pete does a pretty good job.

4 MR. AVEL: No, I'm not.

5 MS. CRAWFORD: You're saying call you.

6 Normally we've been conditioned to call him.

7 MR. AVEL: I told you at the first

8 meeting, if you ever have a problem to call me.

9 MS. CRAWFORD: But it's his job.

10 MR. AVEL: It's my job too.

11 MS. CRAWFORD: You weren't here.

12 MS. McCORD: That was the problem.

13 MR. AVEL: Let's go ahead and close

14 this issue out.

15 MS. McCORD: I think what you're doing,

16 where you're putting forth a schedule, that helps a

17 lot.

18 MS. CRAWFORD: Yes. You pick one up

19 and every day or every three or four days, whatever,

20 you check it. I circle all the dates to make sure.

21 But the problem was the day it was supposed to be

22 released, August the 1st, we called and that's when

23 Vicki actually called and the secretary -- well, it

24 was the 5th wasn't it -- whatever day. It was the



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1 beginning of the month, and the secretary says fine,
2 we'll send it, and it never came. Then you have to
3 track it down, run to the reading room, and they won't
4 give you copies of stuff. All we're saying here
5 tonight is two weeks have been totally wasted.
6 UNIDENTIFIED SPEAKER: So we need
7 multiple copies available to the public at the reading
8 room, a pile this big of them.
9 MR. AVEL: Let's get this meeting back
10 on track, and maybe we need to sit down and talk about
11 that.
12 UNIDENTIFIED SPEAKER: I have one
13 question. Those railroad cars down there with
14 phosphorus and chemicals and things, what danger are
15 they? I saw maybe 12, 15, sometimes 20 cars go down
16 there with phosphorus and chemicals, that type of
17 thing. Would that be a danger?
18 MR. AVEL: That's a good question for
19 Graham. I don't know. That doesn't have anything to
20 do with our site. We don't use phosphorus.
21 UNIDENTIFIED SPEAKER: How about DOE --
22 have you ever looked into the possibility of that,
23 exactly what phosphorus contains so we know what could
24 happen, because it may be a fire hazard? Do you know?

1 MS. WOLINSKY: Excuse me, if we could
2 have one person at a time.
3 MR. AVEL: Are there any more
4 questions or any comments on this document?
5 UNIDENTIFIED SPEAKER: Yes, one
6 question. A while back DOE checked this place out,
7 said there's a lot of violations, Westinghouse is
8 doing a pretty bad job or something to that effect,
9 and Westinghouse said well, DOE doesn't give us enough
10 money. What have you done about that problem?
11 MR. AVEL: Again, this gives you the
12 opportunity to see what we have done, what kind of
13 money that we are projecting to spend.
14 UNIDENTIFIED SPEAKER: Don't you know;
15 did Westinghouse then get the money?
16 MR. AVEL: I'm not familiar enough
17 with what you're talking about to be able to answer
18 you specifically.
19 UNIDENTIFIED SPEAKER: I think a lot
20 of people here know what I'm talking about, the Tiger
21 Team report.
22 MR. AVEL: Money for what activity?
23 UNIDENTIFIED SPEAKER: To do a good
24 job. Westinghouse says they don't have enough money

1 to do a good job.

2 UNIDENTIFIED SPEAKER: Here's a

3 specific. How about the barrels I was told at a round

4 table that Westinghouse didn't have enough money to

5 ship the barrels off, the money was holding it up. Do

6 they have in this new budget for the next year enough

7 money to do that?

8 MR. AVEL: I don't know.

9 UNIDENTIFIED SPEAKER: Sir, if these

10 documents were ready last February, why weren't they

11 distributed to the area, to the community? They come

12 out now and you ask for -- and they ought to be read

13 so that they can have questions and ask people who are

14 familiar hopefully with what's going on to answer

15 their questions. Rather than give a document, nobody

16 asks questions about it, read it, write your comments

17 and hand them in. This sounds like a very inefficient

18 process.

19 MR. HOWARD: Before we can issue a

20 draft document, sir, we have to get all the approvals.

21 We have to send it up to headquarters to get it

22 approved; we have to send it down to Oak Ridge to get

23 it approved. There are several approval assignments

24 we have to go through before we can issue the document



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as a final. We can't release it until it's a final document.

UNIDENTIFIED SPEAKER: What that gentleman is talking about, I know what he's talking about, Bruce Boswell personally told me that DOE is not giving him enough money to get the job done. That's why Bruce Boswell -- you can verify it with Pete Kelly -- they're not giving him enough money to do the job.

MS. WOLINSKY: Thank you for your comments, sir.

If anyone would like to make any formal comments for the record about the Site Specific Plan that you have before you, now is the time to come to the microphone. Your comment will be recorded by the transcriber and will become a part of the public record that deals with the Site Specific Plan. If you choose to make a verbal comment this evening, that does not stop you from making additional written comments between now and September 5th, which is the end of the public comment period on the Site Specific Plan.

Would anyone like to make a verbal comment at this time about the Site Specific Plan?



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1 UNIDENTIFIED SPEAKER: My only verbal
2 comment is that we didn't get the book until tonight
3 so we cannot comment within 30 days.
4 MS. NUNGASTER: My name is Norma
5 Nungaster, and I reiterate her comment there. We've
6 had this thing in our hand a day or a day and a half.
7 We have families; we've had no way to review this.
8 Even 19 days is not sufficient time, and my comment is
9 when these things are released, they should be made
10 available and got into the hands of the public.
11 MS. WOLINSKY: Any other comments,
12 please?
13 MR. WILLIAMS: My name is Edward
14 Williams and I'm from Cincinnati, and I've been out to
15 Fernald a couple of times, and what I would like to
16 know is why DOE allows cattle to graze on contaminated
17 land and allows milk to be sold to the public? That's
18 outrageous to me.
19 UNIDENTIFIED SPEAKER: Those are just
20 test cows. They rotate those cows every few months
21 and it goes to Oak Ridge. I went around there and
22 they are either --
23 MS. WOLINSKY: Excuse me, sir, we're
24 in the middle of a formal comment period right now.



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1 Are there other comments?

2 MS. CRAWFORD: I don't want to give a

3 formal comment, I want to ask a clarifying question

4 that maybe somebody can answer. Who do we ask to have

5 a two-week extension on the comment period on that?

6 Is it possible?

7 MR. HOWARD: I'm not certain. I would

8 have to check.

9 MS. CRAWFORD: Catherine, do you know?

10 MS. McCORD: When does the public

11 comment period start on your Site Specific Plan?

12 MS. WOLINSKY: The 5th of August.

13 MS. McCORD: Was there public notice

14 in the newspaper?

15 MS. WOLINSKY: Yes.

16 MR. HOWARD: There was notice of

17 availability, yes.

18 MR. CRAIG: I think if you want an

19 extension, what you should do is write the site

20 manager and request it and see what happens. I don't

21 think we have an answer.

22 MS. WOLINSKY: We can take that

23 request verbally.

24 MS. McCORD: The notification wasn't



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1 successful until the mid point in a public comment
2 period, those are all good reasons for asking for an
3 extension.
4 UNIDENTIFIED SPEAKER: We don't want
5 this crammed down our throat; we want time to look at
6 it.
7 MS. WOLINSKY: Just requesting an
8 extension for the public comment period verbally here
9 tonight would suffice. You don't need to write it.
10 MS. CRAWFORD: I don't have to get up
11 there and ask for it -- formally I am asking for a
12 two-week extension on the Site Specific Plan.
13 MS. WOLINSKY: Thank you. Any other
14 comments on the Site Specific Plan?
15 MS. McCORD: Can I ask another
16 clarifying question? Since this was prepared for Oak
17 Ridge Operations, should the extension go to the
18 office in Oak Ridge?
19 MR. HOWARD: No, we'll pass it on.
20 MS. McCORD: Whose authority grants it?
21 MR. AVEL: Catherine, we'll have to
22 look into it.
23 MS. McCORD: Okay. The letter should
24 go to whoever's authority grants it.



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1 MS. CRAWFORD: I'll call Joe in the
2 morning.
3 MS. WOLINSKY: Catherine, all these
4 comments will be given to the appropriate DOE
5 officials as part of the responses tonight.
6 MR. McCRAKIN: I'm Maurice McCrakin
7 from Cincinnati. I guess the big question I've been
8 wondering about over some period of time, just whose
9 side is the Department of Energy on? We have agencies
10 I think that are designed by the government to protect
11 the people, and then the people have to protect
12 themselves against the agency that is supposed to be
13 protecting the people.
14 I understand in the papers that the
15 Department of Energy is opposing the reimbursement to
16 people who have been proven made sick through cancer
17 or the environment has been damaged from the ground,
18 the air, whatever, and they're saying it is too late
19 to have made a protest or trying to get damages
20 because too much time has passed.
21 Well, secrets are kept for 30 years,
22 you use this phoney name about a feed materials plant,
23 a water tower that feed came in. People didn't know
24 what was happening, and now they discover what was



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1 happening and they are becoming sick and now the
2 Department says that the time has passed, when the
3 damage was done 30 years ago, you should have made
4 some protest earlier. I would like to have that
5 question answered about whose side is the Department
6 of Energy on.
7 MS. WOLINSKY: Any other questions?
8 UNIDENTIFIED SPEAKER: I've got Pete
9 Kelly back here from Fernald. Mr. Kelly, he's very
10 learned. I think if we could address Mr. Kelly here,
11 he could answer more questions and maybe he could
12 elaborate on what that gentleman said about the cows.
13 That is a problem. I would like to know myself. Mr.
14 Kelly, let's get an answer.
15 MR. AVEL: Let's try to close out the
16 comment period and then we will respond to your
17 questions.
18 MS. WOLINSKY: Yes. We need to at
19 this point wind up with any other comments that people
20 have about this specific plan, the Site Specific Plan,
21 so that we can close out the public formal comment
22 statement period on that right now. And then we can
23 go on to some additional questions and answers after
24 we get into the K-65 presentation. So far we've taken

1 about an hour on this, which is a little more than we
2 thought, but if you need the forum, we'll take it.
3 Are there any other comments on the
4 Site Specific Plan that you wish to make at this time?
5 With that, we're going to close the
6 comment period, the statement period of this evening's
7 meeting on the Site Specific Plan. Again, I urge you
8 to pick up one of the forms in the back. It's got
9 particulars about the plan, the reverse side has a
10 mailing address. Use the form or use the address,
11 whatever you like, and we encourage you to submit your
12 written comments.
13 At this time we're going to begin the
14 K-65 portion of the evening's discussions, and Jack
15 Craig of the DOE site office will make a presentation
16 about the K-65 EE/CA, that's the Engineering
17 Evaluation and Cost Analysis document, the blue cover.
18 The document was issued on August 1st. There was a
19 public notice of availability printed in the papers,
20 and then the flyers which went out a week or ten days
21 ago about the workshop, informing people about the
22 discussion this evening.
23 Jack will begin his discussion, his
24 presentation. After that we'll have a forum for



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1 questions and answers, and then we will have a formal
2 statement period at the end of the questions and
3 answers.
4 MR. AVEL: Jack, let me make just a
5 couple of announcements before we start. A couple of
6 things I wanted to let everybody know about, we opened
7 the new administrative record reading room, which is
8 in the Jampak Building, which is on Hamilton Cleves
9 Highway. If you're going from Ross to the site, just
10 stay on Hamilton Cleves Highway, go past the site, and
11 just before the road starts to go down the hill, that
12 building is on the right.
13 The hours that it operates are Monday
14 and Thursday it is open from 9:00 in the morning until
15 8:00 at night; Tuesday, Wednesday, and Friday is 9:00
16 in the morning until 4:30; and then Saturday it is
17 open from 9:00 to 1:00, 9:00 in the morning to 1:00 in
18 the afternoon.
19 I think the building is quite nice; I
20 think a couple of you have been there to date. The
21 administrative record is in a room by itself, and
22 there's another room that has reference material that
23 we feel may be helpful or documents that have been
24 referenced in the administrative record. There are



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1 copying facilities there if you want to make copies of
2 documents, portions of documents. It's free. Right
3 now there are a couple of offices that you can use.
4 We're going to be putting in some lockers that will be
5 assigned on a first come, first serve basis that you
6 will be able to leave some of your own material in the
7 building and make use of it when you're there so you
8 don't have to lug a lot of stuff back and forth. I
9 think it's a pretty nice facility.
10 We will be holding our rounds tables in
11 that facility from now on, and I think it's going to
12 be quite comfortable and it's going to be much, much
13 more easier to use than what we had prior to now.
14 You've got the schedule of the upcoming
15 documents that are going to be issued. The next one
16 on Operable Unit 4, since we're talking about removal
17 actions in Operable Unit 4 -- operable unit 4 is the
18 silo area that Jack will be talking about, the K-65
19 silo, the silo that has metal oxides in it and the one
20 that is empty.
21 The initial screening of alternatives,
22 also called the Task 12 Report, which takes a look at
23 several possible ways to clean the silos up and
24 evaluates and ranks those alternatives was available



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1 on June 4th, was out for comments. We received
2 comments and then re-issued the document in early
3 August, so the revised document is out now.
4 On August 27th, a very important report
5 is coming out, and that is the RI or the Remedial
6 Investigation report. It reports on all the
7 characterization where the exploration work has been
8 done to support the Feasibility Study, the study to
9 determine which one of the alternatives is the most
10 feasible to complete.
11 Another thing that I would like to
12 point out, there's a lot of activity going on in the
13 silo area. Starting tomorrow and Saturday there will
14 be people out there dressed up in suits that will be
15 doing a mock sampling on silo 4. They're not actually
16 in silos 1 or 2 where the K-65's are stored; they'll
17 be working here on silo 4. But if you go out there,
18 you'll notice the crane is working and there's people
19 out there dressed up in white suits, and I imagine
20 they will have those suits on in the hope that they
21 will be doing a practice exercise on Operable Unit 4.
22 Right now the sampling is scheduled for a week from
23 this coming Monday, and we have some commitments to
24 call people when we know that that will be the for



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1 sure date or whatever the final date will be, we're
2 going to call these folks and let them know before we
3 start doing the sampling.
4 UNIDENTIFIED SPEAKER: What time of
5 the day, please, that Monday?
6 MR. AVEL: They start in the morning,
7 and it will probably start on Monday and go several
8 weeks probably. It's just not an opening up, sampling,
9 and close it back.
10 MR. CRAIG: The plans are to sample
11 silos on Monday and Wednesday.
12 MS. McCORD: They start at 7:00?
13 MR. CRAIG: That's when it's supposed
14 to start.
15 UNIDENTIFIED SPEAKER: On these
16 initial screens of alternatives, is there a comment
17 period connected with that?
18 MR. AVEL: It's not -- it doesn't go
19 out for the public. It does go to the EPA and the
20 state.
21 MS. McCORD: But, remember, anything
22 in the administrative record you can still comment on.
23 It is not a formal public comment.
24 MR. AVEL: Yes. When it is out in the



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1 administrative record for your review, if you have
2 comments on it --
3 UNIDENTIFIED SPEAKER: Who do we send
4 those comments to?
5 MR. AVEL: To Jerry Westerbeck at the
6 site office, and we will respond.
7 That's all I have to say. Jack.
8 MR. CRAIG: I'm just kind of curious.
9 How many people here got a chance to look at the EE/CA?
10 Very many people? A few.
11 One of the reasons we originally
12 started, had the idea to have these workshops was,
13 number one, to give you a little bit of information
14 what's in the EE/CA's, but, number two, to show you
15 where the information is at in the EE/CA's, so that if
16 you would like to go back and read it yourself, you
17 would know what page to look at and be a little bit
18 more familiar with how the EE/CA was formatted.
19 We had some comments tonight on the
20 Site Specific Plan, which is a planning document. The
21 EE/CA document I'm going to talk about is a plan, but
22 it is a plan to do an action. There's a proposal in
23 this EE/CA document to do an action on the silos,
24 what's called a removal action. It is a DOE proposal,



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1 it's out for public comment right now. It is subject
2 to EPA approval, but it is a plan to do an action.
3 It's not a plan to do another plan. It is actually an
4 action document. It is a little bit different from a
5 planning document.
6 First of all, to begin with, I was
7 going to start off -- I'm not sure how familiar
8 everybody is with the silos -- but I was going to
9 start off with maybe a little background or a little
10 history. This is a site map of the waste storage area
11 of the site. This is the north area right here. You
12 see four silos in this area right here. The K-65
13 silos, the ones that are referenced in the EE/CA, are
14 the two southern-most silos in this area. You can see
15 from the road, and you can see from this map if you
16 look close, those silos have a berm around them while
17 the other two do not.
18 Silo 4, which Andy talked about doing a
19 mock up sampling on, is empty. There wasn't anything
20 put in silo 4. Silo 3 has some metal oxides, metal
21 oxides and thorium in it. The K-65 silos themselves
22 contain waste from the processing of some uranium ores,
23 and the ores were sent through some chemical processes
24 from which they extracted the uranium out, and the



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1 sludges and the waste that remain from that process
2 were pumped into the silos, and through some dewatering
3 processes back in the late 1950's, the waste that was
4 in there was dewatered and remains in there. It's
5 been in there since, I think the silos were closed in
6 the late '50's.
7 All four silos were built around the
8 same time. They were built in the early '50's. They
9 were, of course, made of concrete, and they're all
10 basically identical in structure. They are 80 foot
11 diameter and 36 feet tall from the top of the center
12 of the domes.
13 You can see the K-65 silos look a
14 little bit different from an aerial view. In the mid
15 1980's there was some upgrades done on the silo domes
16 themselves. Twenty foot plywood casts were put in the
17 center portions of the domes for structural stability.
18 A foam, a polyurethane foam was sprayed over the
19 entire surface of the silo domes to reduce the amount
20 of weathering on the domes and also to reduce the
21 amount of radon gas being emitted from the silos. And
22 also you can see if you look close here some tubes
23 running down the side of the berm in this small
24 building here.



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1 This is what's called a radon treatment
2 system. The system is a series of filters basically
3 that recirculate air through the silos and remove the
4 radon gas, trap the radon from the gas, and the
5 charcoal filter recirculate the air back in the silos.
6 This system was operated prior to anyone going on top
7 of the silos, was operated for safety and health
8 reasons.
9 That's just a short background. Prior
10 studies done on the silos, we had a number of
11 structural studies done, one was done in the mid '80's,
12 the last one in January of 1990, of this year.
13 Basically they made the same conclusions, that the
14 silo domes themselves had lost their design strength,
15 there was really no predictable life remaining for the
16 silo domes, but yet the same conclusion was reached
17 that, as the silos domes are today, there was no
18 imminent danger of collapse, but if a tornado hit the
19 silos, they would almost certainly collapse or fail.
20 That doesn't mean they would necessarily buy off or
21 cave in, but they would fail, there could be cracking
22 or it could be total failure.
23 UNIDENTIFIED SPEAKER: What would be
24 the area of contamination if they did collapse?



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1 MR. CRAIG: I can get into that, and
2 when I'm done here, Mr. Janke from UC did that study
3 and he can talk about that when we're finished.
4 When you start out looking at this, the
5 first thing you do is look at what the problem we have;
6 what do we want to go out there to do or what do we
7 want to alleviate. The main problem of the silos is
8 that the waste in the silos, mainly what is called
9 radium, there was a small amount of radium in the
10 silos which was a solid natural element. This radium
11 decays naturally through radon gas. The radon gas is
12 emitted from the waste residues and emitted it escapes
13 from the silo dome. It does this through weathering,
14 through aging of the concrete. There have been cracks
15 that develop in the dome of the silo, and through
16 those cracks radon can leak.
17 Now, radon is also another element
18 which also decays, and that radon will decay back to a
19 solid. So it goes from a solid to a radon gas back to
20 a solid. What we're looking at in this removal action
21 is a way we can stop the radon from leaving the
22 residues coming from the silos and getting into the
23 environment. That's one of the objectives we have.
24 Another one we have, we know from a



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1 previous study we've done a tornado would cause the
2 silo domes to fail. So another action we would like
3 to do in this removal action is to prevent any radon
4 or particulate or waste from being removed from the
5 silo if a tornado hit.
6 The other objective is if the silo dome
7 were to collapse out there today with no tornado,
8 there would be an amount of radon gas released from
9 that also, and we would like to also do something for
10 the silos so if the domes did cave in or crack, the
11 amount of radon underneath them would not
12 spontaneously emit.
13 If you look on page 11 of the EE/CA,
14 that basically outlines what the objectives are. We
15 determine what the problem is, we set what the
16 objectives are to take care of that problem. The next
17 step is to look at different alternatives for taking
18 care of the problem.
19 I've listed, it's on page 45 in the
20 EE/CA document, I've listed the initial alternatives
21 that were evaluated or looked at in the beginning of
22 this process. There are seven alternatives listed
23 there, and basically they can be broken down into four
24 general types of actions.



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1 One, you can put, place some type of
2 cover over the entire outer portion of the silos,
3 whether it be tornado-resistant enclosure or some type
4 of protective cover over the outside. You can take
5 some material and place it inside the silo dome above
6 the waste to alleviate the radon coming up from the
7 waste and being emitted to the environment. You can
8 remove the contents altogether and place them in a
9 more suitable storage facility or safer storage
10 facility, or you could basically leave the waste there
11 and institute some type of administrative controls,
12 whether emergency procedures or actual real time radon
13 monitors up on the silo domes so you can detect
14 exactly if there was a large amount of radon leaking
15 from the silos. Those are documented on page 45.
16 The first alternative is a no action
17 alternative. It is basically done as a baseline
18 condition, as a requirement.
19 Alternative 2 is the construction of
20 entirely new tornado-resistant enclosures over both of
21 the K-65 silos. This would be an enclosure that was
22 constructed to withstand the impacts of a tornado and
23 also stop any radon from being released through it to
24 the atmosphere.



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1 Alternative 3 is listed as relocation
2 of residues. That would be removing all the waste
3 from both silos and putting it into a storage facility
4 off site that would be capable of stopping all the
5 radon from being released from the waste and also be
6 tornado resistant.
7 Alternative 4 is -- it may look similar
8 to alternative 2, but alternative 4 is really
9 construction of a lighter or less resistant building
10 over the silos that is not tornado resistant with a
11 radon treatment system, entirely new radon treatment
12 system to treat all the air underneath that dome. The
13 enclosure would be useful for, if the silo dome were
14 to collapse without a tornado or the silo enclosure
15 would also have a radon treatment system that would
16 filter that air underneath the enclosure, but it would
17 not be tornado resistant.
18 Alternative 5, you can see in
19 parenthesis that's five options, covering the residue
20 with some type of material to, number one, prevent the
21 radon from migrating up through it and out to the
22 environment but also to act as a barrier to a tornado
23 in the silos to not allow the waste to be removed.
24 There are five options. We looked at sand, concrete,



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1 foam, bentonite clay, and fly ash. And those are all
2 separately broken out here.
3 Alternative number 6 is called
4 reduction of radon inventory. Basically that's a
5 modified radon treatment system that basically runs
6 continuously to remove the radon from underneath the
7 silo dome so if the silo dome would collapse, there
8 would not be that immediate release of radon into the
9 atmosphere, although once it did collapse, that radon
10 treatment system would not remove radon.
11 UNIDENTIFIED SPEAKER: What is the
12 concentration emission of the radon? How high a
13 concentration is it as far as what they call range or
14 whatever your technology is in terms of concentration?
15 How much concentration is emitted from those silos;
16 have there been any tests run on this?
17 MR. CRAIG: Yes, there have. When I'm
18 finished here I can answer all your questions. Okay?
19 The last alternatives was
20 administrative controls. That's basically putting
21 monitors in place to ensure that you immediately know
22 if radon was released at a higher rate than normal.
23 After defining the alternatives, the
24 next step was to take those alternatives and evaluate



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1 them. This EE/CA, along like the other EE/CA's we've
2 had here, evaluate the alternatives in basically the
3 same way. They evaluate how effective they were, how
4 easy they were to implement, and how much they cost.
5 If you look on page 94 --
6 UNIDENTIFIED SPEAKER: There's not
7 actually a number at the bottom. Where it says Table
8 6-1, is that where you are?
9 MR. CRAIG: Yes, it's the same table.
10 This table takes all the alternatives and basically
11 compares them to the three objectives we had that we
12 identified at the beginning. One of the reasons for
13 listing all seven of these is to show you that we just
14 didn't carry through a couple that we initially
15 thought were the best ones. These are all the
16 alternatives that were looked at, and you can see that
17 some of these alternatives just from the beginning do
18 not meet the objectives.
19 Alternative 1 was basically a no action,
20 didn't really help us in either case. It didn't meet
21 any of the three objectives.
22 Alternative 4, which was the light
23 enclosure of the radon treatment system, did not meet
24 the objectives for preventing against a tornado. And



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1 the last two alternatives -- I'm sorry, the last two
2 alternatives, the reduction of radon inventory also
3 did not protect against a tornado, and the last
4 alternative didn't meet the objectives either.
5 So from this initial evaluation you can
6 see that four of the alternatives could be dropped
7 early on in the evaluation because they didn't meet
8 all the criteria for meeting the objectives.
9 The next page, Table 6-2, basically
10 takes the four remaining alternatives which did meet
11 three objectives and evaluates them in more detail.
12 If you look at, let's take alternative 2 for instance,
13 construction of the tornado-proof enclosure, it did
14 meet all the objectives and it was effective and could
15 be implemented in a fairly timely manner, we're
16 talking ten months here. Technical difficulty, there
17 are a few things that make it technically difficult,
18 one being that as you are constructing, doing work to
19 construct the silos themselves to construct this dome
20 which may mean there's a possibility through any type
21 of accident you could drop something or possibly
22 damage the dome while you're doing your action.
23 That's why it's rated as fair under difficult.
24 Protection of the environment, it does that very well.



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1 Alternative 3, relocation, also meets
2 the objectives very well. It protects the environment.
3 Under implementability, it's not very good. We don't
4 exactly know right now how we would do alternative 3.
5 Basically if you look at the final remediation we're
6 looking at for operable unit 4, that is an ongoing
7 activity right now. We don't have the technology
8 right now or really the know how to know what the best
9 way is to remove those residues. If you look at
10 safety and health of the workers and the public, that
11 really hasn't been determined yet, so under
12 implementability, alternative 3 was not rated as good
13 as the other ones. Also, if you look at the
14 timeliness --
15 UNIDENTIFIED SPEAKER: On the one that
16 says consistency with final action, poor. Now in my
17 mind, the final action will probably end up being
18 alternative 3. I realize you're all keeping your
19 options open, but why would you rate that poor at this
20 point?
21 UNIDENTIFIED SPEAKER: Or more to the
22 point, what is the final action? If you don't even
23 know what the final action is, how would you know
24 whether that's poor?



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1 MR. CRAIG: Maybe poor is not a good
2 word. What you're doing here is basically you're
3 precluding the final action.
4 MS. CRAWFORD: Basically we're doing
5 the easiest, quickest, cheapest thing here. That's
6 what we're doing here. We all know that.
7 UNIDENTIFIED SPEAKER: That's right.
8 MR. CRAIG: Quickest, maybe; easiest,
9 maybe that too.
10 UNIDENTIFIED SPEAKER: Cheapest, yes,
11 that too.
12 MR. CRAIG: I don't think that's true.
13 MS. CRAWFORD: Oh, don't tell me $800
14 or $800,000, whatever.
15 MR. CRAIG: If you look at the
16 implementability, alternative 3 takes about three
17 times as long as the other alternatives we looked at
18 for this alternative action, and you're right,
19 removing the residue may be the final action, but
20 that's not what it shows on this removal action.
21 UNIDENTIFIED SPEAKER: If you
22 implement that and do it in less than three years,
23 they're not even talking about starting the final
24 remedial action until probably after that point in



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1 time. It seems like you're delaying the start-up.
2 MR. CRAIG: I don't really think so.
3 If you look at the schedules for remediation, the
4 Record of Decision for Operable Unit 4 is about a year
5 away as it stands right now. The final action on the
6 silos will probably start, physical action maybe six
7 months to a year after that. So you really, you're
8 not gaining on yourself a whole lot.
9 UNIDENTIFIED SPEAKER: We're not
10 getting any of these things done for ten months.
11 You're saying then we're only going to have about a
12 year and a half, not even a year and a half of using
13 whatever.
14 MR. CRAIG: I don't know that. I
15 don't even know what the final action is going to be.
16 It may be three, four years from now.
17 MS. McCORD: I think part of the
18 problem is you're stating in there, in two chapters
19 you're saying that final remediation will not be
20 initiated for five years, which is not correct. So
21 that's the problem. There are certain time frames in
22 the National Contingency Plan, which is the plan for
23 Super Fund which requires the work to start before
24 that, and the trigger date is the Record Of Decision.



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1 So I think that's what's misleading here. That gives
2 the impression the work is not going to start for so
3 many years in the future.
4 UNIDENTIFIED SPEAKER: When will that
5 plan be made?
6 MS. CRAWFORD: Who has the draft --
7 MR. CRAIG: Why don't we hold all the
8 questions until I finish here, and we can go through
9 all the questions at one time.
10 Alternative 5, which covers the
11 residue, basically broken up in detail with sand and
12 bentonite broken up separately. If you look at the
13 chart here, they are basically very similar. They
14 both protect the environment. Technically the
15 bentonite is a little bit easier to get in the silos.
16 It is not as hard to handle. You put the sand in the
17 silos basically using some type of conveyor, some type
18 of spreader into the silos themselves. But the
19 bentonite, the bentonite we're looking at here is
20 basically a moist bentonite that can be pumped into
21 the silos and basically can be done a lot easier. So
22 technically it is a little easier. Implementability
23 wise, you're talking about the same amount of time.
24 Effectiveness doesn't reflect that with

1 this chart, but if you read the EE/CA, I think you
2 would see that by using clay, clay itself is a little
3 bit more effective in retaining radon than sand is.
4 Sand, you would have to keep it at a moisture content
5 to, low enough moisture content to retard the radon.
6 Therefore, you would have to be checking the sand or
7 monitoring the sand to be sure it was doing the job.
8 That's another reason why bentonite was selected over
9 sand.
10 UNIDENTIFIED SPEAKER: On what basis
11 did you eliminate the other three items in alternative
12 5?
13 MR. CRAIG: That is documented in
14 EE/CA. Concrete was taken out for a number of reasons.
15 Number one, it was much harder to remove if removal is
16 one of the final removal actions. Concrete also has a
17 tendency to crack just as the silos domes did, which
18 would allow the radon coming up through them also.
19 The fly ash was also found to be not as effective
20 because fly ash was found to dry out and crack easier.
21 Foam was found to be hard to get out of the silos if
22 in fact that had to be removed for final remediation.
23 Someway you have to get in there and cut the foam up
24 and it would just be hard to remove. Those are



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1 basically the reasons why they were discounted.

2 The last section, Section 6 of your

3 EE/CA, talks about this evaluation.

4 UNIDENTIFIED SPEAKER: What page?

5 MR. CRAIG: Section 6 starts on page

6 91, but basically page 101 talks about the selected

7 preferred alternative.

8 The alternative selected was the

9 installation of a four foot layer of the bentonite

10 clay over the silo residues, basically for the reasons

11 I outlined on this chart. It is effective in reducing

12 the amount of radon that would be emitted into the

13 environment every day from natural breathing of the

14 silos.

15 Number two, it would protect against a

16 tornado. If a tornado would hit the silos, the clay

17 layers in the dome would act as a protection barrier

18 to not allow radon or the residue to be removed, and

19 it would also protect the silo domes from falling off

20 in the clay and allowing the radon to be emitted

21 through the atmosphere.

22 If you look at implementability wise

23 against the other alternatives, it was found to be the

24 most implementable or easiest to do.



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1 Timeliness, it is the shortest duration
2 of any of them or at least as short. Basically it is
3 something we can go out there and do. It is not
4 technically very difficult to do. It is something we
5 can implement in a time frame to make some difference
6 before the final remediation, and it is as effective
7 as the other alternatives.
8 That's all I have. The question was
9 brought up about final remediation. All these
10 alternatives were looked at as far as consistency with
11 final action. Clay was found, clay or any other of
12 these materials except for the foam and concrete were
13 found to be, to not really hinder the selection of any
14 of the alternatives looked at in final remediation.
15 UNIDENTIFIED SPEAKER: On page 99
16 under alternative 3 it states there -- this is the
17 relocation of the residue. The statement there, it
18 says there is no new technology required for this
19 alternative. Weren't you more or less saying
20 alternative 3 they didn't quite know how to do it.
21 According to that, they do know how to do it or am I
22 missing something?
23 MR. CRAIG: I'll let Tom answer that.
24 Tom was basically one of the people responsible for



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1 writing this document. He may be able to answer some
2 of the specifics.
3 MR. MORRIS: The technology proposed
4 for removing would be either a hydraulic or basically
5 a hydraulic slurry and pump it out, and in that
6 context that's nothing new. Which is why we made that
7 statement. It is not necessarily very easy to do, but
8 it's not new.
9 UNIDENTIFIED SPEAKER: The automated
10 backhoe is the other alternative, and that's the one
11 that's not available? I'm trying to get a grasp on
12 this. I read this as being two possible ways for
13 removing, one hydraulically and one by a mechanical
14 backhoe.
15 MR. MORRIS: A mechanical grabbing
16 device, that's right.
17 UNIDENTIFIED SPEAKER: And that's also
18 available?
19 MR. MORRIS: Yes. One of the
20 questions you asked I think earlier is why alternative
21 3 wasn't selected, and the major reason was you were
22 going to end up asking the workers at the site to
23 handle the stuff twice. You're going to ask them to
24 handle it to do this, and then, depending on what the



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1 final action was, you're going to ask them to handle
2 it twice.
3 UNIDENTIFIED SPEAKER: If it was
4 already in the secured containers, wouldn't the
5 radioactivity be reduced to a point where it wouldn't
6 be much of a factor?
7 MR. MORRIS: No, but then you're going
8 to have to open them up and do something if you're
9 going to do relocation.
10 UNIDENTIFIED SPEAKER: You mean the
11 secured containers couldn't be taken to Nevada or the
12 state that they would be at that point?
13 MR. MORRIS: That could be a
14 stipulation, but I don't know whether that's a final
15 one. We had to look at all the options.
16 MR. AVEL: That's one of the reasons
17 that is an alternative under the RI/FS is because, as
18 Tom is pointing out here, it takes a lot more looking
19 into then we can do in the time alloted to take a
20 removal action.
21 MS. WOLINSKY: Would you use the
22 microphone, please?
23 MR. MORRIS: Sure. The basic reason
24 for not selecting the SECURE alternative or relocation



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1 of the residues is because of double handling by the
2 crews. We would expect that they would have to handle
3 the substance twice rather than just once.
4 UNIDENTIFIED SPEAKER: You mean
5 exposure to the work force? Can't you shift the work
6 force?
7 MR. MORRIS: When you look at it, you
8 look at the total exposure to the crews.
9 UNIDENTIFIED SPEAKER: It seems to me
10 this gets back to the fundamental problem when we had
11 the first presentation. We don't have a plan yet. It
12 seems to me if you look at this, we're wasting money
13 already if we're going to put bentonite, and I will
14 make a case for that shortly, but obviously what we
15 want to do is get this stuff securely packaged and
16 shipped to a low population zone where there's no
17 groundwater and where there's no water in the air.
18 Unfortunately for people in Nevada or New Mexico or
19 wherever that is, that's where it's got to go. This
20 is a non-issue to me. You talk about you can't
21 package it because then you have to handle it twice.
22 All you have to do is say we're going to ship this to
23 a secure site where it's not going to expose the
24 population, and then we're handling it once, and to



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1 say you're handling it twice is only because we can't
2 get our asses in gear.
3 (Applause.)
4 MR. MORRIS: If I may, I'm speaking
5 personally --
6 MR. AVEL: Tom, wait a minute. Your
7 point is well taken. Our point is that in order to
8 evaluate all the considerations that are involved in
9 removing the material, packaging it, shipping it
10 somewhere to a facility that as far as we know right
11 now doesn't exist, it may exist, it may not, there is
12 a lot of work that has to be done. That work is being
13 done in the RI/FS for Operable Unit 4.
14 The point and the objective of this
15 EE/CA is to do something relatively quickly to
16 mitigate or to slow down the radon from coming out of
17 the silos and getting into the environment and also to
18 provide protection in the event of a natural disaster.
19 Now, what Jack has explained to you,
20 when you go through the evaluation with those
21 objectives in mind, the four feet of bentonite comes
22 out, falls out as the best choice to take or the best
23 action to take at this time to meet those objectives
24 on a short-term basis. We agree with your statement.



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1 We don't know that the final resolution or the final
2 remedial action is going to be to remove that material
3 and ship it off site, but we are evaluating that
4 alternative along with several others.
5 Again, the point I would like to make
6 is that it's a large effort and it's more of an effort
7 that we can fit into the time schedule that we have to
8 get something done now to stop the radon or to
9 mitigate the radon from the silos.
10 UNIDENTIFIED SPEAKER: One of the big
11 issues is there's a lot of talk about national
12 sacrifice zones, and it seems to many of us when you
13 start packing that stuff in with bentonite clay, you
14 have made it that much more difficult to remove. If
15 you do remove it, you've generated that much more
16 radioactive waste.
17 What you're essentially doing is
18 saying, oh, boy, we can't really do anything about
19 this; and what we should be looking at, and I want to
20 see this in the long-range plan, we commit the United
21 States Government to removing these wastes from this
22 horrendous location where we have high population,
23 agriculture, water, tornados, you name it, we've got
24 it all, remove it, and what we need to do in order to



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1 remove it, we need a tornado-proof enclosure, we need
2 to pack it into containers. And so the first thing we
3 do is first build the tornado-resistant enclosure and
4 don't say well, it's going to cost $60,000 so it's
5 cheaper to spend 2.9 for clay.
6 UNIDENTIFIED SPEAKER: It's 5,000,000.
7 UNIDENTIFIED SPEAKER: Well, still, we
8 have to package it, and I think frankly it's
9 $5,000,000, that enclosure may not permit us to
10 repackage it. We need to design it so it can be
11 repackaged and not dilly-dally around.
12 MR. AVEL: The first point you made,
13 you said that we are adding to the volume, which we
14 are, and we are -- I forget the second part.
15 UNIDENTIFIED SPEAKER: You then make
16 it more difficult to remove it.
17 MR. AVEL: Right. And the point here
18 is that we think that the difficulty and the
19 additional volume that we are sacrificing is worth the
20 protection to the environment from the radon.
21 UNIDENTIFIED SPEAKER: What about --
22 MR. AVEL: Let me finish answering his
23 point.
24 And the commitment that you have from



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1 the U.S. Government is that we are cleaning this
2 material up, and we are going through the process that
3 has been established by the U.S. Government, all of us
4 in this room, to do so, and that is the RI/FS process
5 that's outlined in CERCLA or the Super Fund law. That
6 is what we are doing.
7 UNIDENTIFIED SPEAKER: It's real nice
8 that you guys finally become environmentally conscious
9 but you are forgetting part of the environment, and
10 that is under those silos, they are leaking. Your
11 putting that clay in there is not doing anything to
12 alleviate the contamination of the aquifer and
13 contamination of the wells.
14 MR. AVEL: First of all --
15 UNIDENTIFIED SPEAKER: First of all,
16 nothing, it's got to be stopped.
17 MR. AVEL: Can I respond to your
18 question? I just explained the study required to pull
19 that material out takes longer than the time we have
20 or the time we want to spend to get something done
21 about the radon coming out of the silos. We agree
22 with you. We need -- we don't know for certain that
23 the silos are leaking.
24 (Laughter.)



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UNIDENTIFIED SPEAKER: You guys sampled my well in '85 and '86. I got you back out there a month ago. I got home from work today. My well and property is directly across from those pits. You left a message on my machine telling me you want to start regular monitoring of my well. After four years it is at that point you want to start monitoring my well. So don't tell me that stuff is not leaking.

MR. AVEL: I will tell you that we do not know for sure that the silos are leaking. The site has several areas that are contributing a release of radioactive contaminants to the groundwater, to the environment. I'm not contesting that. All I said is we do not know for certain that the silos are leaking. We are in the process of running tests and drilling holes to make that determination.

UNIDENTIFIED SPEAKER: Why is my well now -- four years ago it didn't warrant regular monitoring and now it does.

MR. AVEL: I would have to look. I don't know what the levels of uranium are in your well.

UNIDENTIFIED SPEAKER: You guys called me and said you wanted to start monitoring.

MR. AVEL: That doesn't necessarily

1 mean that your well is contaminated.

2 UNIDENTIFIED SPEAKER: Why else would

3 you want to monitor it?

4 MR. AVEL: We do regular monitoring of

5 many, many wells that are not contaminated.

6 UNIDENTIFIED SPEAKER: Andy, you're

7 probably familiar with this subject, correct, where

8 they took samples underneath the K-65 silos. What

9 does that mean that you have 9.5 picocuries right

10 underneath the wall there, and you've got, actually

11 all of those are slightly high, but background around

12 here is usually around between .4 and 1, and where did

13 those two come from, how did those get high if they're

14 not leaking?

15 MR. AVEL: Again, if the material in

16 the silos were leaking, I would expect it to be a lot

17 higher than that, but again we're not satisfied that

18 they are leaking, we're not satisified they're not.

19 Again, we're doing tests to make that determination.

20 Back to your point about whether or

21 not to remove the stuff, and that is one thing that we

22 are doing. I explained to this gentleman right here.

23 UNIDENTIFIED SPEAKER: I don't see

24 where all this $3,000,000 to put clay in there is



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1 doing anything. Why don't you use half of that money
2 for R and D? I mean, why haven't they put more money
3 into research and development and done something
4 instead of spinning their wheels and putting clay in
5 there that you're going to have to eventually take out
6 anyway?
7 MR. AVEL: Because we feel the impact
8 to the environment with radon warrants the money,
9 warrants putting the material in to stop the radon.
10 UNIDENTIFIED SPEAKER: The DOE has
11 been saying for five and a half years the radon is no
12 big deal.
13 MR. AVEL: Let me answer. To stop the
14 radon from coming out of the silos.
15 UNIDENTIFIED SPEAKER: But the
16 contamination of the aquifer is just as bad.
17 MR. AVEL: And we are working towards
18 remediating the aquifer. We're working towards
19 remediating the whole plant. There's a RI/FS,
20 everybody knows the plant is being cleaned up, we're
21 being evaluated under a RI/FS.
22 MS. CRAWFORD: We know that.
23 MR. AVEL: Wait a minute, let me
24 finish. One of the things that we're doing, and it



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1 would not be fair to say that these first removal
2 actions are a part of, but hopefully soon you're going
3 to be seeing more, and that's because we're
4 identifying areas that we can do something about
5 quickly, and in order to do that, you conduct a
6 removal action, you prepare an EE/CA, but you have to
7 remember that EE/CA is taking a look at an area and
8 doing something quickly, while all this other study is
9 still going on. And the resistance we're getting now
10 is almost don't do anything about this quickly, take
11 the money that you are using to try to repair a
12 problem that can be repaired now and put it into the
13 overall big picture. Well, the schedules for the
14 RI/FS are set. And we're going to meet them, all
15 that's going to be done regardless of what these
16 removal actions --
17 UNIDENTIFIED SPEAKER: I have a
18 question. What is DOE's definition of tornado
19 resistant? Does that simply mean water resistant?
20 MR. AVEL: Wait a minute. Did that
21 answer your question? Do you understand?
22 UNIDENTIFIED SPEAKER: Yeah, and I
23 have a problem -- (inaudible).
24 MR. AVEL: I'm sorry, Norma, what were



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1 you asking?

2 UNIDENTIFIED SPEAKER: What is DOE's

3 definition of tornado resistant? Is that anything

4 like a water-resistant watch that does not hold up?

5 MR. AVEL: Tom, you want to --

6 MR. MORRIS: DOE and the NRC and other

7 government agencies have defined tornado strength for

8 various regions in the country. There's a definition

9 of what they consider a most probable tornado for the

10 Ohio valley, if you will.

11 UNIDENTIFIED SPEAKER: That doesn't

12 mean anything.

13 MR. MORRIS: The point is that each

14 one of these tornados has a different wind speed

15 design strength that you have to build a design to. I

16 don't know which one we picked, we haven't built a

17 design to do it. You pick the number the DOE wants us

18 to go with and you build the building to that strength.

19 Now if something bigger comes along, it may or may not

20 hold.

21 UNIDENTIFIED SPEAKER: Doesn't that

22 intensify the radon?

23 MR. MORRIS: Pardon?

24 UNIDENTIFIED SPEAKER: Anytime you



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1 cover that silo up, that just intensifies the radon
2 going down into the aquifer. We've got more danger
3 going to the aquifer lately. (Inaudible)
4 It was in the paper that -- (Inaudible)
5 MR. MORRIS: I don't know anything
6 about that, but it won't drive it into the opposite
7 direction.
8 UNIDENTIFIED SPEAKER: They don't have
9 a tornado-proof method right now.
10 UNIDENTIFIED SPEAKER: Is it tornado
11 proof or resistant?
12 MR. MORRIS: Tornado proof and tornado
13 resistant are choices in words, all right. I opted as
14 the editor, if you will, author of this thing that I
15 didn't like tornado proof because it was too
16 conclusive, it was too absolute. So I said resistant.
17 All right. It's the best of what can be designed for
18 what's going to happen.
19 UNIDENTIFIED SPEAKER: What would have
20 been the scenario if that tornado would have hit
21 Fernald; what would have been the scenario, a 200-mile
22 radiation, 1,000-mile radiation?
23 MR. JANKE: That work --
24 MS. WOLINSKI: Randy, use the



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1 microphone, please.

2 MR. JANKE: To reintroduce myself, my

3 name is Randy Janke. I'm a representative of the

4 University of Cincinnati. We were selected, actually

5 asked to do an independent risk assessment of the K-65

6 silos. The actual assessment, the damage assessment

7 had a tornado touched down within the vicinity close

8 enough to do damage to the silos is a very wide range,

9 and it is very difficult to get a handle on exactly

10 what would have happened. So what we did in our risk

11 assessment is we went with a minimum type of reaction

12 and a maximum, worse case.

13 Now, to go back and give you a little

14 bit of feeling for this. Tornados are accompanied by

15 two types of forces. One force is a drop in pressure

16 that's associated with the low pressure zone that

17 creates the tornado. Associated with that is the

18 higher pressure than is in front of the tornado's path.

19 That higher pressure is what's equalibrium in the

20 silos all the time. As the low pressure of the

21 tornado approaches the silos, the delta pressure

22 creates a force on the structure. That delta pressure

23 is about three pounds per square inch. In fact, the

24 Nuclear Regulatory Commission recommends that that



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1 maximum pressure load be the number that is used to
2 design structures as well as evaluate the damage if
3 the tornado occurs. That's the first thing.
4 The second thing, you have
5 translational wind speeds, that's the wind speed
6 associated with the cyclonic action of the tornado
7 itself. Those range anywhere from 50 to 60 miles an
8 hour, all the way up past 290 miles per hour. The
9 range of velocity of that wind will have a dramatic
10 effect, variation effect on the silo structure. So
11 what we did is we calculated 290 miles an hour
12 translational wind speed associated or coincident with
13 a three pound per square inch pressure drop.
14 Now, when we analyze that, we use a lot
15 of the information from a Bechtel report and Margo
16 reports that gave us the structural integrity of the
17 silos at that time. In order to evaluate then what's
18 going to happen to the residue material, we figure the
19 silo structure will fail, the dome. Because the walls
20 are fine. They won't be affected by the pressure drop,
21 nor will they be affected by the translational wind
22 speed. However, the dome will fail. Our calculations
23 show that the center portion of the dome would fail
24 very rapidly, the outside portion of the dome would



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1 probably also fail, because the maximum load was
2 within that range.
3 However, when we go from failing the
4 silo dome to estimating what's going to come out, that
5 is a whole new ball game. So what we did is we did
6 not take any credit for the silo material to be of any
7 kind of consistency other than sand. I know the
8 density of the material, one hundred pounds per cubic
9 foot. I know the force of the wind. We assume that
10 the total force of the wind, 290 miles per hour acts
11 directly on the silo material. We estimated you can
12 lift out one meter depth of that material.
13 Now, you have to understand, this is a
14 very conservative analysis because the translational
15 wind is parallel to the ground. It flows along, it
16 flows against you. It doesn't necessarily dip down in
17 the silo and pick this stuff up and then release it.
18 So, therefore, we have a conservative estimate of
19 what's going to be released. When you look at that
20 one meter depth, we're looking at a maximum
21 concentration of radioactive contaminants to be about
22 eight and a half percent of the total inventory from
23 both silos.
24 The question was asked earlier and it

1 was deferred to later, this has an impact on this
2 question, and I will answer it. The total range of
3 these contaminants once released from the silo will go
4 anywhere from 100 feet out to approximately 2,500 feet.
5 To give that some ball park figure, 2,500 feet is
6 right around 850 yards.
7 The deposition of this material once
8 it's released will vary exponentially from the source.
9 A lot of studies -- the analysis that we made to
10 arrive at that 100 to 2,500 feet is based on National
11 Oceanic and Atmospheric Administration data and
12 documented evidence of tornados all across the country.
13 We studied 117 tornados directly in the State of Ohio.
14 Those tornados that would be able to cause that type
15 of release are considered the F-5, are the worse
16 tornados ever recorded or even possible.
17 Now, so that range, you've got the
18 range, now the hundreds of miles or whatever you're
19 worried about, it just won't happen. The residue
20 material, the particulate matter itself really isn't
21 going to go that far. It drops out and deposits very
22 quickly. The uranium, radium, and thorium are all
23 heavy metals. The radon, on the other hand, can
24 travel quite far, and that we estimate in picocuries,



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1 we use both analytical and actual data to arrive at
2 our actual results or our findings, and they show that
3 the radon is limited by two things: One, the
4 atmospheric conditions at the time of release and, two,
5 the radon decay rate. We have calculated those as all
6 the way out 14 and a half kilometers away from the
7 silo structure. The doses fall off accordingly in the
8 same manner as concentration does, it falls off
9 exponentially.
10 THE WITNESS: How many miles are those
11 that you're talking about?
12 MR. JANKE: Fourteen and a half
13 kilometers is roughly six to seven miles.
14 UNIDENTIFIED SPEAKER: What would
15 happen if that tornado went by and all this stuff was
16 exposed; what would happen? How would you clean that
17 stuff up then?
18 MR. JANKE: That was not in our risk
19 assessment. That to me with the alternatives that are
20 being proposed right now --
21 UNIDENTIFIED SPEAKER: Wouldn't that
22 be horrible; wouldn't that be horrible?
23 MR. JANKE: No. As a matter of fact,
24 the doses that we estimated, the significant portion



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1 of the dose not only from the residue material, which
2 contained the radium, the thorium, and the uranium,
3 but in addition to that the radon, the principal
4 pathway is through inhalation, so cleanup is
5 relatively easy to do.
6 In fact, the University of Cincinnati,
7 the group that I'm associated with, which is the
8 Nuclear Engineering Program, we have done studies not
9 only at the FMPC site but RI in Ashtabula, Ohio; we've
10 done work in a number of different locations around
11 this state and even around the country. I've written
12 a number of articles on this type of thing, pathway
13 analysis, radiological engineering. Cleaning up these
14 residues are going to be right in the surface. It
15 wouldn't be very difficult at all to clean that up.
16 MS. McCORD: Can we talk a little bit
17 about the probability of really a tornado striking and
18 causing the situation and looking at the risks
19 associated with that relative to the risks of the
20 day-to-day radon emissions?
21 MR. JANKE: That's a very good
22 question. It's also stated in the report. The risks
23 from an acute accident, if you look at just doses, in
24 other words, we assume the accident occurred, we look



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1 at the doses of risk from chronic radon are very close
2 to being the risk of the acute accident, meaning
3 catastrophic release of all the materials. What that
4 tell us is that chronic radon emissions are the
5 principal consideration when it come to risks.
6 Now, how do we compare that to the
7 probability of a tornado? As I indicated before, the
8 maximum credible accident of releasing the radium,
9 thorium, and uranium has to occur as a result of an
10 F-4 or possibly even an F-5 tornado. The probability
11 of those two tornados rank right in the area of about
12 one times ten to the minus seven all the way to about
13 one times ten to the minus eight.
14 UNIDENTIFIED SPEAKER: What the hell
15 does that mean?
16 UNIDENTIFIED SPEAKER: What that means
17 in laymen's terms is if I say that you have a one
18 times ten to the minus eight chance of having an F-5
19 tornado strike a particular facility, that tells you
20 you have about one chance in 100,000,000.
21 UNIDENTIFIED SPEAKER: Jim
22 Rathschneider of DOE pointed that out to me about two
23 years ago. About six months later we had on the
24 Richter scale 4.7, and then this other tornado was

1 about an F-4. It had about the force of about an F-4.
2 MR. JANKE: Well, a number of people
3 as soon as those tornados hit on June 2nd, I had calls
4 all week long at the University, how is this going to
5 change your study, how is that going to change your
6 study. In the actual reality, it doesn't change the
7 study at all. If I took that into account, there
8 would be 118 tornados we studied instead of 117. The
9 probability that one will actually touch down and
10 damage those silos remains the same. Probability is a
11 device that we in the community --
12 UNIDENTIFIED SPEAKER: What about an
13 earthquake, we're about due for an earthquake; what is
14 the probability on that?
15 MS. McCORD: I think what's important
16 here is you have to keep in mind this is the interim
17 action, the bandaid to reduce the area producing the
18 greatest risk. We all hate to think that a tornado
19 will hit there, but I guess the point I was trying to
20 make by my last question is, or to the point of trying
21 to illustrate it, is of more concern is the daily
22 radon emissions. That's the risk that is occurring
23 every day, versus this very minute possibility.
24 UNIDENTIFIED SPEAKER: What's the risk



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1 of failure of the dome, period?

2 MR. JANKE: The risk of the failure of

3 the dome?

4 UNIDENTIFIED SPEAKER: Isn't that what

5 it said in the report, does not have a life, it has no

6 life expectancy? It could fall in right now.

7 MR. JANKE: Should I answer that

8 question or should I take yours?

9 MR. CRAIG: Answer it.

10 MR. JANKE: The probability of the

11 silo dome failing at any time is right around 8

12 percent chance per year. We've calculated it all the

13 way up to about 17 percent over a five-year period.

14 That was our assessment period.

15 Now, what that means, and this is very,

16 very important, is failure means the structural

17 integrity as defined right now with that dome staying

18 up and staying whole, will not be there. So the

19 failure can be a range from -- I've heard a number of

20 comments saying it will fall in. Structures do not

21 act like that. When that structure fails, portions of

22 it may fall in and give way. We defined that as

23 failure. What we estimate is the consequences of that

24 type of failure is an acute release of radon, but



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1 there would be no forces or mechanisms available to
2 release the residue material itself. So we calculated
3 a total of 50 curies of radon would be available for
4 dispersion into the atmosphere upon that failure.
5 We're looking at about 17 percent over the next five
6 years.
7 Your question?
8 MS. CRAWFORD: My question was
9 probably going to go to something that is not on that
10 subject.
11 MR. JANKE: Anything else on the risk
12 assessment per se?
13 UNIDENTIFIED SPEAKER: I would say
14 frankly it flys in the face of common sense and
15 borders on preposterous to say that dust from the K-65
16 silos would be transported no more than 2,500 feet.
17 All you have to do is see wind pick up dust and
18 transport it, tornados pick up materials. I just
19 heard somebody was telling me about that ten miles
20 away that pieces of material had been carried from
21 somewhere else, and, I'm sorry, this sounds like
22 nuclear engineering calculating to me.
23 Years ago nuclear engineers told us it
24 was the probability of a meteorite hitting you in the

1 head that there would be a melt down. That was before
2 Three Mile Island, and I am sorry, nuclear engineers
3 have vested interests in telling us there is nothing
4 to worry about about radiation, and I am really --
5 UNIDENTIFIED SPEAKER: I think that's
6 what he's saying.
7 UNIDENTIFIED SPEAKER: Well, what do
8 you mean by the 2,500 feet; did you say it wouldn't go
9 any further than 2,500 feet?
10 MR. JANKE: What I'm saying is the
11 deposition of heavy particles --
12 UNIDENTIFIED SPEAKER: Heavy
13 particles?
14 MR. JANKE: That's the uranium,
15 radium, and thorium.
16 UNIDENTIFIED SPEAKER: No, no, I'm
17 talking about -- this is presumably a dust.
18 MR. JANKE: One percent is assumed to
19 be distributed uniformly in the atmosphere. If you
20 read the risk assessment, I did the calculations, the
21 concentration of one percent of the material that's
22 released being transported along with the radon that
23 is released in the acute case, those types of
24 materials breathed in do not actually contribute

1 significantly to the overall dose. Therefore, the
2 significance of that, and the individual that asked
3 that question said, what's the range, you know,
4 hundreds of miles for these things? Small, very low
5 concentrations. Certainly you have capacity to get
6 into the upper atmosphere. That's one thing.
7 The second thing I would like to say,
8 at no time did I ever say things will not go there.
9 Two, I would like to say categorically right now as a
10 nuclear engineer, as an individual not associated with
11 the University, just totally personally on my own, I
12 have never and will I ever say that radiation is not
13 something to be considered. I spend my career now
14 estimating, calculating, evaluating the biological
15 damage or effects from ionizing radiation. That's how
16 I spend my career. So to get that off, I would like
17 to make that point very quickly.
18 To get back to it, what we're looking
19 at here is not just dust being picked up and taken
20 hundreds of miles by normal winds. We're looking at a
21 tornado event, an F-5 tornado. When you have a
22 pressure drop of three pounds per square inch and
23 translational wind speeds of around 290 miles per hour,
24 it is very, very difficult for any particulates,

1 regardless of how small or heavy they might be, to be
2 translated along with the atmosphere. These materials,
3 there's a very great force pushing them towards the
4 ground, and, as I said, we did not come upon this
5 casually, this is not something that a nuclear
6 engineer just dreamt up and decided to write down in a
7 report. I looked at extensive photos, I looked at
8 extensive reports from National Oceanic and
9 Atmospheric Administration.
10 The bottom line fact is most of the
11 heavy material is deposited very close, within 2,500
12 feet of the actual destruction zone. This is not to
13 say that there isn't a small possibility or even a
14 high probability that small concentrations will be
15 deposited elsewhere. We took those into account and
16 we also estimated doses and results.
17 UNIDENTIFIED SPEAKER: You're a
18 nuclear engineer?
19 MR. JANKE: Yes.
20 UNIDENTIFIED SPEAKER: What was the
21 range of contamination, and Senator Glenn said that if
22 Fernald went up, it would be like Hitler bombing
23 Chernoble. And I read articles in the paper that said
24 the contamination traveled if not hundreds of miles,

1 thousands.

2 MR. JANKE: Would you like me to

3 address that?

4 UNIDENTIFIED SPEAKER: Yes.

5 MR. JANKE: I'm very well versed on

6 the Chernoble accident.

7 MR. AVEL: Wait a minute. We're not

8 here to address the Chernoble accident, and we're

9 getting a long way away from the objective of this

10 meeting, which is to explain what's contained in this

11 EE/CA.

12 I see you as supporting us. You're

13 making your point again that we need to do something

14 quickly with these silos, and what we've done is

15 evaluated those things that can be done quickly. And

16 what it boils down to is putting bentonite in the

17 silos. It may not be the best thing in the world for

18 a long-term consideration, but for the scope of the

19 EE/CA and for evaluation what we found out today, that

20 takes cares of the problem and it does not give us

21 additional problems that cannot be managed in the

22 overall cleanup of the whole operable unit.

23 UNIDENTIFIED SPEAKER: In the early

24 '80's Mr. Adams explained to us that the K-65 silos



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1 contained highly radioactive material from the
2 Manhattan project. But I'm hearing in the reading in
3 the EE/CA documents and I'm hearing too in the RI/FS
4 study that it's just uranium and just radium and just
5 radon and the decay products. What is the difference
6 between what's in the K-65 silos then as to what is in
7 the barrels out on the pads; the uranium out on the
8 pads, what's the difference?
9 MR. CRAIG: The material in the silos --
10 MS. WOLINSKY: Jack could you restate
11 the question, please? We couldn't hear it.
12 MR. CRAIG: The difference between
13 what's in the silos and what's in the drums on the
14 pads. Most of the material in the drums on the pads
15 of the plant are waste that was made on site. It was
16 recycled sludges of material that was a by-product of
17 the plant itself at Fernald.
18 Most of the material in the silos came
19 from off site. A lot of it it was processed at other
20 DOE facilities. You mentioned the Manhattan project,
21 I don't know exactly what this waste was used for,
22 possibly some of the uranium that was extracted from
23 this may have been used in the Manhattan project. I
24 don't think anybody knows that for sure.

1 UNIDENTIFIED SPEAKER: I talked to an
2 engineer, Bill Hill, he was one of the original
3 engineers. (Inaudible) He said they had all that
4 railroad cars from Belgian Congo and they mined all
5 the uranium and sent it back to the Belgian Congo, but
6 it became so hot he said he just dumped the dirt and
7 everything in that silos. He pointed out it was a
8 16-inch plastic liner is the only thing in the
9 background to protect it from the aquifer.
10 MR. CRAIG: That's not correct.
11 UNIDENTIFIED SPEAKER: (Inaudible)
12 They never did send it back to the Belgian Congo.
13 There's gold and everything in that silo.
14 MR. AVEL: Sir, excuse me, let's just
15 try to ask one and answer one question at a time. If
16 you would raise your hand and let us recognize you, it
17 really helps. We do have a stenographer here.
18 UNIDENTIFIED SPEAKER: They wanted to
19 know the stuff that was in there.
20 MR. AVEL: Your question was you heard
21 different definitions of what the actual material is
22 that's in the silos. Jack mentioned that it's residue,
23 it's what's left after refining certain ores that
24 actually came from the Belgian Congo. It is one of



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1 the richest ores of uranium in the world. It was back
2 during World War II. The United States got that ore
3 to keep Germany from getting it, brought it back here,
4 processed it, got the uranium out of it. The residue
5 that's left after that processing is what is in the
6 silo. The reason the emphasis is on radium is because
7 it's radium that we have the most concern with. The
8 radium decays or turns into radon gas, and the radon
9 gas can go through cracks and can be inhaled.
10 UNIDENTIFIED SPEAKER: Is this at a
11 higher level than what's out in the barrels?
12 MR. AVEL: The radium, yes. The K-65
13 contains a much larger percentage -- I don't want to
14 give you -- Jack earlier made the statement that
15 there's a -- if you got the radium out and held it in
16 your hand, you could probably hold it in your hand,
17 but if you got the radium out of all the drums on the
18 site, you probably would not be able to see it or it
19 would be very, very small. It's just a relatively
20 high concentration in the silo. We don't have a radon
21 gas problem with all the drum materials. Its main
22 constituent, its radioactive constituent is uranium in
23 the drums, whereas it's radium in the silos.
24 MS. CRAWFORD: I got a couple of



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1 questions. I went through here and marked them. The
2 first one, on page 89 it says, "Public acceptance of
3 this option is likely to be favorable due to the
4 elimination of chronic radon emissions and the
5 mitigation of the risks involved in the event of a
6 tornado."
7 Bechtel National did this, right? Who
8 are they to sit back and say that the public
9 acceptance of this will be likely? Because I have a
10 real problem with that because from sitting here
11 tonight and from everybody I talked to, public
12 acceptance of bentonite clay is not acceptable to the
13 community.
14 In the next paragraph it says, "The
15 initial design of the material distribution systems
16 has begun and fabrication time will be minimal." What
17 this is telling me is you guys have already started
18 this action. If you've got the material systems ready
19 to go, then -- I am just really confused. This is
20 ridiculous.
21 MR. AVEL: Well, I think, correct me,
22 Tom, if I'm wrong, is that a generic statement?
23 MR. MORRIS: All of them have had
24 something started. Every single one of the



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1 alternatives was looked at in enough detail to figure
2 out whether or not we should --
3 MS. CRAWFORD: If I go through this
4 book and I look under every single option you have in
5 there, I'm going find a comment very similar to this
6 one?
7 MR. MORRIS: No.
8 MS. CRAWFORD: See.
9 MR. AVEL: The comment applies across
10 the board.
11 MS. CRAWFORD: Then it should be in
12 here, it should be in here if it applies.
13 Now, the next thing I want to say is on
14 page, whatever page Table 6-2 is on, under alternative
15 5.5, how convenient that every single one of them got
16 a good rating. I find that really amazing. There's a
17 little (1) next door to the good in the second column,
18 and if you go down to the bottom, it says, "Dependent
19 on ability to retain plastic condition." What in the
20 hell happens if we don't maintain a plastic condition?
21 I understand maintaining a plastic condition is
22 keeping it wet. Then we're going to get into water,
23 which if they're leaking, and you are telling me
24 they're not.



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1 MR. AVEL: I didn't say that.

2 MS. CRAWFORD: You don't know for sure.

3 Sorry. But if they are, we've got water then going

4 into the underground aquifer. So, you know, I'm more

5 concerned about this stuff getting into my water,

6 which it's already gotten into mine, but getting into

7 somebody else's, than I am about a damn tornado coming

8 along and blowing the tops off these suckers.

9 MR. AVEL: Let's respond to your

10 question then.

11 MR. MORRIS: The reason for selecting

12 bentonite, water is the best thing as far as keeping

13 radon from diffusing. When you take a look at all the

14 materials that you put over something like radium

15 which disintegrates into radon, water is the best

16 thing, mainly because it takes forever for the radon

17 to make its way through water, so water is the best.

18 When we originally went through the

19 selection of the alternatives, we did what we call --

20 which I think we described a little bit before -- what

21 we did is we took 20 people who had never seen

22 anything described in terms of what Fernald was

23 currently doing and sat down and said what would you

24 guys do to do this, and we talked about an awful lot



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1 of ridiculous things in the context of what one could
2 do in terms of putting balloons inside the silo that
3 would hold up the dome and at the same time trap the
4 radon and keep it from coming out. We went through
5 all that and we came up with the seven that was listed
6 on the board.
7 We took a look at the three criteria
8 and objectives that we were trying to meet, which
9 number one in our mind was the chronic emission of
10 radon. The second thing was the failure of the domes,
11 either because they fail on themselves or cracked or
12 whatever, and that would have basically increased the
13 daily emission of radon, or tornado failing. Those
14 three things we had as a criteria sitting there.
15 Whatever we picked had to meet all those three.
16 MS. CRAWFORD: Why wasn't the water
17 part put in that?
18 MR. MORRIS: When you took a look at
19 water, water can be put in the silos, it's the same
20 concern you've got. The water in the silo goes down
21 to the bottom, you don't know how far it's going to go
22 in the silo.
23 MS. CRAWFORD: I'm talking about the
24 underground water, why wasn't that considered as an



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1 objective or, whatever, goal?

2 MR. MORRIS: Because the immediate

3 threat that we are taking a look at is an airborne

4 problem, something that happens within the next five

5 years. That was the scope of our study. Take a look

6 at what we can do to fix this problem, look at it in a

7 five-year window, if you will, because five years

8 hopefully the final remedial action will finally take

9 place and something will happen.

10 MS. McCORD: But truly the biggest

11 risk out there on a daily basis is the air emissions.

12 MR. MORRIS: Let me finish answering

13 the question about the bentonite.

14 My personal choice when we started was

15 with sand, until it was pointed out to me that sand

16 all by its lonesome wasn't going to do the job. It

17 had to have a moisture content, and again getting back

18 to water.

19 Bentonite is something that is used to

20 seal places that leak. It takes, absorbs the water,

21 it swells, it fixes the -- you take it and put it into

22 a place that is leaking water, when it gets to the

23 bottom, it will stop. When you put the bentonite in

24 the silo, what it does is it oozes over the top of



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1 these residues -- they're not even residues, they're
2 steps from everybody poking holes in there (inaudible)
3 The bentonite would go and very effectively smooth
4 over anything, every single crack and cranny, it would
5 go in and seal that. At some point in time you're
6 going to have all this bentonite sitting on top of a
7 puddle of water, which in our opinion won't evaporate
8 to any degree.
9 MS. CRAWFORD: Are you with Bechtel?
10 MR. MORRIS: Yes.
11 UNIDENTIFIED SPEAKER: Is this calcium
12 bentonite or --
13 MR. MORRIS: I don't know.
14 MS. CRAWFORD: Catherine, with regards
15 to what you just said a minute ago, about the radon,
16 that's a daily risk, have you guys ever gotten the
17 impression that this is a daily risk?
18 UNIDENTIFIED SPEAKER: I think a lot
19 of you maybe are not focusing on where a lot of us are
20 coming from. The fact is a few years ago when we
21 first heard this Margo report, we went into
22 Westinghouse and said, "Oh, my gosh, we're getting
23 radiation from this," and they were saying, "Oh, sure,
24 there's a little radon coming out, but it's no big



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1 deal." And we said, "We want little signs on the
2 fence, we want to know that you're monitoring." They
3 said, "Okay, just to please you guys, we'll put these
4 little signs on the fence and we'll change the numbers
5 daily." So the impression is you're all worked up
6 over nothing, don't worry about it. And tonight we're
7 hearing a whole different -- it's like we were lied to
8 for five years.
9 MR. MORRIS: No, no, that's not what
10 we said.
11 MR. AVEL: What you're hearing is that
12 the threat to the environment is greater from the
13 daily release of radon than any other release coming
14 from the silos.
15 UNIDENTIFIED SPEAKER: But you're
16 still saying it's no big deal?
17 MR. AVEL: I don't know. It's a big
18 enough deal to do something about it on the short term.
19 UNIDENTIFIED SPEAKER: Andy, you just
20 got done telling us you didn't think it was leaking.
21 MR. MORRIS: No, no. He was taking
22 about groundwater. It is leaking. It is leaking
23 radon.
24 UNIDENTIFIED SPEAKER: How can you



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1 guarantee putting in 600 tons of extra load on that
2 building, on a failed structure which is over 80
3 percent failed before you ever start by your reports,
4 over 80 percent, the 20 percent load on the cap and 60
5 percent damage to the structure gives you 80, not
6 counting the load of the foam and everything else on
7 there, and now you're putting another 600-ton load on
8 a failed structure. What if it would fail when you
9 started to, the process? What kind of emergency plan
10 would you have if you had a failure on the spot? And
11 you will have a failure on the spot at 600 tons to a
12 failed structure.
13 UNIDENTIFIED SPEAKER: We've got the
14 Baltimore Fire Department.
15 MR. MORRIS: First of all, I cannot
16 answer the question but I'll tell you what we do know.
17 We did look in round calculations, and they can be
18 done if you so wish, but there's about four or five
19 feet of empty space in the silos; 24 feet or 28 feet,
20 whatever it is, is filled with residue. There's
21 another four feet of space.
22 UNIDENTIFIED SPEAKER: Head space
23 you're referring to?
24 MR. MORRIS: Yes. Which is supported



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1 on the sides by footers.

2 UNIDENTIFIED SPEAKER: Soil?

3 MR. MORRIS: Yes. So when you put

4 this weight in, you're talking about the weight going

5 this way and not necessarily going that way. It's

6 just going to equalize the forces on the walls. In

7 terms of having a failure, yes, we can have a failure

8 tomorrow. If somebody goes out there and walks on it,

9 there could be a failure. No engineer in his right

10 mind would tell you that thing is going to stand for

11 any length of time.

12 MS. CRAWFORD: So putting the

13 bentonite in there could make it actually collapse?

14 MR. MORRIS: Anything we do could make

15 it happen.

16 UNIDENTIFIED SPEAKER: The way your

17 structure is built, you've got to have a complete

18 integrity of your silo to support the roof, and when

19 you have a failure in the middle, which you already

20 have a 20 percent failure in the middle, most of the

21 middle, so then you've got hundreds of tons of

22 concrete that will pull itself down by its own weight

23 because you have a failure in the center. It will not

24 hold.



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1 UNIDENTIFIED SPEAKER: This is under
2 the dome, though.
3 MR. MORRIS: This is under the dome;
4 this is not on the dome.
5 UNIDENTIFIED SPEAKER: No, what I'm
6 talking about is when you have a failure, you have a
7 failure because the integral part of that building has
8 to be altogether; if it's not altogether, it's all
9 collapsed.
10 MR. MORRIS: No.
11 UNIDENTIFIED SPEAKER: That's the way
12 a dome is built.
13 MR. MORRIS: I think, trying to
14 explain here, and I think Randy took a shot at it, I
15 think it's defined somewhat in EE/CA, a failure is a
16 loss of structural integrity. It does not mean that
17 the silo falls over. The failure means that building
18 is no longer going to do what it was designed to do,
19 and that is to hold the residue.
20 UNIDENTIFIED SPEAKER: What's your
21 emergency plan?
22 MR. MORRIS: I can't answer that; WMCO
23 can.
24 MS. CRAWFORD: Nobody can really.

1 The clay -- now this is something that
2 I have not been able to get into my mind. The clay
3 will hold the radon gas; when you put that clay in
4 there, is it going to seal that radon gas?
5 MR. MORRIS: Seal it might be --
6 UNIDENTIFIED SPEAKER: Radon is still
7 going to come out the sides.
8 MR. MORRIS: Radon is going to come
9 out. What you have to understand is radon is being
10 generated in the entire -- there's 24 foot of
11 residues -- but you're only seeing the radon that is
12 being generated in the top two to five feet of the
13 silo. The rest of the stuff decays and is solid by
14 the time --
15 MS. CRAWFORD: Life is, what, about
16 four days?
17 MR. MORRIS: Yes.
18 UNIDENTIFIED SPEAKER: What about when
19 it's cold and it freezes and it thaws. I mean -- I
20 just don't understand.
21 MR. MORRIS: You're talking about the
22 bentonite?
23 MS. CRAWFORD: Is the bentonite going
24 to freeze and thaw with the changing of the weather?

1 It's going to have to.

2 MR. MORRIS: I don't think it's going

3 to freeze in the context you're going to have a loss

4 of integrity.

5 MS. CRAWFORD: That is going to drop

6 the radon levels how much?

7 MR. MORRIS: Hopefully none. But

8 we're only saying, all we said was we're trying to

9 meet the NEPA standard, which is 20 picocuries per

10 meters square per second. It means nothing to me

11 either.

12 UNIDENTIFIED SPEAKER: We're dealing

13 with another situation here where it seems to me where

14 the government knows what's best for the residents out

15 here. I'm a little bit perturbed about it because

16 they have have been putting this stuff on us for the

17 last 35, 40 years, telling us what is best for us. I

18 would like to hear from EPA, see what they think about

19 this.

20 MS. McCORD: Actually, I would like to

21 talk a few minutes to clarify a few things. EPA's

22 primary concern -- we are concerned about dome failure,

23 we are concerned about if a tornado hit there, but

24 from a public health standpoint, right now the biggest



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1 risk to people, to the nearest resident, which is 500
2 meters away, even people passing by, the biggest risk
3 is the radon emissions that are coming out of the
4 silos, the tanks every day.
5 This past year EPA promulgated a new
6 standard, an air standard of the Clean Air Act for
7 radon for five DOE facilities. It only applies to
8 five DOE facilities. One is Fernald. And these were,
9 all five of these locations were radon sources.
10 They're putting out a lot of radon as contaminants
11 into the air. If anyone wants a cite on that, it's
12 40 CFR 61, subpart Q. And we can provide copies of
13 those regulations if you would like. That is the
14 standard the gentleman was referencing, the 20
15 picocuries per meters square per second.
16 If you're looking in the report here in
17 the EE/CA on page 9, they talk about chronic emission
18 rates. Emission rates of radon, it's right now some
19 thousand times what that standard is.
20 From EPA's prospective and I would say
21 it's my prospective at this moment, my biggest concern
22 is to get those radon emissions down. If the borings
23 that are going to be done under the silos next month
24 show that it's released in the groundwater, we will



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1 give notice to DOE that they have to do another
2 removal action to address that.
3 MR. AVEL: If that's the case, you're
4 not going to have because DOE will address that.
5 MS. McCORD: Okay. But that's a
6 threat to the environment which could be a threat upon
7 the public, but today the most imminent threat is
8 public health exposure to those radon emissions. This
9 is supposedly the biggest radon source in the United
10 States.
11 MR. MITCHELL: This is not a dome
12 failure; this is every day.
13 UNIDENTIFIED SPEAKER: How high is it?
14 MS. McCORD: It is one thousand times
15 what EPA feels is protective of public health. It is
16 right now one thousand times that. So EPA says the
17 cleanups -- at any time this material is being sorted
18 interim or after remediation, that 20 number is what
19 that waste, whatever form it is going to be, has to
20 achieve. It can't emit more than that. When EPA came
21 up with that number, they do this in risk numbers, and
22 we're going to have to be getting used to hearing
23 these numbers more and more as we're talking about
24 cleanup, but that is a very high risk number



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1 associated with --

2 UNIDENTIFIED SPEAKER: What rate is it?

3 MS. McCORD: What we do is you look at

4 the potentially exposed individuals. The concern

5 would be the nearest resident who would be spending

6 the most time closest to that.

7 UNIDENTIFIED SPEAKER: I mean how many

8 miles, what radius?

9 MS. McCORD: It diffuses very quickly.

10 MR. AVEL: Your standard is measured

11 at the source.

12 MS. McCORD: That's right. I'm sorry,

13 the standard is where the waste is itself, but to get

14 to that number, EPA evaluated what the risk would be.

15 UNIDENTIFIED SPEAKER: I mean how many

16 miles, ten miles, five miles?

17 MS. CRAWFORD: If you look on page 27,

18 it tells you the work force within the fence line at a

19 hundred meters, which according to our calculations is

20 328 feet, and it took us a while to figure that out,

21 and the nearest resident at 500 meters, 1,640 feet,

22 although I think we have residents closer than that,

23 and the nearest population at 14,500 meters, which

24 went up to nine miles. Vicki and I figured that out



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1 the other day. We hope it's right.

2 MS. McCORD: So this removal action,

3 our biggest concern is the radon emissions. If it

4 happens to provide protection from a tornado, that

5 would be great, but there's not one structure out

6 there that is tornado proof. Maybe a control room is,

7 we have emergency things, but I don't think there's

8 anything that is truly tornado proof. We don't want

9 it to ever happen, it's a consideration, but it

10 shouldn't be the primary concern. We sure don't want

11 anything to happen as it happened this June, and if it

12 does -- the chance of it was so small, I guess.

13 UNIDENTIFIED SPEAKER: What are you

14 doing to get immediate action? Are you getting Bush

15 down here or anything?

16 MS. McCORD: This document through EPA

17 approval -- we will not approve something unless it is

18 providing some protection to the public health from

19 radon production and also will not prejudice or hurt

20 the final action. We're not going to allow them to

21 place something there that is going to prejudice or

22 make it harder to get this stuff --

23 UNIDENTIFIED SPEAKER: What are you

24 going to do?

1 MS. CRAWFORD: Wait a minute, Marvin.
2 It's Vicki's turn.
3 UNIDENTIFIED SPEAKER: The monitoring
4 reports that we read each year coming out in the plant,
5 and they tell us how much radiation the nearest person
6 has had and in 50 years, or whatever year, how many
7 years they might live there, et cetera, et cetera, and
8 all this is a very small portion of the standard.
9 MR. AVEL: Vicki, the standard just
10 came into being. All data still exists.
11 UNIDENTIFIED SPEAKER: We've been lied
12 to. We've been told that it's safe.
13 UNIDENTIFIED SPEAKER: Last year it
14 was safe, and this year they changed the standard.
15 MS. McCORD: The reason why EPA came
16 out with these regulations is because the radon
17 problem was serious enough that they had a regulation
18 just for those five locations, which is very out of
19 the ordinary. EPA does not generally go about
20 regulating things that way because it is not an
21 effective way to do it because it doesn't protect
22 enough people. In this case the risk from those five
23 sources was great enough, the regulation was just for
24 those -- for Fernald.

1 MS. CRAWFORD: You understand our
2 frustration here?
3 MS. McCORD: I do.
4 UNIDENTIFIED SPEAKER: Where will they
5 be 20 years from now?
6 MS. McCORD: You have to remember the
7 radon emissions off site were not meeting DOE
8 guidelines, even off-site exposures were above DOE
9 guidelines.
10 MS. CRAWFORD: They never told us that,
11 not once. They told us the readings were so low that
12 you could stand there naked 24 hours a day and never
13 be exposed.
14 MS. WOLINSKY: Excuse me, could we
15 have one conversation at a time.
16 MS. McCORD: Again, those are DOE
17 guidances and guidelines.
18 MR. AVEL: The concern -- let me see
19 if I can define the concern -- is that you feel you've
20 been lied to because there is now a standard that has
21 been promulgated that is at a level that requires or
22 that is thousands of times below what is being emitted
23 at Fernald.
24 UNIDENTIFIED SPEAKER: The lie is they



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1 said it wasn't anything to be worried about. If they
2 said we didn't know, that would be different.
3 MR. AVEL: I understand. I'm going to
4 attempt to explain why people were telling you that it
5 was not something to be worried about. First of all,
6 the standard is applied right here, right at the
7 source.
8 MS. CRAWFORD: We know that.
9 MR. AVEL: And so it's a thousand
10 times -- the source is a thousand times higher than
11 the standard right at the source. What we have been
12 telling you is that the people that are working around
13 here are not receiving a dose from the silos that is
14 at a level that will effect their health, negatively
15 affect their health.
16 MS. CRAWFORD: We're talking about the
17 fence line way over here.
18 MR. AVEL: I'm telling you about the
19 ones that's even closer.
20 MS. CRAWFORD: That is the one that
21 we're taking about.
22 MR. AVEL: I can move it out here and
23 the statement is still true. Catherine, help me, but
24 I think maybe EPA's philosophy is rather than have



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1 people trying to come up with where the best plac
2 measure that level would be, and maybe DOE, the bad
3 people we are, might want to measure the level at
4 people's front yard.
5 MS. McCORD: When that number is
6 calculated -- It's just like when EPA decides to set a
7 standard for how much contaminants can come out into
8 the river or from any other contaminant, they don't
9 expect someone's face being up there on the stack, but
10 that there are certain factors, distances and
11 populations and averages over the nation taken into
12 account to get a number that is safe. It's not safe
13 if someone is living there, but they're saying that
14 that number 20 will make it safe for someone to live
15 across the street.
16 MR. AVEL: Right, right, and DOE
17 agrees to the point that we want to get the radon
18 emissions down below that standard by this removal
19 action.
20 MS. CRAWFORD: And this removal action
21 will do that?
22 MR. AVEL: That is the goal of the
23 removal action, yes. It will lower the radon emission
24 level. We've been trying to say that all night. I

1 guess we must not have been doing too good a job, but
2 that's one of the reasons we're doing a removal action
3 rather than waiting until the RI/FS is completed, to
4 mitigate that problem and also to take care of the
5 possibility of a natural disaster.
6 MS. McCORD: You should know -- I want
7 to clarify something Andy said -- EPA does not feel
8 that the removal action will achieve that standard.
9 MR. AVEL: We have to demonstrate it.
10 MS. McCORD: Right. Most likely it
11 won't occur because the standard was set with the
12 intention that it was towards final remediation. You
13 look at the regulation, actually reference to CERCLA
14 and the cleanup with the EPA that it probably
15 technically won't happen until the material is
16 petrified or whatever happens to it, unless that kind
17 of severe step is taken as a removal action.
18 MR. AVEL: Our goal for this removal
19 action is to meet that, that objective.
20 MS. McCORD: That's great, and that
21 would be wonderful.
22 UNIDENTIFIED SPEAKER: EE/CA says it
23 doesn't have to.
24 MR. MITCHELL: (inaudible) Studies on



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1 radon fusion rates through a material, have you done
2 that?
3 MR. MORRIS: No, we did not do that.
4 We relied on other studies, and one of the reasons for
5 picking the sand is that Albuquerque, UMTRUK -- I
6 don't know what it stands for -- anyway, they did a
7 study ten years ago that said if I pile four feet of
8 bituminous sand, if I pile four feet of masonry sand,
9 some other kind of sand, what will it do to the radon
10 rates, and all of this stuff is just swelling around
11 taking the radon out of wherever it was coming from,
12 where it decays, and it stays there. It was pointed
13 out that to use it in the silos that sand would have
14 to be wet. If you take that sand and buried the
15 moisture content of it, you change the effect of the
16 fusion length, if you will, of the stuff, meaning the
17 dryer it is, the more stuff you have to have.
18 NRC study was done back in '79 or
19 earlier than that said which moist clay was one of the
20 most effective ways of stopping radon.
21 UNIDENTIFIED SPEAKER: My question is
22 if you're going to change the direction of your
23 pollution, and your pollution is radon gas, and you're
24 going to cover this bentonite with whatever you're



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1 going to cover it with, you're increasing the weight
2 capacity. Is there any provisions being made to check
3 for the direction? In other words, your contamination
4 is going to change direction; are you going to
5 increase the risks of contamination?
6 MR. MORRIS: The thing you have to
7 understand is that this radon doesn't always go up; it
8 just goes everywhere.
9 MS. McCORD: Least resistance.
10 MR. MORRIS: Least resistance. If you
11 took a vial of radon and put it in the room, it would
12 head everywhere. It just goes until it is all equally
13 spaced and trapped. And in this context here, the
14 radon is going out sideways. It's just that it --
15 it's got the berm there and all that dirt on the side.
16 The likelihood of it making its way sideways is a lot
17 less than making its way upwards because the --
18 (inaudible)
19 UNIDENTIFIED SPEAKER: Hypothetically
20 radon is gaseous in nature, right?
21 MR. MORRIS: Yes.
22 UNIDENTIFIED SPEAKER: So if you seal
23 completely from the top and if it's going to go
24 someplace, couldn't that foreseeably speed up the



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1 movement down into the underground water and out into
2 the soil?
3 MR. MORRIS: We did a calculation when
4 we read the newspaper article that says we were
5 courting radon as to how much radon really is being
6 generated on an annual basis inside the silos. It
7 wouldn't fill a balloon, wouldn't inflate a balloon.
8 Radon for a whole entire year, we're not talking about
9 a very significant amount of gas.
10 UNIDENTIFIED SPEAKER: Are there other
11 gasses being generated? When they put the
12 polyurethane foam, I was told they had to open it up.
13 The reason they let all that gas out accidentally was
14 that they had to prevent bubbles from forming
15 underneath the polyurethane foam.
16 MR. MITCHELL: There was a heat
17 differential.
18 MR. MORRIS: Yes. It had nothing to
19 do with radon.
20 MS. McCORD: That's why at night when
21 the pressure is like at its lowest point, like at 2:00
22 a.m., that is why the radon emission rates are the
23 highest, because the atmosphere itself is not putting
24 the air pressure on the dome, on the silos so the



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1 radon is being contained. In fact, air pressure has
2 been found to be very effective means of controlling
3 radon in basements. A slight pressure differential
4 will help control, keep radon out of people's
5 basements. If the pressure is a little bit greater --
6 that's why sometimes people with small fans will do
7 that.
8 In fact, that was one of the questions
9 that we've got on the EE/CA, is would something like a
10 small pressure differential through maybe an outer
11 containment building put over it with smaller pressure
12 on the domes be an effective means of controlling
13 radon to the point it would decay naturally, it
14 wouldn't be as much of a health concern. That's a
15 question. Were pressure differentials considered?
16 MR. MORRIS: Yes, they were.
17 MS. McCORD: What was the problem?
18 MR. MORRIS: The problem is we just
19 don't know what the etiology of the dome is in terms
20 of sizing something either to put a positive pressure
21 on a dome or a negative pressure. The other thing is
22 these things have been analyzed, but they have no
23 structural strength left in them, so if you go
24 tinkering --



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1 MS. McCORD: We're talking about
2 things that you would not notice, the pressure
3 differences which are much smaller than what you see
4 on a daily basis.
5 MR. MORRIS: But it's still a load
6 you're putting on it.
7 MS. McCORD: You're willing to open
8 them up and put material inside, which is certainly a
9 physical load.
10 MR. MORRIS: I understand, to the
11 bottom, not on the top.
12 MS. McCORD: Something to think about
13 too, though, if radon is always going to take the path
14 of least resistance and you're putting over, the gooey,
15 what I describe as a wet oatmeal, porridge kind of
16 stuff on it, and to be effective it has to remain that
17 consistency, why wouldn't radon again take the path of
18 least resistance and go through the cracks below that
19 line, that porridge, and go out --
20 MR. MORRIS: It's doing that now. To
21 answer your question, the bentonite by its very nature
22 just goes in and seals every crack and cranny that it
23 gets to.
24 UNIDENTIFIED SPEAKER: The top?



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1 MR. MORRIS: No. This stuff is going
2 to be poured on and it is going to go down and seal up
3 the residue on the surface. It is going to seal the
4 cracks if there are any on the walls.
5 MS. CRAWFORD: All the way down?
6 MR. MORRIS: As far as it can go. If
7 there's a crack, it will go all the way, as far as it
8 can go. It will seal up those cracks. Now, if it
9 can't get between there, it won't make it.
10 UNIDENTIFIED SPEAKER: You know this
11 is the study on the radon flux out of the top of the
12 dome, and these are logarithmic displays. What that
13 means is the little square in the center in the red
14 are a million times as fast as the rate of radon
15 release. And you will notice that the radon flux is
16 lowest in the center of the dome and especially those
17 that are out here at the edge are the very highest.
18 This was done in 1985, I believe.
19 Now my interpretation of that is that
20 this clearly demonstrates that the dome itself is not
21 the source of the majority of the radon that is
22 leaking out, but it is rather leaking out of the sides,
23 and what they're really measuring here is the radon
24 that is perculating up along the sides. And my



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1 analysis would suggest that to put bentonite on top
2 would only increase the rate of seepage out the sides,
3 because you're essentially putting a layer across the
4 top, and now the gas is falling out the sides instead
5 of the top.
6 MR. CRAIG: How come you highlighted
7 the 12 and didn't highlight the 15 or the 21?
8 UNIDENTIFIED SPEAKER: These are the
9 numbers -- If you notice these are heights. The
10 numbers are not important there. These numbers are
11 just the sample numbers. In fact, I redrew this
12 because the way this was really presented, it just
13 gave 1 through 24 and gave some numbers and you
14 couldn't correlate where they were located. In fact,
15 I'm not sure the person who did this study ever
16 correlated exactly where, but it's clear to me that
17 these that are a million times this great in terms of
18 the rate of radon release are at the sides, and it
19 says to me that most of the radon that's being
20 released is not out the top but is out the side of a
21 container that we know is crumbling. We know it's
22 crumbling. That's well beyond --
23 MR. MORRIS: If I may. I have not
24 seen this before. It could be very well that the



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1 stuff is making its way out the sides. This appears
2 to have been done before they did the foam.
3 MR. CRAIG: Yes.
4 MR. MORRIS: But again the bentonite
5 is going to make its way down the sides of the silo
6 into every nook and cranny of that vessel and make
7 itself flat.
8 The other thing is when you say
9 according to the bentonite studies, the bentonite is
10 going to be, and I don't know the number, it's two
11 feet of bentonite covered by two feet of water, but
12 this bentonite is going to have gone into the sides of
13 the silo and seal it up as best it can, which is a
14 better situation, I believe, than the way it is right
15 now or any other alternative.
16 UNIDENTIFIED SPEAKER: Isn't the water
17 also going to be meeting whatever cracks are on the
18 inside of the walls and that space and thereby further
19 freezing and thawing and causing the walls to begin to
20 decay more?
21 MR. MORRIS: We're four feet down.
22 MR. AVEL: You have a four-inch
23 styrofoam cap over the top. You have berms inside.
24 UNIDENTIFIED SPEAKER: If you take a



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1 spot on the wall and you put water in there, and it's
2 freezing and thawing in there, you're going to degrade
3 that section of the walls. Eventually couldn't that
4 structure make the dome and the area of the walls
5 above that --
6 MR. AVEL: Even if bentonite freezes
7 and thaws, as long as it --
8 UNIDENTIFIED SPEAKER: I'm sorry, the
9 water is going to freeze and thaw and crack, and it
10 will fall apart like my patio did. It's going to
11 crack up.
12 UNIDENTIFIED SPEAKER: The evaporation
13 of the water will barely corrode the dome because it
14 will further condensate and then it will further
15 weaken the domes.
16 MR. MORRIS: We'll have some of that.
17 I have to admit I do not believe that somebody sat
18 down and calculated the evaporation rate and concluded
19 what the impact on the dome was.
20 MR. CRAIG: You have to remember,
21 though, even if that does happen, having clay in there
22 always means you don't need it though.
23 UNIDENTIFIED SPEAKER: Everybody seems
24 to be very resistant to a containment building with a



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1 tornado-proof structure which could be left intact by
2 hydraulically removing all the material inside. That
3 is not a technological impossibility. You can make
4 manholes in the containment building and hydraulically
5 remove all K-65's, and all the problems could be
6 solved.
7 MR. CRAIG: I agree that's probably
8 possible three or four years down the road.
9 UNIDENTIFIED SPEAKER: It's possible.
10 MR. CRAIG: I agree with you.
11 UNIDENTIFIED SPEAKER: If you build a
12 structure, then you have everything intact after you
13 have the technology to complete your job safely.
14 MR. CRAIG: I can't disagree with that,
15 but you're also talking three or four years down the
16 road and the silos will be used continuously for three
17 years.
18 UNIDENTIFIED SPEAKER: You have a back
19 up in case of any accident of a dome failure or
20 anything so if anything happened, you've got a
21 containment building to safely contain everything.
22 UNIDENTIFIED SPEAKER: Are you saying
23 in alternative 2 that you build a building and make it
24 big enough with conveyors --



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1 MR. CRAIG: That hasn't been evaluated.
2 You're talking about total containment building?
3 UNIDENTIFIED SPEAKER: I'm talking
4 about number 2 and hydraulically removing K-65, but
5 you're safely containing the radon, you're safely
6 containing all particles in K-65, and then you
7 hydraulically remove it, but there is no emergency
8 will happen with the containment building intact.
9 MR. CRAIG: If you build that type of
10 building, you're right. That's not the type of
11 building we're talking about in alternative 2.
12 UNIDENTIFIED SPEAKER: Alternative 2
13 only has to have a manhole to hydraulically remove
14 materials.
15 MR. CRAIG: I guess the question is,
16 Tom, how come a total building wasn't looked at rather
17 than a structure -- (inaudible)
18 MS. WOLINSKY: If we could have one
19 conversation at a time, please.
20 MR. MORRIS: The answer to the
21 gentleman's question about the dome. I don't believe
22 that we did a look at an enclosure that would allow us
23 to do remedial action also. We look did at it in the
24 context that it would not interfere. We did not



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1 necessarily look at it in the way you're looking at it,
2 whether or not that was the way to go. Basically you
3 you would be putting tiles around the silos to support
4 the things. This is a steel structure, if I'm not
5 mistaken. Because it was one of the questions I asked
6 also.
7 MS. WOLINSKY: Are there any more
8 questions?
9 UNIDENTIFIED SPEAKER: A couple of
10 terms I need defined. What does radon -- What does
11 the word flux mean when you're using it with radon
12 flux measures?
13 MR. MORRIS: Flux is the amount of
14 radon or anything passing through an area in a given
15 amount of time. So you take a look at the NESHAP
16 standard and it says 20 picocuries, which is the
17 activity to a meter square every second. So it's sort
18 of like measuring traffic, a certain numbers of cars
19 passing down a three-lane highway every second.
20 UNIDENTIFIED SPEAKER: The other term
21 was talking about the wet clay, talking about a half
22 value. What's a half value?
23 MR. MORRIS: Half value is something
24 we use the term for measuring thicknesses of things



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1 which reduce the flux to half, radiation levels to
2 half. Another term that we might use is a TEM
3 thickness.
4 UNIDENTIFIED SPEAKER: How thick then
5 would the clay have to be to reduce the radon by half?
6 MR. MORRIS: By half. The moist clay
7 I think at this point is.
8 UNIDENTIFIED SPEAKER: When you start
9 working on this K-65 silo, have you contacted anyone
10 at Civil Defense or emergency preparedness or anything
11 to make them aware that you're doing this in case
12 there would be an emergency?
13 MR. MORRIS: I'm assuming the site has
14 an emergency --
15 MR. CRAIG: There is an emergency
16 procedure in place at the site.
17 UNIDENTIFIED SPEAKER: I'm talking
18 about for the residents.
19 MR. CRAIG: We have alternative
20 actions --
21 MS. McCORD: Sirens.
22 MS. CRAWFORD: We have the siren
23 system which cannot be heard inside people's homes.
24 We also have an evacuation plan which is not real



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1 great.

2 MR. CRAIG: I'm not sure I understand

3 your question. Are you talking about if we're doing

4 an action out there --

5 UNIDENTIFIED SPEAKER: You always want

6 to be prepared for an emergency, and those walls of

7 those silos are not stable, anything can happen, and I

8 want to know if anyone is going to be told about this

9 in the emergency field in case something happens, like

10 Civil Defense or Emergency Preparedness or whatever.

11 MS. CRAWFORD: I think what she's

12 trying to say is when you take whatever action you

13 decide to do here, and hopefully there will be no

14 action --

15 UNIDENTIFIED SPEAKER: I'm talking

16 about when you start working on the silos.

17 MS. CRAWFORD: Right, when you start

18 working on these silos and you start to do these

19 actions, what her question is, are you going to notify

20 the emergency people in case something would happen;

21 is that right?

22 UNIDENTIFIED SPEAKER: That's exactly

23 right.

24 MR. MITCHELL: On page 65 is a



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1 description of what happens in the case of accidental
2 failure.
3 MR. MORRIS: Yes, but I don't know if
4 we described what the lady is asking for.
5 MR. MITCHELL: It talks about
6 evacuation.
7 MR. CRAIG: You're saying alerting
8 people if something might happen.
9 UNIDENTIFIED SPEAKER: In case
10 something would go wrong, be thinking mentally.
11 MR. MORRIS: Don't you have site
12 drills where you involve the residents?
13 MR. CRAIG: Those would not apply to
14 this action specifically. The local residents are
15 notified. I can't answer your question about --
16 MS. McCORD: You've already got
17 procedures in place, if you are going to touch the
18 silos, have you agreed to contact FRESH?
19 MR. CRAIG: Yes. I think her question
20 is response agencies.
21 MS. CRAWFORD: She thinks if they're
22 going to work on the K-65 silos, that outside response
23 people should be notified that they are working on
24 these suckers and something might happen.



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1 MS. McCORD: Make that a comment in
2 EE/CA, make that a comment in the document.
3 MR. CRAIG: That's fine.
4 UNIDENTIFIED SPEAKER: When they talk
5 about the wind rose and the meteorological data in
6 this, they were only using the airport data from
7 Cincinnati and Dayton. Why didn't they use the Met
8 Tower data?
9 MR. MORRIS: Because we didn't have it.
10 UNIDENTIFIED SPEAKER: Why wouldn't
11 you have it? They put all that money into building
12 the Met Tower and they have had two or three years to
13 come up with the data.
14 MR. MORRIS: I don't think that it
15 will be that significant, that it would not impact the
16 risk assessment in context of what the risk is. It
17 doesn't change the action, our recommendation. We've
18 got to do something. So using that wind rose that was
19 there available was timely for us rather than for us
20 waiting for DOE. We did ask for all that stuff before
21 we started.
22 UNIDENTIFIED SPEAKER: And they just
23 couldn't get it to you fast enough so the report could
24 be as up-to-date as possible?

1 MR. MORRIS: We asked for a lot of
2 information, and I don't believe it's going to change --
3 UNIDENTIFIED SPEAKER: I understand it
4 may not impact it, but it seems like the other EE/CA's
5 refer to monitoring reports from the year before.
6 MR. MORRIS: I understand that. We
7 even looked at the report that they told us to look at
8 and there was no wind rose in that.
9 UNIDENTIFIED SPEAKER: In these other
10 two EE/CA's that we looked at and they talk about
11 getting monitoring data and it's got a certain year's
12 monitoring report and it's not the most recent one.
13 To the public these things are not being looked at.
14 And maybe the other things that are important are
15 being overlooked.
16 MR. BIANCHERIA: I sent it to the site
17 to Davis -- they didn't really need it but the risk
18 assessment study was being done here. That's where
19 you really use the site specific. They didn't need it
20 for the study.
21 MR. JANKE: We not -- on an access we
22 utilized it, and what that results showed was that the
23 highest concentration were not in the direction of
24 nearest residents, and what we did was we took those



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1 highest concentrations and said let's assume they do
2 occur in the direction of the nearest resident, and
3 that's how page 67 of the U.C. risk assessment
4 document has an entire list of concentrations both in
5 the atmosphere and on the ground of all the
6 radionuclides that we considered, and those are
7 maximum concentrations, not necessarily -- So we
8 utilized the wind rose and found out that's not going
9 to give you your most conservative estimates of dose.
10 UNIDENTIFIED SPEAKER: So your study
11 used the latest possible data?
12 MR. JANKE: The latest possible data,
13 that's correct.
14 UNIDENTIFIED SPEAKER: The whole
15 bigger document didn't.
16 MR. JANKE: You have to understand the
17 risk assessment that U.C. did was for applicability to
18 these. The risk assessment was the basis of
19 determining what is the most significant risk to be
20 considered in the removal action. And, therefore,
21 when you say it was or was not considered, I mean it
22 was really redundant if it had been included in the
23 Bechtel document, and it would have been
24 inconsequential because it was left out. I understand



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1 your point that it was left out, but it really is not --
2 MR. AVEL: Jerry Gehls is with
3 Westinghouse at the site. Jerry why don't you tell
4 them what you just told me.
5 MR. GEHLS: As far as the wind rose is
6 concerned, for predictive purposes, it is best better
7 to use average day over a number of years from the
8 past than it is to use last year's data because last
9 year could be an aberrant year. That's one of the
10 main reasons you wanted to use that.
11 UNIDENTIFIED SPEAKER: Okay.
12 UNIDENTIFIED SPEAKER: There can be
13 topographical anomalies that cause marked changes from
14 normal wind rose. For instance, when they put Zimmer
15 up, they used the Cincinnati airport wind rose, but in
16 fact the wind blows right up the river towards
17 Cincinnati, and when you looked at the meteorological
18 data from Zimmer, it was a completely different story.
19 So I think it is important to use --
20 MR. AVEL: Yeah, I think the point
21 here --
22 MR. MORRIS: As far as our analysis
23 went --
24 MR. AVEL: Wait a minute, let me



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1 explain. I think the point here is we go back and
2 revise documents based on comments that we -- we take
3 a look at the data that is site specific and see if
4 there's a difference in factors or what the results
5 are. I think that's a good point.
6 UNIDENTIFIED SPEAKER: Due to a lack
7 of weather stage in Fernald, didn't you use airport
8 weather data and transpose it at Fernald and make your
9 studies?
10 MR. AVEL: Vicki's point is we have
11 since, for the past year, year and a half -- I don't
12 know past several years, we've had our own weather
13 station and Vicki asked why didn't we use that data in
14 the report, and it's a good question. When we revise
15 the document, we'll look at it and see what in fact it
16 has.
17 If there aren't any more questions we
18 can -- woops, I'm sorry, yes, ma'am.
19 UNIDENTIFIED SPEAKER: I would like
20 for one of you who is working on biological effects of
21 radiation, given the situation with the radon gas, and
22 would you describe the biological effects, say for
23 example, a worker who is working there and maybe a
24 resident a thousand yards away?



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1 MR. JANKE: Sure, that would be no
2 problem at all.
3 MS. WOLINSKY: Randy, could you
4 restate the question, please.
5 MR. JANKE: Yes. The question is can
6 I describe the biological effects for two cases, the
7 first case would be an individual working on site, the
8 second case would be a person maybe a thousand yards
9 away, both of them breathing the air that the radon is
10 contained in.
11 Let me go over this as detailed as I
12 can without losing anybody. When we do our estimates,
13 we look at the maximum, minimum, as well as average
14 concentrations of radon. The calculations made at UC
15 indicated you'll have approximately 8.4 picocuries per
16 liter of radon in the air within that hundred meter
17 distance. We're taking that as being that individual
18 who is working on site. When you then calculate that
19 being 8.4 picocuries per liter all the time at that
20 hundred meter point, the individual stays there eight
21 hours of his working day because that's the
22 occupational exposure, so he's not allowed to go
23 anywhere, so he stays there, breathes that air eight
24 hours a day, five days a week, 50 weeks a year, we're

1 going to say he takes a vacation. What he's then
2 going to end up with is a risk essentially of about
3 two to three times ten to the minus three. In other
4 words, he's going to have about two or three chances
5 in a thousand of contracting a fatal cancer.
6 Now, the risk corresponding to that,
7 because I don't want to mix up the rems with you
8 because the rems are directly correlated to risk, so
9 there's no sense going into that, but the 500 meter
10 and the 1,000 meter distance you asked for, if you
11 look at the concentration, it is dropped off from 8.4
12 picocuries per liter down to approximately a half a
13 picocurie per liter at that 500 meter distance. Now
14 the risk corresponding will also drop in a similar
15 fashion because it's linear. So we end up saying the
16 risk is on the order of about two times ten to the
17 minus four, which means he has about two chances in
18 10,000 now of contracting a fatal cancer.
19 Now, that's essentially the biological
20 effect. This effect is actually one that had been
21 predicted based on much higher levels of radiation
22 being exposed to people, so we're extrapolating down.
23 That's how we get those effects. The specific effects
24 from breathing radon are not known precisely. We can



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1 calculate exactly how much energy is deposited into
2 the various portions of your lungs, but how that
3 translates then directly into a fatal cancer, a cancer
4 incidence, or no health impact at all is not precisely
5 known. There are a number of organizations that have
6 produced results specifically in those areas.
7 The Bier 5 report has just recently
8 been released. There was a number of discussions, I'm
9 sure most of you heard about it. That indicates that
10 the risks are going to go up by maybe a factor of
11 three. We used Bier 3 estimates because the
12 regulatory agencies that actually proposed the limits
13 on radiation exposure from the recommendations made by
14 Bier 5 or Bier 3, that discussion hasn't been resolved
15 yet. So our numbers that I'm telling you, two times
16 ten to the minus four, approximately two to three
17 times ten to the minus three may go up by a factor of
18 three dependent on how the regulatory bodies review
19 the Bier 5 document.
20 Getting back to the actual effects, you
21 have to realize that any effect that occurs occurs
22 over a long period of time because you're breathing it
23 in, you breathe it out and you breathe it in, so these
24 effects are occurring. Whatever effects the radiation

1 does have in terms of damage to the cells in the body,
2 the body actually repairs some of it, and that repair
3 mechanism is taken into account when you're actually
4 calculating these risk numbers. The extrapolation
5 down to low doses from the high dose cases takes into
6 account some of these repair mechanisms.
7 So the best way to sum up the
8 biological effects from the radon that would be
9 released on a chronic basis from the silos is in terms
10 of risk. That risk specifically states the most
11 conservative estimate of the number of cancers, fatal
12 cancers that will be induced in a person's lifetime
13 based on that one year of chronic inhalation.
14 Now, to follow-up on that, just one
15 more piece of information, and why a lot of you -- in
16 fact, I heard a number of comments, and you said you
17 go away more afraid today than when you came in. I
18 would like to point out that these risks are in a
19 regulatory sense serious. As the gentleman indicated
20 earlier, I'm a nuclear engineer and I think everything
21 is safe. That's not true. I also consider two times
22 ten to the minus four a serious risk. However, when
23 you compare that to the national cancer incident rate,
24 the national cancer incidence for fatal is about 21



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1 percent, which means 21 people out of a hundred will
2 contract a fatal cancer. Now, there's about 35 people
3 out of every hundred that will eventually get a cancer
4 in their lifetime but may not necessarily die from it.
5 So those are aside from all the man-made radiation or
6 radioactive or even chemical problems that appear in
7 the environment.
8 So, on one hand, when someone tells you
9 that the risk is not very significant to you, they're
10 taking into account that regardless of whether the
11 silos were there or not, you're still exposed to this
12 national cancer incident rate. Then when they come
13 back and they say this is the most serious question we
14 have to consider in terms of any kind of removal
15 action associated with the silo, they're really
16 gearing it towards extra, on top of any national
17 cancer incidents. What is it that man has produced,
18 and those two in ever 10,000, it is considered by the
19 regulatory agencies to be significant enough to take
20 action now.
21 And I hope that some of the comparisons
22 as well as some of the calculations help you. The
23 eight and a half picocuries per liter at a hundred
24 meters down to about a half a picocurie per liter at



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1 500 meters, that compares to average home
2 concentrations in the Greater Cincinnati area, which
3 is a study also done by the University of Cincinnati,
4 shows that average home concentrations range from .2
5 all the way up to 19 picocuries per liter. And this
6 is not associated with any kind of man-made or extra
7 type of radon. This is natural in the environment.
8 MR. MORRIS: What's the extra level
9 for the house?
10 MR. JANKE: The actual level for the
11 house as I understand it as stated by EPA is four
12 picocuries per liter. And I know a number of people
13 close to me that had their homes checked, and they
14 range anywhere from one to about three and a half
15 picocuries per liter. I don't personally know anybody
16 that had four.
17 MS. McCORD: To keep that figure in
18 mind, there is a relatively very high risk even with
19 that four, especially with that four number, compared
20 to other risks that EPA will accept for other
21 contaminants, and part of the reason for that is that
22 the radon is so ubiquitous, it is all over the place,
23 and EPA is still considering that hard action.
24 UNIDENTIFIED SPEAKER: We have homes



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1 within the area that ranged within the 19, 20, 21
2 picocuries per liter within their living area.
3 MR. JANKE: If those homes that you're
4 seeing 20 picocuries per liter are within that 500
5 meter distance from the silos, then you could say,
6 okay, they're up to 19 and a half or 20 and a half or
7 something along those lines, but those numbers that
8 you reported, not very likely at all, in fact I'd
9 almost say nearly impossible to be a result of the
10 silos.
11 UNIDENTIFIED SPEAKER: I have a
12 question. Is it in here that you have plus or minus
13 errors?
14 MR. JANKE: No. These are maximum
15 concentrations that we reported.
16 UNIDENTIFIED SPEAKER: You're not
17 giving yourself any leeway for an error?
18 MR. JANKE: No. In fact, we went, as
19 the document indicates on the front, it is a risk
20 assessment using EPA methodology, and if you read the
21 guidelines that the EPA puts forth for conducting risk
22 assessments -- let me back up just a little bit.
23 My experience in the nuclear industry
24 has heretofore been really involved with probabilistic



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1 risk assessment of reactors. As the individual said
2 earlier, a chance of a meteorite hitting you in the
3 head. I used to do some of those calculations. We
4 would have error bars in every calculation we made
5 because the uncertainty was easily quantified. What I
6 mean by that is I could tell you how far off plus or
7 minus I was. But as soon as you begin to look at
8 environmental transport of contaminants and then you
9 look at the opportunity and feasibility that a person
10 will be exposed to that material in the environment,
11 you begin to lose all certainty.
12 So what we do is we overestimate. For
13 example, when I said earlier that the occupational
14 exposure, that individual has to stay there eight
15 hours a day, five days a week, 50 weeks a year. That
16 right there blows your uncertainty. There's no sense
17 having error bars because the error bars would be
18 probably four or five times the size, and they would
19 not go above that concentration, they would go below.
20 So in reality, when I say he's breathing roughly eight
21 and a half picocuries per liter, that's a gross
22 exaggeration because actual monitoring data shows that
23 they only peak within the first maybe 10 to 20 years
24 from the silos themselves. Peak concentrations are on



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1 the order of 10 to maybe 15 picocuries per liter.

2 So to give you an error bar on eight,

3 eight and a half would be ridiculous, because it would

4 be eight and a half minus some, I don't know, 15, 20

5 picocuries per liter.

6 The qualitative discussion of

7 uncertainty is considered in Section 5 of our document.

8 It begins on page 109, and that discusses many of the

9 uncertainties inherent in our entire study, and it's

10 an attempt to give everyone an appreciation for just

11 how difficult it is to quantify precisely these

12 numbers. So what we did, as I indicated earlier, we

13 went with the maximum credible access as well as the

14 maximum concentrations that would be observed.

15 UNIDENTIFIED SPEAKER: What about the

16 Miami River where we're piping this radiation down

17 through the Miami River and saying that half a mile

18 from the Miami River that would be just the same as

19 being a source?

20 MR. JANKE: That was not part of this

21 particular study. I've done other studies and looked

22 into that, but I'm not really sure this is the correct

23 forum for answering this question. If you call my

24 office, I can answer those for you.



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1 MS. WOLINSKY: If we don't have any
2 more questions, we can at this time take a great big
3 sigh and then go into the formal statements. It's the
4 same rules we had earlier, if you would come up to the
5 microphone, please state your name, if you want to
6 state an organizational affiliation or address, that's
7 entirely up to you. We try to keep individual
8 statements to under five minutes. If you wish to go
9 beyond that, we will give other people a chance to
10 make their statements and then come back to you.
11 UNIDENTIFIED SPEAKER: Can we have
12 some more of these?
13 MS. WOLINSKY: I believe we have some
14 more calendars in the back.
15 Are there any persons who wish to make
16 formal comments?
17 Since there's so many people here this
18 evening, as in previous workshops, generally the
19 format is as the comments are given, they are taken by
20 the court reporter and then they get addressed in the
21 response summary to the document at a later date.
22 Anyone like to make comments?
23 DR. FANKHAUSER: What I would like to
24 do is I have a few of these charts that I've run off



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1 and maybe you can share them with some people near you.
2 These are four charts actually that the government has
3 put together over -- I really don't have very many,
4 and, again, if you'll share them.
5 I'm Dr. David Fankhauser. I'm
6 Associate Professor of Biology and Chemistry at the
7 University of Cincinnati, Clermont College.
8 These charts that I've drawn up give a
9 little history of the K-65 silos, and this history I
10 think becomes important when you try to decide whether
11 or not the remedial action that has been proposed is
12 going to be adequate. One of the -- on the front of
13 this is a, the result of a gamma radiation survey that
14 I conducted in 1985 along Paddy's Run Road. This was
15 at a time that the official party line was that there
16 was no elevated radiation off site. And as you can
17 see, there is in fact a very pronounced increase in
18 gamma radiation as you go past the K-65 silos and then
19 it declines on the other side. This pattern here
20 clearly shows this is somewhat of a point source.
21 The reason that I show this is that the
22 remedial action that's been proposed thus far says
23 nothing whatsoever about the gamma radiation that is
24 being given off of this so-called shine really will

1 only be reduced either by putting additional shielding
2 in or preferably to remove the materials from on site.
3 MR. MORRIS: Excuse me, Doctor, what
4 are the units on this thing?
5 UNIDENTIFIED SPEAKER: These are in
6 counts per second.
7 What you can do is see that if you look
8 at that, you can see that there is roughly a six-fold
9 elevation above background for gamma radiation.
10 Basically background is about three and a half counts
11 per second. This is with a sodium iodide crystal.
12 The second issue that I would like to
13 point out, this is a study that was done in 1982, I
14 believe it was, in which core samples were drawn from
15 underneath the K-65 silos and analyzed for
16 radionuclide contents, and the important point I
17 believe is if you look at these two that are closest
18 to the edge of the silo, they contain by far the
19 highest amount of uranium. It was alluded to earlier
20 that these are not very high levels, and I don't argue
21 that these are relatively low, but it is very clear,
22 and it does not seem to be just by coincidence to me
23 that it is directly below the sides of the silos. I
24 think we all are aware that the silos have a long

1 history of cracking, and in fact the reason that they
2 put these berms up there in the first place was
3 because they were afraid that these silos were
4 literally going to burst their sides, and NLO at the
5 time proposed a number of solutions to that.
6 Pre-Load Structures, Incorporated, who
7 originally built these silos, said to build up berms
8 would be extremely dangerous. They said to build up
9 the berms will in fact cause additional vertical
10 cracks to appear in silos that otherwise would have
11 horizontal cracks. They further said that they would
12 expect or they would not be surprised if berming them
13 up would increase the rate of corrosion of the silos.
14 It is my reading of this data that
15 there has in fact been seepage out of the sides of the
16 silos, and my guess is if we took readings in much the
17 same places today, I wouldn't be surprised to see them
18 higher than what they are there. It is my
19 understanding also that there are plans underway to
20 take additional core samples from underneath the silos,
21 and I think those are very important to do.
22 Again, if this seepage is due to cracks
23 in the sides of the silos, to put a permanently wet
24 bentonite clay cap on top will add much more water to



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1 this and will increase the rate of seepage into the
2 groundwater, and it seems unwise to me to turn this
3 stuff into a moist condition and to provide, therefore,
4 a vector mechanism for removing the radioactive waste
5 and anything that dissolves in this water to the
6 outside.
7 MS. WOLINSKY: Excuse me, the five
8 minutes are up. Does anyone else have any comments
9 that you choose to make?
10 MS. CRAWFORD: I do, but he can keep
11 going.
12 UNIDENTIFIED SPEAKER: I think this
13 won't take too much longer.
14 We have already looked at this, but I
15 think it is important to include it in part of the
16 official comment, and again this is a graph that
17 demonstrates in a logarithmic fashion the rate of
18 release of radon from the top of the silo, and what
19 they did was take 24 different readings at different
20 sites on the silo and they measured them. I have
21 indicated the rate of release according to the length
22 of a bar, and it is important to understand that if
23 you have one bar, that's ten to the one; if you have
24 two squares it's ten to the two, ten to the three, ten



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1 to the four. These are ten to the seven. In other
2 words, that is one million times as great a rate of
3 release from the edges as you see from the center.
4 And this supports my conclusion from
5 the previous slide that the major releases from the
6 silos are from around the edges, not from the dome
7 itself. That's not to say that the dome isn't about
8 to collapse, but that if we put a cap of bentonite on
9 top of those wastes, I would predict that these rates
10 of releases may in fact go up because we would be
11 forcing radon out the side rather than up through the
12 center.
13 Lastly, I want to touch on a couple of
14 those things we also talked on earlier. That relates
15 to the fact that this proposal seems to me to be
16 counterproductive, that what we will do in essence,
17 while I admit that there may be some benefit to
18 preventing tornado releases, but what we will do in
19 fact is back ourselves up when we should be going
20 forward to devising a plan to properly house, to
21 package and remove this waste, and I would say that
22 looking at the, if you look at their proposals, it is
23 clear to me that the one that is going to be in the
24 long run most appropriate, and this is page 94, it



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1 doesn't have a page number, but Table 6-1, is going to
2 be a combination of alternative 2 and alternative 3.
3 Namely, to build an adequate protective structure over
4 the top of these silos so that the silos may be opened
5 up and repackage the wastes and to ship them to a
6 suitable site where we hope that population centers
7 like Cincinnati will not be exposed to their releases.
8 I think that if we allow, we, the public, allow them
9 to put the bentonite clay on there we will in essence
10 be allowing them to begin to drive nails into the
11 coffin that constitutes the national sacrifice zone.
12 And it's my firm hope that they will
13 reconsider this and look to a more long-range picture
14 and not waste the money right now that will increase
15 the amount of radioactive waste and perhaps increase
16 the seepage of radon from the silos, and rather look
17 at more long-term solutions that will be more suitable
18 for our community.
19 MS. WOLINSKY: Are there other
20 comments?
21 MS. CRAWFORD: My name is Lisa
22 Crawford. I am the President of FRESH, Incorporated.
23 I don't have to tell you my address, do I?
24 I feel like the bentonite clay is going



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1 to create more waste that will have to be dealt with
2 in the final remediation action. I don't believe that
3 justification has been clearly shown that the
4 bentonite clay is the best alternative, and I think
5 more thought needs to be put into other alternatives,
6 not the easiest, fastest, and cheapest way to do this.
7 The issue of using the water to keep
8 the clay wet concerns me with regard to the possible
9 leakage underneath and off to the sides of the silos.
10 I don't believe that any regard was given to the
11 leakage into the water table, and this along with the
12 concern for the radon emission should have been
13 addressed together.
14 Building a tornado-resistant building,
15 radon treatment building would accomplish the same
16 results at not much more money and in the same time
17 frame. It also would not create more waste and we
18 wouldn't be dealing with water possibly leeching into
19 the groundwater. It would also allow for a cover for
20 the final remediation of possibly removing the K-65
21 waste. This would save money in the long run and
22 enable the K-65 waste to be under cover and out of the
23 environment.
24 Lastly, emergency preparedness should

be a high priority, with all concerned parties being alerted that removal actions are beginning and underway. All should be on alert throughout the entire procedure. Thank you.

MS. WOLINSKY: Other comments, please?

UNIDENTIFIED SPEAKER: I'm Marvin Clawson, [redacted] and I have studied this report a little bit, and it concerns me quite a bit about the slurry adding the extra weight to a failed structure. Tonight I haven't heard a single word as to what will be done in case of a failed structure. Nobody seems to have any plans. We don't know what the fix would be or how they would do it or what kind of emergency or nothing. We're zero.

My second concern is the evaporation of slurry water will greatly increase the corrosion of the domes.

Three, it does not propose anything for the weakened domes. In your report it's 60 percent damage, and the load already put on is in excess of 20 percent, so the building is essentially in a state of collapse. It does not afford -- it does not address drainage problems from the dome. That means there's 80-foot circle silo domes that collects a lot of water,



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1 and it runs down the side and further deteriorates the
2 silo at a vastly increased rate, plus it softens the
3 foundation to let it, you know, increase the
4 probability of a collapse.
5 Also, if you have, if you start putting
6 bentonite clay in and say you have a failure and you
7 develop cracks, then your water will immediately leech
8 into the table and you will add K-65 contents to the
9 water table.
10 Number six I have is no provision for a
11 containment building in case something happens. Of
12 course, my overwhelming choice, I've already stated
13 that I guess pretty loud, is that I propose a tornado-
14 resistant enclosure that could be used in conjunction
15 with a hydraulic removal of K-65 and always leave it
16 in place for safety reasons so we can move forward in
17 a safe manner. And it would take care of all the
18 accidents along the way, and it also keeps the area
19 dry. And this plan also includes drainage away from
20 the domes. That wasn't addressed here. I mean, I
21 didn't hear anybody say that, but they have in that
22 plan in the book that there is a special drainage
23 system set aside for that plant. So that's what I --
24 I overwhelming go for that solution. Thank you.



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1 UNIDENTIFIED SPEAKER: My name is
2 Norma Nungaster, and I don't have a PhD. However, I
3 am a descendant from Anna Wheeler and John R. Sears,
4 immigrants to the United States in the early 1700's.
5 So I think that qualifies me to stand up here as an
6 American and make my statement on this.
7 I have about four points of concern.
8 You have no emergency evacuation plan for residents if
9 the dome should fail during introduction of
10 alternative 5. Judging from past practice, by the
11 time the sirens would be blown, it would be too late
12 for those residents living on the parameters.
13 Also, I'm concerned about the
14 possibility of the walls collapsing due to the 600,000
15 pounds, or tons I think it was they said, of
16 additional weight.
17 Another concern is if a tornado would
18 hit that place, it could distribute residues of the
19 Manhattan project and thorium all around the area.
20 Assuming that you are correct and only small amounts
21 are transported, thorium is still lethal in small
22 amounts.
23 And last, on the bentonite weight and
24 water, they will add more weight to the walls that are

already cracked and leaking and add more contamination into the aquifer. Again, small amounts could be lethal if taken into private water supplies or even from fish caught from the rivers and the Great Miami River.

MS. WOLINSKY: Are there any more comments?

With that, we'll close the formal statement period tonight. I would like to thank you all for coming and remind you that the administrative record has a new home, as Andy stated earlier. I have the hours and the address up here. Basically it is Monday and Thurday 9 a.m. to 8 p.m.; Tuesday, Wednesday, and Friday 9 a.m. to 4:30 p.m.; and Saturday 9 to 1. And the phone number is 738-0164. You can call and see if they have a document that you want and you can make copies while you're there.

Thank you very much for coming. If you haven't signed up on our several pages of sign up lists, please do so. A lot of you have already.

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PROCEEDINGS CONCLUDED

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