

1 NEW YORK STATE : DEPARTMENT OF HEALTH

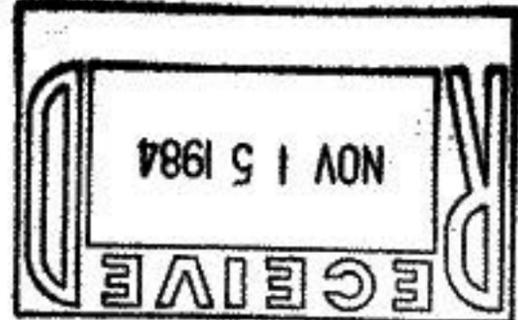
2 -----

3 IN THE MATTER

4 OF

5 MEETING

6 CONCERNING



7 Determination of criteria and strategy having
8 to do with habitability of Love Canal, Niagara
9 Falls, New York.

10 -----

11 MINUTES OF MEETING held at the Red
12 Jacket Inn, Niagara Falls, New York, on Wednesday,
13 September 26, 1984, commencing at 8:30 a.m.

14 CHAIRMAN: DR. THOMAS WELTY.

15 PANEL MEMBERS: MARTHA R. FOWLKES, Ph.D.
16 PATRICIA MILLER, Ph.D.
17 FREDERICK G. POHLAND, Ph.D.
18 I. GLENN SIPES, Ph.D.
19 DANIEL VANDERMEER, Ph.D.
20 MICHAEL STOLINE, Ph.D.
21 PAUL WIESNER, Ph.D.
22 ROBERT HUFFAKER, Ph.D.
23

1 CHAIRMAN WELTY: Could I ask everybody
2 to please be seated here and we can begin?
3 It looks as though we will have a smaller group
4 than usual today. Dr. Chalmers is not able to
5 attend the meeting. He sent a note instructing
6 us to pursue scientific rigor. So, I pass that
7 message along to the group of the consultants here.

8 Dr. Stolwijk spoke by phone and perhaps
9 some of you heard on the national news this
10 morning that the Yale employees are on strike.
11 Apparently that doesn't include the professors so
12 he is there answering the telephone now and all of
13 his ancillary people are off on strike. So,
14 unfortunately, he won't be able to be with us
15 today. He did tell me he would be available by
16 phone if there is any particular reason that we
17 might want to give him a phone call.

18 Devra Davis, if she comes at all, will be
19 here late and would have to leave earlier because
20 of the holiday today beginning at sundown.

21 I don't know about Dr. Upton, whether he
22 will be able to make it or not. So, in spite of
23 the people who are not here, I would like to make
the best of those who are here, utilize your

1 expertise and try to pursue the issue of habit-
2 ability in relation to the EDA.

3 To start off the meeting today, I will ask
4 Dr. Huffaker to go through the items that he has on
5 his list to cover. Bob, are you prepared to go
6 ahead with that?

7 DR. HUFFAKER: Yes. You have had a note
8 from me about Dr. Christian. This is the vole
9 study. This is the lack of access to the canal
10 and this is a memo that I sent on. Since then we
11 have talked further with him and he did inquire to
12 the chief of the task force which was the Department
13 of Transportation at the time and asked for access
14 to the canal to do a vole study and Mr. Hennessey,
15 who is the Commissioner of Transportation, asked
16 the Health Department if Dr. Christian would be at
17 increased risk when he was on site and that was at
18 the time when the fringe drain was being put in the
19 canal and it was still uncovered and there was a
20 lot of construction going on out there and the
21 answer was that we thought he would be. So,
22 Hennessey said then he didn't have access to the
23 canal. So, that was the turndown he got. He was
told no, not directed by the Health Department but

1 because he felt it was an increased risk. I think
2 if he wished to ask now, there probably wouldn't be
3 any problem but this would be something we would
4 have to do and the decision would be made based on
5 that. That would go to the Department of Environ-
6 mental Conservation since they are the agency out
7 there.

8 CHAIRMAN WELTY: Do you have anything else
9 on that?

10 MS. KALAIJIAN: No but I think a decision
11 should be made. Dr. Christian's request was
12 whether he could place cages within the fence or
13 traps. He never really submitted a protocol to any
14 state agency. So, it's not that the study was
15 turned down, we were refused access within the
16 fence.

17 CHAIRMAN WELTY: Are there any protocols
18 now on file for proposed studies for Dr. Christian?

19 MS. KALAIJIAN: I believe he has obtained
20 a grant with the EPA. We could try to obtain those
21 protocols if you would like.

22 DR. HUFFAKER: But not for here.

23 CHAIRMAN WELTY: Perhaps we could ask the
EPA when they arrive what the status of those

protocols are.

1 DR. HUFFAKER: There was some correspondence
2 with Dr. Pohland and myself the Environmental
3 Conservation about DEC's failure to respond to the
4 question or information request for information and
5 this time it was the mail's fault. It had been
6 sent. I received it and others. Dr. Pohland did
7 not and when we were aware that he had not received
8 it, it went on down. So, the record should show
9 that the DEC this time, this material was sent but
10 it was not received.

11 We have been asked to have the DEC respond
12 to questions about the canal. One is, what sort of
13 a storm was the present cap and storm sewer system
14 designed to contain and the second one was, the
15 frequency of monitoring for all of the wells off
16 and on site and for what chemicals they would
17 expect and we have Nelson Walters here from the
18 DEC who responded to those questions.

19 CHAIRMAN WELTY: Could we just come up
20 here, please?

21 MR. BROWN: As far as the design for the
22 storm sewers to drain the cap, have the cap
23 installed, we don't have that yet. We don't have

the data. We will have it in two to three weeks.

1 For the long term monitoring---

2 DR. POHLAND: Wait a second. Tell me a
3 little bit more about what you have in mind with
4 regard to the design of the storm sewers. I mean,
5 I think that maybe we are all running a little bit
6 out of steam but I think these questions have been
7 posed several times already and we continuously
8 receive the same answer, that it hasn't been done
9 yet. You see, I don't know how I crack this kind
10 of facade over there but I'm trying to get a notion
11 of what you have in mind and I am trying to, as I
12 have mentioned in my last correspondence and I also
13 recognize that if the materials were sent, they
14 would have answered some of the questions that I
15 put in my correspondence, but I think that what I
16 am trying to do is to help this committee, if
17 possible, to develop a position of adequacy for
18 the efficacy of the remedial system.

19 Now, this is difficult to do if your
20 response each time is, well, we haven't done that
21 yet. I need to know what you have got in mind.
22 I want to know. See, you put me at an impasse. I
23 can't do anything with that kind of answer. I

1 can't make a judgment. I need to know what you
2 have in mind with regard to the existing storm
3 sewer system around the site, whether it's going
4 to remain intact, whether for instance you are
5 going to close off along the expressway that storm
6 sewer which is suspect of maybe still carrying
7 materials and if indeed you are going to do that,
8 how that is going to impact on your new plan and
9 whether indeed under a certain storm condition,
10 that storm sewer system can handle that flow with-
11 out it backing up and incurring all kinds of other
12 questions.

12 MR. BROWN: Let me just respond to that
13 then. The request recently within the past three
14 weeks or so went to our consultants CH₂M Hill
15 which is doing the work on site and they will res-
16 pond with the design considerations for storm
17 runoff that they used in designing this site and
18 that they have looked at.

19 As far as changes in the existing storm
20 sewers, the only change that we have planned is to
21 sever the storm sewer that runs along Frontier
22 Avenue between 95th and 100th Street and the reason
23 for that is that the sewer is pretty highly

1 contaminated and what we would plan to do then is
2 to run a new storm sewer in there.

3 So, the storm sewer that now runs out and
4 empties into the Niagara River at the 102nd Street
5 outfall that runs under the LaSalle Expressway,
6 that will be cleaned but that sewer will remain in
7 place.

8 DR. POHLAND: Now, my point again remains,
9 though, that it appears to me and I'm not sure how
10 far you have progressed on putting this cap on the
11 canal, that is already in progress, the liner?

12 MR. BROWN: The liners are about three-
13 quarters installed.

14 DR. POHLAND: You see, I don't understand
15 why, if you are already putting the liner on, we
16 can't get this information.

17 MR. BROWN: You can get it and you will
18 get it.

19 DR. POHLAND: Okay, because if you are
20 already doing it, I would think that you would have
21 that at the tip of your tongue and that would be my
22 answer instead of saying well, we went back to our
23 consultants and they are going to get it for us the
next month or so. I guess I am venting my

frustrations.

1 MR. BROWN: I will get you an answer. You
2 will have it in three weeks or so.

3 DR. POHLAND: Mr. Chairman, then I go back
4 to the question that I asked the prior time, what
5 kind of schedule are we dealing with? Are we
6 wrapping up or are we trying to wrap up or how many
7 more meetings are we going to have or what is going
8 on here?

9 CHAIRMAN WELTY: As I said, as I see it
10 we are trying to wrap up today and get as much of
11 the unanswered questions discussed and a better fix
12 on how to answer them and to circulate a revision
13 of this criteria document that will be acceptable
14 to all the consultants in attendance and those who
15 are not in attendance as well. So, that would be
16 the goal for today's meeting and whether or not we
17 will accomplish that, I don't know and what impact
18 this delay in getting the storm sewer plan will
19 have, I guess I would look to you.

20 DR. POHLAND: Yes, look to me. Now, I
21 can't answer whether they have a sufficiency of
22 capacity in those sewers to prohibit backup in
23 every connection along the line and, therefore, the

1 impacts that everybody has on concerns about those
2 issues, this is all---just let me use an example
3 and then I'm going to let you proceed and I am
4 sorry I am putting you on the spot because I don't
5 think it's fair to you probably because some of the
6 other principals ought to be here but here is a
7 letter dated July 23 where Dr. Huffaker asked
8 Norm Nosenchuck these same issues, not specifically
9 on the sewer which came out as a subordinate item
10 to these issues, the 23rd of July this letter was
11 written and basically it outlines the things that
12 I have been trying to get all summer. On the 27th
13 of August, a month later, finally a letter was
14 written from your office simply telling me that
15 to contact Nick Kolac and Joe Slack and you have to
16 recognize that I spent two days up there trying to
17 get this information in the first place prior to
18 the time this letter went out. It was received in
19 the office of Public Health on September 4th and
20 obviously I didn't get it until I just came up here.
21 So, we spent all summer trying to extract this kind
22 of information out of this office and so far we are
23 still being told, "We will have it for you in a
month or so."

1 Frankly, I can't come to grips with the
2 technical efficacy of this thing until that informa-
3 tion is brought forward. I have my own impressions
4 and I think I can already say that I think what you
5 are doing is proper and so forth but I think also
6 what must necessarily go along with this is sound
7 assurances that indeed that is what is happening
8 and is going to happen and I don't see why I can't
9 get it in writing and forcefully from that office.

10 MR. BROWN: Do you mean you want it in
11 writing?

12 DR. POHLAND: Maybe that is the way to get
13 it.

14 MR. BROWN: All right.

15 DR. POHLAND: Here is another thing. Here
16 is another issue. For a long time I have been try-
17 ing to find out whether the operational personnel
18 at the treatment plant in fact have a good handle
19 on what is going on there, notwithstanding the fact
20 that I think the treatment plant certainly does a
21 good job and I have been trying to, therefore, get
22 your office to look at the data and see what it
23 says to you; has anything happened?

The response to that request finally came

1 in and because of the loss in the mail I didn't get
2 it until just now, but it came in in a stack of
3 computer printouts of data and for me personally to
4 scrutinize and make my own decision, I want you to
5 make the decision and then I will decide whether
6 it's the right one or not, "you" meaning your group.
7 I mean, why should I look at the data and decide
8 whether things are right or wrong, and besides that,
9 the data is old, which also suggests that nobody
10 is paying attention to the data, nobody would know
11 something happened if it happened.

11 DR. KOLAC: May I comment on that?

12 CHAIRMAN WELTY: This is Dr. Kolac. Do
13 you want to come up here and comment on that?

14 DR. POHLAND: I knew I would get you up
15 here in a minute.

16 CHAIRMAN WELTY: Dr. Kolac is responsible
17 for the treatment plant operation.

18 DR. KOLAC: I am afraid I have to take
19 exception with some of the things Fred has said
20 and I would like to give you my point of view on
21 them.

22 DR. POHLAND: Good. Let's make it of
23 record.

DR. KOLAC: You asked for raw data and you
1 were sent raw data. You wanted the complete
2 record to date. The only thing we can give you is
3 what is computerized and it was through the year
4 1983, okay. I don't have staff which is perhaps a
5 poor excuse to computerize the 1984 data. We do
6 have the raw data for 1984 if that is felt neces-
7 sary, but I did have this discussion at length
8 with you months back and several times over the
9 course of the summer that that is what we have
10 available and that has been available to you.

DR. POHLAND: I agree. That is exactly
11 what you told me but that is not satisfactory. I
12 can't understand, frankly, notwithstanding your
13 problems of staffing and everything, which I
14 certainly don't have any control over, I can't
15 understand how you as a professional can be comfort-
16 able in that position. The reason why I asked for
17 raw data is a way to see whether or not what you
18 told me in fact could be confirmed. Now, I certain-
19 ly didn't ask you for raw data so I could synthesize
20 the answer.

DR. KOLAC: Well, we explained to you at
21 that time that that is all that we have available
22
23

1 that we could release and you said that would be
2 fine and that is what we have sent. Now, in the
3 meantime, if I could just say another bit more, we
4 don't use 90 percent of that data, I don't use it,
5 I should say, to determine how well the plant
6 operates. The ultimate issue of how well the plant
7 operates are the parameters that we measure in the
8 effluent, okay, not necessarily what is up front
9 coming into the plant. As long as the effluent
10 meets our permit conditions with the City of Niagara
11 Falls, then the overall plant is operating well,
12 within limits and meets our permit conditions, okay.

13 DR. POHLAND: Why don't you have a seat?
14 I think we are going to have a discussion for
15 awhile.

16 DR. KOLAC: Okay. There is much more
17 data at various stations through the plant and it
18 is of interest to understand what goes on at those
19 other stations but the ultimate analysis is what
20 is coming out of the plant, which we in turn dis-
21 charge back to the sanitary sewer which goes back
22 downtown to the city. Okay. So, you don't need
23 to graph up all of that data in order to just key
in and focus on the effluent data.

1 DR. POHLAND: Then why are you taking it
then?

2 DR. KOLAC: We want to understand in some
3 respects on the academic side how the carbon is
4 behaving, because there are not too many plants
5 like this in the country.

6 DR. POHLAND: Do you understand how it's
7 behaving?

8 DR. KOLAC: By looking at the raw data,
9 okay.

10 DR. POHLAND: You mean that stack of data
11 that you sent me?

12 DR. KOLAC: Correct.

13 DR. POHLAND: Do you know what that data
14 says?

15 DR. KOLAC: You and I talked about
16 establishing carbon isotherms, floating capacities.
17 That data should be---should allow us to get that
18 kind of---to draw those kinds of conclusions but
19 we don't need those conclusions in order to operate
20 the plant.

21 DR. POHLAND: Okay. Let's separate the
22 two items then but let's, since I brought up the
23 raw data and since there is a nine month delay,

1 when are you going to do all this kind of explora-
2 tion?

3 DR. KOLAC: It should have been done,
4 frankly, years ago, okay. I will agree with you on
5 that.

6 DR. POHLAND: Okay. Let's go back to the
7 issue of the plant. You say you have a permit.
8 What are your permit conditions? Please have a
9 seat. You are making me nervous standing there.

10 DR. KOLAC: I am trying to address every-
11 body so you can all hear me well. We sent you some
12 material on a permit. That was sent out. I have
13 no knowledge whether you received it but it was
14 sent out a good month or so ago. Other people
15 perhaps here today are inquiring also and we expect
16 to supply additional copies of similar material.

17 DR. POHLAND: You mean that big stack of
18 data?

19 DR. KOLAC: No, no.

20 DR. POHLAND: Good.

21 DR. KOLAC: Just the permit, the actual
22 permit.

23 DR. POHLAND: You mean this thing
(indicating)?

1 DR. KOLAC: That is our permit with the
2 City of Niagara Falls, correct. Other people are
3 inquiring about the state and federal permit situa-
4 tion, what we have done there, and the reasoning
5 behind it.

6 DR. POHLAND: It's an interesting permit
7 since it's not signed.

8 DR. KOLAC: Well, we should have one that
9 is signed.

10 DR. POHLAND: I don't and it started off
11 as a draft and somebody scratched through the fact
12 that it was final.

13 DR. KOLAC: That is correct. Let me
14 explain what the city is doing here. I wish some-
15 body were here from the city but I thought that
16 they would be. They have switched over perhaps
17 through the EPA, if I understand correctly, and are
18 readdressing all of the users of the sewer system
19 within the city boundary, okay. They have new
20 moneys to rebuild their plant, get it back on line
21 and they are reassessing all of their users as to
22 the types of material and the locations and volumes
23 that are being discharged into the sewer system.
As a result, they have changed the type of

1 parameters that they wish to have us monitor in
2 our effluent. That started perhaps, I will say in
3 the last ten months. Within the last ten months
4 we are now monitoring new parameters in addition to
5 the original ones under the original permit.

6 DR. POHLAND: Do you want to tell us what
7 the original ones were?

8 DR. KOLAC: That was TOC, total organic
9 carbon, and total chlorinated hydrocarbons under the
10 original.

11 DR. POHLAND: The only thing listed on
12 here are flow, total suspended solids and total
13 organic carbons.

14 DR. KOLAC: I'm sorry, say that again.

15 DR. POHLAND: The only three things here
16 are flow, total suspended solids and total organic
17 carbons.

18 DR. KOLAC: Those are now the new para-
19 meters, Fred, that the city has directed that they
20 wish to have us monitor.

21 MR. BROWN: Let me interrupt here. I worked
22 on the pretreatment program with the City of Niagara
23 Falls and the City of Niagara Falls sewer ordinance
requires that all discharges to the city, unless

1 they are allowed in the permit to the industry, all
2 the discharges are required to meet the city's
3 effluent limits which is really a stringent set of
4 effluence that New York State has given the city
5 in the SPEDES permit. Most of the requirements
6 are for, for organics are at 10 parts per billion.
7 So, even though it is not written down there, the
8 limits---there are limits that go along with that
9 permit that you can find in the City of Niagara
10 Falls.

11 DR. POHLAND: You have it here in pounds
12 per day so I can calculate it? You know, my prob-
13 lem with that requirement, it doesn't address the
14 thing that concerns us because with organic carbon,
15 you would never be able to determine whether or not
16 something really toxic left the treatment plant.
17 So, I thought when we discussed it originally
18 because of the fact that you were taking all this
19 other data, that somehow we could merge these two
20 things so that we could get the kind of assurances
21 that we are looking for with regard to what that
22 treatment plant was supposed to do and you can't
23 get it out of organic carbon, unfortunately. You
will get an inference. If you get a big release,

you know something happened but--

1 DR. KOLAC: For this reason, Fred, I have
2 chosen to continue generating what I will call the
3 old kind of data.

4 DR. POHLAND: Which is?

5 DR. KOLAC: Which is not that, TOC and
6 TCH.

7 DR. POHLAND: Total chlorinated hydro-
8 carbon. Well, you are generating data but---

9 DR. KOLAC: Wait a minute now, but in the
10 meantime, to really meet our permit condition with
11 the city, we are required to measure those para-
12 meters in front of you under that existing permit.
13 That is an interim permit, okay. The city is
14 evaluating how well we are operating and I will say
15 about this calendar year and I believe by next
16 January or February, that permit, as you see there,
17 will become binding. We are generating data and
18 working with them as are all of the users through-
19 out the city. So, we are sort of in an interim
20 stage. I can't tell you today how our new para-
21 meters compare in terms of numbers.

22 DR. WELTY: Can you just reiterate those
23 new parameters again?

1 DR. KOLAC: Yes. The new ones are flow,
2 SOC, which is soluble organic carbons, okay, and
3 TSS, total suspended solids.

4 CHAIRMAN WELTY: You feel those are
5 adequate?

6 DR. POHLAND: Well, you know, if he
7 continues to run his total chlorinated hydrocarbons
8 and would couple that with the routine monitoring
9 and not wait nine months to synthesize the data,
10 you see, my problem is, I want assurances that if
11 something happens at the treatment plant, you guys
12 have got a hold of it right away.

13 DR. KOLAC: But we have a few problems
14 here. In some cases it takes awhile for the labs
15 to generate---

16 DR. POHLAND: We are getting to that next.

17 DR. KOLAC: And that is something I
18 personally have no control over.

19 DR. POHLAND: But your office, damn it---
20 excuse me, erase that. You should have control
21 over taking the data you have in doing something
22 with it faster.

23 DR. KOLAC: We look at it as fast as it
comes in the door, Fred, to compare it versus our

permit conditions.

1 DR. POHLAND: But don't you see how vul-
2 nerable you are if something happens and you make
3 a statement like that, you have no record of any-
4 thing. You just are saying things.

5 DR. KOLAC: Well, this goes for all of
6 the users in the city here.

7 DR. POHLAND: I don't care about the
8 other users. I am just concerned with this one.

9 DR. KOLAC: It shows you the problems with
10 the permitting program.

11 DR. POHLAND: What are you doing?

12 DR. KOLAC: We can't get data in 24 hours
13 on some of this.

14 DR. POHLAND: What are you going to do to
15 resolve the problem?

16 DR. KOLAC: I have tried in the past with
17 at least one of the local labs, we can get data
18 sometimes within two, three and five days usually
19 is the turnaround and that was for the TOC only
20 but it still is within two or three days after the
21 fact unless we put equipment on the site.

22 DR. POHLAND: All right. Maybe we are
23 approaching a solution then.

1 DR. KOLAC: That has been discussed and we
2 are going to have the ability to do that with the
3 new administrative building that is under design.
4 There will be one room there that will be able to
5 handle that kind of equipment. There is no place
6 for that equipment.

7 DR. POHLAND: I admire your eagerness
8 toward developing all kinds of grand plans for that
9 place but we are talking about right now and now
10 you have put another variable in there. Now you
11 are linking it to the possibility of getting a new
12 building and just having some practice in that
13 approach, I know what happens when budgets start
14 shuffling around. You can't get help to synthesize
15 this data, you may well not get ever near what your
16 aspirations are.

17 DR. KOLAC: Exactly what do you mean by
18 synthesizing data?

19 DR. POHLAND: I want you to have on record
20 in a routine fashion all the analysis of your data
21 that you can so that if something shows some trend
22 toward being wrong or going in the wrong direction,
23 you will detect it. If it's in a computer file, I
know just from my own experience that---

DR. KOLAC: That is not where it is sitting.
1 I said earlier as far as my operations go, I look
2 at that data immediately when it comes in the door
3 and I compare that against the permit. I don't
4 need to have people grab it six months later.

DR. POHLAND: You are not listening to me.
5 You have it up here but should something happen,
6 you would lose because you have no record of what
7 you are doing and the greatest assurances you can
8 give me and the rest of the people here and every-
9 body sitting out there is to show, look, this is
10 what we routinely do and here is the record and
11 proof that that system is working. You can sit
12 there and tell me it's working because you have got
13 it up here until you are blue in the face and if I
14 don't want to believe you, I don't have to believe
15 you.
16

CHAIRMAN WELTY: Is it possible for you to
17 do an analysis of this data on a monthly or quarter-
18 ly basis and submit a report that is available for
19 the people to review? I think that is what Fred
20 is suggesting.
21

DR. POHLAND: Well, let's get to the
22 fundamental problem that you have. When I was at
23

1 the plant and you know that I was concerned about
2 this, your samples are taken, as I understand it,
3 they are left in a refrigerator until the end of
4 the week, that is one week gone. Then they go to
5 the lab and you may get them back in another week
6 but it may be three weeks. Now, what if something
7 happened during that period of time and you find
8 out about it after the fact? How are you going to
9 respond?

10 DR. KOLAC: Well, perhaps this isn't a
11 good explanation for you at this time, but we have
12 tended to be very conservative in the operation of
13 the four years, all right. We have tended to call
14 in for an early carbon change rather than waiting
15 to the last minute, okay. If in looking back
16 through all the effluent data, that is the key to
17 the whole plan, what is coming out, okay, not neces-
18 sarily what is going in. Okay. There is only
19 actually three or four days where at least on the
20 TOC parameter in four years time the actual limit
21 that the city has established was exceeded.

22 DR. POHLAND: That scenario is fine until
23 something happens and what I'm trying to do is to
put you in a proactive posture, preventive posture,

so that it doesn't happen.

1 DR. KOLAC: The only way that I can see
2 around this whole issue, and it's not just for the
3 Love Canal treatment plant, but for all of the
4 users, is you have to have instant laboratory
5 capability and the only way you're going to do that
6 perhaps is on site or across the street, and that
7 is something that we right now do not have and have
8 never had. We would have to have instrumentation
9 right there in the plant.

10 DR. POHLAND: Okay. You see, this is the
11 kind of information that I wanted to see committed
12 to a long time ago because when we visited the
13 plant, the same discussion was had.

14 DR. KOLAC: Just for the record here,
15 you can't take some of this instrumentation that is
16 necessary for these kinds of analysis and operate
17 it in that plant. The plant does have its own
18 odors and volatile materials there and when you
19 start analyzing for parts per billion, you don't
20 need to inject the sample into the instrument, it
21 will detect that just by sitting there and, therefore,
22 you have a very poor analysis, a very high error
23 thrown in that kind of data. That kind of equipment

would have to be outside of that building.

1 Now, as soon as you do that, you only have
2 two options, one building that is under design or
3 the local labs and as soon as you are into that
4 picture of local labs or however distant they are,
5 you have transportation and time problems and delays.
6 You have their own schedules and backlogs and that
7 is something that we haven't seem to be able to get
8 around.

9 DR. POHLAND: Well, there are ways to get
10 around it.

11 DR. KOLAC: You can't take a gas chromato-
12 graph, for example, and put it in that plant and
13 operate.

14 DR. POHLAND: Yes, I know all those kinds
15 of scenarios. The fact is, though, that there are
16 treatment plants that do it on site and there are
17 ways of doing it and you know, what you are suggest-
18 ing here and I don't think it's correct, is that
19 because of the problem, you can't do anything and
20 I am suggesting because of the problem, you ought
21 to do something.

22 DR. KOLAC: You are recommending that the
23 instrumentation be placed on the plant?

DR. POHLAND: I am recommending that you
1 get a better handle on what is going on in that
2 treatment plant, period, and I think it's pretty
3 obvious where I stand on it and I am sympathetic
4 to what I observed as your staffing problems and
5 everything, but that is nothing I can deal with but
6 I can deal with what I think is the way something
7 ought to be done and you have been hearing or at
8 least your office has been hearing all along that
9 habitability criteria must of necessity be linked
10 to assurances that this process of remediation is
11 proper and that it will be monitored correctly and
12 controlled correctly and I am not getting that kind
13 of vibes out of you guys concerned about this rag
14 of a permit. I am not demeaning the people that
15 wrote it but I don't think it's adequate to the
16 needs of that plant. I am concerned about the fact
17 and it's written, it's documented, that the state
18 is running that plant and they are making all the
19 decisions on the plant and they are controlling
20 themselves. There is no outside supervision of
21 what is going on. I am concerned about the fact
22 that you start off under RECRA and I am thinking
23 now because of convenience and by a loophole in the

1 RECRA regulations, you are going to withdraw out
2 of that circumstance. That at least would have
3 given you some assurance that somebody else was
4 taking a look at what was going on there and those
5 are the issues that are a matter of record and I
6 haven't got an answer back.

7 Basically what I am being asked to do is
8 to talk to you guys again, but until you come forth
9 with solid evidence of "This is what we have in
10 mind," I can't scrutinize anything because you tend
11 to sit there and expect me to answer things that
12 you know is there but you are not going to offer
13 willingly and then we find out things incrementally
14 and I guess, Mr. Chairman, I'm getting kind of
15 tired of this process and I think we ought to wrap
16 it up but we are not getting there. We get con-
17 tinuing postponements of receipt of vital informa-
18 tion, at least as I see my role in this group.

19 CHAIRMAN WELTY: I appreciate your concerns
20 and at this point I am not sure we are going to be
21 able to resolve this question any further. We may
22 be left with asking your professional judgment
23 based on what you have received and a list of other
things that you consider important and have not yet

1 received rather than continuing to prolong the
2 whole process.

3 DR. POHLAND: You see, what you are saying
4 is that---I don't know what they have got available
5 for me and I am encouraging them to freely provide
6 me with those things that address the issues I have
7 brought up.

8 MR. BROWN: Let me make a proposal then.
9 What we would certainly be willing to do is meet
10 with you at our offices and discuss whatever things
11 that you think that we haven't provided, that we
12 can provide and to explain whatever things are avail-
13 able so that we can absolutely iron this thing out
14 and I understand exactly what you want and what you
15 need and you can understand exactly what we have
16 and we can provide. Is that acceptable to you?

17 DR. POHLAND: Well, let me respond to that.
18 That was the intent of my two day visit up here the
19 first time and frankly, the visit and perhaps it
20 was because I wasn't familiar enough with what was
21 available or what the circumstances were at that
22 time and maybe I didn't ask the right questions,
23 but I may not be able to ask the right questions
the next time around.

1 You see, what I am trying to elicit from
2 those responsible for the engineering and tech-
3 nological issues associated with this problem is a
4 freely given description of where you are, what you
5 are doing now and what you are going to do in the
6 future and not wait until I happen to ask a key
7 question and then give me the data.

8 The project can't afford for me to do the
9 kind of scrutiny that I think that you people should
10 be doing routinely and those answers ought to be
11 there and it is discouraging for me that they are
12 not there. You are still thinking about the fact
13 that you have got a problem here and a problem there
14 and maybe we ought to think about using some more
15 Superfund money and get a contractor to look at it
16 for me. That doesn't give me very sound feelings
17 about what is here now and what you guys have got
18 ahead of you and what we are trying to determine
19 here with regard to habitability. I mean, I suspect
20 this site will continue to have contracts associated
21 with it at different times when different things
22 come up, but I'm trying to see a thread of pro-
23 fessional direction that I can evaluate that
indicates to me that you have solid, really state

1 of the art kind of notions about what must be done
2 and this is why; not, "Well, we have got this prob-
3 lem and maybe we will do this and maybe we will do
4 that and, oh, yes, we really don't have that informa-
5 tion yet because it's out on contract."

6 I guess what you are telling us, "Well,
7 when we are through with all these contracts, we
8 will give you these answers" and what I gather what
9 I am telling the chairman here is that, well then,
10 from my standpoint at least, I have to wait until
11 you give me the answers.

12 Now, if you tell me that I have to ask the
13 right questions before I can get those answers,
14 that is not a productive way of doing things because
15 then if something happens, then you say, "Well, he
16 never asked us about that."

17 MR. BROWN: I have just two comments on
18 that. One is that there is remediation going on
19 on that site, a lot of things going on and if he
20 doesn't have answers to some things yet, we don't
21 have answers to them. That is because we are not
22 done with this whole project.

23 DR. POHLAND: The questions I have asked
are basic. They are basic, otherwise you wouldn't

1 have let the contracts in the first place and all
2 I'm asking you to tell me is, what does the
3 division have in mind.

4 MR. BROWN: Okay.

5 DR. KOLAC: I think if I could recommend
6 something, it looks to me like maybe between our-
7 selves, and maybe a few others on the panel here
8 and maybe our director and a few of the staff
9 might be what is needed because quite often, Fred,
10 some of your requests or anybody else's requests
11 get funneled down through other channels, all right,
12 and I do respond and on any of those questions,
13 that material has gone out.

14 DR. POHLAND: Don't take any of this
15 personally but you see, I can't deal with your
16 system. I can't deal with your personnel.

17 DR. KOLAC: We have a hard time too.

18 DR. POHLAND: And every system is like
19 that but I don't care. I don't care. All I want
20 are the facts. That is what I want.

21 MR. BROWN: All right. Fred, I still
22 think you are going in the wrong direction because
23 a little while ago you told Nick that you didn't
want all the data and now you are telling us you

1 want everything. You want to know what is going
2 to happen ahead of time and you want to know---what
3 do you want? You tell us and we will provide it.

4 DR. POHLAND: I tried to.

5 CHAIRMAN WELTY: Why don't you have a
6 follow-up on his suggestion to get together once
7 again if you can fit it into your schedule.

8 DR. POHLAND: Well, maybe I am not
9 articulating correctly. I have written things every
10 way that I can requesting things and I get reams
11 and reams of information shuffled around that it's
12 almost impossible for me to make rhyme or reason
13 out of it. I don't think that I have such a poor
14 command of the English language that my message
15 isn't clear. I want certain assurances. I want to
16 be assured that what is being done, what you
17 people have in mind to do and how you are going to
18 organize and control it is correct.

19 CHAIRMAN WELTY: How can such a meeting be
20 set up?

21 DR. WINKELSTEIN: I would like to make a
22 comment here. I have been thinking about this and
23 I'm not sure that what we need to do is to establish
what these criteria are. For example, with

1 reference to the discussion that is going on now,
2 a simple question would be, is the treatment plant
3 operated adequately on a daily basis, in other
4 words, is there a daily evaluation of the output
5 of the treatment plant. That is a criterion.

6 Now, clearly it is not---I mean, that is
7 clear. It is now I guess on a three week to a six
8 week basis. Well, that could be a criterion, daily
9 evaluation of the output of the treatment plant.
10 That would be a criterion. Then they would have to
11 satisfy you that that is going on.

12 DR. POHLAND: See, that is the key.

13 DR. WINKELSTEIN: That is the second
14 criterion and that would be are certain things be-
15 ing examined for each day and then you can list the
16 total organics or whatever it is, I don't know any-
17 thing about it. It seems to me that that is what
18 the criteria are. Then the data to satisfy the
19 criteria have to be supplied.

20 Now, if we were able to set such criteria,
21 then I assume they could go to their funding agency
22 and say, "Well, to meet the criteria you have got
23 to have a laboratory on site." If they can't
produce a laboratory on site, they haven't met the

1 first criterion. I mean, if that can't be done,
2 then that criterion is not satisfied and on that
3 basis you can't go any further.

4 Now, once the laboratory is in place, I
5 assume it has to meet certain standards of measure-
6 ment on a daily basis if that is what is the
7 criterion. That is what I understand is a cri-
8 terion, like when you operate a milk plant, which
9 I'm a little more familiar with.

10 DR. STOLINE: I think if I could pick up
11 on that a little bit, I think that if you look at
12 some of the models that the industry has for quality
13 control, it's a little different. They are producing
14 a product and you are trying to render a product
15 harmless but there are---or safe, but if you would
16 simply look at some of those quality control charts
17 and pick up on those, the parts of those that would
18 be in common with the type of thing that you are
19 doing and literally, in industry it produces a
20 product and checks the quality every hour. In your
21 case it may be every day or something like this so
22 that this is done so that we eliminate that one
23 problem that I wrote down here where we have a three
week delay. We talked about there being a lab on

1 site so that you know what is going on exactly,
2 say, within 24 hours.

3 DR. KOLAC: Well, even that won't satisfy
4 everybody. We have perceived a need for that and
5 that is being factored in but we have it today.

6 DR. STOLINE: I think our report should
7 reflect that from the discussion this morning, that
8 approach.

9 CHAIRMAN WELTY: That might be much more
10 productive than having yet another meeting, if there
11 is a way that we can summarize the criteria. I
12 like your suggestion.

13 On page 15 of the document we have tried
14 to outline measures recommended to assure adequate
15 remediation and I would like to just try to pursue
16 this a little more now that we are into it, to
17 think about in addition to the four items that are
18 listed there, what additional criteria should be
19 added that would assure adequate remediation. We
20 have included analysis of ground water and reorgan-
21 ization of the program so that it's not operated
22 and overseen by the same agency and development of
23 operating protocols and periodic reports summarizing
the analysis of the treatment plant operation.

1 Can we expand on those or do those four
2 adequately reflect what you feel is necessary for
3 adequate remediation?

4 DR. POHLAND: Yes. You see, the words
5 are all there I think. I think in the remedial
6 attachment to the habitability criteria, as I see
7 it, we are trying to provide the impetus to the
8 agency that is responsible for doing this work to
9 build into their protocols the assurances that I
10 think the community, both the local community and
11 the professional community is looking for with
12 regard to what is being done. Now, I think the
13 local community issue is very apparent and needs
14 not to be dwelled on but I think another very
15 important item to me professionally is that since
16 I am associated with this deliberation, I have an
17 obligation to my profession to make sure that what
18 is done here is done well and done comprehensively
19 and done in a way that the decisions can be actually
20 fortified by technical knowhow and justified in a
21 professional sense and because it is a test case,
22 whether we want to think about it that way or not,
23 I think that the state can do a tremendous service
to the profession to organize this in such a way

1 that it serves as a benchmark decision for other
2 decisions and maybe the state system is not set up
3 to do that to the degree that I would like to have
4 it be done but at least I would like to see some
5 progress in that direction. Right now I feel that
6 we have a kind of generalizing of what we think
7 we'd like to have attached to the habitability
8 criteria. What I would really solicit from the
9 state is now the framework, the meat of the subjects
10 listed here, "Hey, guys, this is the way we see it.
11 This is what we are going to do and this is some-
12 thing now that we are going to be able to resolve,"
13 a very difficult problem and be proud of its
14 resolution.

15 What I am afraid I heard happening toward
16 the end of my last dissertation was that I was be-
17 ing asked to do that for them. I think that would
18 be totally improper because I don't know the infra-
19 structure that we are dealing with and you do and
20 I think you have talented people that can do this.
21 You certainly had support from consultants and
22 everything and there is a need to amalgamate those
23 notions and ideas and fit them in this framework
we have provided as to what we would like to see

1 attached or I would like to see at least attached
2 to the habitability criteria that makes it salable.
3 If we don't do that, then, you know, some of the
4 problems of suspect and so forth are going to remain
5 and I really think the ball is in your court now
6 and come on forth with it and give it to us so that
7 I can professionally and technically endorse what
8 you are doing.

9 Don't let anybody get me wrong, I think
10 the plant is doing a good job. I think it's
11 designed to do a good job. Now just give us this
12 added assurance so that we can build it into our
13 decision.

14 MR. BROWN: Would you like answers to
15 these right now or---

16 DR. POHLAND: Well, I don't think you are
17 prepared to give them but I'm glad you are here
18 because that is what I have been after all along.
19 Maybe you are prepared to give them, I don't know.

20 MR. BROWN: I am prepared to give you some
21 of it. I can tell you right now about, number one,
22 the analysis of shallow ground water. Right now
23 we have eighty wells inside the fence that we sample
at least once per year and we have forty wells

1 outside the fence that are sampled at least once
2 per year.

3 We have a contract with JRB. We have a
4 contract to get a long term monitoring plan. We
5 don't have the monitoring plan yet but we will have
6 and there will be long term monitoring.

7 CHAIRMAN WELTY: When do you expect to
8 have that?

9 MR. BROWN: I don't know, I think in about
10 a month. I'm not sure.

11 DR. WINKELSTEIN: This conversation I
12 think suggests to me that one criterion that we
13 probably need to insert which I don't think we have
14 discussed at all is that after we have established
15 these criteria, I think we have to have a period of
16 time to evaluate whether the criteria are being met
17 and I think that needs to be in the document and I
18 would suggest three to five years. In other words,
19 what I'm saying is that, just take for example what
20 was just said, there are forty wells outside the
21 fence in the EDA, is that right, in the EDA?

22 MR. BROWN: That is right.

23 DR. WINKELSTEIN: And obviously our
objective is to set the criteria for the

1 rehabilitation of the EDA. Now, one sample a year
2 from forty wells seems to me to be probably not what
3 the plan being designed is going to come up with.
4 It will come up with many more tests than that and
5 it seems to me that there has to be some time
6 period during which the results of that monitoring
7 program can be evaluated and that ought to be a
8 criterion and I don't see how it can be, you know,
9 some brief period of time like once a month or a
10 year but it would have to be some substantial period
11 of time so that someone could evaluate what was
12 happening.

13 Now, it could be a step-wise thing, for
14 example, but I would think that the minimum as I
15 see it would be something like three years and I
16 think that is going to be necessary for all the
17 criteria that we set.

18 DR. MILLER: You are saying that there
19 would be no decision based on the---no decision to
20 inhabit the neighborhood based on the satisfaction
21 of criterion for a period of time?

22 DR. WINKELSTEIN: No. I'm saying until
23 the criteria had been evaluated over a period of
time. See, the whole document contains no times.

1 It's as though there was instantaneous satisfaction
2 of the criteria but there is no such thing as
3 instantaneous satisfaction of the criteria since
4 there isn't even a plan. So, I think that built
5 into a criterion, there ought to be a meeting of
6 all of the foregoing with, whatever the document
7 says, over a period of time to demonstrate, for
8 example, what Dr. Pohland was just saying. I mean,
9 if you are going to monitor a treatment plant, you
10 have to know that that monitoring can be effectively
11 accomplished over some period of time. That period
12 of time may be debatable. I would suggest that it
13 be not less than three years.

14 CHAIRMAN WELTY: So that are you saying
15 that habitability decisions then would be postponed
16 for three years?

17 DR. WINKELSTEIN: Well, habitability
18 decisions are going to depend on satisfaction of
19 the criteria and all I'm saying is that the criteria
20 have to have that built into the criteria document.
21 There needs to be some sensible time span.

22 DR. POHLAND: I think that holds for
23 things to come but I wouldn't want to suggest that
24 we encourage another three year delay on the data

that is already available.

1 DR. WINKELSTEIN: But you can already tell
2 that the data that is already---you have just
3 demonstrated to us that from the data that are
4 available to us today, it's clear, I mean, unless
5 you think---for example, let me ask you a question:
6 As a consultant is evaluating the output of the
7 treatment plant once a month adequate or should it
8 be on a daily basis?

9 DR. POHLAND: It ought to be done weekly.

10 DR. WINKELSTEIN: All right, weekly. So,
11 it isn't done weekly, it's done essentially monthly
12 from what we have just heard.

13 DR. POHLAND: Yes, but see, it's difficult
14 for me to answer that question because I don't know
15 all the ramifications of the situation at hand and
16 I have a real sympathy towards the staffing problem.
17 When we were at the plant they only had one
18 operator at the plant and I don't know whether that
19 has been resolved or not. I have heard in my dis-
20 cussions that the reasons why all this good data
21 wasn't synthesized was because of the manpower.

22 DR. WINKELSTEIN: But the criteria is
23 weekly and you haven't met the criteria. Let's say

1 we had a criterion that said weekly evaluation of
2 the treatment plant. Now, you have just told me
3 that it is three weeks to a month at the present
4 time, after all, it takes a week to get it to the
5 lab.

6 DR. KOLAC: On some of the parameters,
7 some of them it is sooner but---

8 DR. POHLAND: The key parameters take too
9 much time.

10 DR. WINKELSTEIN: All I am saying is,
11 suppose that they, at the present time they don't
12 meet the criterion. Let's just say that the cri-
13 terion was weekly analysis. Once they met that
14 weekly analysis, I would want to know that they
15 could meet it for some period of time, not just for
16 one week.

17 DR. POHLAND: Of course, all permits are
18 kind of written that way or should be written that
19 way but the point that I want to put on the record,
20 though, is just knowing the treatment system, I
21 don't think people should get the notion that the
22 system has been operating satisfactorily because we
23 don't have the record of its operation at hand or
at least in a format where we can get the assurances

1 we want. I think we should recognize that the
2 treatment system is a well designed and probably
3 sufficiently operated plant.

4 DR. MILLER: But without any records, there
5 is no way to make an independent evaluation of that.
6 I say I accept that that is what he is doing and
7 everybody is putting faith in everyone and it's an
8 empirical question. It is not a religious ques-
9 tion.

10 DR. POHLAND: That's why I was saying that
11 he was vulnerable because if anybody posed that
12 question to him, that would be just simply judgment
13 and when you just use judgment without any proof,
14 then---

15 DR. MILLER: That is a poor basis.

16 DR. FOWLKES: Fred, two questions: Along
17 with what Warren suggested earlier as a way of
18 alleviating your obvious and reasonable frustration,
19 is it possible for you to take, say, point three,
20 which I would define as a concept rather than a
21 criterion and to operationalize it in terms of your
22 own professionalism as to exactly what that means
23 and your best judgment and then---

DR. POHLAND: But so are they professionals

and that is where the answer should come from.

1 DR. FOWLKES: Yes, you are right but the
2 more concrete we can be, you can be about what is
3 involved in satisfying this concept in operational
4 terms.

5 DR. MILLER: What I thought he has been
6 saying all morning is that he is trying to figure
7 out whether they are really up to par and he can't
8 figure it out because they are not giving him
9 enough information to develop that.

10 DR. FOWLKES: I understand that but what
11 I'm saying is let's try to figure out what he is
12 saying. These are specific criteria that have to
13 be met in order to meet this general criterion and
14 go to it.

15 DR. MILLER: But again, you are still not
16 getting a critical piece of information either.

17 DR. POHLAND: It's kind of refreshing to
18 get an argument between these two for a change.

19 DR. FOWLKES: Well, we are here to
20 elaborate our concerns. The data and the person-
21 nel and the neighborhood have to be assessed in
22 terms of whether they can meet these concerns as
23 we translate them into specific criteria. His

1 concern is that he has a very concrete, systematic
2 set of ideas derived from his own professional
3 standards about what an adequate operating protocol
4 is and I think that in a way you are going in the
5 wrong direction trying to find out whether those
6 people meet them. What you need to do is spell them
7 out so that they will be very specific criteria
8 involved in assessing. You are saying you can't
9 decide from an engineering point of view whether
10 their neighborhood is habitable unless you are
11 satisfied that certain criteria are being met with
12 respect to plant operation, personnel, efficiency,
13 communication, evaluation of analysis and so on
14 and then put them in as part of the criteria.

15 DR. POHLAND: Yes, and that is all academic.
16 You see---

17 DR. FOWLKES: Why?

18 DR. POHLAND: You see, all treatment
19 systems are rather specific unto themselves and
20 must embrace all the conditions surrounding the
21 issue. I don't think there is any misunderstanding
22 in the thrust of what I'm asking for and after all,
23 there is a group of professionals there that I
think have the capacity of doing this and

1 describing for us what they would do or propose to
2 do to accommodate this item and then I would be
3 very happy and feel that it is my responsibility
4 to critique that. You see, what I could say and
5 please, I don't mean any offense, I can say, "Okay,
6 I want somebody trained in engineering to operate
7 that plant." Now, that would be taken, if I just
8 said that before prefacing by somebody in another
9 discipline who feels equally qualified as an insult
10 to his professional capabilities. So, in this case
11 I think I wouldn't require that, you see, and I
12 don't want to get into a situation where I want to
13 be superimposing.

14 DR. FOWLKES: But what is involved in an
15 adequate operating protocol and I wondered if they
16 couldn't just be listed?

17 DR. POHLAND: You can list all the things
18 you want to list and that doesn't provide you the
19 assurances that in fact those things are the things
20 that are being done routinely. It's far better to
21 get an expression on the record from them as to
22 what they are doing, how they are going to approach
23 it, and resolve their problems, what they have
planned for the future and then we have a notion of

1 how their structure accommodates what I would like
2 to see there.

3 DR. WINKELSTEIN: We have to write down
4 what we want to see. You see, I disagree with you
5 on one point. The Sanitary Code of New York State
6 tells you what kinds of qualifications are for
7 plant operations. I mean, at least there used to
8 be a chapter of the Sanitary Code, who runs a
9 pasteurizing plant, who runs a water treatment plant,
10 who runs a sewage treatment plant. I mean, what
11 are the qualifications? They have to meet certain
12 criteria, Grade 2 Operator or whatever they are.

13 DR. POHLAND: Do you want to respond to
14 that question?

15 DR. WINKELSTEIN: Well, my feeling is
16 that what our obligation is is to set the criteria.
17 Now, we think that this plant should be operated
18 above the level of the Niagara Falls permit level,
19 we ought to say so.

20 DR. FOWLKES: That is the other question
21 that I had a concern on. I am sorry to be naive
22 in this respect but could you comment on the
23 adequacy in terms of what we are talking about with
habitability for, I guess I didn't understand, that

1 the---apparently the evaluation or the set of
2 standards applying to this treatment plant really
3 is whether or not it meets the conditions of the
4 permit for Niagara Falls in terms of what it is
5 discharging into the water.

6 DR. POHLAND: That is a sewer discharge
7 permit.

8 DR. FOWLKES: And that is the single
9 standard by which this plant is being evaluated?
10 It's being treated as---

11 DR. POHLAND: The only legal effluent
12 standard is this. Now, I---

13 DR. FOWLKES: Well then, I guess I don't
14 really understand that. So, it's being treated as
15 though it were a factory?

16 DR. POHLAND: It's a waste water treatment
17 plant discharging to a sewer and under those cir-
18 cumstances it needs a sewer discharge permit, and
19 usually those permits, notwithstanding the fact
20 that the whole sewer discharge program is being
21 re-evaluated, it's usually a negotiation between
22 the plant where it's a state run plant, industrial
23 plant or whatever and the local municipality doing
it.

1 DR. FOWLKES: Is that an adequate measure
of toxicity or potential toxicity?

2 DR. POHLAND: Well, I have already inferred
3 that I don't think that soluble organic carbons is
4 a sufficient determination of things that we are
5 concerned about because it's just a lumping term.
6 I, on the other hand, I think that they are aware
7 of the issue involved and are proceeding to take
8 data that will at least give an inclination as to
9 whether or not some of these other components of
10 more concern are being discharged and just my
11 cursory scan of that information suggests they are
12 not.

13 But, let me turn the thing around. I
14 think that is one of the issues that this group
15 must of necessity deal with, is what do you want as
16 your indicator organics with regard to adverse
17 environmental imposition, whether it's health or
18 whatever it is, and once we come to grips with that,
19 it seems to me that we could also build in the
20 monitoring, the plant monitoring protocol, some
21 requirement for analyses for these key ingredients
22 and then if the record demonstrates that they never
23 appear, then you can lengthen the times that you

1 look for them and just make sure. I think the
2 organic carbon analysis provides an operational
3 analysis technique to be assured that the carbon
4 system is operating well, but it doesn't answer the
5 question as to what constitutes that residual
6 organic carbon that is going out, nor for that
7 matter does it---

8 DR. KOLAC: May I just make a comment just
9 a second here to add to what Fred is saying, so
10 that the other people here don't get off the track,
11 we have been analyzing for priority pollutants
12 which is volatiles, base neutrals and what is called
13 acidic fraction for, I think, we have over three
14 years of data, okay. About six months ago I
15 decided to reduce some of those because of the cost
16 and the fact mainly that an effluent for over three
17 years, 99 percent of the data from the laboratory
18 is below their detectable limits on individual
19 parameters. Now, it's true that we used SOC, TOC
20 as Fred has said, and these are like a bulk operating
21 parameter but we try to go to a specific component
22 when it appears. Now, if it doesn't appear, even
23 once or even twice in three years above the
detection limit in the lab, how long should the

state continue?

1 I have been criticized that we have gone
2 too long on some of those already and--

3 DR. POHLAND: You see, I was hoping you
4 would pop in there because see how much better an
5 impact it makes coming from you than me suggesting
6 what you ought to be doing? The point is and it
7 relates to your question as to how long should you
8 prove something and I think, Frank, that is why I
9 feel the plant is working well because I knew you
10 had the data out there but it came about as casual
11 conversation.

12 DR. WINKELSTEIN: Well, let me give you
13 another example. The reason this conversation is
14 important, it seems to me, is that the forty wells
15 in the EDA ought to meet the same standards as the
16 output of the sewage plant at a minimum. So, that
17 is why I think it's important spending time discuss-
18 ing this issue. I would think, you know, that you
19 would want to sample those forty wells, worry about
20 where those forty wells are, but if the forty wells
21 don't meet the same standard at a minimum of the
22 outflow from the treatment plant, then there is a
23 problem.

1 DR. POHLAND: Well, let me suggest that we
2 may look at the fact that the well system is a dif-
3 ferent system than the treatment system. The treat-
4 ment system is a controlled, primarily conceived
5 system for the removal of organics.

6 DR. WINKELSTEIN: But it's to produce a
7 safe output presumably.

8 DR. POHLAND: But what you may well do
9 with that system is you may not find something be-
10 cause of the treatment system in the effluent that
11 may be out there in the wells in very low concentra-
12 tions. Just because you don't see it in the
13 effluent treatment plant doesn't necessarily mean
14 that because of prior circumstances, it may not be
15 found in the well samples.

16 Now, I think the well, personally I think
17 the reason why I am particularly concerned or I am
18 particularly endorsing the well monitoring program
19 is I want to develop over a period of time the fact
20 that the concentrations, if any there in the first
21 place, are waning, going down. I don't want them
22 to be growing, because if they are growing, we have
23 got another problem.

DR. FOWLKES: Couldn't you build that into

the criterion?

1 DR. POHLAND: Sure, but I wouldn't want to
2 link of necessity the effluent quality of the
3 treatment plant to the purpose of the well.

4 DR. HUFFAKER: If I could make a sugges-
5 tion, that the effluent from the treatment plant
6 should meet the same criteria that the rest of the
7 Niagara Falls effluent meets, at least that would
8 set a different standard for this plant. It seems
9 to me that would be very difficult to defend. If
10 you look out the window down there, the end of
11 Hooker and the rest of them, they have standards
12 that they have to meet and this is where the
13 material comes from originally. So, I think the
14 standards we are talking about, we ought to leave
15 alone and not fool around with but what is going
16 through is ethanol is going through, that is one
17 of the like alcohols and that was all that we
18 picked up.

19 DR. POHLAND: Yes. The carbon is not
20 going to be picked up or the simple organics, but
21 the simple organics are not problems to a waste
22 treatment plant.

23 CHAIRMAN WELTY: Fred, could I suggest that

1 you and I and perhaps some people from the state
2 work on that list of criteria to add along the lines
3 that Warren suggested, whereby we could monitor
4 this process in an objective manner through the
5 criteria document?

6 DR. POHLAND: Yes.

7 CHAIRMAN WELTY: I don't know any other
8 resolution.

9 DR. POHLAND: We could do that. I think
10 the priority pollutant issue, he has already run
11 scans on priority pollutants for the last three
12 years. I think it should be made a matter of record
13 that he has and this is what he has found and based
14 upon that, that lends credence to the operation of
15 the plant.

16 I am not proposing that he stop measuring
17 priority pollutants and I think out of our delibera-
18 tions on what will be the candidate pollutants, we
19 may well ask for some frequency of determination of
20 those same ones in the treatment plant effluent
21 and that's the way I would like to approach that
22 issue.

23 The other issues, really, Tom, need to come
from them. They have to tell us how they are going

to accommodate our concerns. I really feel that.

1 CHAIRMAN WELTY: Well, Nelson is doing that.

2 DR. FOWLKES: But I don't know that it's
3 our job to critique it. I thought that the job of
4 assessing what was used in terms of the criteria
5 to be met is not ours, that it was our job to spell
6 out the criteria that we wanted used.

7 DR. POHLAND: Yes, and I think we will do
8 that but as a proviso to the criteria, we also---I
9 thought we agreed on the fact that we had to have
10 vivid assurances that the remedial program in its
11 monitoring and maintenance would exist as a condi-
12 tion and that is really what we are talking about
13 here, is we are trying to get up front this kind of
14 assurance.

15 DR. FOWLKES: Well, I thought that they
16 became a part of our criteria, that the criteria
17 for assessing habitability had to do with spelling
18 out what would constitute your vivid assurances.
19 You are saying it is a precondition.

20 DR. POHLAND: What you are asking me to do
21 is to tell them the type of person that they must
22 hire to run the treatment plant and I don't want to
23 do that. I don't think that that is proper.

1 DR. FOWLKES: Well, that isn't how I
translated it.

2 DR. POHLAND: Maybe I misunderstood you.

3 DR. FOWLKES: I didn't say anything like
4 that, I thought, about the type of person.

5 DR. WINKELSTEIN: What we need to do is
6 we have to be explicit. We have to decide what our
7 criterion is and it is something you have to meet.
8 And I don't see any problem. If we thought that
9 that plant has to be run by a graduate engineer,
10 we should put that down as a criterion. If we
11 don't worry about that, then we don't.

12 DR. FOWLKES: That wasn't what I meant,
13 though. I just meant for you to concretize what
14 you mean as an engineer by "satisfactory operating
15 protocols" to spell it out then.

16 DR. POHLAND: You know what I come back
17 to you with then, I say okay, and it's in here, I
18 mentioned the fact that I wanted an operation and
19 maintenance schedule, an emergency response plan
20 and things like that and they provided that to me.
21 That is all well and good, you know, but I want to
22 see the implementation mechanism.

23 DR. FOWLKES: Fine, then you should spell

that out.

1 DR. POHLAND: No, I can't tell them how to
2 run their shop. They have got the personnel.
3 They have got the structure set up. They should
4 tell me how they are going to accommodate these
5 criteria.

6 DR. KOLAC: I am really having trouble
7 trying to give people answers when I don't know what
8 the questions are, okay, and we have done our best
9 over the summer.

10 DR. FOWLKES: I think the questions ought
11 to be translated into criterion that would satisfy
12 your professional standards. Never mind what
13 personnel they have now. If in fact in trying to
14 meet these criteria they require three times the
15 personnel they have, then they are going to have to
16 have three times the personnel, okay. I mean, it's
17 getting circular.

18 DR. POHLAND: Well, it is circular, frank-
19 ly, and the problem, of course, is that the state
20 runs the plant and controls it too. Maybe that
21 is the item that we can use as a forcing function
22 here and maybe we should use that as a criterion,
23 the fact that whatever permit is imposed upon this

1 plant should be regulated by an agency other than
2 the state.

3 DR. WINKELSTEIN: That is fine. That is
4 a criterion. I don't see any problem with that if
5 that is what your expert opinion is. I think you
6 can convince me without much trouble and I think
7 that is a good criterion.

8 MR. BROWN: I am just a little confused
9 here. Are we supposed to tell you what we have
10 got and then you tell us if that is okay, does that
11 meet your criterion or do you guys set the criteria
12 and then we come back and tell you what we are
13 doing to meet it? I don't really understand.

14 DR. POHLAND: No. See, we are mixing up
15 criteria with the contingencies of the criteria.
16 What we are saying is that, and it started off in
17 the first group that collapsed and here we are
18 again with the same notion, that all criteria must
19 necessarily be linked to the remedial action plan,
20 both present and future, the treatment system and
21 everything, with assurances that that will be
22 maintained, monitored, operated, controlled properly
23 in the future. Okay. That has nothing to do with
criteria per se. It has to do with the assurances

1 with the system to accommodate the criteria is in
2 place, is going to be properly supervised, operated,
3 maintained and everything. Let's face it, the
4 criteria that come forth to you people are going to
5 be a lot more rigid if we don't get those assurances
6 and all I am pleading for is an obvious expression
7 and a recorded indication that indeed, based upon
8 past experience, we can have confidence that this
9 is going to happen.

10 Now, if you don't want to---frankly, if
11 you don't want to provide that to me, I will tell
12 you what I want to see in that and I would prefer
13 to have it come from you. I am sorry I am such a
14 poor articulator.

15 MR. BROWN: All I could ask is that you
16 would work with us and I will be calling you up.

17 DR. POHLAND: I would be glad to work with
18 you.

19 MR. BROWN: And I will make sure that we
20 get what you guys want, okay.

21 CHAIRMAN WELTY: Let's go back to un-
22 finished business, Bob. We are on the item of,
23 I believe, frequency of chemical monitoring in the
wells.

1 DR. HUFFAKER: Yes. He just commented on
2 that. The plan was being designed and hadn't been
3 completed and he thought a month or so before it
4 would be.

5 Now, I sent you a couple of things along
6 with the letter inviting you to come and one of
7 them was a draft sampling plan and what I wanted
8 to do was start the people thinking about some very
9 specific tasks that we had to accomplish hopefully
10 today. The first one was that Dr. Miller and
11 Dr. Fowlkes were going to attempt to divide the
12 EDA up into neighborhoods and come back with that.
13 We could use that as a basis for the sampling areas;
14 that in the EDA, a certain percentage of occupied
15 homes in each neighborhood would be sampled, the
16 basement air, surface soil in the yard, surface and
17 subsurface water and dioxin and Dr. Stoline would
18 give us some help on how many homes actually need
19 to be looked at and that the control area needs to
20 be selected and a similar sampling plan put in place
21 for it.

22 In that regard, we have asked our people
23 in demographics to give us some computer runs on the
kind of information that is available from the

1 federal census, from the State Department of Com-
2 merce, and from other sources and there are pages
3 of information that have come out for just the Love
4 Canal neighborhood here. They will do this if we
5 ask them to go ahead and complete it. My suggestion
6 would be that we do this and we select or allow
7 them to select some criteria to be used to match a
8 controlled neighborhood with the houses in the EDA
9 at the time they were occupied. Now, that would
10 be the type of construction, age of house, number
11 of bedrooms or total size of the house, perhaps the
12 median income of the occupants, whether they were
13 owners or renter property and things like this and
14 then attempt to find a comparable neighborhood some-
15 place in the Niagara Falls area that could be used
16 as a control, comparable in all effects except it
17 isn't next to a landfill.

18 If I could get some direction from the
19 panel, if that is what you would like us to do, I
20 will ask the people down there to give us some
21 computer time and generate a sampling and one of
22 the neighborhoods we have talked about would possibly
23 be Lewiston or Lockport, if it's large enough to
provide this kind of sample we need, perhaps some

1 neighborhoods down in Buffalo. It's almost
2 impossible to find any here in the Niagara Falls
3 area that don't abut a landfill someplace.

4 Dr. Sipes and Stoline were to help us with
5 a list of chemicals that might be monitored and
6 Dr. Stoline has prepared a statistical analysis of
7 those chemicals which were found in the EDA and
8 the control area and in the canal and how often they
9 appeared, and that has been included in the package
10 which you have which is in the handout there also.

11 One of the problems that has bothered me
12 was how does one compare data from the controls and
13 the test houses and the problem here is basic, that
14 you are not going to find the same chemicals in
15 all of the houses. Some houses you may find some
16 things, even a small list of ten or fourteen, what-
17 ever we select, and you are going to find other
18 chemicals in the other houses. You are going to
19 find them in different ratios. They vary in
20 toxicity. So, the question is how can you compare
21 these. You have apples and oranges, so to speak.
22 One suggestion that the toxicologist said would
23 work would be to divide the chemicals into two
groups, carcinogens and those that are straight

1 toxicants, find the NOEL, the NOEL is the no effect
2 level for the chemicals that we are interested in
3 and use that value as a denominator so that would
4 be the NOEL. The NOEL is usually given as a dose
5 because it's---it comes from experimental animal
6 work or sometimes from human data. So, it's in
7 grams per kilogram and it would be the format that
8 that would show, and those would be derived from
9 each of the chemicals that are on the list that are
10 straight toxicants, not carcinogens. The measure-
11 ments we will do, for example, take the material
12 in the air, we would be measuring it in grams per
13 cubic meter of air and that would have to be con-
14 verted to grams per kilogram on a dose basis and
15 this can be done but it requires some work from
16 Dr. Silbergeld and Devra Davis. You add these
17 things up and then this could be your control area
18 and compare them with the test area.

19 We have discussed using tenfold differences
20 being acceptable so we would say that if the control
21 area equalled the test area times ten, that the
22 test area will pass.

23 DR. WINKELSTEIN: Where did you get that
ten? That bothered me everywhere I read it.

1 DR. HUFFAKER: Let's go back to that a
2 little bit later, if I could go on with this. The
3 other half of it would be the carcinogen data and
4 use ten to the minus six as the effect level on
5 that, whatever the dose is, that gives you the ten
6 to the minus six level on the carcinogens as
7 opposed to the toxicant and accept a similar sort
8 of an equation. If the NOELs for the carcinogen
9 levels are a little bit off, it doesn't matter too
10 much because it's an equation that balances. What
11 you see on one side in the control area, you are
12 going to use the same value in the test area where
13 you make the comparison. So, you don't have to be
14 absolutely accurate. For example, if there is not
15 a NOEL, let the toxicologist estimate one, and if
16 it's close, if there are differences, really that
17 would cancel out. We just want it so that it's
18 close enough so that it won't weight the equation
19 badly out of kilter one side or the other. That is
20 a very brief discussion of what might be done
21 there.

22 The final factor or item that I had that
23 we need to resolve was to discuss this times ten
and that was, I believe, Dr. Stolwijk and he is not

here.

1 DR. WINKELSTEIN: Do you have any comments
2 on where that came from?

3 CHAIRMAN WELTY: I asked him about that
4 and it was felt to be that at low levels that we
5 will be dealing with, that this level of ten which
6 is an order of magnitude, would be something that
7 would be within the---I don't know whether you would
8 say the lab precision or, you know, just the fact
9 that these were such low levels that that particu-
10 lar factor would be an empirical factor.

11 DR. HUFFAKER: What he is saying is that
12 if we have two parts per billion on one side of the
13 test area and twenty parts per billion on the other
14 side, it really doesn't make any difference. Those
15 two numbers at this level of dilution are not
16 different.

17 CHAIRMAN WELTY: And other people have
18 said a level of fifty would be more reasonable at
19 these low levels. So, I would say, you know, if
20 you have any other suggestions on how to do that.

21 DR. WINKELSTEIN: Well, I certainly
22 wouldn't put it that way. I would put it in terms
23 of the variability of the test, not in terms of some

number. When you put a---something like that into
1 a criteria document and let somebody like me read
2 it and every time they see times ten they react
3 negatively to that. I mean, now what you are tell-
4 ing me is that that is within the variability of
5 the test. Well, that is an easier concept to under-
6 stand than to say that you are going to accept a
7 factor of ten. In fact, it's a different concept.
8 What you are saying essentially is, and incidentally
9 there is some correspondence in here, one of our
10 members who never comes to the meeting---

11 CHAIRMAN WELTY: Silbergeld.

12 DR. WINKELSTEIN: Objected to that, point-
13 ing out that I guess the limit is one part per
14 billion for dioxin, is that right?

15 CHAIRMAN WELTY: Right.

16 DR. WINKELSTEIN: So what you are saying
17 was, so, let's take a concrete example, suppose we
18 go to the test neighborhood and we---

19 DR. HUFFAKER: Don't do it with dioxin.

20 DR. WINKELSTEIN: Well, I want to use that.
21 I want to use dioxin.

22 CHAIRMAN WELTY: Well, see, dioxin is not
23 going to be done in this model because we have a

standard for dioxin.

1 DR. WINKELSTEIN: I understand that but I
2 am just going to give you an example. I mean,
3 dioxin is a good example. Suppose somebody hadn't
4 legislated a limit of one part per billion but we
5 still didn't have the level. So, what you're say-
6 ing is that if the control area is .9 and the test
7 area is 9 parts per billion, that is okay. Now,
8 you tell me, well, we do have a standard for dioxin
9 and that is one part per billion. So, that is no
10 longer operative. What I am telling you is that
11 the chemical B, let's call it that dioxin is
12 chemical A, now we have chemical B for which we
13 have not yet set a standard but there is some
14 animal evidence that it is a carcinogen. There are
15 how many carcinogens in the IARC list, forty?
16 There is some number, twenty or forty. What is the
17 difference. It doesn't matter. The point is that
18 what I am trying to say is that the way we have it
19 in the criteria document, I would like to hear some-
20 body else that is more knowledgeable. This is
21 unacceptable to me. It suggests that we are
22 tolerating ten times as much exposure in the test
23 area as we are in the control area, when in reality

1 what we are trying to say is that the limits of
2 measurement are such that we will tolerate vari-
3 ability within the limits of measurement.

4 DR. SIPES: I don't think it has anything
5 to do with limits of measurement. It had to do
6 with the assessment that these chemicals are, other
7 than the dioxins, are essentially much weaker as
8 far as their toxic potential. Therefore, we were
9 working at a no effect level and also at very low
10 levels of the chemical.

11 If we make the two areas absolutely equal
12 without some factor, then we will never be able to
13 make any accomplishments. These are basically
14 chemicals in concentrations that are nontoxic. We
15 are probably at below or around the no effect level
16 where these have been exposed to animals. So, this
17 was a factor to sort of get us moving when Dr.
18 Stolwijk brought that up. It didn't have anything
19 to do with, when he brought it up, with the
20 sensitivity of the chemical measurements as far as
21 detecting how much was there and how much wasn't
22 there. It was related to the toxic potential of
23 the chemicals and he sort of pulled that out of the
fact that we have limits now for occupational

1 exposure on an eight hour day or et cetera, and we
2 don't have anything for ambient levels for 24 hour
3 exposure in a residence. So, we don't have a
4 standard so let's pick up these no effect levels
5 and in some fashion factor them.

6 DR. STOLINE: I have a problem with the
7 ten too, two things about it. One is exactly what
8 Warren said and that is that if we do use some
9 factor in there, why not 10.5 or why not 20 or why
10 not 5? I mean, why 10 and it just seemed to be
11 kind of---

12 DR. SIPES: That just came out of a
13 conversation. I really think it did more than
14 anything else.

15 DR. STOLINE: But that is what we have to
16 be able to defend and I don't think we could defend
17 that.

18 DR. SIPES: I agree with that.

19 DR. POHLAND: How about one over ten to
20 the minus one?

21 DR. STOLINE: The other thing is, if you
22 are talking about variability, that variability
23 exists for the control group too. I mean, it's
like you are talking about the variability of the

1 measurement you are going to make in the EDA. Well,
2 that same variability presumably is going to be
3 operating within the control area. I would simply
4 suggest that if you don't like the ten, simply use
5 maybe some sort of standard technique to compare
6 treatment to control, where you don't give one
7 group the advantage over the other. The no hypo-
8 thesis is that they are the same. The alternative
9 hypothesis is that essentially the EDA is more
10 contaminated or contains more air pollutants, what-
11 ever, it's a total measurement you are making or
12 individual measurement of whatever, benzene or some
13 of those other materials and do it that way rather
14 than leaving ourselves open, because I can't defend
15 the ten and Warren can't defend the ten and the
16 person that proposed it is gone and it was a
17 number apparently that was in conversation here.

18 DR. SIPES: I know Dr. Silbergeld didn't
19 care for it either. Like you say, it's hard to
20 defend on that issue.

21 DR. POHLAND: But it's not unusual, this
22 is the approach that has taken and I am wondering
23 whether we couldn't go back to the originator of
the proposal and ask him to enlighten us in more

1 detail on why that number came up. I mean, the
2 policy has been established and accepted by the
3 scientific community to do that, then, you know,
4 then I think I would feel comfortable with it and
5 maybe we need to go back to him and see what he has
6 to say. I vaguely recall him talking about it and
7 how this group really struggled with this concept
8 and maybe there is some value in trying to air that
9 out.

10 DR. WINKELSTEIN: My point is that if they
11 had used this in comparable studies where it's in
12 print somewhere or---

13 DR. HUFFAKER: Variations or standard
14 variation or something of this kind of data---

15 DR. STOLINE: You have a problem when you
16 have so many dates and points that are below detect.
17 You then have to decide how you are going to
18 incorporate those data points into the actual proce-
19 dure. So, I can't answer the question off the top
20 of my head but---

21 DR. WINKELSTEIN: I can tell you just a
22 logical problem, forget the dioxin for a moment and
23 take some other carcinogen on the list, you guys
are working up a list of chemicals for your list.

DR. SIPES: Well, we have lindane.

1 DR. WINKELSTEIN: All right, lindane. So,
2 we do a test well in the EDA and lindane comes up
3 nine parts per billion, is that likely?

4 DR. SIPES: Yes.

5 DR. WINKELSTEIN: Okay and then we do the
6 control area and it's too low for detection. Now,
7 according to the criteria, this criteria document
8 as it presently stands, that is permissible. We
9 are not concerned about lindane, right? That is
10 what we say.

11 DR. SIPES: With the factor of ten.

12 DR. WINKELSTEIN: With the factor of ten.
13 Well, of course, the factor of ten, ten times zero
14 is still zero. I don't know how you deal with
15 that but my guess is that the---well---

16 DR. STOLINE: See, that is the question I
17 was raising. You asked the question about standard
18 deviation and you have, the answer is, how are you
19 going to handle those below detect. How can you
20 put that in your algorithm. That is why I don't
21 know that anybody has dealt with that necessarily.

22 DR. WINKELSTEIN: If you look at the Clean
23 Air Act, I don't think they allow a factor of ten

1 for particulate pollution in air, do they? That is
2 more like two.

3 DR. SIPES: I still think it comes back
4 to all the other chemicals we are talking about, the
5 toxicity data that is generated where you see tox-
6 icities in the parts per million range instead of
7 the parts per billion range and what we are measuring
8 here is in the low parts per billion, ten parts per
9 billion, maybe one hundred parts per billion. How
10 do we get back to the toxicity data that is in the
11 parts per million and that is where that factor of
12 ten was coming in. It's still, if we are looking
13 at one part, let's say ten parts per billion if
14 your factor is ten, then we are up to one hundred
15 parts per billion but the toxicity data that we have
16 is still in parts per million. So, that is sort of
17 bringing two ends together, the toxicity data and
18 the environmental data.

19 DR. STOLINE: But let's take lindane, what
20 is the toxicity level of lindane?

21 DR. SIPES: It's all here, anything you
22 want to read, it's in milligrams per kilogram but
23 that is basically in parts per million.

CHAIRMAN WELTY: I don't think that is a

particular problem in air, though, is it?

1 DR. STOLINE: All I am trying to say is
2 that the way it's put, I don't think we can defend
3 this. I think we will be in---I think they will
4 just take that and settle on that as point number
5 one to abolish the entire criteria document because
6 it doesn't make sense.

7 DR. POHLAND: There is some precedence
8 for doing that. If you look at the monitoring
9 requirements under RECRA, for contamination of
10 drinking waters, there is a, I think it's a one
11 hundred factor in there above drinking water stan-
12 dards.

13 DR. STOLINE: You mean you think you can
14 exceed the standard by one hundred?

15 DR. POHLAND: Yes. I think it's one
16 hundred, ten or one hundred, I forget, but the
17 point was that the concentration of what would be
18 released and it was basically with landfills into
19 the environment, because of the high dilutional
20 potential of the ground water system, would indicate
21 that probably the effective impact would be diluted
22 out and somebody came up with a hundred figure but
23 it's a precedent.

1 DR. FOWLKES: But in this particular con-
2 text I think it merges as a double standard and
3 then I think the problem that---

4 DR. POHLAND: Yes, it always merges that
5 way, at least for those toxic or constituents of
6 concern in drinking water which are listed as
7 standards, they apply.

8 CHAIRMAN WELTY: One particular point that
9 might help in this regard, it is going back to the
10 experience with dioxin and although the level is
11 one part per billion for residential areas, there
12 is a tremendous amount of variation in this and
13 Dr. Wiesner was involved in the creation of that
14 standard. He is with us here today and I wonder if
15 Paul maybe just a slight digression on how this
16 standard was arrived at might give us some help in
17 grappling with the other chemicals that we are deal-
18 ing with here.

19 DR. WIESNER: Well, I think it's worthwhile
20 to talk about that, just on one point. First off,
21 it's not a standard. That is the first point. It
22 was an attempt to describe a focus where we should
23 have some concern about health effects and there is
an enormous variation where one would put one's

1 finger on the whole range of possible areas where
2 you could have concern and the three major factors
3 that influence that are, first of all, what level
4 of risk, say, for cancer do you consider to be
5 society's judgment where you should have concern
6 about it, is that ten to the fourth or ten to the
7 fifth or ten to the sixth and actually the way that
8 was presented in the document that came out of
9 Kimbro, and our people worked on it in that risk
10 assessment, was to present all of those. If your
11 area of concern is one excess cancer case per ten
12 to the fourth population, then you look at this
13 part of the graph. If it's ten to the fifth, then
14 you look at this part of the graph and if it's ten
15 to the sixth, you look at that part of the graph.

16 The second big variable is, of the universe
17 of soil that is sampled there, the sample that you
18 have in the laboratory, is that representative of
19 one percent of all the soil in that area, ten percent,
20 one hundred percent? You can make as many ranges
21 as you want and that creates a range.

22 Then there is just the intrinsic uncertain-
23 ties around risk assessments themselves, the whole
process of looking at animal data, what is the

1 correct model and looking at the exposure data and
2 what is the correct model.

3 So, I mean, I think it is very difficult
4 for us to communicate a concept at the one part per
5 billion dioxin in residential soil. It is not a
6 standard that anybody could use for a legalistic
7 enforcement but it's more correctly stated, it's
8 the area around which all of this variation related
9 to what society's choice is as far as risk might be
10 considered, what the vagaries of the sampling are
11 and the vagaries of risk assessment.

12 I actually don't think, Tom, that the diox-
13 in issue in Missouri is relevant to the discussion
14 of the ten factor that is going on here. The
15 dioxin is a risk assessment, trying to focus on a
16 level that would be of concern and I think what you
17 are discussing here is how do you make comparisons
18 between levels of chemicals in the EDA versus some
19 chosen control area and when are you going to say
20 they are different enough to be of concern and that
21 is a different question than what is being asked in
22 the Missouri dioxin risk assessment.

23 I think every one of us who has looked at
that factor of ten is wondering where it comes from

1 and it does come from this informal discussion from
2 Dr. Stolwijk and I think it is difficult to defend
3 and so you may want to say, are these different or
4 are they not different from a statistical point of
5 view. Then you have got the separate problem of
6 the no detects, what value do you put on them.

7 DR. STOLINE: That seems to me to be the
8 hard part of the problem. I mean, suppose you have
9 90 percent of your data in that has no detect. How
10 do you actually build that into the algorithm that
11 determines yes or no whether these areas are the
12 same or not and I don't know that we have thrashed
13 that out.

14 DR. WINKELSTEIN: I would just rather see
15 it put in a different way, to recognize that this
16 is a problem at these very, very low levels rather
17 than putting it in the manner that it's put in the
18 document at present. I don't think the way it's
19 stated in the document is going to fly. I'm not
20 sure how to do it but---

21 CHAIRMAN WELTY: Everybody that reads it
22 says that they don't like the way it is but nobody
23 has come up with a better way to do it.

DR. SIPES: Even without any statistical

1 analysis, if it's 9.9 or 10.1, then where do you
2 make a decision, I mean, without some variation
3 around that particular figure.

4 DR. STOLINE: If you want a factor of ten
5 in there, this is just a conversation, I haven't
6 thought it through, but if you want a factor of ten
7 there, you might say that the null hypothesis is
8 that these two areas are the same and that if you
9 want enough assurance in here, say, with a certain
10 high probability, 95 percent probability, that if
11 these areas differ by as much as a factor of ten
12 either individually or per chemical or somehow
13 totally, how do you word that? That you have that
14 high probability of 95 percent probability of
15 detecting the situation if they differ by a factor
16 of ten or something like that and you will find
17 that out.

18 DR. POHLAND: How do you accommodate the
19 below detectable?

20 DR. WINKELSTEIN: Well, that's the problem.
21 You assume that to be zero and then you just
22 develop that.

23 DR. POHLAND: What is the factor of ten
against zero?

DR. WINKELSTEIN: So, what you do, I think--
1 correct me if I am wrong on this but you take a
2 series of measurements when you have a measurable
3 quantity, let us say of something in one of these
4 test areas or in the control area and you get a
5 series of numbers from which you can calculate what
6 the distribution is. If that distribution includes
7 zero, then it's accepted as no difference.

8 DR. POHLAND: What do you end up with, a
9 mean value that you are going to compare then or
10 something---

11 DR. WINKELSTEIN: Yes, a mean value dif-
12 ferent from zero.

13 DR. STOLINE: The only competitor to that
14 would be something like what was put on the board
15 where you divide by that NOEL, convert everything
16 to the lowest detectable quantity and I guess in
17 that case the no detects would become ones and
18 everything above the detects would be something
19 greater than one, but that would be the same thing
20 essentially but some way to deal with that so that
21 is counted as a legitimate observation and that is
22 really information there, that you have got the data
23 point that is indicating that it is below detect,

a zero or a one, depending on however you scale it.

1 DR. HUFFAKER: With the houses here, we
2 took the value to be found and put it over TLV's
3 to see what we are taking at homes and compare it
4 to work place standards, not for the purpose of
5 establishing habitability but just to see where they
6 fell and that came out at about one point one
7 thousandths the way I recall it now, five or six
8 years ago, but the value was way down. If you do
9 this and put a one on it, that would mean you have
10 a biological effect. So, a no effect should be not
11 even a one. One indicates something happened. So,
12 that should be a zero or something of that sort.

13 CHAIRMAN WELTY: What if you took all the
14 chemicals and did the scheme as Bob outlined here
15 and added them up and compared them. Is that a
16 concept that you would support?

17 DR. STOLINE: Well, I am somewhat opposed
18 to that because then it becomes a question of, if
19 somebody else would do that and have a different list
20 of chemicals. I almost think there is---you know,
21 I taught statistics for 17 years and I think the
22 most direct way to do things to communicate what is
23 going on is just take little pieces of it and deal

1 with this little piece and this little piece and
2 I almost think you answered the question with
3 benzene and then you move over to carbon tetra-
4 chloride and you do it that way rather than summing
5 these things up because what you have is somewhat
6 a bag of apples and oranges to some extent and then
7 it becomes a function of, did I make the correct
8 determination of chemicals to put into the hopper
9 here and so that I can get my totals to come out.
10 Well, that is a germane point, the chemicals that
11 we are selecting but I think totalling them to-
12 gether, I have a reservation with regard to that.

12 DR. HUFFAKER: Our problem was one of the
13 houses has benzene and the other has carbon tet.
14 How do you compare and this is why---

15 CHAIRMAN WELTY: You can compare the
16 medians.

17 DR. STOLINE: And you are going to show
18 essentially that if the statistics come out, that
19 in the control area you have more benzene or there
20 is no difference between---let's put it this way,
21 if the benzene is higher in the control area than
22 in the EDA but, say, with carbon tetrachloride
23 comes out the other way around that the EDA is

1 statistically higher than the control area and you
2 just report that out, then you make a habitability
3 decision based on those things. I mean, you may not
4 be able to do that, rather than trying to lump those
5 two together and adding them together in some type
6 of way here and saying, well, that may be useful
7 but I wouldn't say that is the only thing we should
8 do with that data. I think that you should have,
9 my feeling is that there should be separate data
10 analysis on each of those chemicals because that
11 gives you the information. You know that benzene
12 is a problem and carbon tetrachloride might not be
13 or the other way around.

13 CHAIRMAN WELTY: Off the record.

14
15 (Whereupon, the above proceedings were
16 recessed for ten minutes.)
17

18 CHAIRMAN WELTY: Can we get started again,
19 please. Mr. Reporter, are you ready to go?

20 THE REPORTER: Yes, sir.

21 CHAIRMAN WELTY: Let's go on with the
22 discussion here then. We have talked about the
23 options for comparison and in this particular

1 discussion I think we have been talking primarily
2 about air because that is where we have said in
3 the criteria the comparison of at least ten homes in
4 the EDA with ten homes in the control area and,
5 again, that number ten was rather arbitrary. We
6 will have to discuss that but in terms of the
7 methodology, the way the criteria is now written
8 is we are comparing medians of the samples in the
9 homes, comparing the EDA with the control and
10 saying that the EDA shall not be greater than ten
11 times the control.

12 Dr. Huffaker's proposal was, and this was
13 done on individual chemicals, these determinations
14 were on individual chemicals and as I understand it
15 ---well, yes, I will try to write larger and darker
16 here. This is indoor air. The way it's written
17 is medians in EDA less than ten times control and
18 we are looking at individual chemicals. I'm sorry,
19 that is means but we should talk about whether it
20 should be means or medians. One of the considera-
21 tions is that the median is a better statistical
22 measure of central tendency when you have non-
23 detects. I would think that we should consider
whether to use the medians or means but at any rate,

1 that would be individual chemicals, looking at these
2 chemicals individually. We had listed five and we
3 may need to expand that list based on your recom-
4 mendations.

5 The second proposal that Bob had was to
6 look at proportions and again, some of the propor-
7 tions for all chemicals and then the sum of these
8 proportions in the EDA should be less than ten
9 times the control.

10 The third proposal that Dr. Stoline recom-
11 mended was the null hypothesis that the control
12 equals EDA and the alternative is that the control
13 is different than the EDA and there may be addi-
14 tional options that people want to discuss or may
15 want to elaborate on on each of these three. Yes.

16 DR. WINKELSTEIN: I think option number
17 two is unacceptable to me. The reason is quite
18 simple, suppose you have a known toxic agent or a
19 known carcinogen that is strongly demonstrated
20 carcinogen added into all the others which, let's
21 say, are occurring in lower than expected propor-
22 tions. The sum could be not different than the
23 control but the true hazard is substantial. So, I
don't see how you could accept option two under the

1 circumstances where you are concerned with the
2 occurrence of a hazardous agent in the environment.

3 DR. HUFFAKER: Tom, the rebuttal was that
4 we are weighting those by the use of refraction if
5 it was a carcinogen and are an effective dose, it
6 was ten to the minus six, that would be very, very
7 small if it was a carcinogen and if we found it in
8 higher levels in either area, that would show up
9 very strongly in the equation. I'm not defending
10 it, I'm just explaining it.

11 DR. SIPES: You are still comparing it
12 to the control houses and I sort of agree with
13 Warren, that you would be diluting out a potential
14 agent because you are summing it up and I think that
15 at the moment it doesn't seem like the best alterna-
16 tive.

17 DR. WINKELSTEIN: Besides that, you have
18 to have all the information anyway to do the exercise
19 and the tendency when you have situations like that
20 would be to write some kind of a computer program
21 which will grind out the answer. So, since you
22 have all the information anyway to execute option
23 two, why not use options one and three together in
some fashion anyway. I mean, you are going to have

all the data either way.

1 CHAIRMAN WELTY: Dr. Stoline, do you have
2 any comment on option two?

3 DR. STOLINE: No. I think I already com-
4 mented on that originally. I am not in favor of
5 that particular procedure. As I understand it, it
6 simply puts everything together in some sort of a
7 weighted linear function and it dilutes out the
8 individual effects I think of the particular
9 chemicals and I prefer, I think, looking at the
10 individual comparisons of the chemicals that are
11 being monitored. Then I think you have to then
12 defend linear equation that you are putting together
13 or totalling or the proportion or whatever it is
14 and then you get into the notion, is benzene ten
15 times more, should it be weighted ten times more or
16 should it be weighted ten times more, if I am under-
17 standing what the procedure is, should benzene be
18 weighted in here ten times more than carbon tetra-
19 chloride and I think some of those issues, you have
20 got one additional element that is imbedded in
21 number two that makes it a little more scientific-
22 ly difficult to put together and to test.

23 DR. HUFFAKER: I have no pride of authorship

1 here at all. What I was trying to do was get some-
2 thing started so we would have a way to compare.
3 We have a real problem with one and three in that
4 you are going to have a list of chemicals, two
5 different groups of houses and some will be high and
6 some will be lower and how do you make the comparison
7 between the two? You are going to have to weight
8 them at some step in the process and decide that
9 these five chemicals are high here, they really are
10 not different than these four chemicals which are
11 high over here. How does one do that?

12 DR. MILLER: But I think that is a dif-
13 ferent question than this one. Well, this feels to
14 me like number two feels without---I don't want to
15 hurt your feelings either, I realize what you are
16 trying to do is take the initiative but it feels to
17 me like it adds more arbitrariness to the process
18 than we already have in one and three and that the
19 goal is---

20 DR. HUFFAKER: Say objectivity. It would
21 make me feel better. Objectivity rather than
22 arbitrariness.

23 DR. MILLER: No. I mean the sort of seat
of the pants kinds of standards. I mean, the things

that don't have---

1 DR. HUFFAKER: Well, you can take both
2 sides of your equation. If they are a little bit
3 arbitrary, it is not that terribly important
4 because if you overrated on one side, you are going
5 to overrate on the other.

6 DR. MILLER: Well, unless, of course, it's
7 a zero on one side and not the other.

8 DR. HUFFAKER: Well then, how then do we
9 compare this mixture of chemicals that we are going
10 to see in the control area with the mixture that we
11 are going to see on the other side? That is all I
12 was going to do.

13 DR. MILLER: We could say that if one of
14 them exceeds the criteria, then that is it.

15 DR. HUFFAKER: What criteria?

16 DR. MILLER: I mean, if one of them, if we
17 settled on number three and we said that one of them
18 is statistically significant, we don't care about
19 the other five. The fact that five weren't is
20 irrelevant. What matters is that one was. I mean--
21 or am I missing the point? If there are six
22 indicator chemicals, each of them was chosen
23 independently of the other for a reason. What is

at issue is that one is statistically significant.

1 DR. HUFFAKER: Then we would be doing it
2 not against a control area but against a risk
3 assessment. We would establish a trigger level for
4 each chemical and if it exceeded that level, then
5 the house failed.

6 CHAIRMAN WELTY: No, not if you are compar-
7 ing some measure of central tendency and you are
8 measuring these chemicals individually in five homes
9 or ten homes and then if you compare the median or
10 the mean from those ten homes in the EDA with the
11 median or mean of ten homes in the control area,
12 that would give you, I think, what you are talking
13 about.

14 DR. MILLER: I was talking about six
15 T tests.

16 CHAIRMAN WELTY: You were thinking that the
17 comparison would be made home by home.

18 DR. HUFFAKER: Well, what our commissioner
19 said when he was here and I think the practical
20 part of the matter is, we are going to have to do
21 it home by home when we start to reoccupy and so,
22 there would be a judgment made there. So, if our
23 individual house exceeds one parameter, the median

1 or mean or whatever we decided to use for the
2 control area, then that would be either non-
3 habitable or requiring remediation, is that correct?

4 DR. WINKELSTEIN: We haven't set the
5 criteria. You could set a criteria that you would
6 have to be two or three, two or more, I mean,
7 that's a criterion. I would say one or more but
8 somebody else might say two or more, have to be
9 significantly elevated over the control area. You
10 could set whatever criteria you want.

11 DR. MILLER: If you have an individual home,
12 the question then becomes whether, I mean, we
13 establish something like two standard deviations,
14 whether the individual home exceeds by one or two
15 standard deviations the mean for the group. I mean,
16 the control group, I'm not talking about internal.
17 Am I missing something?

18 DR. WINKELSTEIN: What are you going to do
19 with the control homes that are higher than the EDA?

20 DR. HUFFAKER: Well, there will be some.
21 If a guy has a snowmobile in his basement and he is
22 repainting it and we go in there and sample---

23 DR. SIPES: From the data, that could
happen frequently for benzene, for example. I am

1 sure, just looking at the data that you generated
2 and the discussions we had on that before, that even
3 though we are concerned about that and its toxic
4 potential, the uniqueness of that chemical to this
5 particular area or to the EDA may be a real problem
6 in our establishment of criteria and from looking
7 at total numbers, oftentimes the benzene was higher
8 in an area that was not in the EDA than the control
9 area and Dr. Stolwijk pointed that out and I think
10 Devra did too, that that was a problem.

11 I was just going to say that that is why
12 my original criteria for selecting chemicals was to
13 insure that they were in the Love Canal and that
14 they would give us a reasonable chance of---that
15 this was migration from the canal, not just because
16 ---for the way I thought we were going, if it was
17 a risk assessment based, then it's a different story
18 but we want the chemicals to have been in the canal
19 and there is a chance they have migrated and we can
20 have a reasonable chance then of quantifying those.

21 DR. STOLINE: This is your chart here,
22 okay, and I think there is something here that I
23 would just like to point out on the table here, that
is one of these little---it's a tree diagram on a

1 decision process and I think it's something worth
2 discussing. It may well be that the alternative
3 here is just, instead of making a decision at that
4 point, what that leads you to do is that the
5 control does not equal the EDA, as a further test,
6 and compare both the control and the EDA to existing
7 standards if they exist and then a decision can be
8 made if the control is greater than the EDA and then
9 you try to find out why that happened. If there is
10 a snowmobile in somebody's basement, that is okay.
11 If it's the EDA that is greater than the control,
12 then there is again a snowmobile problem or it may
13 be that there is some real problem here that is a
14 Love Canal related thing and you try to ascertain
15 it but anyway, you then do further analyses and I
16 think one further analysis would be then to compare
17 it to existing federal standards that exist apparent-
18 ly for many of these pollutants for air standards.

19 DR. HUFFAKER: But there aren't any federal
20 standards for residences. This is part of our
21 whole problem.

22 DR. STOLINE: There are none for residence
23 or work places?

DR. HUFFAKER: There are for work places

1 but the whole point is, we can't use those standards
2 here.

3 Statistically, could you increase your
4 sample size for the control area so that you could
5 take care of this problem? It seems to me there are
6 outriders in your control population and to go back
7 and resample or sample another house because I
8 don't like the values you have got there is unfair.
9 That is doing the same thing in the EDA and perhaps
10 one way to go about that problem would be to have a
11 big enough sample in your control so that the out-
12 riders could be absorbed and the guy with the paint
13 shop or whatever or set up criteria for those
14 houses that we would not look at homes where that
15 sort of business is going on.

16 CHAIRMAN WELTY: In terms of the sugges-
17 tion to use standards, Dr. Stolwijk who I spoke to
18 on the phone suggested the possibility of using
19 one-tenth of the TLV's but in the past this particu-
20 lar recommendation was felt to be not really that
21 valid so it hasn't been used for standards in homes
22 and this would be something that would be somewhat
23 of a precedent but it is something to consider.

DR. STOLINE: I think that I have mentioned

1 this before but I think if I were a person living
2 or contemplating living in those homes, I would like
3 to know are those levels of chemicals that are
4 native in the area and so on, are those safe for me
5 and my family to live in and I think that is a
6 reasonable thing to ask here. I mean, even if they
7 don't exist, I still think you are asking them to
8 live in these areas and we are doing these tests,
9 we have got to somehow grapple with that issue even
10 though it hasn't been grappled with before, we have
11 got to, I think, attempt to persuade or convince
12 the scientific community that we have got to get
13 that, like the one part per billion for dioxin
14 testing, that with respect to these other kinds of
15 chemicals here, we are going to have to try to,
16 if we can't answer it ourselves, which I don't think
17 we can, but we are going to have to try to persuade
18 the scientific community that we need some kind of
19 standard here so that people can know whether in
20 fact their area, their house or basement or whatever
21 is safe or not.

22 DR. HUFFAKER: The panel approach to that
23 was to say that that information doesn't exist,
let's use occupied homes where people are living

1 that are away from landfills and say what they are
2 living with is prima facie acceptable and we will
3 compare it with that. So, instead of attempting to
4 derive this business through risk assessment or
5 whatever you are talking about, let's go where
6 people are now living successfully and compare those
7 homes with the homes tested and that is why we have
8 the control test for the area.

9 DR. FOWLKES: But that doesn't solve your
10 problem of standards. That is a problem of measure-
11 ment. Then you have to make a decision about what
12 difference means when you find difference, especial-
13 ly if the difference is more than.

14 DR. HUFFAKER: What she is suggesting is
15 standard deviation.

16 DR. MILLER: Well, it would seem obvious,
17 I don't know as I was advocating but---

18 DR. FOWLKES: But I mean, there is no way
19 around the question of standard. It is a question
20 of how it gets derived I suppose, whether it gets
21 derived out of this comparison and the comparison
22 provides the basis for assessing when the difference
23 is unacceptable or whether the difference is then
assessed in terms of some other standard because it

1 is also possible that the difference really might
2 not be important.

3 DR. WIESNER: Tom, it may be worthwhile
4 for me to put this down. I'm just trying to listen
5 to this and the decision tree that I think we have
6 progressed to so far and where we have stopped and
7 maybe we could take it on a piece of paper and put
8 it up there. Again, I don't want to direct this
9 in any particular direction but it seemed to me
10 like we decided or we were in the direction of
11 deciding that the first step would be a comparison
12 of the levels of chemicals between neighborhoods
13 in the EDA and neighborhoods in some control area
14 so that the initial step was this, we were going to
15 do a comparison except that through the development
16 of these drafts, the initial step was different for
17 one selected area and that was dioxin and so on in
18 soil. So, we really had two different decisions.
19 We were actually using a risk estimation or risk
20 assessment as far as dioxin in the last draft I
21 think that was. So, we had for dioxin in soil, we
22 were actually going to go directly to the standard.
23 We said, no matter what we found in the comparison
group, if we found dioxin above some sort of level

1 of concern, one part per billion, we would still
2 have to pay attention to it. That was the basic
3 argument and it seems to me that what we did was to
4 set aside the comparison then and it wasn't much
5 utility in measuring dioxin in the control area if
6 we were going to ignore that comparison anyway.
7 But, we were going to begin with a comparison for
8 air indoor and air the ambient and soil for the
9 non-dioxin chemicals and then the first question
10 that we are grappling with now is, there could be
11 a difference or there could be no differences and
12 we are right here actually at the methods. We are
13 saying the difference.

14 One method was to say that we will consider
15 it different if it goes tenfold above something or
16 other. Another method which I think most of us
17 would accept is just do a---is there a statistical
18 difference by whatever appropriate statistical
19 methods are to be used in comparing this kind of
20 population and we know that there are some problems
21 in those methods because we have got this no detect
22 and we don't know how to value a no detect. Do you
23 put it at the detection limit or do you put it some-
where half between zero and the detection limit and

how do you quantitate that?

1 We are worried about the methods of saying
2 ---of testing the null hypothesis and there are
3 any number of ways you can state the null hypothesis.
4 We have two or three ways that they have been
5 stated and those can be statistically tested and
6 you can get a group of people to agree on some
7 statistical methods for doing it. I don't know
8 whether we need to go into that kind of technical
9 detail in this, rather than to say, what the null
10 hypothesis is that you are testing.

11 So, we ended up with no differences bet-
12 ween the two. As far as this decision tree is
13 concerned, I thought we were concluding that there
14 would be no further, I mean, you would have to say
15 for this portion of the tree that there is no dif-
16 ference in the habitability with regard to these
17 chemicals that are tested.

18 DR. FOWLKES: Well, my understanding is
19 that be de facto you have derived a standard then
20 against which each house will be measured.

21 DR. WIESNER: Okay. That is a legitimate
22 subset of this and then you are really not talking
23 about a comparison of neighborhoods to neighborhoods

1 and you are not speaking of comparison of levels
2 of chemicals. You are talking about a risk
3 assessment, a standard risk assessment measuring
4 every house in the area and you might as well not
5 do your comparison. I mean, this was the big area
6 of discussion. The question is whether you apply
7 this kind of abstract standard to every house,
8 irregardless of the concept of a neighborhood or an
9 area.

10 DR. FOWLKES: The unit of analysis has
11 always been the individual house. The basis of
12 decision making has been a subneighborhood and there
13 is a difference between the two.

14 DR. WINKELSTEIN: Well, there could be.
15 Suppose you made a decision regarding the neighbor-
16 hood and the decision regarding the neighborhood
17 was that there was no difference. Then I think what
18 we are saying is then that having made that decision,
19 then you have to make a decision on the habitability
20 of each house. So then you have to compare each
21 house to that neighborhood study.

22 DR. FOWLKES: But you see, you can't
23 decide the neighborhood is habitable until you see
what is going on with the individual houses because--

1 DR. WINKELSTEIN: Well, that is I think
2 the issue. We have made that decision. We have
3 made a decision that we are going to make a decision
4 on habitability of the neighborhood rather than of
5 the individual house.

6 DR. MILLER: Well, that is certainly not
7 the argument we have made and that is not where I
8 thought we came down the list when we met. Maybe
9 that is right, it slipped away from me, but I thought
10 we were talking about sampling grids and varieties
11 of sampling strategies but it was my understanding
12 that we were talking about pooling samples in such
13 a way so that half of them, the material would be
14 used for a macro assessment and the other half would
15 be reserved and then subsequently used for, I
16 guess what I am calling the micro assessment with
17 some kind of pooled sample, I thought.

18 DR. WIESNER: I think it is fair to say
19 that that area, this area of discussion was not
20 decided on. There were still considerable debate
21 and vagaries about what were the steps and that is
22 one of the reasons for trying to put a decision
23 tree and the real answer for at least a part of this
is to say that it doesn't do anything further than

1 it's habitable. It is, what is the next step, if
2 you find no differences in the comparisons. You
3 might as well follow this part of the tree down
4 first because the other one is far more complicated
5 but so, if we did a comparison between a control
6 area and the EDA with these media and with selected
7 chemicals or appropriate chemicals from the Love
8 Canal, and we find no statistical differences
9 between the areas, what is the next step?

10 CHAIRMAN WELTY: It was my impression that
11 the way you set up your sampling plan, you would be
12 able to project from that statement that there is
13 no differences from this particular point, from
14 that sample you were able to project to the entire
15 population which would be the entire EDA, that it
16 was habitable with regard to those specific para-
17 meters that were being measured. In other words,
18 you would have to design your sampling procedure
19 so that you would then be able to make that leap
20 from the sample to the entire population which is
21 the EDA.

22 So, conceptually that is the point where
23 I thought we were and perhaps I misinterpreted the
feelings of the group in that regard because if you

1 make that projection, then by doing that, then each
2 house within the EDA would be determined to be
3 habitable if it met that criteria.

4 DR. WIESNER: Well, I think that there is
5 some division on the perception of that on the part
6 of the consultants and it would be worthwhile,
7 again, not to drive the decision in one way or
8 another but to think through the conclusions that
9 would be made on a decision tree like this and then
10 see if it's because we didn't do something we
11 thought we were doing when we got to that point or
12 is it that we were---I mean, or that there is agree-
13 ment on it. So, if we did that, if we took the
14 neighborhoods and took a sample that we thought was
15 as closely representative of the neighborhoods as
16 defined from the EDA and control area, measured air
17 and soil and chemicals that were related to Love
18 Canal and found no specific statistical differences
19 by the appropriate statistical methods, what would
20 the conclusion or what would the application of
21 these criteria end up in? That there is no dif-
22 ference with regard to these chemicals as far as
23 habitability is concerned or is there something
further that needs to be done and I think that is---

I mean, that is a very important step.

1 DR. WINKELSTEIN: I think it's clear that
2 no one would buy the house unless they were assured
3 that the house was also clean, let us say, no
4 different. So, it's a step-wise decision. If
5 there is no difference, then I think that the next
6 step is not no further, the next step is probably
7 evaluation of each house or each property within
8 that area, otherwise nobody would buy it and/or you
9 couldn't convey the deed with any kind of assurance
10 of anything.

11 DR. FOWLKES: I think we had at least
12 begun to forge a definition of neighborhood such
13 that if it was within the subject areas, houses
14 fall short of meeting the standards, then the
15 subarea itself is disqualified from habitability.

16 DR. WINKELSTEIN: Then the decision, the
17 strategy is now what is being described. Then you
18 have to have---you should have said there was
19 another option, option number four, that you go back
20 to the previous page and say that the sampling
21 scheme that is proposed is not satisfactory.

22 DR. POHLAND: No, not necessarily. You
23 could come down this line and what you have done now

1 is qualified your decision and should you find
2 something that serves as a feedback into another
3 part of your group.

4 DR. WIESNER: This says that if all
5 houses pass, then they are habitable and if a
6 number of houses that would destroy that neighbor-
7 hood don't pass, then it goes back because it is
8 not habitable. So, you can still follow the tree.

9 DR. MILLER: Nope, there is another
10 option, that if it is cleaned up, it may be clean-
11 able.

12 DR. WIESNER: Cleanable and get it to that
13 position, all right. So, I mean, Tom, I don't know
14 but this is interesting because I think what we
15 are talking about is there are many other steps
16 after in the views of the consultants, after, if it
17 should happen that there is no difference, now,
18 okay, I mean, and those we have not yet defined.

19 CHAIRMAN WELTY: That is true and the
20 other thing is, what do you compare the house to
21 when you measure the house to when you measure the
22 house. See, there are no standards.

23 DR. POHLAND: You have an opportunity to
look at the other limb of the tree there and it may

1 be that you will be pushed over into that side and
2 your decisions will be guided by that.

3 DR. WIESNER: Or you might have go go
4 down the tree.

5 DR. POHLAND: Or you could go down the
6 tree should you find that, if you wanted to use
7 your smallest unit as the house, that is a decision
8 that has to be made anyway and if that contradicts
9 your other decision, you can have a feedback loop
10 into the other set of conditions where you did find
11 a difference and then you start dealing with
12 degrees of difference and how you accommodate those
13 differences either toward the decision of nonin-
14 habitable areas or habitable areas.

15 DR. WIESNER: It may be worthwhile just to
16 fill out the other tree because there are some
17 other things that happen. Say, just to move this
18 up here a little bit, say, you find differences.
19 There are at least two kinds that you could find,
20 one that is for a chemical action EDA is greater
21 than control and for the sake of argument, chemical
22 Y control is greater than the EDA. Those are the
23 three possibilities: There are no differences,
that one is higher than the other and the other is

1 higher than the other. All right. Now, I
2 personally don't know. It's something to think
3 about, though, what one could do in this circum-
4 stance when the control for a given chemical is
5 higher by whatever statistical method we are using
6 and we can predict that it's going to happen, I
7 mean, almost assuredly because of the variation in
8 environmental factors, that it is going to happen
9 but that is really not our problem, I guess.

10 DR. WINKELSTEIN: It will be, though.

11 DR. WIESNER: No. It may be the State
12 Department of Health's problem but it's really not
13 this consultant group.

14 Now, next, this one, I think from an
15 epidemiological point of view, these are statis-
16 tical differences and the next question we would
17 ask is, is this biologically significant. In other
18 words, does it mean anything to these people be-
19 cause we all, we all accept that some chemical, if
20 it were .001 parts per trillion in one area and
21 .00110 parts per trillion, that the different might
22 be there but it may not be significant in terms of
23 the population and then I think you might get into
the question of some sort of standard which would--

1 TLV's are one but I think a lot of people would
2 object to them because TLV's are made up of not
3 only the science part but the practicality part of
4 decision making, whether you want to keep the manu-
5 facturing going, whether people want to choose to
6 work there, et cetera, and so, any given TLV, the
7 science may contribute part of it where the other
8 contributions, cost factors may be considered.

9 CHAIRMAN WELTY: The question is, though,
10 if you get down to the point of having a standard,
11 maybe you should take the right hand limb of the
12 tree further up.

13 DR. WIESNER: That is why I am letting
14 this down. At least that has to be discussed.
15 If it is greater than the standard, then you could
16 either say let's say it's not acceptable or you can
17 really do a more formal look at the risk assessment
18 that underlies the standard and decide whether that
19 is really important or not. If it is less than the
20 standard, you may also decide to do a formal risk
21 assessment. It depends but you would have to take
22 a look at the specific chemicals involved and when
23 do you stop? When do you say, "No further." This,
I suspect that if we got down here and this says

1 that there is still a risk, in other words, we
2 said that there is a risk, the EDA was greater than
3 the control, that we thought on the basis of compar-
4 ing to a standard that is biologically significant,
5 the formal risk assessment said it was associated
6 with a risk that no one would accept, we would say
7 it has to either be cleaned up or people can't live
8 there.

8 DR. MILLER: Who is no one, a risk that no
9 one would accept?

10 DR. WIESNER: We would have to talk about
11 that. I mean, it's clear that we can easily define
12 a risk that no one would accept, one in a hundred
13 cancer risk no one will accept.

14 DR. MILLER: Yes, I understand that but I
15 am more concerned about---

16 DR. WIESNER: The involuntarily imposed
17 risk they would not accept.

18 DR. FOWLKES: Was there a standard formal
19 risk assessment?

20 DR. WIESNER: Then you have to do a formal
21 risk assessment, sure, if you want to take that tree.

22 DR. HUFFAKER: Paul, the problem with the
23 standards, they keep popping up as though they were

1 out there someplace and there aren't any and how
2 long did it take you to put one together for dioxin?

3 DR. WIESNER: Again, now, we had a risk
4 assessment. We didn't establish a standard that
5 would be any kind of a regulatory---it took a lot
6 of people a lot of time. I think you are talking
7 about four to five person years.

8 DR. HUFFAKER: For one or more chemicals?

9 DR. WIESNER: This is for one. Now, that
10 person years doesn't have to be years. I mean, it
11 took probably four people working very intensively
12 for four to five months, plus one meeting I guess
13 of an outside consultants of about fifteen people
14 for four days and then separate mathematical modeling
15 up at NIEHS and I don't know exactly what that was,
16 probably three months for a couple of people. That
17 is for one chemical.

18 So, this is the part that I think we have
19 not talked about. If you make a comparison and
20 there is no difference, then we are really only
21 stating the hypothesis that the neighborhood might
22 be habitable and then there is a lot more to be done.

23 Now, I don't happen to agree with this
personally. I think that you make a comparison and

1 you say that there is no difference and these are
2 inhabited areas and these are not inhabited areas,
3 but that is the way I would do it personally but
4 that doesn't seem to be acceptable to the community
5 or by other professionals.

6 CHAIRMAN WELTY: I would like to hear
7 Dr. Stoline's comments on the statistical rationale
8 for doing it based on just a sample and projecting
9 that to the entire population of the EDA. Is that
10 a valid methodology in terms of establishing
11 habitability, stopping at that point where there is
12 no difference.

13 DR. STOLINE: Well, I am not going to
14 answer that question directly because what I think
15 we are talking about here, it has been my understand-
16 ing the framework is that we are going to be dividing
17 it up into neighborhoods, that we are going to be
18 based upon sociological and historical patterns so
19 that the unit of---actually, there are two units,
20 actually three, the EDA is the big unit and then the
21 subunit below that is the neighborhood and I thought
22 that is kind of where we were going to focus on
23 these neighborhoods, whether we were talking about
four or ten or whatever and that the subunit within

1 the neighborhood was the home and maybe you could
2 even go even further than that subunit upon subunit
3 like we are taking several soil samples within a
4 home or a lot or whatever. The answer to your
5 question, though, is that if we talk about that
6 unit, let's just say that the primary unit is the
7 neighborhood and let's say that there are ten
8 neighborhoods, can you do effective enough sampling
9 to make some sort of decision about whether there
10 is anything in there that is of an unsafe nature
11 and I think the answer is yes, but you may have to
12 take quite a large sample and the sample size is a
13 function of two things. It's how much do you want
14 to detect or how accurately do you want to detect
15 that and the closeness essentially. If you want to
16 detect something that, say, the standard is---well,
17 let's put it this way: If your experimental
18 design is control versus the EDA, how much difference
19 between the control and the EDA do you want to
20 detect. If you are talking in terms of, let's go
21 back to dioxin, if you are talking about maybe one
22 part per billion, there is a real difference between
23 those two, of one part per billion, you have to know
that.

The second thing you have to know is, you have to have some idea of the standard deviation of the machines that you are using to measure the materials. After you have agreed on what difference you want to tolerate with standard deviations, then you know or can guess at, then you ask the question, okay, with what probability do I want to detect that difference and then once you have that, then you put that into various mathematical equations to determine the end. Then the validity of making the decision is based upon how thorough your sampling scheme is. Is it truly a random sample. I think some of this is going to depend also at least with what I have been reading with the Missouri dioxin sampling plan here, is that we can pretty soon can a sample size so large that you can't afford to---the costs of sampling even within a lot are going to, just doing the dioxin testing, I think might exceed the price of the real estate, but with the Missouri dioxin sampling plan, there were ways of pooling together fifty separate soil samples into one single sample and that single sample, there is a dioxin measurement made of that single sample and that somehow that is used in

making an inference about the fifty separate
1 samples that constituted that pooled, thoroughly
2 mixed measurement.

3 Now, that is going to have to be built
4 into the equation too but I think to answer your
5 question, I think, yes, if you have got all these
6 limitations, what do you want to detect, with what
7 probability, you need some idea of the variability
8 and also you can't just say that you have got an
9 unlimited budget in all this. That is the problem
10 and you want some assurance here that you are going
11 to detect---well, as I was reading in one of the
12 newspaper articles here, there was some dioxin
13 recently found in, I forgot the name of the school,
14 but it's in the EDA.

15 CHAIRMAN WELTY: That is 93rd Street School.

16 DR. STOLINE: 93rd Street School there was
17 some dioxin discovered there in the lower parts
18 per billion, I think 1.6 parts per billion or some-
19 thing like that, but that is exactly the kind of
20 thing that we need to be aware of here, that that
21 is what I would call a---I don't know whether I
22 would call it a hot spot but it certainly is some-
23 thing that you would want to know if it were out

there, with your sampling plan.

1 Assuming that those are only like one in a
2 thousand or one in a hundred or something like that,
3 then you want some probability of detecting those,
4 a fairly high probability of detecting something
5 that is, say, ten parts per billion with, say, a
6 95 percent probability even if it only occurs maybe
7 one in a hundred or one in a thousand times. You
8 want to get a sample size that large that you can
9 assure the public that you are going to find this
10 if it's out there with the sampling plan.

11 CHAIRMAN WELTY: I should mention at this
12 point that I did pass your comments along to the
13 EPA in regard to sampling and Vince Pitruzzello, do
14 you want to just mention what has been done with
15 regard to the sampling plan?

16 MR. PITRUZZELLO: As noted, we have a
17 liaison with the EPA and Rick is in charge of doing
18 the local dioxin strategy. So, if anybody, Rick
19 knows how to do this and what should be used. We
20 got Rick in touch with Tom and we set up a conference
21 call and Rick is going to be developing some of the
22 papers to assist Tom on what should be done with the
23 EDA and I think that should answer many of the

questions, at least hopefully it will.

1 CHAIRMAN WELTY: Well, does anyone have
2 any questions for Vince about the dioxin sampling?

3 (No response.)

4 I just wanted to make you people aware of
5 that and then back to the issue then of making that
6 leap from the sample to the entire neighborhood, if
7 the sampling plan is designed to pick up levels of
8 chemicals within 95 percent assurance, how do the
9 consultants feel about stopping at that point versus
10 evaluating each house? If you feel that you need
11 to evaluate each house, what do you evaluate it for;
12 what chemicals, and more importantly, what do you
13 compare it to?

14 DR. SIPES: I guess the only thing you
15 could evaluate for would be indoor air. The last
16 time we talked about doing neighborhood soil
17 sampling and developing a pool and saying as you
18 were saying, if we find chemicals in that, we could
19 go back and try to localize where but I think, at
20 least in my mind, the only area that basically
21 would be of concern would be monitoring the indoor
22 air.

23 DR. MILLER: Why?

1 DR. SIPES: Unless we find in a sample or
2 pooled samples from soil, for example, that there
3 is a difference and then we go back and try to
4 detect where that difference is. Is it in a particu-
lar lot or a particular yard.

5 DR. MILLER: No, no. Okay. Maybe there
6 is some confusion. If you begin, I understand and
7 I don't think we have any problem with a scenario
8 that looks like this, there is a sampling strategy
9 which involves pooling samples from each lot,
10 whether there is a house on it or a lot, a structure
11 on it or not, and pooling those samples and the
12 judgment is made about the community, the community
13 that can then be generalized or, excuse me, the
14 larger unit, the block or the neighborhood
15 generalized to each of those homes within the area.
16 What I have a problem with is, some strategy where
17 sample points involve only 10 percent or 20 percent
18 or even 30 percent of the structures in the lots
19 and the square footage, if you would, within the
20 boundaries of that area. Am I communicating that?

21 DR. SIPES: Yes.

22 DR. MILLER: Okay and so that there are
23 pieces of property that people are going to be

1 asked to buy that we can't speak to at all because
2 if it happened to be there is a dioxin hot spot on
3 that lot, that is eccentric and we have reason to
4 believe there are a number of eccentric instances
5 of contamination in the area, at least as Dr.
6 Huffaker here has implied in the past, there has
7 been a lot of moving of soil around for landfill and
8 what have you.

9 DR. FOWLKES: But I think there is a
10 sociological procedure and a statistical procedure
11 and in ordinary circumstances a statistical proce-
12 dure, you recommend is tried and tested and accept-
13 able to generalize, if you will, from a sample and
14 to make predictions, but that is really what you
15 are doing statistically is assessing the probability
16 for the individual resident to answer the question
17 about what about the particular and I think that is
18 where the impasse is and in terms of what will be
19 acceptable to a community of residents there now
20 or potential residents, not knowing what has been
21 found for a particular house, is not going to be
22 compensated for by statistical reassurance.

23 DR. MILLER: It's also the case that I
think there is a bias in this whole line of argument

1 because I, myself, wonder, Dr. Welty, if you found
2 an area, a neighborhood, a cluster of 25 homes, that
3 isn't safe, that is to say, there is a very clear
4 and compelling statistical difference between EDA
5 and control, are you going to stop there? Are you
6 going to look for the source of it? My guess is
7 that somebody is going to look for the source of it.
8 If it can be isolated to two or three lots, then
9 we want to go ahead and clean up.

10 DR. POHLAND: Well, I think we agreed to
11 that strategy last time.

12 DR. MILLER: That's right but what that
13 means is that we are prepared to spend the money and
14 time to look and ask those questions under one set
15 of conditions but not under another.

16 DR. POHLAND: But you see, what you are
17 suggesting, what it eventually comes down to is
18 the question of what is the size of the sample to
19 be taken, really, both in terms of location and
20 juxtaposition and so forth and you soon exhaust your
21 analytical and resource capabilities to do it. So,
22 any kind of situation like this, you must develop
23 the strategy that can be accommodated hopefully
within your scientific perspectives of things but

also in terms of the ability to pay.

1 DR. MILLER: I have no problem with all of
2 the time/cost stuff. I took the obligatory number
3 of statistics courses as well. They don't. I
4 mean, they have got a problem and I don't blame them.

5 DR. POHLAND: But that should not deter us
6 from proceeding with our recommendations, I believe,
7 that are accepted for determining what the general
8 nature of the neighborhoods are, the nature of the
9 neighborhoods.

10 When we find one that suggests that some-
11 where within that cluster resides a spot, there are
12 also techniques of determining the hot spot and I
13 would propose that the next step would then,
14 therefore, be directed toward determining it. Now,
15 all of these strategies presume that you accept
16 some go or no go proposition. If you don't find
17 anything statistically compelling, really, the
18 strategies say you can stop.

19 DR. MILLER: But how many sample points
20 have been taken? Where are they located?

21 DR. POHLAND: That is part of the sampling
22 strategy that you have to agree on up front. Once
23 you decide that, you have to be satisfied with your

1 decision. You can't all of a sudden get second
2 thoughts and say, no, we should have done it dif-
3 ferently.

4 DR. MILLER: All I am saying is, I want to
5 know that there is, I don't know, some agreeable
6 number of samples taken from each lot.

7 DR. SIPES: We haven't done that yet so
8 you have jumped ahead and have been very specific
9 and we are still talking about generalities and if
10 I could just make a statement, from how I perceive
11 that---

12 DR. MILLER: But you see, if I agree with
13 this now, when we get down to the other---

14 DR. SIPES: I am going to tell you how I
15 perceive it and you can disagree or agree or what-
16 ever because I agree with Paul, that no one is try-
17 ing to direct us but at the last meeting we talked
18 about the possibility of having someone establish
19 a grid type of pattern where we would sample from
20 different areas. These would somehow be pooled.
21 We haven't set the specifics. We will get a pool.
22 If there are no differences there, then there are
23 no differences. If there are differences or we
find that there is a large amount of chemicals that

1 we are concerned about, then we have samples to
2 research, we can go back and ask where are they
3 lot by lot and house by house, however you want to
4 do it. Then we pick a few houses, again, we haven't
5 set a number for measuring or a lot for measuring
6 ambient air, indoor air, ten houses for example.
7 That is just a number not set in concrete.

8 There are concerns that then we have to
9 expand the number of houses. All I am saying is
10 that the question was asked, if we go down to here
11 and there were no differences and we had sufficient
12 numbers of samples and we tested sufficient houses
13 here and now you wanted to make an evaluation of
14 each house, then perhaps the only thing we need is
15 ambient indoor air to monitor that particular house.
16 Do you have to go out and get 50 samples from that
17 particular yard or measure the air, the ambient air
18 on that particular lot. If we used some criteria
19 here to show that in an established sampling plan
20 there were no differences, that is all I am saying,
21 that if we establish some number of samples that
22 have to be taken, they are pooled and if there are
23 any chemicals in there, then we want to go back and
take each particular lot and take fifty more samples.

to determine if there is an area there.

1 So, I think we are getting, at the moment,
2 down to the very specific without having a plan to
3 get there and then solving it when we get to this
4 particular point. So, if there is no difference
5 here, then what do we do for that particular house.
6 Isn't that what your question sort of was?

7 CHAIRMAN WELTY: Yes.

8 DR. SIPES: My statement was if we found
9 no differences and that means no differences by an
10 accepted plan, then what do we do for each house.
11 Now, somebody could say nothing, sell it if some
12 body will buy it, fine. To be perhaps more
13 rational, if I were living in the house, I would
14 want to know what the ambient concentrations of
15 selected chemicals may be in that particular house.
16 I would probably be much less concerned knowing the
17 other data that had been generated on the outside
18 relative to the soil and the ambient air.

19 DR. HUFFAKER: They Commissioner's position
20 is already that we do it house by house and we could
21 start in with a given that the indoor air would be--

22 DR. WIESNER: I am very disturbed. I wasn't
23 here when Commissioner Axelrod was here but I don't

1 care what commitment he has made because you have
2 got a group of consultants here to give you the
3 best advice as far as what ought to be made and if
4 he has predetermined that you are going to measure
5 house by house, then what are we sitting around
6 here talking about it for?

6 DR. HUFFAKER: We are talking about
7 ambient air and soils.

8 DR. WIESNER: No. Well, I mean, that the
9 call for these consultants was to consider the
10 criteria for habitability. If he wants to, he can
11 make any decision he wants to make, but I mean, I
12 think we ought to be providing him some advice and
13 then he makes his decision. So, I mean, for him
14 to say he is making---if he is saying he will do
15 this if the consultants think it should be done or
16 is he saying this will be done?

17 DR. HUFFAKER: I think it was a pretty
18 direct commitment in response to some questions.

19 DR. POHLAND: But I agree it should not
20 enter into the way we try to synthesize the plan
21 here towards a decision that we then, we think we
22 can stand behind scientifically. If there is
23 another political expediency for doing something,

1 that is the implementation stage of our criteria
2 and I heard what he said but I try not to think
3 about it because I am trying to listen to the people
4 that I think are better at setting up sampling
5 plans than I and think through the logic of them.
6 However, I would admit that I know what too detailed
7 plans do to you. Usually what it does is that it
8 puts you into the mind set that you are not going
9 to be satisfied until you find something and then
10 when you find it, then you have imposed upon your-
11 self a decision that when you backtrack, you can't
12 scientifically justify.

13 CHAIRMAN WELTY: Warren, you had a com-
14 ment.

15 DR. WINKELSTEIN: Well, I just wanted to
16 remind us that in this decision tree, I think that
17 there is a point before we get to the neighborhoods,
18 in other words, I think we have to establish that
19 the EDA through sampling scheme is habitable. In
20 other words, if the EDA as a whole potentially does
21 not meet the standards, there is no use in going
22 on to the next step. In other words, there is an
23 initial decision to be made based on, again,
sampling and so you will have to take a sample of

1 some control area and the EDA, having established
2 that that meets your criteria, then you could go to
3 the next step, which is the neighborhoods.

4 DR. WIESNER: I think that the feeling
5 from, and this is not reflecting my own personal
6 feelings but from the previous discussions, that
7 it's likely that they were going to use some
8 neighborhood sampling and that neighborhood sampling
9 should be sufficient to address the EDA because, I
10 mean, it's likely to move in that direction based
11 on people looking at numbers and what has been dis-
12 tributed, that you are not going to be able to, on
13 an initial scheme focused on the EDA as a sampling
14 frame, be able to say that it's not definitely all
15 the neighborhoods are not habitable.

16 DR. WINKELSTEIN: I guess what I am saying,
17 what I had in the back of my mind before was related
18 to the beginning discussion this morning, that if
19 the creeks and the outfall of the treatment plant
20 and the sewers do not meet the criteria, then there
21 is no use going on to the neighborhoods. In other
22 words, first you have to establish that the criteria
23 are met as it were for the big picture before you
go to the neighborhood.

CHAIRMAN WELTY: That is already included.

1 DR. WIESNER: And I think, Warren, the
2 question is what the sequence ought to be and
3 actually I have been trying to record areas of
4 uncertainty, you know, this doesn't seem to be---
5 this is a serious area of uncertainty and discussion
6 but it seems to me it will fall short of the degree
7 of uncertainty and concern that Fred was expressing
8 about these other things. So, I have got to ask
9 a question and it's a question that can be mis-
10 interpreted so I have to ask it with a preface
11 because I happen to share an individual in this
12 community's concern about his or her house. If I
13 were moving into, I mean, we all have moved into
14 houses and we don't generally think about the toxic
15 environment of houses maybe as much as we should,
16 but if, I am just asking the practical question that
17 would be on my mind, would not be whether that
18 house that I'm going to move back into, say, or buy
19 in the EDA was "safe" but my question would be, is
20 that house more or less safe than the house I am
21 living in. That is how I would decide whether I
22 would move in. I mean, it is possible, now, it is
23 possible that for those people and I don't want the

1 community to misinterpret this but it's possible
2 for those people who moved out of the EDA that they
3 may actually have moved into a more risky home than
4 that which they left and it is possible for those
5 people who want to move back that they may be
6 moving to either a safer home or less safe home.
7 Both are possible and I mean, when the Commissioner
8 makes the commitment that he is going to sample the
9 homes of people who may want to return to the EDA,
10 is he making the same commitment to sample every-
11 body's home in the State of New York and to
12 determine their safety relative to the possible
13 movements of people and I mean, well, I mean, that
14 is an enormous cost and it's an enormous question-
15 able benefit but it's also, I mean, that is the
16 question that I would ask, not whether their house
17 is safe but whether it's safer or less safe than
18 the house I am currently in.

19 DR. HUFFAKER: I think the difference is
20 in part that the state owns the real estate so we
21 are the landlord so this is somewhat of an unusual
22 situation for the state and the second one, that
23 this is Love Canal.

DR. FOWLKES: If we are talking about what

1 is scientifically applicable here and if you would
2 grant that sociologists can be considered scientific,
3 it is the judgment I think of the sociologists on
4 the committee with, I think, some feeling of
5 consensus from the rest of the consultants, that
6 credibility, as Dr. Huffaker says, because it is
7 Love Canal in this case, rests with being able to
8 tie the general to the particular and I have no
9 trouble at all with what you are saying, you know,
10 in the abstract, but the history and the context
11 and the set of concerns that have emerged about
12 Love Canal focus on particular questions about
13 particular houses and I, myself, wouldn't have any
14 trouble making a decision about whether to move
15 into a neighborhood based on a good random sample of
16 that subject area but I think the residents of Love
17 Canal have had another kind of experience and
18 another set of perspectives and I don't want to
19 speak for them if I am wrong, but I think I might
20 want to do something with the inside air anyway as
21 a way of saying, how does this measure up to this
22 neighborhood which looks in general like it's okay
23 compared to another neighborhood that we have all
decided is okay.

1 So, Dr. Axelrod, I think, has two sets of
2 reasons, one is the practical, the financial, and
3 the other is I think sociological also based on
4 his own experience of working in this neighborhood
5 and knowing the kinds of questions that people want
6 answered about their individual homes.

7 So, that is just to give you a little bit
8 of background as to how---

9 DR. WIESNER: Actually I am hearing that
10 from a social point of view. It may be actually
11 that we want to have evidence that the houses in
12 the EDA are actually safer than houses in which
13 people who formerly lived in the EDA are now living.
14 I mean, that is---

15 DR. WINKELSTEIN: I think that the fact
16 that, see, if we go through this thing again, we
17 declare a neighborhood on the basis of a sample to
18 be habitable, then to meet certain criteria, then
19 you would have to, I'm sure you would have to test
20 each house in some fashion or another before you
21 conveyed it or nobody would buy it.

22 DR. FOWLKES: Well, that is what I am
23 talking about, the credibility of a decision to
reinhabit.

1 DR. WINKELSTEIN: Now, having done that,
2 I think you automatically---and it meets the
3 criteria since the rest of the state is not tested,
4 you almost automatically said you are probably
5 safer moving into that house where you know what
6 the situation is than moving in some house where
7 you don't know, but I think---I'm not sure that that
8 is terribly relevant to this decision making but I
9 don't see how you are going to get around it.
10 I mean, I can't imagine, given the situation, that
11 you could convey these houses without doing some
12 tests.

13 DR. WIESNER: Well, don't we have to
14 remember that there are people who are living in the
15 EDA and have chosen to live there and chosen not to
16 sell their homes and that is, I mean, you have to
17 imagine it because it's going on right now.

18 DR. WINKELSTEIN: But they have accepted
19 it, whatever the unknown risk is, just as they do
20 if they smoke a cigarette or something. They have
21 been told that it's risky. I mean, given the oppor-
22 tunity to move and they chose not to.

23 DR. WIESNER: So, you must be able to
imagine some people will move into those homes after

1 a neighborhood sampling without the households,
2 specific household sampling because people have
3 moved into the homes with what has been considered
4 insufficient analysis of the neighborhood sampling
5 and no household sampling and have chosen not to
6 move out. So, it's not something that you have to
7 conjure up or imagine. It's actually a fact and
8 I'm not saying that any one of these groups have
9 made the correct decision but it is, I mean, we
10 have to be careful not to project our assumptions
11 about what people will do onto---based on our
12 scientific basis.

13 DR. WINKELSTEIN: I guess what we have to
14 do is decide if a criterion for habitability is
15 that the neighborhood be declared habitable and
16 that each property then be tested and the levels
17 be below the neighborhood levels or some such thing.

18 DR. FOWLKES: Well, that doesn't neces-
19 sarily have to be. We haven't decided what it
20 would be tested for. I suggested they don't have
21 to be a set of duplicate tests on all indicators
22 but perhaps indoor air. I would point out to you
23 that more people left the neighborhood than stayed,
though, on the basis of insufficient or inconclusive

information.

1 DR. MILLER: And some of stay as captives
2 of a certain kind and we have people living out of
3 shopping bags and doorways in New York City.

4 DR. WIESNER: I realize that but there are
5 also---there are other people not necessarily in
6 this particular circumstance that, I mean, who may
7 choose to do so. We have differing degrees of
8 assurance about their environment and the point that
9 I am making is that very few of us who live outside
10 the EDA in the whole country have any assurances
11 about our household environment as far as toxic
12 chemicals are concerned and we have all chosen to
13 live in that environment. Now, we might want to
14 change if we were to become aware of a risk, but
15 I mean, I don't know of anybody around this table
16 who has had their indoor air sampled.

17 DR. HUFFAKER: I would like to comment on
18 that. We are doing this now on a commercial basis
19 and the government is doing it and this may be the
20 norm that is coming up, the chipboard construction
21 or the urethane foam, that sort of thing, and
22 formaldehyde levels especially in mobile homes,
23 things may be changing a little bit so people are

1 aware that there are certain risks they ought to ask
2 about and an analysis be done.

3 CHAIRMAN WELTY: Glenn, I was wondering,
4 in terms of your suggestion to monitor the indoor
5 air on each house, how would you handle that data
6 then? What chemicals would you measure and what
7 would you compare? What would be your standard?

8 DR. SIPES: I think we would have to just
9 basically use the chemicals that would have been
10 chosen because they are chosen because of their
11 volatility and the fact that they have been---at
12 least some of them have been found in the canal.
13 So, they are thought to be canal derived. So,
14 there again, we are coming back to, if we are
15 monitoring that, we have to have some sort of
16 standard I guess. That is what we are saying.
17 That makes it difficult.

18 DR. FOWLKES: But if the indoor air in
19 occupied homes turns out to be worse than the
20 indoor air in the sample, the earlier sample of
21 occupied homes, something is wrong, because
22 presumably there are no snowmobiles and paint cans
23 and pesticides and herbicides and the bulk of these
homes are unoccupied and I would think that would

be a rather sensitive indicator.

1 CHAIRMAN WELTY: You are saying use the
2 comparison area as the standard?

3 DR. FOWLKES: I think that is what we keep
4 coming back to is, how big are the differences
5 before we have already decided, maybe, that a whole
6 subneighborhood is wrong.

7 DR. SIPES: I guess what it would do too
8 is, to come back to your comment, that is giving you
9 more credibility on the fact that the houses that
10 you chose to make your neighborhood decision, then
11 you come back and you bring that down to individual
12 houses and that gives you more assurance that your
13 sample size was correct and your data was correct.
14 So, I guess I am being equivocal in saying what I
15 would compare it to but my line of reasoning was
16 that we have only chosen a given number of houses
17 in the neighborhood to do indoor air monitoring
18 initially and made a decision. Now we are testing
19 each and every house in that particular area to
20 assure that our decision was correct for that
21 particular house. We made the decision on the
22 neighborhood.

23 CHAIRMAN WELTY: You mentioned that the

Commissioner was advocating this as well. What standards does he plan to use?

1
2 DR. HUFFAKER: I have no idea; as safe as.

3 CHAIRMAN WELTY: So, he is planning to use
4 the comparative data as a standard?

5 DR. HUFFAKER: Yes. That is all we have.

6 CHAIRMAN WELTY: Well, I just asked the
7 question because I know that if we are really going
8 to do this, there is no point in doing it unless we
9 know what the standard is going to be basically.

10 DR. HUFFAKER: Well, that gets us back to
11 where we were about an hour ago, how are we going
12 to compare a control if that is what we are going
13 to use with what we test in terms of specifics now.
14 We do a cartridge in a house and we run it for your
15 indicator chemicals and we get these numbers out,
16 how do I make the comparison between those numbers
17 and what we have seen at the controls. That is a
18 mean or median of controls, how do we total the risk
19 that we have measured in this house that we just
20 sampled, providing we find things?

21 DR. WIESNER: I thought there was a
22 consensus that you don't total the risk, that you
23 do individual chemicals and you do probably the

median because you know the tech problems.

1 DR. HUFFAKER: Okay, the individual
2 chemicals from the EDA house and run them against
3 the median of that chemical in the control area.

4 DR. WIESNER: That is what the people were
5 saying.

6 CHAIRMAN WELTY: Yes. At this point I
7 would like to open the discussion up to the commu-
8 nity, open it to the community and mention prior to
9 this discussion we will have a working lunch but
10 after the community comments at 12:30, I would like
11 to give folks ten to fifteen minutes break to give
12 them a chance to check out of the motel and also
13 to give the community a chance to get their lunch
14 and continue to listen in to our discussion during
15 ---while they eat their lunch.

16 So, Anita, can you handle this part?

17 MS. GABALSKI: There are about six or
18 seven people. So, we have got a half hour before
19 we break for lunch. So, why don't we start off
20 with Joanne Hale.

21 MS. HALE: What I was wondering was, I
22 have it all tied in together but there are only
23 six points, okay. The first is, why would they test

a home that has a snowmobile in the basement? That
1 was one of the points. If it was sitting in the
2 basement or obviously if you walk into someone's
3 basement, you can tell if there is a smell of some
4 sort or an oil smell in a control area.

5 Second of all, if the chemicals are present
6 in Love Canal, then why do you really need a
7 control group? We are not making a risk assessment
8 and the fellow with the beard there, I don't know
9 your name.

10 DR. WIESNER: Paul Wiesner.

11 MS. HALE: I am sorry, there is no risk
12 assessment. I remember a discussion and I assume
13 it was this scientist group here, that risk assess-
14 ment is not really a science, that it's only a
15 guess.

16 The other point was, if the Commissioner
17 wants to test each home individually, it could be
18 to cover New York State's rear end in the end, you
19 know what I'm saying, legally, when we try to sell
20 or decide to sell or not sell those homes or the
21 DEC's and then the other point was, Pat had mentioned
22 and maybe I got lost on it, if you are testing for
23 five or six chemicals in a home and only one

1 chemical shows up in that home, then are you going
2 to base the habitability on that one chemical in
3 particular and forget about the other four that
4 weren't---didn't show up and then possibly make it
5 uninhabitable because one chemical was in that
6 home, or are you going to do it as all five chemicals
7 together? You know what I am saying. I don't
8 know if I lost that somewhere or not.

9 What I am wondering is, where is this
10 Norm Nosenchuck from the DEC? Is there any reason
11 why he isn't here? Does anybody know? Has he been
12 asked to come to this or---I wasn't here for the
13 first hour.

14 DR. POHLAND: He does have some representa-
15 tive here so I guess that is the answer.

16 MR. BROWN: Let me answer that. We are
17 asked to come as a representative of New York State
18 because if there is a question we can't answer, we
19 can get the answer for you.

20 MS. HALE: And was it brought up about a
21 tank car? At one time we discussed about the
22 barrels and the dump. Did I miss that in the first
23 hour of the meeting?

Well, okay. The tank car is still on site

1 and it has been emptied out and nine or ten barrels
2 of, I think it is called semi-solid, gritty sludge
3 was removed from this just last week. I think we
4 had maybe a 12 hour notice or 14 hour notice that
5 they were opening this up and I just thought that
6 you might be aware. We had a twelve hour notice
7 that they were going to empty it. We had a two
8 hour notice that it was being opened, okay. I
9 thought you might want to be aware of that because
10 last time you people were concerned about the
11 barrels being buried without notice, okay, but
12 maybe Pat can elaborate on the five chemicals or
13 maybe I missed something there.

14 DR. MILLER: Well, I don't know that we
15 really reached a conclusion, definitive decision on
16 that point. The point that I was trying to make was
17 that it seemed to me that one chemical departed
18 from significance or was significant, however we
19 are establishing significance, was cause for making
20 a decision that we are not, you know, that each of
21 these is an independent indicator and should be
22 treated without respect to the others and that if
23 one is over, then I think you have got a real
problem.

1 MS. HALE: There is still discussion on
that.

2 DR. MILLER: Yes.

3 DR. HUFFAKER: I suggested that we sum
4 them and go on that basis and they threw that out.
5 They said they didn't like that, that it was a
6 washout of the high values of some and low values
7 of others and they didn't feel that was fair.

8 DR. SIPES: I think, Bob, if you were
9 looking, let's say, at five chemicals and you found
10 those five chemicals elevated, then it would make
11 you stop and think that perhaps there was some prob-
12 lem with remediation or these chemicals are still
13 migrating somehow. If you found one and the other
14 four were not elevated, then you may want to ask
15 the question, why am I finding this one particular
16 chemical and then you would have to perhaps have a
17 decision point at that time.

18 MS. HALE: But if there is no standard and
19 you have one chemical, then how can you make a
20 habitability determination? How can the Commissioner
21 make a habitability determination?

22 DR. HUFFAKER: What they said they would
23 do would be sample controlled population, let's say

1 Lewiston or someplace, houses, establish for a
2 series of different chemicals what the levels were
3 in those houses, do a median like that central
4 value, that would be your standard and then compare
5 the test houses with that. If you exceeded that,
6 then we would say we had a problem with that house.
7 So, we don't have a standard per se as far as
8 biological effect. We have a standard to compare
9 it to another, to an occupied house and away from
10 the landfill.

11 MS. HALE: So possibly like an CSHA
12 standard or something like that.

13 DR. HUFFAKER: No. It isn't a standard at
14 all. It's just a comparison.

15 MS. HALE: All right. Thank you.

16 CHAIRMAN WELTY: Joanne, I would like to
17 answer one of your questions related to the
18 chemicals in the air and the measurement thereof.
19 One of our consultants mentioned that same point
20 as well, that there should be standardization with
21 regard to factors in the indoor air, in other words,
22 24 hours ahead of time they should close the windows,
23 that increases the amount of chemicals present and
there should be the testing which should be done in

1 a comparable manner both in the EDA and in the
2 comparison area. So, whether or not that would
3 involve removing snowmobile machines from the base-
4 ment would have to be determined by the experts that
5 would do the testing but certainly there should be
6 a set of criteria that would be consistent in both
7 areas.

8 MS. HALE: Possibly a watchdog committee
9 or something or who is going to oversee this? I
10 think I asked that at every meeting but is there
11 going to be a watchdog committee watching over that
12 type of situation?

13 CHAIRMAN WELTY: An oversight group has
14 been proposed by Dr. Huffaker and the composition of
15 that group has not been determined but certainly a
16 communitive representative would be invited to
17 participate in such an oversight committee. Do you
18 want to elaborate further on that concept?

19 DR. HUFFAKER: There are two areas it seems
20 to me that are vulnerable for misunderstanding, one
21 of them would be when we select the control houses
22 but what you are talking about here, that we do
23 find houses that are very much like the houses here
and the other would be when we start to apply the

1 criteria, the data against the criteria, to make a
2 decision on the house by house basis within the EDA,
3 that someone or several should be sitting and
4 participating or watching that process while it goes
5 on. This has to be squeaky clean. We want every-
6 body to see exactly what goes on there so there is
7 no problem on anyone's part.

8 MS. GABALSKI: Okay, could we have Luella
9 Kenney, please?

10 MS. KENNEY: First of all, I have enjoyed
11 this this morning because you have really put my
12 faith back in scientific deduction and I have seen
13 there is objectivity again in this whole area.
14 However, I do have a couple of questions. With
15 regard to the testing on the waste treatment plant,
16 the gentleman who was sitting there a little earlier
17 stated that some of the compounds were no longer
18 being tested for because they had not been seen in
19 three or four years. We are talking about having
20 dumped in the Love Canal 30 years ago and using the
21 state of the art. Now, many factors were involved
22 supposedly that caused that state of the art not to
23 be feasible. So now are we going to be 30 years
down the line and are we going to see that this

1 state of the art may not be as feasible, it may or
2 may not because we learned a lot more but what
3 precautions are we taking as far as to monitoring
4 this waste water to see that there isn't some change
5 after ten years or five years or something like
6 that?

7 Secondly, in this determination on the
8 chemicals, the NOEL that was written up there, I
9 was just wondering, is there any concern as far as
10 the synergistic effects of these chemicals? As far
11 as I could determine, you are taking each chemical
12 individually and not concerned with the fact that
13 we have these chemicals now mixed together and I
14 think that most of us are aware of the fact that you
15 put two chemicals together, that it potentiates the
16 effect of the chemical and you have a synergistic
17 effect. So, are we going to consider that?

18 Another comment, I don't want to pick on
19 Dr. Wiesner here because I think he has sort of left
20 himself open, but I think I just would like to
21 express the feelings of a former resident. When
22 we discovered that there was a danger in our home,
23 okay, my husband happened to be a chemist and I also
work in cancer research so we had a little bit that

1 we could delve into and find out what was going on
2 based upon what we read in the medical journals.
3 We decided in '79 to just leave the house and that
4 is it, I don't care what happens to it. It was
5 burglarized and so forth, okay. However, we had an
6 advantage over our neighbors and our neighbors were
7 not able to make that decision and they are still
8 looking to you to make that decision for them so
9 that, you know, based upon that, I think that you
10 have to sort of start, you know, just don't say,
11 well, the neighborhood is going from one house to
12 the other. We were extremely selective, let me
13 tell you, in choosing a new house and with that in
14 mind, Lewiston was a no-no for the person that
15 mentioned Lewiston should be a control group. So,
16 that is all I have to say. Thank you.

17 CHAIRMAN WELTY: Did you want to respond
18 to that?

19 DR. HUFFAKER: Well, the NOEL's and the
20 ten to the minus six were tossed out as not being a
21 way to go on it so the question is meet I think.
22 It did not influence the synergistic or additive
23 effects. There is no way you can build that in
because this information isn't know, but that is not

1 what we wanted to know. We wanted to do some
2 comparisons on a different basis. So, the answer
3 there is, that is not being considered at all and
4 we are not using that approach.

5 MS. KENNEY: All right. I am aware of the
6 fact that the synergistic effects, I mean, are not
7 known only on individual compounds but in making
8 the final decision, I mean, in the back of your
9 mind, I mean, will you decide that the possibility
10 of synergistic effect does exist and so forth?

11 DR. HUFFAKER: I would defer to the other
12 people here. They are the experts. I think that
13 the reason they chose a comparison rather than a
14 risk assessment approach was that it obviated making
15 this sort of decision. We have an area that is
16 inhabited now and that is the prima facie evidence
17 that it is habitable. People are living there
18 successfully. There is not a landfill there and
19 that is our control area. Does anyone else wish to
20 respond?

21 DR. SIPES: I think, just to put your faith
22 back in the government also, there is now a major
23 emphasis by NIEHS and EPA to have synergistic
studies performed and to determine what this may do

1 to no effect levels and what the mechanisms of
2 these synergistic effects may be and I have seen
3 numerous requests from the government for applica-
4 tions and contracts to be done in this particular
5 area to determine it. So, you are indeed right
6 that that---I don't think that there are synergistic
7 effects. You should also keep in mind, though, the
8 effects may be additive or they may be antagonistic
9 and in some particular cases, strange as it may
10 sound, one chemical, exposure to one chemical may
11 reduce the severity of toxicity to another. I
12 don't think that would be considered really in this
13 but I think the syngergistic effect is one that
14 would be of major concern. So, that has always
15 been in the back of my mind but at the moment there
16 is just no way to really handle that and factor it
17 in.

18 CHAIRMAN WELTY: I just wanted to mention
19 that one of the things the tests that were done on
20 the sludge seemed to indicate that the majority of
21 toxicity was related to dioxin and again, I'm not
22 sure how to factor that in to the decisions that
23 people have here but they did look at the whole
combination of Love Canal chemicals and their effect

1 in various animals and dioxin was felt to be one
2 of the major, if not the major toxicity.

3 MS. KENNEY: In line with that, the dioxin
4 was probably more potent because of all the
5 halogenated hydrocarbons that were present and
6 everything and it was more soluble and probably more
7 accessible to many of the children playing in the
8 area.

9 DR. WELTY: I would just like to address
10 your other question on the testing related to the
11 treatment plant. I know that Dr. Pohland has your
12 same concerns and hopefully we will be addressing
13 that question as we proceed in developing these
14 criteria.

15 MS. KENNEY: Okay.

16 MS. GABALSKI: Violet Iadiacco.

17 MS. IADIACCO: Yes. Dr. Huffaker, about
18 the treatment plant, Dr. Pohland mentioned a
19 standard, where he had a standard already set that
20 Hooker is already following a certain standard for
21 the treatment plant. Did I understand you right on
22 that?

23 DR. HUFFAKER: I am sorry, as far as I
know, I would have to talk to the DEC. The SPEDES

standard, they are applied to the various manufacturing facilities here, all over the state for that matter but here in Niagara Falls also. There are commission standards that are set by the DEC that says how much of whatever it is that the state can release at any time of what chemicals and this is integrated with the Niagara Falls Sewage Treatment Plant. So, what I am trying to say is, all the various industries and things are being regulated depending upon what it is they are producing, including the treatment plant here.

MS. IADIACCO: I just wondered if it was a standard set by Hooker because Hooker---their standards are kind of what got us to where we are right now and I am a little leary as to what they set the standards for the treatment plant.

DR. HUFFAKER: I don't know.

MS. IADIACCO: And another thing I wanted to know is, on this times ten thing, for the people who aren't into all that, are you really---we can't understand that but are you going to be basing the habitability on this calculation as a whole or the population as a whole or just 90 percent of it because I mean, like to an alcoholic, one drink is

1 harmful but there are other people that can drink
2 ten and, you know, still not go on a binge forever.
3 So, sometimes one is harmful but ten might not be.
4 I mean, are you going to base it on one hundred
5 percent of the population or just 90 percent of it?
6 That times ten thing, is that going to be for every-
7 body or I mean, I wouldn't want to be one of that
8 percentage that is not considered.

9 DR. HUFFAKER: You were left out once
10 before.

11 MS. IADIACCO: I was left out several times
12 and Luella posed a very good question right along,
13 when you mix your chemicals, several kinds, some
14 people say that my chemicals aren't attributable
15 to Love Canal but nevertheless there is chemicals
16 there. Are they attributable to the 102nd Street
17 dump and if they are, is the mixture of the two very
18 harmful to any homes in that area and after six
19 years, Dr. Pohland said he doesn't want to insult
20 anybody's expertise. I think a lot of the citizens
21 here have six years of on the job training at our
22 own expense. So, there is a certain amount of
23 expertise there that I don't think you are really
considering. I think six years is a long time to

answer a question. I asked that six years ago.

1 DR. HUFFAKER: If I understood the first
2 part of your question, it was a question and a state-
3 ment, that in what order were we going to consider
4 the areas as far as habitation, is that correct?

5 MS. IADIACCO: Are you going to consider
6 the whole one hundred percent of the population or
7 just ninety percent of it?

8 DR. HUFFAKER: No one has discussed that.
9 We are dealing with a neighborhood concept. My
10 own feeling and I haven't talked to anyone about
11 this, is that everything would be considered.
12 There are a couple of caveats, one is that if you
13 own private property here, we can't test that
14 unless you ask us or will allow us to do so. We
15 cannot come in and test you on your property unless
16 you agree to this.

17 MS. IADIACCO: But by this are you saying
18 that, in other words, have we neglected to sign
19 something giving you that permission?

20 DR. HUFFAKER: Well, we are a long ways
21 from this so I can't say what is going to occur
22 there. My feeling is that we will test, we will
23 make a judgment on the entire EDA, on all the

1 property there and with the understanding that we
2 will not be able to go into your house or a pharmacy
3 or whatever unless the people who own those say,
4 yes, you may come in and examine.

5 MS. IADIACCO: Are you saying that there
6 is a formal request that we should have done before
7 this?

8 DR. HUFFAKER: No, no.

9 CHAIRMAN WELTY: Could I respond to that?
10 I want to just interrupt here. We are not at that
11 point yet, Violet, so let me just clarify a couple
12 of things. First of all, your question on standards
13 for releasing of effluence from sewage treatment
14 and industrial sites, your question was does Hooker
15 set these standards and I would just like to ask
16 that question again of Dr. Huffaker. The chemical
17 companies do not set the standards, do they?

18 MR. BROWN: I will answer that question.
19 New York State sets the standards for the Niagara
20 Falls Treatment Plant and Niagara Falls, City of
21 Niagara Falls, has an obligation to meet that
22 effluent standard. The way they do it is by
23 extending standards from each individual discharge
on all the industries and the Love Canal treatment

1 plant and I can tell you from experience that the
2 standards that they have set for the Love Canal
3 treatment plant are much more strict than most of
4 the industries in the area. That is based on, at
5 the Love Canal treatment plant, that is the waste,
6 they are removed right down to the detection limit,
7 the chemicals that are coming into the treatment
8 plant but it's not Hooker that sets the limits, it's
9 the City of Niagara Falls based on the limits that
10 are set by New York State.

11 CHAIRMAN WELTY: Okay. The other point
12 in your question was, you asked about this tenfold
13 difference and you can see by the debate that we are
14 having that this is not settled yet. We are still
15 debating this and a lot of other people have ques-
16 tions about that.

17 The other point is, will this apply to
18 everyone in the EDA and we are grappling with that
19 issue as well. We are trying to say, if we take
20 an adequate sample, it should be able to apply. You
21 should be able to make inferences or conclusions
22 from that sample and project that to the entire EDA.
23 So, in answer to your question, yes, the consul-
tants are considering the entire EDA and these

1 criteria will be applicable to everyone in the EDA.
2 There have not been requests for individual sampling
3 as far as I know because we still have not developed
4 a sampling protocol. When the protocol is developed,
5 Dr. Huffaker has indicated that if your home is
6 selected to be part of the sample, or your yard,
7 it would only be done if you, as the home owner,
8 gave permission to have the samples taken. So, that
9 is the sequence and that is where we are at this
10 point. I hope that answers your questions.

11 MS. GABALSKI: We have a couple of addi-
12 tional questions, Pauline Badorian.

13 MS. BADORIAN: I still understand it will
14 be three to five years before we get anything done
15 here. There are thirteen houses. Some of them
16 are inside the canal sector. Six of us are outside.
17 We are about three hundred feet off. We live on
18 Berkholtz Creek. We have not been able to sell
19 our house. We can't get anything in writing from
20 anybody saying there is nothing wrong and we have
21 to wait another three to five years, we are not
22 that young anymore. We will be dead and gone. We
23 will be dead and gone before you can come up with
an answer and there is no way, in the last two weeks,

1 both of the people wanted to buy the house but were
2 afraid of the location. We don't know about the
3 chemicals. We are afraid. You can't blame them.
4 I am honest enough with them so we are in a bind
5 too and we would like to know why is it going to
6 take three to five years to come up with an answer?
7 Why don't we get something in writing saying there
8 is nothing wrong if we are not included within the
9 sector? We are on a street that carries the same
10 things as those houses that are inside so we are
11 on the outside looking in. We put our house on the
12 market and in one week, the Love Canal broke and
13 that was the end of it.

14 MR. BADORIAN: We have been captives for
15 six years and I have been retired that long.

16 MRS. BADORIAN: I have asked to have the
17 creek tested behind our house and they just kept
18 saying there is dioxin in Berkholtz Creek and I
19 asked to have the creek tested. We got no reply
20 and you are talking about permission to have the
21 soil tested, we signed a paper a long time ago but
22 our soil has never been tested.

23 MR. BADORIAN: Long before they started
testing, we requested it and the thing is here,

1 there is another thing, I would like to know where
2 all this money is coming from to revitalize. Where
3 is it all coming from and what is the condition of
4 these houses that have been vacant for four to five
5 years and no heat in them and the way you people
6 are talking here, you, sir, that you are in the
7 direction of revitalizing and the thing is, nobody
8 talks about money, finances and in the meantime we
9 are captives there and we can't get out and I would
10 like to know how much longer I have to put up with
11 it.

11 Another thing, sir, and then I will shut
12 up, this line that you people drew, nobody would
13 own up to it, but if the line was drawn straight,
14 we would have been in it but they went northerly
15 crooked, they went northerly, westerly, northerly
16 and finally they kept us out of there. Now,
17 whether or not that was politics I don't know and
18 I think it was. I think there has been a lot of
19 politics in this.

20 MRS. BADORIAN: This is 100th Street from
21 River Road to the creek.

22 MR. BADORIAN: From 103rd.

23 MRS. BADORIAN: If they would go right

1 across 103rd, by virtue of our address at the end
2 of the sector, it is 101st Street and we are 101
3 which actually we are there but because they jogged
4 over to Colvin and back from 103rd back to Colvin
5 and over to 103rd, they just chopped us right off
6 and we are on that creek and we cannot get anybody
7 to even sample the creek for us.

8 MR. BADORIAN: If this is justice in this
9 country, I don't know. I can't buy it. Overnight
10 they have taken my house away from me. It's worth-
11 less. So, I don't know what else I can say. There
12 is a lot I could say.

13 CHAIRMAN WELTY: We appreciate your com-
14 ments and your concerns and certainly---

15 MR. BADORIAN: Sir, one other thing: Let
16 me ask, if this is going to go on for another three
17 to five years, God, I don't know. I have been
18 retired six years. I don't know how many more I
19 got left.

20 MS. GABALSKI: Thank you, very much. A
21 pleasure to hear from you. Bruce Steele.

22 MR. STEELE: To follow up briefly on
23 Mr. and Mrs. Badorian's point, I represent in addi-
tion to the Love Canal Renters Association, the

Iadiaccos and also Mrs. Marion Smith and her family.

1 Each of you have heard directly from Marion Smith
2 about what you could do. I don't want you people
3 to be afraid to deal with the issue of the lines
4 and if it looks like in your expert judgment that
5 the lines may not be in the right place, please be
6 up front and honest and attempt to get them moved.
7 Dr. Huffaker encouraged you to do so several
8 meetings ago. This document accepts the EDA as a
9 given and accepts somehow the lines as sensibly
10 placed. Now, that is not true. We have information
11 now that we didn't have before that makes it very,
12 very clear that the north shore of the creek, for
13 example, is very, very contaminated. There is
14 nothing at all in this thing talking about that area.

15 We have evidence that suggests that south
16 of LaSalle Arterial there may be continuing migra-
17 tion of the ground water. We don't have a program
18 that talks about that.

19 In talking to the DEC people several weeks
20 ago, Violet and I learned that the DEC in their
21 sampling program identified an area of contamina-
22 tion underneath the LaSalle Arterial but unconnec-
23 ted with the Love Canal and so, everybody chose to

ignore that.

1 Now, if there is, for whatever reason, an
2 undisclosed and undetermined amount of contaminated
3 material underneath the LaSalle Arterial but uncon-
4 nected with the Love Canal, certainly perhaps some-
5 how you people can fit that into how that might
6 impact on your habitability determination because
7 other things besides the Love Canal will determine
8 the habitability of a particular geographical loca-
9 tion.

10 In that regard, Dr. Stoline mentioned
11 today the 93rd Street School. Now, I don't see
12 that appearing in this document at all. I mean,
13 when we talked about remediation, I think we should
14 talk about more than just remediation from the Love
15 Canal. I think we should talk about remediation
16 from the 102nd Street. I think we should talk about
17 remediation from the 93rd Street School and I think
18 we should talk about remediation of the problem
19 with the LaSalle Arterial.

20 Now, I was speaking to Mr. Walters about a
21 week or so ago and he explained to me that he
22 thought that the creeks were likely to be dredged
23 before the 93rd Street School dioxin problem was

1 taken care of. Now, does that mean that after the
2 creeks are dredged, the contaminated material and
3 ground water from the school is going to recon-
4 taminate the creeks and how do we deal with that?
5 That adds some, I think, some importance to some-
6 body's point here earlier about continuing monitoring.

7 But let's not interpret our mandate as
8 narrowly as we could and let's think about making
9 sure that an area is in fact habitable and if what
10 some might determine or define as extraneous fac-
11 tors, non-Love Canal related, affect habitability
12 and that should be dealt with, let's deal with those
13 too please because whether or not we define a
14 neighborhood as habitable or not, those factors will
15 in fact determine whether or not a neighborhood is
16 habitable.

17 A couple of other additional areas of
18 concern: Briefly, and then I will try to finish
19 up at the afternoon session, on page 4 of the
20 report, the draft, the third section in the habit-
21 ability draft provided that an administrative
22 structure and resources are in place which assures
23 that the maintenance of the Love Canal site would
be effective, continuous and clearly accountable.

1 I would like the committee to think about what kinds
2 of administrative structure and resources are in
3 fact necessary to insure effective and continuous
4 and accountable maintenance. I think that kind of
5 a criteria, while very important, is sufficiently
6 important to bring forth and require specific things
7 so what can we do to bring some life and some
8 substance to that particular recommendation.

9 Again, I see on page 5 at the top, through-
10 out the process of developing and applying the
11 habitability criteria, community involvement must
12 be solicited. That is a really important criteria.
13 Let's try to see what specific requirements we can
14 bring forth to objectify that, what kinds of com-
15 munity involvement mechanisms are important and
16 will you require to make sure that that involvement
17 will in fact be real.

18 The problem with the ten, the multiplica-
19 tion of ten, I mean, it was unclear to me whether
20 or not the people here today disagreed with that
21 in philosophy or disagreed with the language that
22 that concept was expressed in. It seems to me that
23 the Love Canal should be as habitable for my clients
as any other neighborhood in this country is

1 habitable for theirs and any language that would
2 serve to allow my clients to face measurable risks
3 ten times greater than other people in this country
4 would be unacceptable.

5 On page 7 you talk about a very, very
6 important factor of neighborhoods. I would like to
7 make sure that the committee deals with that in an
8 important way and when the committee members are
9 putting together and thinking about what neighbor-
10 hoods exist, to ask that the committee take advan-
11 tage of the community and the residents and get a
12 sense from them and feedback from them as to what
13 neighborhoods they see and what neighborhoods they
14 perceive. I wouldn't tell the committee how to do
15 that but let's, if we can, perhaps talk to the
16 people who live in the neighborhood and try to get
17 a sense of what neighborhood they perceive or what
18 neighborhoods they perceive.

19 On page 3, I think it would be helpful to
20 me to understand the extent to which the chemicals
21 which are selected for the indicators meet the
22 characteristics of good indicators, to make more
23 clearly which indicators are chosen for what
particular purpose and I raise the concern because

1 when I looked at the indicators for soil, other
2 chemicals, I didn't seem to find much other than
3 dioxin that had anything to do with toxicity and I
4 wanted to make sure that all of the characteristics
5 on page 8 of good indicators are appropriately
6 represented in every media that we choose.

7 I guess what I will do is just give one
8 more concern and then sort of hold the rest until
9 the end and that is on page 9. Somebody made
10 reference today to the Health Department's hypo-
11 thesis that the only deadly chemical or the only
12 dangerous chemical was dioxin. My recollection of
13 the title of that study was "Acute Problems" and it
14 said that the research that it did indicated that
15 dioxin was the only chemical associated with acute
16 concerns, my recollection of the title. So, we
17 have to be careful not to confuse any hypothesis
18 like that with dioxin as the only dangerous
19 chemical, especially when we might also want to be
20 aware of long term kinds of concerns.

21 Finally, this morning, the one part per
22 billion, my understanding for dioxin, my understand-
23 ing in going back and reviewing that study, after
all was said and done and we got to page 50 of that,

1 we learned that the one part per billion standard
2 or guideline or area of concern seemed to be founded
3 on only one particular study. In addition, the
4 Kimball study that I read indicated that there had
5 been a significant amount of comment generated with
6 respect to that recommendation. We haven't had the
7 opportunity to read the comments that other
8 scientists generated and talked about with respect
9 to the one part per billion and until we have an
10 opportunity to review that, I'm really at a loss to
11 give you much feedback as to whether or not I or
12 any of my clients might feel comfortable about that.
13 So, I think we need some more information about the
14 one part per billion and whether or not that is an
15 area of concern that is shared by the consensus of
16 the scientific community.

17 MS. GABALSKI: I don't know what you want
18 to do at this time. I have two other individuals
19 who would like to address the committee at this
20 point.

21 DR. FOWLKES: I would like to respond, if
22 I may, to one point and one point only and that has
23 to do with your concern about how the neighborhoods
are designated. I appreciate the concern and I

would like to try to clarify that if I could.

1 Pat Miller and I have been assigned the
2 responsibility on behalf of the committee for going
3 through the EDA, that is, those are the boundaries
4 within which we are mandated to work. So, I can't
5 speak to your other concerns and to define what we
6 call as sociologists, I guess, natural neighbor-
7 hoods within that which are formed as a product of
8 the layout of houses, the streets, geography and the
9 pattern of socializing with which people are familiar
10 and because Pat and I have both in effect begun new
11 jobs this fall, I took a shortcut and I called Pat
12 Brown at the ETF, not out of any favoritism for the
13 ETF but because I have learned over the years on my
14 own work that Pat Brown has always been a source
15 of information in the form of newspaper clippings
16 and as a source of information and communication
17 out into the community and explained to her that we
18 wanted to meet with the people who are now in the
19 neighborhood and who have lived in the neighborhood,
20 to travel through it tomorrow, to begin to rough out,
21 map out the subneighborhoods and as far as I know,
22 she has been in touch with people who are---some of
23 them are clients and I think some of them are people

1 that have worked with Anita and some people are
2 known to her through ETF. If that is not the case,
3 I extend the invitation to any interested resident
4 to be with us tomorrow as we go through the
5 neighborhood or for us to meet with briefly in the
6 afternoon and to fill you in on where we are at.

7 MR. LAVERDI: There are other groups of
8 people that represent a portion of Love Canal and I
9 don't think anyone should be left out of this. I
10 was never notified.

11 DR. FOWLKES: I want to make it clear on
12 what I said just now, that nobody is left out and
13 that if you are available and you wish to take the
14 time and meet as we go through the neighborhood and
15 have your input into it, that is fine.

16 MR. STEELE: One day is pretty short notice
17 but I will certainly make sure my clients know that
18 you plan on coming through. If you could help me
19 and give them information, perhaps give us a sense
20 of where you might be at a particular time and they
21 can get into your schedule. A day is short notice
22 but I am sure that my clients want to talk to you.
23 So, I will try to get that back to you as we can.

CHAIRMAN WELTY: Anita, is it possible

1 that those other two questions could wait until
2 3 o'clock for our other question and answer period?

3 UNIDENTIFIED VOICE: I am not sure
4 whether the question has been answered already in
5 the document you have distributed. I just wanted
6 to know in the entire context of the discussion of
7 habitability, whether you have constantly been
8 assuming that the sewers and the drainage tracts
9 will be cleaned out and the constant monitoring
10 will be done of the remedial clean up work, whether
11 that has been part of the framework of your discus-
12 sion of habitability all along.

13 CHAIRMAN WELTY: The question that you are
14 asking is addressed somewhere in the---

15 UNIDENTIFIED VOICE: I believe that was
16 discussed at page 13 of the draft.

17 CHAIRMAN WELTY: That is right. That is
18 correct, that future habitability decisions are
19 contingent on the clean up of the storm sewers,
20 creeks and their drainage tracts. Was there some-
21 thing else that---

22 UNIDENTIFIED VOICE: Well, I just wanted
23 to check as to whether discussions have been going
on within this context, with this assumption.

CHAIRMAN WELTY: Yes.

1 MS. GABALSKI: Finally, Jack Vireland.

2 MR. VIRELAND: I just would make an over-
3 view comment as an outsider here, I appreciate the
4 opportunity and privilege of being here and con-
5 sidering the freedom of information and everything
6 and I don't know if everybody realizes the amount
7 of talent that is at the table. Being an outsider
8 and being able to look on this is a great privilege
9 and I can see the problems that are being discussed
10 here can be applied to other sites and this being
11 a new open forum, I think it is an extremely good
12 area of discussion and the amount of education that
13 is fed from the group such as this, the technical
14 review committee to the public or other interested
15 parties in the area of science I think is invaluable
16 because you can't always get a group of people like
17 this together and I personally find it a very good
18 feedback and if there are any comments that I can
19 make, I will know which party to make it to as to
20 whether it be constructive or critical or whatever.

21 So, I just would like to say thank you to
22 the group and the privilege of being here and having
23 this open meeting. It's my first visit here and

1 I have known about it and I or some representative
2 will probably attend some of the future meetings if
3 there should be any further meetings.

4 CHAIRMAN WELTY: Anita, we will have more
5 questions at three and I think that some of these
6 questions that the various people have posed will
7 be answered in the afternoon's discussion. If not,
8 I will try to make sure that they are.

9 MS. GABALSKI: Could you once again
10 reiterate when you plan on reconvening? Can you
11 give us a specific time? It's about twenty minutes
12 to one right now.

13 CHAIRMAN WELTY: One o'clock we will have
14 lunch served here for the consultants and other
15 people from the community can join us. No dis-
16 cussion until one.

17 (Whereupon, the above proceedings were
18 adjourned for lunch.)
19
20
21
22
23

PROCEEDINGS AFTER LUNCHEON RECESS:

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

CHAIRMAN WELTY: We have until 3 o'clock to cover the rest of the outstanding issues. Just to summarize what I see as we need to cover, I will start off this afternoon's session and I would like to spend some time just going through this decision tree to get a better feel for how the consultants recommend utilizing that decision tree.

Second would be a discussion on sampling schemes, a little bit more on that and third, a discussion on the health studies and fourth, to consider other media and how they might be incorporate into the criteria such as ground water, sumps have been mentioned, to determine whether anything in addition to indoor air, ambient air and soil need to be considered in our criteria document.

Does any other consultant here feel that there is anything else that we need to discuss further during this limited time between now and 3 p.m.?

DR. WINKELSTEIN: Yes. I think we ought to discuss briefly the format for the criteria document.

CHAIRMAN WELTY: Anything else?

1 DR. SIPES: Did you say we were discussing
2 the chemicals?

3 CHAIRMAN WELTY: Oh, the chemicals, that
4 is right, chemicals as well.

5 DR. SIPES: At least briefly.

6 DR. HUFFAKER: I had asked in a letter in
7 August if the experts had any word of advice and
8 counsel about how to speed up the process of
9 evaluating data at QAQC and also which should be
10 put on tape and readied to go and I believe that
11 was all.

12 DR. STOLINE: There is one thing I might
13 like to put on the table here, I haven't thought it
14 through completely but it pertains to a remark that
15 was made in the citizens conference time and that
16 concerns the boundary of the EDA and I guess I am
17 thinking about what happens if the criteria that we
18 apply, let's say one neighborhood abuts, abounds
19 the EDA versus non-EDA. Should then we have in
20 our---I think we ought to talk about this, should
21 then we recommend that maybe the area of sampling
22 be enlarged to see if it spreads beyond and in fact
23 that should be something in our report. I think we

1 should say something about that but I just wanted
2 to mark that down to talk about it.

3 DR. HUFFAKER: I think we better talk
4 briefly about that, what we are going to do about
5 this thing. It seems to me that there was legisla-
6 tion that sets the limits of where we are going on
7 some of this stuff. I don't know exactly how far.
8 For example, if we decided we ought to go four
9 blocks further to the east, the consequences,
10 whether anything could be done or not.

11 CHAIRMAN WELTY: We can ask our representa-
12 tive from the EPA when it comes up for discussion.

13 Since you are concerned about the format
14 for the criteria which probably pertains to all of
15 the other issues, why don't you go ahead with that
16 at this point.

17 DR. WINKELSTEIN: Well, in reading through
18 this, I don't know but I had a feeling of---I just
19 wasn't very comfortable with it and I guess what I
20 would like to see would be a more explicit---well,
21 I didn't like certain sections. I don't think this
22 definition of habitability is very useful that
23 Jan Stolwijk gave us. I mean, there are a lot of
problems with it but I would like to see eventually

1 that we would have a series of criteria that would
2 be stated as criteria. For example, the ground
3 water should be free or should have toxic chemical
4 levels that are consistent with U. S. standards or
5 some such thing. This is a criteria. Then I would
6 like to see a paragraph that would discuss how you
7 accomplish that or what kind of monitoring et
8 cetera so that in the end we would have a clearly
9 stated series of criteria and I think they are just
10 a bit muddy at the moment. The habitability cri-
11 teria based on measurements of selected chemicals
12 and four media, of course, I don't like the word
13 "media" but that is another problem.

14 So, in other words, it isn't concise and
15 explicit so that a person can grasp what it is we
16 are talking about. I'm not sure that I have been
17 very helpful either in what I just said and I under-
18 stand the risk of saying something like that because
19 then you get usually put in charge of drafting it,
20 but that is the way I like to see a report. I think
21 it makes it much easier for everyone to understand
22 it and to make use of it at the same time and it
23 helps to clarify one's thinking if you can set that
up.

1 I think another criterion, for example,
2 for habitability that we have been talking about
3 this morning is, is habitability to be based on
4 neighborhoods rather than the EDA. There is an
5 explicit criterion and incidentally, that criterion
6 is directly different from the earlier criterion
7 which I guess was the EPA criterion which said the
8 EDA must be looked upon as a whole and we have
9 decided to look upon it as neighborhoods. So, that
10 is a clear criterion and it should be stated as
11 such. Then the explanation should be given and I
12 think that is how the whole document should be
13 organized.

14 DR. POHLAND: Would you organize it by
15 media, recognizing you don't like that term but
16 using it anyway?

17 DR. WINKELSTEIN: Well, I don't think you
18 can. I think there are a series of criterion. For
19 example, the one I just gave, a criterion is that
20 it's to be---that habitability is to be determined
21 on a neighborhood basis rather than on an EDA as an
22 entire unit. So, that is a criterion.

23 DR. POHLAND: I guess what I was thinking
was more the monitoring but I guess you could make

1 it even more orderly, you could have sections deal-
2 ing with subjects.

3 DR. WINKELSTEIN: Yes. For example,
4 management which is one you brought up and then
5 there are management issues which deal with the
6 whole area, they deal with whether it be running the
7 sewer plant or environmental monitoring or what
8 have you.

9 DR. POHLAND: Yes. I guess one of the
10 things that I think I have already mentioned with
11 regard to this document, I would again reiterate
12 that I think the criteria should be separated from
13 the provisos and the proviso, I think the whole
14 remedial action is a proviso criterion, if you want
15 to call it a criterion. So, certainly remediation
16 should be a section unto itself. Now, how you link
17 it to the criterion is another question. Now, I
18 think we can have criterion regarding habitability
19 provided that, and I think that provided that
20 relates to a good degree to the remedial action
21 procedures. Now, we can have subordinate criterion
22 under remedial action but I think by definition of
23 habitability, we have basically indicated that that
would be related more to issues of health and

1 whereas the remedial action is an implementing arm
2 of that where you make sure that you don't make
3 things worse than they were that may have created
4 the condition now you are focusing on and things
5 like that. That is the point I am making. If you
6 put them all together, I am afraid that---and I
7 don't think this will happen, let me say, but
8 should a disaster happen in the remedial program,
9 I don't want that to destroy the whole decision on
10 habitability, whether it's not good to inhabit or
11 whether it's to habitate or habitate part of it or
12 whatever.

13 DR. FOWLKES: But if a disaster happened
14 and the criteria that you wanted satisfied at the
15 outset before we even begin to talk about the
16 criteria for habitability, would then rule out, if
17 I understand you right---

18 DR. POHLAND: No. I would hope that
19 within the remedial action program, the plan and
20 its implementation, there would be criteria that
21 would provide sufficient safeguards against that
22 impact of the decision on habitability.

23 DR. FOWLKES: Do I understand you to say
 that there are certain things that have to be in

1 place as far as you are concerned around the
2 remediation and how it's worked to date as well as
3 around the sewer clean up I suppose, which is the
4 other piece of that and if those aren't satisfied,
5 there is no point in going any further?

6 DR. POHLAND: No.

7 DR. FOWLKES: With the criteria or habit-
8 ability?

9 DR. POHLAND: No, no. I certainly don't
10 want to imply that. I think we can come to grips
11 with habitability outside of the realm of the
12 issues of the remedial. I want to make sure that
13 the remedial action presently in place is correct,
14 which I think it is, and that what is contemplated
15 for the future is also technically sound and can be
16 accommodated by some kind of management control
17 monitoring system. I think one of the reasons why
18 I would like to place it that way is because I
19 think we must of necessity, if we presume that
20 everything is correct in terms of the remedial
21 action, that things should get better rather than
22 worse. The only reason why it might get worse is
23 if something happened but I think that our technolo-
gy is such that if something happens, the consequences

1 of that would not be similar to the struggles we
2 have now with the consequences of what occurred
3 over 30 years. I think we would have a response to
4 that incident that would preclude that kind of
5 impact.

6 DR. WINKELSTEIN: I don't quite understand
7 why you want a separate criterion because you could
8 say a criterion is that the remedial action be
9 accomplished and---

10 DR. POHLAND: You can except that if you
11 carry it one step further, if that is violated in
12 any way, then what do you do.

13 DR. WINKELSTEIN: Well, I think that is
14 exactly the point. If any of the criterion cannot
15 be met, then habitability should not take place.

16 DR. POHLAND: Yes, but I think we must,
17 in order to reach a decision, unless it's the wish
18 of this group to defer the decision, we must make a
19 decision based upon circumstances that exist now
20 and that you can't anticipate in the future.

21 DR. WINKELSTEIN: Well, let me give you an
22 explicit example as I understand it. As I under-
23 stand it, the sewers are not clean and the creek has
not been cleaned. Now, it seems to me that any

1 decision on habitability depends on the cleaning of
2 the sewers and the cleaning of the creek. There is
3 no use talking about it if the children are going
4 to start playing in the dioxin polluted creek. I
5 mean, so, that can be either a proviso as you put
6 it or a criterion. It doesn't matter to me but it's
7 clear to me that that is a prior condition before
8 you can habitate the area. Now, do you agree with
9 that?

10 DR. POHLAND: Right, but it's a predictable
11 one. We can predict with some assurance that this
12 is going to happen.

13 DR. WINKELSTEIN: I don't know why because
14 on past experience, it has been six years it hasn't
15 happened.

16 DR. POHLAND: But it's something, you know,
17 it's not like trying to predict what kind of
18 excursion we might have at the treatment plant
19 despite all of the safeguards that are built in.
20 So, I am talking about a predictable, reasonably
21 predictable outcome.

22 DR. WINKELSTEIN: I don't really argue
23 with you. I mean, but it's still, I think you
would agree that in organizing the document, you

1 would simply say, "Provisos" and "Provisions" or
2 whatever.

3 CHAIRMAN WELTY: But what you are saying
4 is to have those first done early on in the document?

5 DR. POHLAND: No, I would say at the end.
6 Well, you could introduce the way you're presenting
7 the document, it certainly is included there but---

8 DR. WINKELSTEIN: I would think they
9 would have to come first. You have to state what
10 the conditions are before habitability criterion
11 can be brought into play.

12 CHAIRMAN WELTY: Well, at any rate, that
13 particular consideration has always been a proviso
14 and as far as I can tell will continue to be a
15 proviso. So, maybe we should move on to more
16 specific issues since as you already alluded to,
17 the document is due today and we need to make it
18 more specific. So, in order to do that, I have
19 thought we needed to review once again this decision
20 tree and you can see on the map here which will help
21 us with relation to the numbers, but let's go back
22 here momentarily to this decision tree just so that
23 I have a good idea and we all have a good idea of
where we want to go on this.

As I understand it, we are going to do this by neighborhoods. Once the proviso is met or the provisos, the ones that I am aware of are the dioxin is cleaned up, the creeks and the sewers and that there is a remedial action program that is in place and properly managed and implemented. Once that is done then we will look at the neighborhoods and dioxin will be evaluated through a risk assessment.

We have asked the EPA to do a sampling protocol. As soon as that is available, I will make it available to you all to review and also to the community to review and critique. The comparison methodology is still, as I understand it, the primary methodology that we will use to determine habitability, indoor air, ambient air and soil, not dioxin.

DR. STOLINE: May I make a comment at this point? In reading the criteria, the draft number two that we had, I think it's August 9th or something like that, it was clear to me that we were doing comparisons for air indoor and the ambient but when we got to the soil, that section started off with a long section in there on dioxin testing

and it was clear there was a statement in there
1 that said that there would be no comparisons made
2 with comparable areas because of the fact that the
3 criteria here would be comparing with one part per
4 billion. Then in the latter part of that dis-
5 cussion after the dioxin statements, it said rather
6 vaguely about other soil and it wasn't clear to me
7 or in your statement whether we are suggesting that
8 the soil testing for chemicals other than dioxin
9 would be rather similar to what was done with
10 dioxin or whether there would be---the criteria
11 would be finding a comparable control and that is
12 one of the reasons that I wrote the document that
13 I did because quite frankly, I don't remember,
14 there was a lot of things said here that I think I
15 listened to and then I don't record quite properly
16 but it wasn't clear to me in reading our own habit-
17 ability criteria what really the criteria were with
18 respect to the chemical test in soil other than
19 dioxin and the method that we were going to use.

20 CHAIRMAN WELTY: I think in that draft it
21 mentioned that there were other chemicals that were
22 generally considered to be acceptable in soil and
23 the low parts per million.

DR. STOLINE: That is correct.

1
2
3
4
CHAIRMAN WELTY: But that statement is not
anywhere referenced that I am aware of. You can't
go to a book and find that.

5
6
7
8
9
10
11
12
13
DR. STOLINE: Okay, but in reading that,
because of the fact that you did have a target
number with respect to dioxin, the target number of
one part per billion as the action level and then
making reference later in the very short,
abbreviated discussion of the other material other
than dioxin measured in the soil, that low parts
per million were acceptable and I thought that we
were kind of aiming toward an action level there.

14
15
16
17
18
19
20
21
22
CHAIRMAN WELTY: In order to do that, I
think Dr. Wiesner has mentioned that it took four
man years of work to do the work for dioxin. So,
in order to do that for the other chemicals that
are listed would take probably a comparable amount
of time. So, the question that we have to address,
given the urgency of making this decision, is do we
want to go through that process before we make this
decision.

23
DR. STOLINE: Okay but the clue is, okay,
I will just persist on this point a little bit

1 because I think it is rather important, all of the
2 material in that same document pertained to the air
3 testing was comparing the control to the EDA with
4 a factor of ten. Now, the question is, is that to
5 carry over to the criteria that is used in this?
6 I mean, was it clear from the August 9th document
7 that that was a criteria from the soil?

8 CHAIRMAN WELTY: It wasn't clear, no.

9 DR. STOLINE: Well, I guess that is what
10 I am trying to ascertain, what are we talking about
11 with respect to that.

12 DR. SIPES: Other chemicals in the soil.

13 DR. STOLINE: To other chemicals in the
14 soil because it just seemed to be so vaguely stated
15 in that August 9th thing and I was trying to put
16 some suggestions out on the table. Maybe I am pie
17 in the sky on this thing but the question is, will
18 it take that many years to get action levels? Do
19 you really need to have that kind of---and I am not
20 the one to answer this, I would just ask as a
21 statistician treating you as a client, given that
22 that isn't as dangerous as other chemicals, what
23 would be wrong with, say, setting some action levels
that would be reasonable at this point and letting,

say, a group that peer reviews our work take pop
shots at us.

CHAIRMAN WELTY: Well, what we can do is
assess those levels, though. That is not an answer
to your question but I don't know that---

DR. WINKELSTEIN: Well, I don't think it
is possible. I think it is just unacceptable be-
cause setting these action levels or whatever you
call them is so controversial that I don't think
any self appointed group like our group could set
action levels that anyone would accept. That is
why it took them so long. It's such an involved
process to get anybody to agree to an action level.
If you set an action level for this, there will
immediately be ten people, scientists or others,
who will take objection to it, and you know, who are
we to set it?

DR. POHLAND: Not only that, the lawyers
will get into the act and then the whole process
will be stopped until the legal issues are cleared
up and I don't think we should fall into that trap
at this point. I think, Bob, you would have a
horrible time with that because I guess if I were
sitting down there and didn't like the action level

1 that was chosen, I would take you to court. That
2 would be a hard task to prove it, that that is an
3 acceptable scientifically meritorious action level.

4 DR. STOLINE: Then how do we interpret
5 those numbers as they stand? I mean, I'm just
6 asking the question. We have the numbers but we
7 don't really know what they mean.

8 DR. POHLAND: Yes, but contrary to the
9 dioxin thing, that has been settled and basically
10 accepted by the scientific community. Looking for
11 action levels for the other things would seem to me
12 contrary to our notion of comparative analysis.

13 DR. FOWLKES: And contextual too because
14 we are talking about a community in a certain kind
15 of region.

16 DR. SIPES: So that that would be the
17 comparative approach to the soil, it would have to
18 be followed for the other chemicals and that is
19 what my original thought was, that we would be
20 following that route.

21 DR. POHLAND: I think that is the only
22 reason where the soil dioxin was separated out in
23 the first place.

CHAIRMAN WELBY: And I apologize for any

1 confusion related to the second draft because it
was confusing in the way it was written.

2 DR. SIPES: Well, you have in the third
3 draft that that would be discussed, the advantages
4 for both options would be discussed here because I
5 think Dr. Silbergeld had a problem with that and---

6 CHAIRMAN WELTY: Yes and unfortunately she
7 is not here to interpret her own viewpoint.

8 DR. SIPES: Yes. That would have been
9 very helpful. Maybe we will have to go to Washing-
10 ton.

11 CHAIRMAN WELTY: Well, we are at this point
12 then where we come down and make a comparison.
13 Then we get to this situation where there is a dif-
14 ference or there is not a difference and maybe we
15 should go this route first. If there is no dif-
16 ference, what else needs to be done?

17 DR. PCHLAND: I think what I heard is that
18 you want to verify your decision and one way of
19 doing that is looking at the homes.

20 DR. FOWLKES: If there is no difference,
21 it suggests that you to potentially habitable within
22 the EDA and exactly what you said, what criteria
23 the house gets evaluated. We haven't really spelled

it out.

1 CHAIRMAN WELTY: Well, let's address that
2 now.

3 DR. FOWLKES: I thought Len's suggestion
4 seemed appropriate. You were talking about indoor
5 air.

6 DR. SIPES: Indoor air, when, when that
7 house was ready to be sold, that that house would
8 be monitored or what?

9 DR. FOWLKES: No, it can't be ready to be
10 sold until it has been determined. I don't know
11 why it doesn't follow then more or less that if the
12 random sample suggests no difference, no significant
13 difference, and that would be in a habitable
14 neighborhood, I suppose the house can be looked at
15 on a house by house in terms of inside air.

16 DR. MILLER: Or all the relevant data
17 collected pertaining to the house and the lot that
18 it sits on, which is to say soil samples as well to
19 be evaluated just to determine that the house, that
20 that particular house in question wasn't an outlier.

21 DR. POHLAND: But there is a contradiction
22 of your sampling strategy. In the first place, if
23 you are going to sample every lot, then basically

1 you narrow it down to community notion right away
2 to the lot by lot notion.

3 DR. WINKELSTEIN: I suppose it becomes
4 analogous to the termite inspection and which every-
5 body has to have when they buy a house, you have
6 to have a termite inspection, especially in
7 California. So, I guess in the Love Canal, I
8 don't know how you are going to get around having
9 a toxic chemical.

10 DR. FOWLKES: Or what is the likelihood of
11 a house that is unoccupied having inside air levels
12 of chemicals that you would find alarming that
13 wouldn't be related somehow to the soil?

14 DR. POHLAND: Well, it may come from the
15 sump.

16 DR. FOWLKES: It may come from the sump
17 and what would that mean?

18 DR. STCLINE: Well, it would mean whatever
19 was left there in terms of the piping, whatever.
20 See, if you had a sewer underneath a house, during
21 the time that contamination may have reached that
22 area, chances are that you might have gotten a
23 concentration of these materials in the sump system,
whatever the system that still remains and I suppose

1 in a boarded up house, that over time some of that
could permeate the atmosphere.

2 CHAIRMAN WELTY: In that situation it may
3 be remediable.

4 DR. POHLAND: That is right. We haven't
5 gotten to the decision of what you do yet.

6 CHAIRMAN WELTY: What kind of suggestion?

7 DR. STOLINE: Well, if there is no dif-
8 ference, just strikes me as that that is tantamount
9 to saying the area is safe with respect to that
10 particular chemical measured in that particular
11 medium and you pass on to the other thing. You
12 need some point at which you declare things safe.
13 Now, it seems to me what you are---the other branch
14 of that decision tree gets into, looking at specific
15 households or looking at, if you find some difference
16 then you try to assess whether it is something that
17 is general in the area and we need to look at every,
18 you know, remediate every household or try to make
19 some decision as to whether it's, well, this house
20 is needing remediation but this one is okay. But
21 it seems to me that one arrow going off to the left
22 there, "no difference," somehow says that we passed
23 that part of the inspection process and has given

us a good clean bill of goods.

1 CHAIRMAN WELTY: You mean here, going this
2 way.

3 DR. STOLINE: Yes.

4 CHAIRMAN WELTY: So, in other words, you
5 would stop here.

6 DR. STOLINE: Somewhere along the line
7 you have to stop at that point. I don't know what
8 more you would want to do in your sampling unless
9 what you are really saying is that the decision
10 criteria is not going to be control versus the EDA.
11 That may be the first stage but then you are going
12 to do something in addition to comparing the control
13 and EDA. It's that comparison but something else
14 in addition.

15 CHAIRMAN WELTY: Well, this particular
16 step here, it is really like a risk assessment
17 almost.

18 DR. STOLINE: Okay then, you really are
19 not just doing---you are really back to what I was
20 suggesting, what do those numbers mean.

21 CHAIRMAN WELTY: And that is a problem as
22 far as I know. There are no standards for indoor
23 air either in houses. So, what standards are we

going to use to do this step? How would we know?

1 DR. WINKELSTEIN: Well, I think it is
2 clear what you have to do there. Then I think you
3 have to compare those houses with the control, with
4 a control level that we are establishing. That is
5 the only decision you have available.

6 DR. POHLAND: The only reason why I think
7 we are going beyond this point of no difference,
8 if you set up your methods with the decision that
9 when you reach that point you are through, that is
10 fine. Now we are starting to try to---it looks to
11 me like we are trying to accommodate that notion of
12 assurances that we didn't miss something. So, I
13 look at it as a kind of a model verification
14 proposition. Now you are going to see whether,
15 through a similar, maybe smaller compartment, you
16 are going to prove and give additional validity to
17 the way you proceeded.

18 Now, the danger with that, of course, is
19 that when do you stop that process and then we get
20 down to the little samples all over everybody's lot.

21 DR. FOWLKES: Yes. I hadn't thought in
22 those terms.

23 DR. POHLAND: But that is really, in reality,

1 what it gets into because once you start that
2 process, it doesn't seem to end.

3 DR. FOWLKES: You answered part of my ques-
4 tion by saying---I asked you what would it mean if
5 you found high levels of junk in the air and what
6 you said was the first thing you would look for was
7 the sump system.

8 DR. POHLAND: Yes. I don't think it was
9 of necessity relating to the soil.

10 DR. FOWLKES: Right, which is remediable
11 and if in fact it is remediated and the air test is
12 different, then you have probably confirmed your
13 diagnosis.

14 DR. POHLAND: I like this analogy to
15 termite thinking because that is basically what it
16 is.

17 DR. SIPES: At the top of the comparison
18 would you even have to do indoor air sampling
19 initially if you are going to at the end evaluate
20 every house?

21 DR. WINKELSTEIN: Yes. You have to decide
22 whether the neighborhood is habitable. See, at that
23 point in the decision here, if you find no difference,
then you declare the neighborhood as potentially

1 habitable. Then you can proceed with the process
2 of selling the houses presumably, I mean. That
3 criterion is met.

4 DR. POHLAND: That is a way of verifying
5 but it could be a condition of sale too.

6 DR. WINKELSTEIN: And then you could say,
7 for the moment you could say that the neighborhoods
8 that are different, for the moment, are not habit-
9 able. Then you might not go any further for the
10 moment. You may want to set up a new set of deci-
11 sions.

12 DR. FOWLKES: Well, I assume you could
13 trace back your median figures to the individual
14 figures to discover whether you are looking at a
15 neighborhood high, generally high all over or
16 whether you have got a hot spot but it is very possi-
17 ble I think and that is where we started on this,
18 that there are some sections of the EDA that really
19 are more contaminated as areas, but to rule out the
20 entire EDA on the basis of an area, you are saying
21 no.

22 DR. WINKELSTEIN: I'm saying yes. You
23 are right back to where we were.

DR. FOWLKES: And the idea of not working

1 with the whole EDA is that it may be that big
2 chunks of it are in fact not contaminated in any
3 significant way at all and the job is to kind of
4 isolate those that are.

5 DR. POHLAND: See, I have a suspicion that
6 if in fact we have reached that point, the indoor
7 air sampling, should we find anything, if the
8 method is set up well, would be a very isolated
9 circumstance that could be a condition of final
10 sale or rehabilitation and that certainly if it came
11 from the sump, that certainly could be remediated
12 very easily actually.

13 CHAIRMAN WELTY: So, in terms of the
14 comparison, you would use the control houses, the
15 median or mean from the control houses to measure
16 this with, the results of this indoor air.

17 DR. POHLAND: No. I think I would stop
18 at the no difference thing and declare it habitable,
19 the neighborhood, but we could make as a provision
20 of the next step, getting people back in there, a
21 search for possible localized indoor problems that
22 might be missed by the choise of the indoor air
23 samples that did not happen to be part of our
sampling group.

1 CHAIRMAN WELTY: So that a part of the bill
2 of sale you would provide them with the results of
3 the indoor air monitoring and let them interpret it?

4 DR. POHLAND: Well, I'm not sure how the
5 implementation should go forth.

6 DR. MILLER: You could include a strategy
7 for evaluating what you find in each of those. I
8 mean I said it before and everybody looked very
9 upset but I don't know what is wrong with a standard
10 deviation, that each given house has to fall within
11 one standard deviation of the mean for the control.

12 DR. FOWLKES: Is that for all media, air,
13 soil---

14 DR. MILLER: Well, I mean these gentlemen
15 can speak to that better than I can. Of course, I
16 would feel better if they did everything but
17 Mr. Pohland---Dr. Pohland seemed to feel that that
18 was overkill.

19 DR. POHLAND: No. I am not saying neces-
20 sarily it is overkill at this stage. What I am
21 saying is that you lead yourself into a posture of
22 overkill because you start looking for things that
23 may or may not be there.

DR. MILLER: Well, it would certainly be

1 the case if I had to order those in terms of what I
2 worry about, I guess I worry about the air within
3 the home that the family is breathing and then I
4 worry about the soil around the home where the
5 children are playing and the family is growing
6 vegetables and then I worry about the air in the
7 larger community but I mean, you know, the triage,
8 the triage scheme, the indoor air would be first.

9 DR. FOWLKES: But I think that if you are
10 thinking about it in connection with your initial
11 random sampling, it establishes results of no
12 difference, then is it logical to assume that the
13 neighborhood is potentially habitable. If an in-
14 door air test is done on each house and the quality
15 of the indoor air is worse, for the moment let's
16 just say worse than it's supposed to be, then it
17 leads you in two directions, the first is the sump
18 which is the most logical, I guess, which is
19 bounded and can be remediated. If that doesn't work,
20 then it may lead you back to the soil. So that
21 whatever might have been missed during the random
22 sample is going to be picked up in that way but that
23 is why I wouldn't declare the neighborhood habitable
until that individual verification is done because

1 you are always running the risk that in the process
2 of evaluating the single house, you have got one or
3 two maybe next to each other that are inhabitable
4 and then we are back to the problem of the pock-
5 marked community, with a couple of houses in the
6 middle of the thing, the neighborhood, that can't
7 be lived in for the moment or maybe ever and all
8 the problems we raised about what is a neighborhood
9 and how could you live with lots---

10 DR. WINKELSTEIN: I don't think we can
11 escape the necessity, once you declare the neighbor-
12 hood habitable, of doing a property by property
13 evaluation because you know from probability that
14 even if this is a perfectly normal neighborhood,
15 that there are going to be a certain amount of
16 cancers and a certain number of other diseases are
17 going to occur and unless you have some prior
18 information regarding exposure, you are going to
19 have more suits, I mean, I know nothing about what
20 is going on except what I have read and I am sure
21 that every family who's had a cancer and lived in
22 the Love Canal must be suing somebody and that will
23 happen into the future unless you have, and even
perhaps even if, but certainly everybody would want,

1 who moves into that area, is going to have to have
2 some assurance that their house is free of those
3 chemicals.

4 So, I think that what Martha says is
5 absolutely true. I would support that and I think
6 that has to be a criterion. I think these have to
7 be at the various levels.

8 DR. POHLAND: You know, thinking about it,
9 if indeed we are going to proceed beyond that no
10 difference step to evaluate every home for indoor
11 air, I am concerned about what bias might be built
12 into the decision based strictly on a remedial
13 issue, maybe not strictly but potentially on a
14 remedial issue. Habitability is different in terms
15 of the contamination of the soil, for instance,
16 which is difficult to remediate other than digging
17 it out and contamination, that is something that can
18 be removed, contained or something like that. So,
19 the question that I would pose to the group is, do
20 you want to declare an area nonhabitable if in fact
21 the only circumstances for such declaration is the
22 fact that you found contamination in indoor air?

23 DR. FOWLKES: No, no. I think then the
next question becomes, what is the source of

1 contamination. Is the source of contamination the
2 sump? If so, that leads you in one direction. If
3 in fact it leads you back out to the soil and the
4 ground water and some more extensive testing, then
5 I think you have raised the question of, you may be
6 looking at an uninhabitable house and in fact an
7 uninhabitable neighborhood overall, depending on
8 the location of that house and how extensive the
9 contamination seems to be. You know that it would
10 rule out one lot, two lots or whatever, you know
11 where it fits geographically.

12 DR. POHLAND: And I guess you did that
13 last step, you could sort out that issue even if
14 you included indoor air, ambient air, soil as part
15 of your model to determine habitability up front,
16 doing the indoor you would be able to sort out
17 whether it's a remedial situation or whether it is
18 in fact related to soil.

19 CHAIRMAN WELTY: I think your point is
20 that if you have a neighborhood and all houses
21 except one passes the indoor air criteria, then
22 does that whole neighborhood then become uninhabit-
23 able because just one house fails.

DR. WINKELSTEIN: Our indomitable model

maker down here has drawn up a little decision tree.

1 DR. WIESNER: The same thing that we
2 talked about. It's just an extension of that
3 because I mean, it's exactly what Martha was just
4 saying and I thought that it would give some---
5 these are hand drawn things.

6 It's this one with the asterisk on top
7 that you are speaking of because I thought Martha
8 was suggesting, and other people, that we evaluate
9 house by house air and then if you get down to
10 that all houses are "okay" by whatever criterion,
11 okay, then that neighborhood is habitable. Then
12 there are several possible circumstances but just
13 take the two ends of the continuum, one is that a
14 rare house is not okay and the other is a lot of
15 houses are not okay in that neighborhood. In both
16 circumstances you would examine the cause or the
17 source. If you could remediate it, I think that is
18 more likely to occur with a rare house being
19 involved than it is of several and if you can't
20 remediate it, you state the risk as being unremedi-
21 able at present even for a small proportion of the
22 houses in that neighborhood and that disqualifies
23 the whole neighborhood.

DR. FOWLKES: Then you haven't got a
1 viable neighborhood. It may be "safe" but it is not
2 socially viable.

DR. WIESNER: And this is what we were
3 thinking of when we first started as a potential
4 problem. The choice that this group is making for
5 comparison options was then mainly one of cost
6 effectiveness and not of true decision criteria,
7 in other words, we were using a screening procedure
8 first based on neighborhoods to say whether we
9 might even have the potential for declaring a
10 neighborhood habitable and then if it passed that
11 screen, we went on to more, what we would call I
12 guess more specific diagnoses with this house by
13 house sampling. If it didn't pass the screen, that
14 is the whole other part of this decision which we
15 haven't talked yet about, when are we willing to
16 say let's not go any further and declare the whole
17 neighborhood uninhabitable before you even go to
18 the houses. I mean, that is a whole other
19 circumstance.
20

DR. FOWLKES: Yes, and the worst possible
21 case hypothetically, there would be enough neighbor-
22 hoods that didn't pass this screen, then it would
23

1 begin to look as though the habitability of the
2 entire EDA is called into question. I mean, if
3 that is what you have is two or three areas that
4 looked like they could be habitable based on the
5 first screening and the rest of it isn't, then I
6 would have questions about the social viability of
7 all of that certainly.

8 DR. HUFFAKER: Following Paul's steps or
9 triage system, it would be logical perhaps to do
10 ambient air because that is easy to do and you can
11 look at large areas quickly and do that first. The
12 EPA is designing a dioxin sampling scheme at Tom's
13 request. I don't know whether we can piggyback any
14 of these chemicals on that or not. We haven't dis-
15 cussed that with them. That will cover the whole
16 EDA and that has not been done for dioxin in the
17 past so we know there is no outstanding data that
18 would help us there and that will have to be done
19 so we say that is a given, we are going to do the
20 whole area and that leaves us with indoor air and
21 if we did that in steps as you are talking about
22 here, that would be the last thing that would be
23 done if we passed up to that point. So, our com-
munity is habitable for ambient air, the soil is

1 satisfactory and now we go to houses and I think I
2 am hearing some agreement that probably for a number
3 of reasons, we will have to do individual houses
4 before sale, at least, and comparing them with the
5 one standard deviation to the control that we look
6 at someplace else, is that correct?

7 DR. POHLAND: Yes and the "Can't remediate"
8 may in fact be an economic decision if it gets down
9 to that point. So, it doesn't necessarily mean
10 that the technology isn't there, it must may be
11 all kinds of---

12 DR. FOWLKES: It is not cost efficient.

13 DR. WIESNER: Well, I think it's entirely
14 possible, isn't it, that if you describe a plan
15 like this or a set of criteria like this, that the
16 managers of money will say that this cost more than
17 what the potential benefits are, weighing all the
18 benefits and interest groups involved and that no
19 effort will be made to establish habitability.

20 DR. POHLAND: In a scientific sense, that
21 would be too bad, you know, because---

22 DR. WIESNER: I think we all agree with
23 that but I think that that ought not determine our
judgment on it.

1 DR. MILLER: No, I don't think so. There
2 is a related question that is not fully appropriate
3 at this point but I do want to raise it because it
4 comes into my mind from time to time. How stable
5 can we assume these measurements to be in varying
6 weather conditions? Does it matter what time of the
7 year, under what weather conditions samples of
8 ambient air or indoor air or soil are collected and
9 if so, what are the factors that are going to in-
fluence it?

10 DR. POHLAND: I think I can answer and say,
11 yes, but I would presume that the plan would
12 incorporate these variables into the protocol.

13 DR. MILLER: You know, to maximize the
14 probability that data are collected under the worst
15 case conditions, under the best case conditions---

16 DR. POHLAND: No. Usually you approach
17 environmental monitoring looking for the worst case
18 and I would suspect it would hold here. That isn't
19 to say that you might want to not look at seasonal
20 variations and so forth but---

21 DR. MILLER: But you can see the whole
22 thing can be turned upside down if the control and
23 EDA are collected at different---under different

conditions.

1 DR. FOWLKES: Well then, it becomes a
2 refinement of the criteria done under worst case
3 conditions, tests and EDA and control sampling.

4 DR. MILLER: Well, worst case conditions
5 are probably where the windows and doors have been
6 kept closed for 24 hours and 100 degrees outdoors.

7 DR. POHLAND: But you can have some shorter
8 term conditions. For instance, if you are looking
9 at ambient air, obviously the wind is blown and
10 that has something to do with that, if you are
11 sampling, but also rainfall, during a rainfall
12 period, the temperature and humidity at times has
13 something to do, particularly with volatiles.

14 DR. MILLER: But it is a double edged
15 sword because I don't think, if you say the wind is
16 blowing, it is going to affect something, in the
17 context of Niagara Falls, does that mean that the
18 wind makes it worse or the wind makes it better?

19 DR. POHLAND: No. Usually it dilutes out.

20 DR. MILLER: But it is going to be carry-
21 ing the pollution that is generated by those
22 factories over in the area.

23 DR. WIESNER: If you are in a situation

1 where you are not sure whether it makes it worse or
2 better, then it doesn't make any difference which
3 one you pick. I mean, that is true. I mean, if you
4 are sampling and you think that, well, the likeli-
5 hood is just as great that it is going to make it
6 worse, then it really doesn't make any difference.
7 Then there are a set of circumstances where you can
8 predict it is likely to be worse and those are the
9 ones that you would choose.

10 DR. POHLAND: And nobody is going to, I
11 don't think so, no knowledgeable people are measur-
12 ing ambient air without concerning themselves with
13 these problems. You want to make sure in any event
14 that you are not measuring something that is coming
15 from off the site.

16 DR. WIESNER: Martha, I need to bring up
17 one thing that I am worried about, something that
18 you said, you might have assumed something about
19 pathways that I don't think is true. So, I want to
20 just check on these because it affects this decision
21 tree. I think you were assuming that if there were
22 not some excess levels of some contaminant in inside
23 air, then it's unlikely that there are excess levels
in ambient air or in the soil and I think that maybe

1 Fred can help me with that too but I think that
2 that is not accurate. It was something that she
3 said that suggested that.

4 DR. FOWLKES: I'm not sure I said that but
5 that was my reasoning.

6 DR. POHLAND: That is a contradiction of
7 the notion that things tend to move, if they are
8 there at all, homogeneously and we suspect if they
9 are there, they didn't move that way and they got
10 there through various routes.

11 DR. MILLER: I am not sure, does that
12 speak to this?

13 DR. WIESNER: Well, for instance, somebody's
14 indoor air could be contaminated because of some
15 past history of a sump pump et cetera. Now, that
16 sump pump might have been contaminated by a certain
17 pathway that was different than the pathway that
18 contaminated the ground.

19 DR. FOWLKES: But all I meant is that if
20 what you turn to first in the process of diagnosis
21 is the sump pump and it is not contaminated, the
22 contaminated air which points you back out then,
23 would it not, to an investigation of the soil and
the ground water?

1 DR. WIESNER: Well, if you found a sump
2 pump contaminated, cleaned it up and cleaned up the
3 contamination and then the air went down to normal
4 levels, you would feel good about the air but that
5 shouldn't give you any substantial reassurance about,
6 say, hot spots of dioxin in the soil next to the
7 house.

8 DR. FOWLKES: Yes. That, I do understand.

9 DR. MILLER: It is also the case that if
10 you replace the sump pump and the air measurements
11 go down, that doesn't mean that the next rainfall
12 won't bring new contamination to the new sump pump.

13 DR. WIESNER: Correct. It could happen
14 again.

15 DR. MILLER: So that in fact, we don't
16 want to put ourselves in the position whereby we
17 simply are replacing all of the sump pumps in all
18 of the homes.

19 DR. WIESNER: The same example. I agree
20 with you but I think you were thinking about that.

21 DR. FOWLKES: I think I hadn't thought that
22 far. I mean, it's a consideration and you are
23 further along in the chain.

DR. WIESNER: That relates to the very top

1 line on this second thing where it says "Evaluate
2 house by house air." I mean, that is where we were
3 before lunch.

4 DR. FOWLKES: So, it could be an indicator
5 of something sitting around outside but not neces-
6 sarily.

7 DR. WIESNER: That is right.

8 DR. FOWLKES: But it also, I think, Glenn
9 and I were talking about Bob's, your summary of the
10 logic.

11 CHAIRMAN WELTY: Yes.

12 DR. FOWLKES: And I think you said some-
13 thing at the end which doesn't summarize what we
14 were saying, which is that the indoor air testing
15 would be a condition of sale and I think we---

16 DR. POHLAND: No. He suggested possibly a
17 condition of sale.

18 DR. FOWLKES: All right. We were saying
19 habitability be a condition of sale and that the in-
20 door air testing is a prerequisite for determining
21 habitability. That is all.

22 DR. SIPES: That's what I thought. We sort
23 of all agreed to that.

DR. FOWLKES: He didn't say that.

1 DR. POHLAND: Yes, but that was before we
clarified it in our own minds.

2 DR. HUFFAKER: Tom, would you check with
3 Dr. Spear to find out if it would be possible to
4 piggyback any of the indicator chemicals on the
5 dioxin?

6 CHAIRMAN WELTY: Sure. Just to look at
7 where we are then, we are down on the left hand
8 side of this decision tree and it seems like we have
9 agreement to the point of evaluating house by house
10 air.

11 DR. WIESNER: Just for the record, I don't
12 think that that step should be taken to go out
13 house by house. I think one made a, and this is
14 just my own personal scientific perspective on it
15 and there are other reasons that you may want to
16 choose this but they are not scientific and I think
17 we might want to---no, I accept, very much accept
18 sociologists as a science but they are being
19 responsive and I think that is legitimate. Depend-
20 ing on where you begin on this, if you are uncertain
21 whether there is any scientific basis for the
22 declaration, health basis for the declaration of
23 this area and if you begin with the point that that

1 decision was made on the basis of crisis and a
2 political response and so then you are asking the
3 question, is this area that underwent that experi-
4 ence any differently habitable than another area
5 that didn't go under the experience, from a statis-
6 tical and sampling basis, you can legitimately stop
7 at the point that you find no difference and that
8 is what I would do.

9 DR. FOWLKES: I understand what you are
10 saying but I just refer you back to what Dr.
11 Huffaker said, this is Love Canal and in the context
12 of how science has gone forward and how it's been
13 perceived, the next step I think has to be taken.

14 DR. WIESNER: The only argument I would
15 raise is that it may be important for us to be
16 explicit about the reasons why one is going further
17 and that this is not a necessarily logical exten-
18 sion of the scientific approach.

19 DR. FOWLKES: Well, it is not a usual
20 extension.

21 DR. WIESNER: I am not saying it is
22 illogical. I am saying it is acceptable but the
23 reasons are different than questions of sampling
and statistics.

1 DR. MILLER: It all depends on what you--
2 I think, or follows from what you identify to be
3 the fundamental nature or character of the problem
4 in this community. If you think it is a scientific
5 problem, then the satisfaction, I mean, by scientific,
6 I mean, I suppose it is a physical or chemical prob-
7 lem, then the satisfaction of the general customs
8 and practices that organize chemical/scientific
9 research would seem to be quite sufficient. At
10 least our contention all along has been that it is
11 both a chemical/scientific problem and a social/
12 scientific problem and moreover that the chemical/
13 scientific problem is really secondary to the
14 social/scientific problem. That is our contention.

15 DR. WIESNER: I accept that but I think
16 that if you look at the next step in the decision
17 tree, after you make that decision, after you say
18 we have to take in the social/scientific aspect of
19 this, the next step is a chemical maneuver. It's a
20 sampling of air.

21 DR. MILLER: But that is how, in our
22 society, we answer those kinds of questions.

23 DR. WIESNER: I think it would be very
important if we are talking about explicit, about

1 provisos that relate to the remediation because if
2 this is precedent setting, getting that concept
3 elucidated is as important as whether you pick a
4 risk assessment or comparison. It's very important
5 that people understand the differences. So that
6 where those social/scientific aspects do not apply
7 in other circumstances in the future, it may not
8 necessarily follow that one does indoor air sampling
9 for considerations of habitability and it's just
10 important that that distinction be made and I didn't
11 feel a need to raise this issue at earlier meetings
12 because I didn't think we were going to go down
13 that. I don't think that subsequent decisions are
14 going to follow after it. There was no difference.
15 I am not making a decision. I am just trying to
16 state that it's very---the contribution that you can
17 make in addition to what you have already made is
18 to be clear that that portion of it is explicitly
19 stated, what are the indications for going further.

19 DR. STOLINE: Suppose we stick with the
20 testing. Let's go to soil because I am a little
21 more familiar with that. I don't know what the
22 numbers mean so much with the air but suppose we
23 take this concept of pooling fifty samples together

1 and then we run the measurements between comparing
2 control and the neighborhood, the entire neighbor-
3 hood.

4 DR. MILLER: The EDA or the individual
5 neighborhood?

6 DR. STOLINE: No, not the entire EDA, the
7 neighborhood that is the unit that we are looking at
8 and we get to a point where there is no difference
9 and in addition to that, there is no single observa-
10 tion in those pooled samples taken from that
11 neighborhood in the EDA that is above 20 parts per
12 billion and the 20 parts per billion are multiplied
13 by 50 and would get you to the one part per million.

14 Now, again I'm going back to that one part
15 per million standard here and I am dividing that
16 by 50 because there are 50 subsamples in there and
17 if it's really true that there is nothing in there
18 and there is no individual measurement of those
19 pooled samples that would be above 20 parts per
20 billion, then maybe that would be assurance enough
21 that we could say that that neighborhood would be
22 passed over with respect to that particular chemical
23 in that particular media. So that we can get by.

DR. MILLER: But you are back to standards

again and we don't have the standards.

1 DR. STOLINE: Okay.

2 DR. MILLER: We have done that already.

3 DR. FOWLES: You are suggesting no control
4 or comparison?

5 DR. STOLINE: That has to be satisfied too.
6 If there is no difference between the control, two
7 things have to be satisfied, the first thing is
8 that there is no statistical difference between the
9 control and that those EDA measurements or the
10 measurements out of that neighborhood, that is the
11 first thing, and the second thing is that no
12 individual measurement out of the EDA in those
13 pooled samples be above 20 parts per billion.

14 DR. WINKELSTEIN: I would like to comment
15 on Paul's statement. I think there is a scientific---
16 it isn't strictly a social reasoning of taking the
17 purely scientific approach to this thing, that no
18 difference determination, the probability is that
19 five out of one hundred houses will exceed the
20 limit or something like that. I mean, there is some
21 probability, maybe only one, maybe five, we don't
22 know what it is, depends on how it comes out, but
23 that number may not be acceptable. I mean, I don't

1 think it would be acceptable in the EDA for five
2 houses out of a hundred to have unacceptable levels
3 of chemicals in them, I mean, a chemical determina-
4 tion. Maybe the other members would differ with
5 me but I don't think that is an acceptable number.
6 I think they wanted it to be probably that none be
7 or even if we do the testing, that the probability
8 will never be one hundred percent, obviously.
9 This will make errors but---

10 DR. WIESNER: No. The statistical prob-
11 lem is getting sufficient power and sensitivity to
12 make statements about it are going to be great no
13 matter what you do. I agree with that. I mean,
14 it gets back to, as Mike said, you could say you
15 wanted ten times, you wanted to detect no difference
16 or you wanted to detect one-tenth of that and you
17 want to have a certain certainty that you are doing
18 it and you are picking five percent because we
19 always use .05. You could pick one hundred percent
20 and you could design your sampling to meet that.
21 The thing is that that is going to be hard for
22 anyone to accept, that no sampling technique is
23 going to detect all of the problems.

DR. FOWLER: Well, not even one hundred

percent sampling.

1 DR. WIESNER: One hundred percent sampling
2 because you are going to get into these other vari-
3 ables like Pat brought up and are going to get
4 into the error of the technique but that is true
5 in life, in general.

6 CHAIRMAN WELTY: Well, I still think we
7 are down to the point of having some agreement on
8 the fact that houses need to be done and we can
9 include or welcome whatever you write up in terms
10 of the rationale for doing air, indoor air sampling
11 on houses. That is in the case where there is no
12 difference.

13 On the right hand branch of that where
14 there were differences and you find chemical X or
15 chemical Y and is this biologically significant
16 and then we get down to the standard and I'm not
17 quite sure how we would set the standards or how
18 this would work.

19 DR. WINKELSTEIN: There is one other
20 criterion that is not mentioned that has to be
21 written in somewhere and that is the, let's say
22 that it is determined that there are five neighbor-
23 hoods in the EDA or any number and it's determined

1 that let's say there is six and the three are
2 determined to be habitable on the first go around
3 but those three are located, as it were, randomly
4 in the EDA and there is a difference between them.
5 Suppose that the three are contiguous and logically
6 interconnected, in other words, that they are the
7 least likely to be contaminated. I mean, I think
8 there is a decision to be made there. Under that
9 condition you would be likely to declare those three
10 neighborhoods habitable but if they were randomly
11 located throughout the area, you might declare
12 those three neighborhoods uninhabitable or the
13 whole EDA. At any rate, I think we need to discuss
14 that and that needs to be made explicit in terms
15 of a criterion, doesn't it?

16 CHAIRMAN WELTY: I think probably the
17 most problematic thing to do would be to wait until
18 you have a chance to actually look at the neighbor-
19 hood and then once you come up with a neighborhood,
20 we would know a little bit better how to handle
21 that question.

22 DR. MILLER: Well, he is making a rather
23 nice point that if you minimize the number of cuts
you make so that you make, for example, six cuts

1 into that community, you gerrymander, then the
2 probability is rather high that each one of those
3 will be contiguous with the outlying, the non-EDA
4 area, right? But, you are also then maximizing
5 the number of losses to habitability that you will
6 have should one given area be proven uninhabitable.

7 You see, so, I mean, in terms of getting
8 the biggest bang for the buck, the maximum number
9 of houses that could be lived in actually judged
10 habitable and subsequently occupied, then the
11 pressure is for a larger number of small areas.

12 DR. WINKELSTEIN: But see, this is going
13 to cause a huge problem. Let's take probably the
14 simplest design, how are you going to deal with it?
15 I guess that's too small. You would have to have
16 more neighborhoods.

17 DR. MILLER: You have also got a hole in
18 the middle of it because of the canal itself.

19 DR. WINKELSTEIN: Now, it's easy if these
20 neighborhoods turn out to be habitable, it causes
21 us no problem, but if it's this neighborhood, this
22 neighborhood, and this neighborhood prove to be
23 uninhabitable, what are you going to do? What are
you going to say?

1 DR. MILLER: Well, you see, the world
2 doesn't end here. If you have a bigger problem, if
3 in fact this one is habitable and these two aren't,
4 do you see?

5 DR. WINKELSTEIN: That is the same thing,
6 yes.

7 DR. MILLER: No, it isn't because over
8 here, this is 92nd and 91st.

9 DR. WINKELSTEIN: But we have to set that
10 criteria as well in advance. We can't wait until
11 after it's all done, because if you don't, you're
12 going to be in, again, an endless controversy.

13 CHAIRMAN WELTY: All I am saying is that
14 if all the neighborhoods that they define are
15 contiguous with areas outside the EDA, then it may
16 not be a problem but if you have an isolated neigh-
17 borhood, it might be simple to write in a criteria
18 that it needs to be contiguous with another neigh-
19 borhood that is habitable. That would be relative-
20 ly simple. Isn't that the point you are trying to
21 make?

22 DR. WINKELSTEIN: Well, I guess what I
23 am grappling with is, the problem that in previous
examinations of the habitability issue, it was

1 thought that you had to declare the whole EDA
2 habitable. We have decided to work towards neigh-
3 borhoods which I think we are all agreed is the
4 logical way to go, but we still have the problem of
5 the criteria by which we will accept habitability.
6 It's clear that if you have an isolated neighbor-
7 hood surrounded by nonhabitable areas, there is a
8 good argument to declare it not habitable. On the
9 other hand, the people whose property is there, if
10 they are still there, may, you know, may not like
11 that decision. They will say well why don't you
12 treat us equally with the other habitable area that
13 you declared habitable.

14 DR. FOWLKES: Yes, in the most extreme
15 case you would have something like this where these
16 are the only two that are habitable, they are
17 contiguous with each other but they are contiguous
18 with all the other areas that aren't habitable and
19 these are contiguous with what is outside the EDA.
20 So, you have got this sort of a core in the middle.

21 DR. WIESNER: I think that's a criterion
22 that actually could be fairly easily written, that
23 the decision as far as habitability of any neighbor-
hood has to be placed in the context of the whole

1 EDA and contiguous neighborhoods and that you can't
2 do what the OTA suggested, was to do incremental
3 habitation because you may end up declaring some-
4 thing habitable and then you find out that every-
5 thing around it isn't.

6 DR. FOWLKES: It could be habitable but
7 not residentially viable and they are two different
8 things.

9 DR. WIESNER: That you can write at the
10 end of that.

11 DR. HUFFAKER: Some really weird things
12 came out down on 3rd. This row of houses sits out
13 here all by itself where you drive in and a long
14 ways from the canal and also there's a retirement
15 area and a school and also some houses up here and
16 it would be very easy to block those off as separate
17 and apart from the rest of the EDA, some up here
18 near the corner by the fire station. So, I think
19 generality should be thought about when you look
20 at the map itself.

21 DR. WIEGNER: I would just argue, though,
22 for those scientists that are working on the
23 determination of the neighborhood, that that should
be based upon the observations of past and present

1 as you would normally do it and unrelated to
2 whether you might end up with something being
3 isolated. I mean, it should be a description of
4 the facts and not an attempt to prepare for what-
5 ever kind of decisions are made down the line.

6 DR. MILLER: But it's very complicated.

7 DR. WIESNER: Just like dioxin.

8 CHAIRMAN WELTY: Let's move on then to the
9 point in the tree where we have differences and we
10 are back to chemical X is higher in the EDA than in
11 the control and the question is, is this biologic-
12 ally significant and Paul, I'm wondering what you
13 had in mind in terms of this, the standards, above
14 standard and below standards.

15 DR. WIESNER: Well, I put standards in
16 parentheses there. I mean, I think you would have
17 to have a group of people state whether they could
18 say, listen, it's obvious from all of the other
19 occupational and environmental data and toxicologic-
20 al data, just on the face of it, it's obvious that
21 this level is not a risk. If they couldn't say
22 that, then you are going to have to go to a formal
23 risk assessment for those differences.

CHAIRMAN WELTY: Who would make that

determination, though, what group?

1 DR. WIESNER: Well, you have got lots of
2 risk assessment stuff in here already, potentially
3 here already. The EPA is going to have to set up
4 a group of risk assessors. We clearly cannot write
5 a risk assessment on each one of these chemicals
6 when the media is under consideration and that is
7 going to have to be an open process.

8 DR. MILLER: But I thought that was why
9 we were going to comparison strategy, not so that
10 we would find ourselves backed up into risk assess-
11 ments again but simply because we were going to say,
12 on the basis of the difference alone.

13 DR. WIESNER: Okay. I think that is an
14 acceptable thing if you want to stop where it says,
15 chemical X is greater in the EDA than in the
16 control and if this group wanted to say once that
17 is found, the likelihood of that being habitable is
18 so small, let's cut it.

19 DR. HUFFAKER: Or one standard deviation,
20 whatever statistical measure you have.

21 DR. WINKELSTEIN: Well, I think that that
22 is what we have to do at this stage of the game.
23 We have to stop. If we find a difference, we

1 simply have to say, as of, you know, this is not
2 remunible forever. They may want to re-examine
3 the criteria but I would be prepared to vote for
4 that at this stage of the game because otherwise we
5 have to go back to the previous page and start over.

6 DR. POHLAND: Well, I think we have rapid-
7 ly reached, after everything is thought about on
8 how much it was going to take to do that, we would
9 rapidly reach the same decision we have down here,
10 can't remediate and if only again on an economic
11 basis, the decision would be made not to go any
12 farther, meaning basically that it would be cheaper
13 to buy everybody out than do all the work.

14 Now, the unfortunate part of that kind of
15 a decision, again, is that you lose all of this
16 scientific inquiry that can obviously contribute
17 to the state of the knowledge and help us elsewhere.

18 DR. FOWLKES: It's not that it couldn't
19 be done, but I think it could be separated out from
20 habitability in a certain way, you know, thinking
21 about it, the reasons for going forward with the
22 individual house testing on the one arm or fork
23 of the tree are the same reasons for not going
further with the below standard. Do you see what I

1 am saying? They are the same set of sociological
2 considerations that once you have got a common sense
3 notion of what your habitable area is and some
4 section of the EDA falls below it, the likelihood
5 of being able to "sell" that neighborhood---

6 DR. MILLER: Well, then there is remediate.
7 The question then is, can it be cleaned up but I
8 don't think you can enter into something where you
9 say, if you have got a difference and the direction
10 of the difference is compatible with the conclusion
11 that there is a chemical contamination, significant
12 chemical contamination in the EDA, then we are going
13 to sit down and ask ourselves what it means because
14 I think once you do that it becomes another case of
15 one man's fish is another man's poison. I mean,
16 you are right back to the lack of standards and how
17 there is no agreement on it.

18 DR. WIESNER: I agree with that. Let me
19 flip the coin on that. The risk on that, and I
20 think it's a substantial risk, you might find a
21 chemical action and I can't give you these names
22 either because I am not a toxicologist, you might
23 find a chemical action at two parts per billion
which never causes, has never been known to cause

1 a problem for any animal or any human as a median
2 in the EDA and you might find that same chemical
3 at .1 parts per billion in the control area and
4 those are statistically significantly different.

5 DR. FOWLKES: Why are we looking at that
6 chemical then? If it has never been known to cause
7 any trouble to anybody---

8 DR. SIPES: There is also the factor of
9 ten.

10 DR. WIESNER: That is a very good point.
11 There surely is a relationship to what chemicals
12 one is choosing to look at and that is based on
13 this criteria that you set up before. I think that
14 is a very good question and if that happened, we'll
15 say the chemical was a carcinogen but at a hundred
16 parts per billion, just for the sake of discussion,
17 and you found two parts per billion at the median
18 and .1 parts per billion in the control of the EDA
19 and the control and it was statistically significant-
20 ly different--

21 DR. MILLER: Why not clean it up?

22 DR. FOWLKES: Well, if you can't clean it
23 up, see, you are back to the standards. You are
saying I think where there are standards, use them.

1 DR. WIESNER: No. What I'm saying is,
2 an epidemiologist would ask when there is a
3 statistical difference, you would ask the question,
4 are there biological significance.

5 DR. FOWLKES: But we ruled out our findings
6 those answers ourselves if the information is not
7 there and I think we are suggesting a twofold
8 approach. If there is no information there,
9 what you have told us about what is involved in
10 setting standards for dioxin is so daunting that
11 to build that into our process of criteria for
12 habitability, but if there are standards there and
13 we have some way of assessing the meaning of the
14 differences, that is a whole different thing, isn't
15 it? I think you are suggesting that there might
16 be a standard there to draw on in some cases and
17 then you can maybe go further but where there are
18 no standards to draw on, the public perception is
19 going to be that here is a habitable neighborhood
20 on the one hand, acceptably habitable neighborhood
21 and here is Love Canal and the picture of how this
22 section looks is below standard and to invest an
23 effort into all the business of setting standards
with a view to hopefully declaring it habitable is

1 going to backfire not only in terms of time and
2 money but it looks as though nobody involved
3 officially or scientifically is willing to live
4 for the idea that something might not be habitable.
5 Do you see what I'm saying?

6 CHAIRMAN WELTY: So, you are saying either
7 you remediate the area or declare it uninhabitable
8 rather than trying to look at some sort of
9 standards?

10 DR. FOWLKES: Well, Fred is right. What
11 we could decide, the scientific knowledge base that
12 would result is certainly desirable but I think that
13 has to be separated out from what can practicably
14 be done.

15 DR. POHLAND: Yes. I think, well, what
16 is happening is you are sending yourself down the
17 route that we all followed on dioxin because you
18 are going to get caught up into this maze of
19 uncertainty and I don't think that is a palatable
20 implementation strategy for criteria set here and
21 thinking about it, my comment about the loss of
22 scientific inquiry surely could be accommodated by
23 some other study beyond this point.

DR. FOWLKES: That is right. I mean, you

1 would hope someone would get some funding and be
2 able to look at it as a scientific problem apart
3 from the issue of habitability.

4 DR. POHLAND: And I think what I am hear-
5 ing from our social scientists is that they wanted
6 to have a further exploration in that case where
7 the initial decision was one that was favorable
8 toward habitation and they prefer not to have one
9 beyond the initial decision that is against habita-
10 tion because of social values.

11 DR. FOWLKES: The issue is credibility on
12 both sides.

13 DR. POHLAND: Well, even if one presumes
14 that scientifically to those respective points,
15 well, the models and methods permitted us to stop,
16 I think what you are imposing now are social issues
17 that carry us---either stop us there or carry us
18 beyond that, depending upon whether the answer is
19 yes or no.

20 CHAIRMAN WELTY: I think at this point we
21 probably need to spend a little bit of time on
22 chemicals since we have a 3 o'clock community
23 discussion and---

DR. WINKELSTEIN: What have we concluded

here?

1 CHAIRMAN WELTY: Well, just to summarize
2 the way I interpret your comments and discussion,
3 we are looking at neighborhoods---

4 DR. POHLAND: I am wondering about this
5 last issue where we found a difference. What have
6 we concluded we are going to do, declare it unin-
7 habitable?

8 CHAIRMAN WELTY: Either remediate or stop.
9 Isn't that what the people are saying?

10 DR. FOWLKES: Didn't we agree that if we
11 had some insight into the meaning and source of
12 the difference, that that could then be a basis for
13 remediation and you could remediate but in a lot of
14 cases you are not going, that is not going to be
15 there.

16 DR. POHLAND: So, you are just saying---

17 DR. SIPES: That seems to me to be dangerous
18 I think what Paul was trying to say before and again
19 it is standards, I hate to mention it again, are we
20 doing anybody a service by saying, spend all the
21 money for remediation or declare it uninhabitable
22 if we have a part of .1 part per billion in the
23 control and two parts per billion in the EDA and

1 the only study that has ever been done has shown
2 that if you feed rats one part per million for two
3 years, they get cancer and you have this huge
4 difference there in concentration or dose and just
5 to make the statement that this concentration in
6 the soil here is two parts per billion, that is not
7 the dose that people are exposed to. They are
8 not getting anywhere near that. That is what is
9 in the soil. That is not what they are being
10 exposed to. So, the difference is becoming even
11 greater and so we are here arguing about, you know,
12 numbers and I think maybe that is where Dr.
13 Silbergeld in her statement was saying, something
14 along the lines of maybe if there are some ways to
15 do this without perhaps a formal risk assessment,
16 but from what I hear you saying, that is dangerous,
17 right?

17 DR. WIESNER: I think there are some
18 places that it could be so obvious if you listen to
19 the toxicologists, certain levels that you don't
20 have to do a formal risk assessment to make a
21 statement that there is a problem or there isn't
22 and most of them fall in that gray area but there
23 may be numbers that are such but I just would remind

1 you that the other part of that tree says, what if
2 you find chemical Y higher in the control than the
3 EDA and is the logical extension there then that
4 you must remediate or declare uninhabitable the
5 chemicals in the control area.

6 DR. WINKELSTEIN: The world is not quite
7 perfect and I think logically, if we were all
8 logical, I think the answer would be probably you
9 have to look into the problem in the control area
10 but we wouldn't.

11 DR. WIESNER: You would look at what you
12 thought was a significant level.

13 DR. FOWLKES: But the control area has
14 already been defined by the people who live in it
15 as not a problematic area. We have to assume
16 most people really don't like leaving the neighbor-
17 hood they have chosen to live in, their houses that
18 they have made an investment in and my guess is
19 the people there are going to say, we live in a
20 safe neighborhood and isn't it nice that Love Canal
21 came in a little lower. That would be, I think
22 that would be the perception I would predict would
23 follow from that, not the people would be jumping
on the bandwagon and saying, "If we are higher than

in the Love Canal---"

1 DR. WIESNER: From our experience in other
2 areas, that would not be the reaction. It would be,
3 what is the meaning of this level and do we need to
4 do further testing.

5 DR. FOWLKES: Even in a neighborhood that
6 has been---

7 DR. WIESNER: Absolutely.

8 DR. FOWLKES: Conventionally defined as
9 safe, as accepted as safe?

10 DR. WIESNER: Yes.

11 DR. FOWLKES: That it raises doubts then?

12 DR. WIESNER: Yes and the people would
13 become worried about levels that other people would
14 not be worried about.

15 CHAIRMAN WELTY: I think the only way to
16 handle that, though, is to look at the chemicals
17 that you are going to measure and then you have to
18 set levels of concern. I guess that is what you
19 are back to. I think that is what you are back to
20 because basically you are going to find these dif-
21 ferences and we might as well anticipate them and
22 set the levels of concern up front rather than
23 waiting until you find the differences.

DR. HUFFAKER: As a corollary to this, it
1 may be the problem that we got at the Delmonico
2 Building in California when one of things they
3 wanted or they said they would like to see was a
4 comparison with other occupied buildings and so
5 they said, fine, and set about finding buildings to
6 sample and they didn't get into anything. The city
7 buildings, they asked some of the city building
8 managers if they could sample their buildings and
9 they thought that was a splendid idea until the
10 mayor heard about it and threw the whole bunch out
11 and said, what are you going to do if you find some-
12 thing in there and there is no sampling done in the
13 control building out there as a result of that.

14 We have a very real possibility I think
15 here of going into a neighborhood and saying we
16 want to do sampling and the people think about it
17 very long, we may be told to go down the road, for
18 the very reason that we were just talking about now.
19 Do we really want to know and what will we tell
20 them about these levels when they start coming out?
21 This is not a frivolous observation. I think it's
22 very real.

23 DR. WINKELSTEIN: We will have to build our

own sample houses in the control district.

1 DR. SIPES: There probably is some of them
2 that could be bought.

3 CHAIRMAN WELTY: I don't know if we want
4 to discuss this further or if we are ready to move
5 on to chemicals.

6 DR. WIESNER: I think the consensus is or
7 the general views of each individual scientist is
8 that you stop there. I think maybe two or three
9 think differently.

10 DR. WINKELSTEIN: I guess I feel that we
11 have got enough trouble up to this point. We can't
12 solve the whole thing and I just think that for the
13 present moment, for present issues, the question
14 is to determine the habitability and having taken
15 this strategy which may or may not be a good
16 strategy or may or may not stand scrutiny by others,
17 we have to have some consistency and I think that
18 that decision criterion was, if there is no dif-
19 ference, habitability and if there is a difference,
20 nonhabitability, maybe not forever but for the
21 moment.

22 DR. WIESNER: Well, the decision really
23 was, no difference, potentially habitable;

difference, not potentially habitable.

1 DR. WINKELSTEIN: Under the present set of
2 assumptions and I think that would be reasonably
3 logical, I agree with everything else you have said
4 and pointed out here, they may not be. You know,
5 either condition, we may be making an error. There
6 is certainly a possibility there is an error in
7 these conditions and our judgment of nonhabit-
8 ability may be wrong or our judgment of habitability
9 may be wrong.

10 DR. SIPES: If you want to take the easy
11 road out, then you just indicate that it's not
12 habitable because these differences are here and
13 you have solved your problem, but I don't know if
14 that is the best approach.

15 DR. WINKELSTEIN: I don't think we have
16 taken the easy way out under any circumstances here.
17 This is a very prickly road here.

18 CHAIRMAN WELTY: Well, maybe if we do talk
19 about the specific chemicals, it will be more
20 tangible in terms of what potential situations
21 might arise and how we would handle them. So,
22 could we just refer to page 11 in the criterion
23 document and turn the floor over to Dr. Sipes here

1 to give some consideration, since our time is
2 short, to chemicals that we want to include in
3 this criteria?

4 DR. SIPES: I have some ideas written down
5 and I guess I have got them lost in all this paper
6 here. I will see if I can just find them. Okay.
7 I have had some questions on the chemicals. I
8 don't think there is any need for discussing the
9 dioxin. We discussed that enough and we know why
10 that was taken.

11 Maybe we should also have available this
12 document that might Mike at great effort, I must
13 admit and I want to thank you for doing that,
14 prepared it relative to going through the document
15 and picking out examples or picking out chemicals
16 from the EDA canal and control but---

17 DR. WIESNER: That is the September 17th
18 memo?

19 DR. SIPES: Yes, the September 17th memo.
20 For example, now, we have had table 1 before where
21 we can go down and look at the highest concentra-
22 tions of the chemical found in the EDA versus com-
23 paring that to the canal and the control and what
I have tried to do previously was go through the

1 volume 3 here and pick out my own list of chemicals
2 and there is somewhat of a reasonable agreement
3 here, looking for chemicals that had a higher con-
4 centration in the canal than they did in the EDA.

5 So, for example, if we look at chemicals
6 16 and 18, 1,4-dichlorobenzene and 1,2-dichloroben-
7 zene. We can see that indeed 1,4 and 1,2, there
8 are differences there between the canal and the
9 EDA. However, if you go back and look at that,
10 those numbers 178 and 138 come from two samples.
11 For example, in the soil, I looked this up again,
12 only two out of the 134 shallow soil samples
13 show these values. So, out of 134 to 137, it's
14 not that critical. They were measuring only two
15 samples that showed up in a quantifiable manner.

16 So, that is just some of the problems that
17 we have encountered here.

18 DR. WIESNER: Where did the 946 come from?

19 DR. SIPES: The 946 is from the same data,
20 only that is the canal.

21 DR. WIESNER: And how many samples?

22 DR. SIPES: I can do that but I didn't go
23 through that and do that. So, you can see that the
problem we have here, we picked up two samples out

1 of 134 that you could quantify and those are the
2 values. Now, I thought when I originally read this
3 that these were reasonable samples because, first
4 of all, they were derived from the Love Canal and,
5 secondly, they should migrate to the soil and,
6 thirdly, they could also be monitored as a volatile
7 because they are a volatile, you can also monitor
8 them in the air and they have also appeared on many
9 of the other lists, your list, that was some of the
10 target chemicals that you had had and I have seen
11 them on other lists. So, I think they are reason-
12 able from the point of view that they meet the
13 criteria that they were higher in the canal than
14 they are in the EDA but we have this problem of
15 low frequency of encounter.

16 So, are they good marker chemicals? That
17 is something we need to discuss. I wish I could
18 say that they were.

19 So, I have raised that issue and said that
20 perhaps they were found in quantitative amounts in
21 the indoor air samples and you feel better about the
22 data here where out of 304 samples, 135 were
23 positive and for one of the dichlorobenzene and 55
out of 304 for the 1,4 dichlorobenzene. So, at

1 least in the indoor air they are a little more
2 frequently encountered.

3 DR. WIESNER: What table was that?

4 DR. SIPES: I would have picked that data
5 up by looking through some of the material sent to
6 me by HM₂Hill. So, see, this is not as Mike can
7 attest to, it is not an easy task. There is data
8 here and there relative to the number of samples
9 and what you pick up and then there were various
10 levels, but I found that in a report that was out
11 of that same document that HM₂Hill had prepared
12 so---CH₂M Hill, I'm sorry about that, especially
13 I got my check, but I don't think that is really
14 the data. I did check those. So, I am a little
15 bit concerned on that choice.

16 The other group of chemicals that are
17 listed here, let's talk about the 1, 2, 4 and 1,
18 2, 4, 5 tetrachlorobenzene. This is on page 11 of
19 the RECRA document. Those chemicals perhaps should
20 be eliminated because they weren't really found in
21 the EDA in any reasonable number of samples. In
22 fact, I think they were essentially all negative.
23 The trichlorobenzenes, at least according to EPA
report. So, what I have here is a review of the

1 data analysis provided by Dr. Stoline and Martha
2 Monserrate suggests that 1,2,4 trichlorobenzene
3 has not been found in shallow soil in the EDA
4 or canal area. Thus it would not be a good marker
5 for this medium. It has been found in the sump
6 sediment of canal area and in water and sediment of
7 sewers in the canal and EDA. Therefore, its
8 usefulness as a sentinel chemical in shallow soil,
9 water and air is in doubt. However, I put a
10 stipulation in, if the quality assurance, quality
11 control of the data reveals that it is only present
12 in the canal, other than the sewers, its appearance
13 in soil would signal a problem with remediation.
14 So, that is the only way that that chemical may be
15 useful. It has not been analyzed really in the
16 soil samples.

17 Let me make a number of other points since
18 we have the table in front of us here. If we look
19 at this table 1 again then in Mike's report---

20 CHAIRMAN WELTY: Just one other question
21 about the trichlorobenzene, item number 25 on
22 table 1 that Dr. Stoline prepared and did I under-
23 stand you to say that it was found in the soil or
wasn't tested?

DR. SIPES: It is not found in the soil.
1 It was found in sump sediment of the canal and in
2 some of the sewers.

DR. STOLINE: In light of table 7, this is
3 kind of a summary of a lot of auxiliary---well, the
4 listing in table 7 is of the chemicals in the sani-
5 tary sewers, storm sewers and miscellaneous media
6 that I just lumped all into one summary here and I
7 think what Glenn is saying is that is the only
8 place that is known where 1,2,5,4-dichlorobenzene is
9 found. That is item 10 on table 7. It is found
10 in the sediment, sumps and basically in the canal
11 sediment, storm sewers. It's found in the sediment.
12

CHAIRMAN WELTY: Well, the reason for my
13 question is they didn't find it in the canal in the
14 EPA report. So, wouldn't that automatically
15 eliminate it from our consideration?
16

DR. SIPES: At least in the shallow soil
17 sample it wasn't found.
18

CHAIRMAN WELTY: But we don't know how
19 many samples they tested or exactly were tested.
20

DR. SIPES: We can get that but it means
21 going through and doing all that on a different
22 type of format. So, Bob, there may be other
23

1 Department of Health data that I probably should
2 get a hold of that has some routine analysis, if
3 we could get something like that because this was
4 the EPA. If there is more data, perhaps you could
5 lead me to that.

6 CHAIRMAN WELTY: That should all be avail-
7 able with Hill. So, I think that probably your
8 suggestion of possibly going there and reviewing
9 all their data might be the way to go.

10 DR. SIPES: I just wanted to point out here
11 on the chemicals on Mike's list between 43 and 56,
12 table 1, now, there are chemicals in there that are
13 well known and studied, chemical carcinogens. For
14 example, chemical 52, benzo pyrene. There is
15 essentially only a trace amount found in the canal.
16 There were measurable levels found in the EDA area.
17 Where did that come from? Was it derived from the
18 canal or was it due to the fact that somebody
19 dumped their charcoal barbecue grill out where you
20 can formulate benzo pyrene? Where did it come
21 from? I don't know. So, people have raised the
22 question before, maybe we should be using these as
23 marker chemicals. I had a problem with that class
of chemicals, the polycyclic aromatic hydrocarbons

1 as well as all of these metals. If we would set a
2 standard on number 64 for arsenic we could say that
3 the safest place to live would be the canal. It
4 is better than the control area and the EDA,
5 assuming that there were actually differences bet-
6 ween these amounts which I don't believe there are
7 but, see, there is no set pattern for the metals
8 at all. They are scattered everywhere. So, I have
9 just eliminated those from consideration. Cadmium
10 is toxic. We know cadmium is toxic. There are
11 higher concentrations or the same concentrations
12 between the canal and the EDA. So, in relation to
13 what Lou Steele was saying this morning on picking
14 the toxic chemicals, there has to be some rationale
15 if you want to translate from the canal to the
16 EDA. It is not so much---go ahead.

16 MR. STEELE: One thing that you talked
17 about and I wondered about is the ability to go
18 from the EPA study itself to make real strong con-
19 clusions about what went from where to where
20 because there was a lot of questioning about that
21 particular study and how many labs did it and the
22 QA/QC and as you talk about it because this report
23 found and didn't find, we should or should not use

1 these particular chemicals, those arguments that
2 others have used about what you can assume from
3 what you found in the EPA report came back to my
4 mind and I don't know how to deal with that.

5 DR. SIPES: Well, I dealt with it in my
6 own mind assuming that before the chemicals were
7 chosen, it would certainly be reasonable to have
8 the QA/QC done. I would feel much better about
9 knowing which values are absolutely beyond doubt
10 and we can talk about that but that is a point that
11 has always been in the back of my mind as to using
12 these data that are presented to set up criteria
13 standards when that doubt is there.

14 So, I don't think I helped you very much
15 on the selection of chemicals but coming back to
16 your list then on 11, I think that the lindane or
17 the benzenehexachloride is probably a reasonable
18 marker chemical to be used. It's found in higher
19 concentrations routinely in the canal and it has
20 been found in numerous samples within the EDA.
21 These benzenehexachlorides have a number of dif-
22 ferent toxicities depending on the isomers. So,
23 perhaps, and I had a question for one of the
chemists, if we just wanted to monitor the benzene-

1 hexachlorides instead of taking them out into the
2 individual isomers of alpha, beta and gamma, would
3 that ease our burden? Because, I don't see any
4 reason for taking them out one by one if we don't
5 have to because they have some different types of
6 toxicities. In general, I mean, the alpha may be
7 more carcinogenic than the gamma and the gamma may
8 produce neurological types of toxicities. So, if
9 we could just get a benzenehexachlorides or I
10 guess the hexachlorocyclohexene as a class, how
11 easy would that be compared to separating them out
12 into the four or five different isomers, because
13 all of them are starting to appear on the list that
14 I have seen, not just the gamma but the alpha and
15 the beta.

15 DR. HUFFAKER: I will find out.

16 DR. WIESNER: When you are speaking of
17 indicator compounds, you are speaking of it as to
18 be used in what process? I mean, there are three
19 things that I can see that could possibly be used.
20 One would be to analyze the existing data basis and
21 see whether they can describe what is going on in
22 the EDA. Another is to have a sample survey along
23 the lines of what we were discussing earlier and

1 third is as a monitoring for failure or change,
2 failure or improvement in the EDA as it relates to
3 remediation. Which one of those three are you
4 speaking of?

5 DR. SIPES: I think the latter, the last
6 one that you mentioned, the fact that we have
7 chosen or tried to choose chemicals that were in
8 the canal, therefore, they would allow us to make
9 the assumptions that the concentrations should
10 decrease over time and secondly, that they would
11 allow us to determine if remediation, if there was
12 a problem with remediation.

13 DR. WIESNER: This gets back to the ques-
14 tion earlier, what chemicals are you talking about
15 using for the sample survey and the comparison
16 option.

17 DR. SIPES: Well, we could use, probably,
18 these classes of compounds.

19 DR. WIESNER: The same ones.

20 DR. SIPES: The same ones and I think Pat
21 brought up a good point, if that chemical is not
22 toxic at two parts per billion or twenty parts per
23 billion, why are we worrying about it. That is
something I think that we will have to get back and

1 look into a little more carefully because that
2 creates a real problem for us if we are monitoring
3 on chemicals at levels that are way, way, way below
4 the toxic threshold, what have we gained? I was
5 looking at them from the point of view as sentinal
6 markers of remediation more than anything else.

7 DR. HUFFAKER: Surrogates for something
8 else.

9 DR. SIPES: Surrogates for something else.

10 CHAIRMAN WELTY: What about the tetra-
11 chlorobenzene? That is underneath that.

12 DR. SIPES: The tetrochlorobenzene is a
13 compound of very pronounced stability that would
14 probably hang around for a long time, probably
15 would not be metabolized by man to any great degree
16 and it was found in the canal. It may be a chemical
17 that if we ever needed to do sampling or something,
18 would remain in adipose tissue for a long period of
19 time, but again, it was sort of, as Bob said, sort
20 of a surrogate for a group of a number of other
21 chemicals.

22 CHAIRMAN WELTY: Was it found in the canal
23 by New York, because according to Mike's list, it
wasn't present in the soil in the canal. That is

number 61, table 1.

1 DR. SIPES: Well, this chemical has been
2 found in the sewers, EDA sewers and found in, I
3 think it was also found in the canal. That is where
4 I picked that data up before.

5 DR. WIESNER: For the monitoring into the
6 future, you are speaking of three chemicals or five
7 chemicals or---

8 DR. SIPES: Well, we will be bringing
9 other ones up because there are other media also.
10 So, we have here 1, 2, 3---we have had five men-
11 tioned so far and possibly some alaphetic hydro-
12 genated hydrocarbons, we are talking maybe six to
13 ten chemicals that would be monitored on some sort
14 of a basis.

15 CHAIRMAN WELTY: When you speak of monitor-
16 ing, are you speaking primarily of ground water or--

17 DR. SIPES: This is soil we are talking
18 about. Now, we have a list here we have for air
19 that Dr. Stolwijk came up with and they are reason-
20 able chemicals. I thought of listing, adding one
21 additional chemical to that and that would be
22 1,1 dichloroethylene.

23 DR. POHLAND: There is some merit in the

soil and air sampling to sample for the same things.

1 DR. SIPES: I'm sorry?

2 DR. POHLAND: There is some merit in
3 sampling for the same things in the soil and air
4 sampling program because what happens in the air
5 and vice versa in the soil may determine what you
6 find.

7 DR. SIPES: That is why I think these
8 dichlorobenzenes, for example, would be a good
9 candidate because they are volatile enough that
10 they can appear in air but they are also retained
11 to some degree in the soil. So, you can monitor
12 those by two different means but the biggest prob-
13 lem I have was that in the infrequent number of
14 quantitative samples that were found in the EPA
15 monitor.

16 CHAIRMAN WELTY: In terms of the comparison
17 data, we had mentioned here on page 12 that the
18 Lance Wallace data might be available. Since that
19 time I have also been sent some data from Occidental
20 Chemical where they had gone through and reviewed
21 all of the studies of air quality in urban areas
22 that had been published and summarized this data in
23 the form of medians and frequency distributions.

1 So, do you have any thoughts about or feeling about
2 the comparison data, whether we can use already
3 collected data for comparison as long as we have
4 some assurance that it's not taken next to a
5 chemical plant or not taken next to a toxic dump
6 or do we need to make additional measurements in
7 some appropriate community for comparison?

8 DR. SIPES: Well, I think we would probab-
9 ly have to make measurements in the same community
10 we picked for sampling soil and water. There is no
11 reason not to that I can think of.

12 DR. FOWLKES: I don't think using data
13 from Occidental is advisable under the circumstances.

14 CHAIRMAN WELTY: No. It is not their data.

15 DR. FOWLKES: It has their name on it,
16 though. I know it is not their data but---

17 DR. MILLER: I have a similar question
18 about the Lance Wallace paper which is, how did he
19 become, this is page 12 of the Elizabeth, New Jersey
20 data that we have been talking about in the past.
21 Am I correct about that?

22 CHAIRMAN WELTY: Yes.

23 DR. MILLER: This is a point of informa-
tion. How did he become interested in collecting

1 air quality data in Elizabeth, New Jersey? Was
2 there something particularly at Elizabeth, New
3 Jersey?

4 CHAIRMAN WELTY: I don't know. Vince, we
5 are discussing the Lance Wallace data. Do you have
6 any knowledge as to why that was collected and
7 specifically why it was collected in Elizabeth,
8 New Jersey?

9 UNIDENTIFIED VOICE: No. I don't know
10 why specifically Elizabeth. All I know is these
11 were ambient concentrations, just a general study.
12 I don't know what it was done for. I tried to
13 find that out. I don't know why it was held in
14 Elizabeth. I can get back to you on that.

15 CHAIRMAN WELTY: But your feeling is that
16 we should try to get additional data rather than
17 using already published data?

18 DR. SIPES: I think we would probably have
19 problems with existing data and they should be
20 representative of the chemicals that we are testing
21 for in the EDA.

22 DR. WINKELSTEIN: They would have to be
23 done by the same laboratory.

DR. SIPES: Yes.

1 DR. POHLAND: I think coupling media
2 samples are very important in the final analysis,
3 particularly for the volatiles.

4 CHAIRMAN WELTY: Dr. Pohland, you suggested
5 that perhaps the chemicals should be the same. Are
6 you proposing that we change the ones that Dr.
7 Stolwijk recommended to reflect exactly the ones
8 that Dr. Sipes has referred to?

9 DR. POHLAND: I don't know how big or how
10 big a change that is.

11 CHAIRMAN WELTY: Well, there is only one
12 that is represented in both, I think that is the
13 dichlorobenzene.

14 DR. SIPES: That is because some of the
15 others are not volatile and they can't be monitored.

16 CHAIRMAN WELTY: The tetrochloroethylene
17 is also on both. So, lindane is not volatile?

18 DR. SIPES: Well, it has some volatility
19 but I think it's basically going to be retained in
20 the soil.

21 DR. POHLAND: See what I am concerned about
22 is that there is some evidence out there that,
23 depending upon climate and meteorological conditions,
that those things that are even sparingly volatile

1 will, because of the circumstances, be volatilized
2 with the water vapor and unless you have that
3 information and you should measure the soil media,
4 you may not get a true answer of what you are
5 looking for. If there is a way the two sets of
6 marker chemicals could be made the same or maybe
7 augment one list with the other list or something.
8 I think in the final analysis that will be an
9 important critique of what is found, if anything is
10 found.

11 DR. SIPES: Yes.

12 CHAIRMAN WELTY: One area that we haven't
13 been very specific on is ground water. The only
14 place that that is covered is on page 15.

15 DR. SIPES: Before we discuss ground water,
16 I would like you to look at table 2 in the report
17 that Mike gave us and just briefly look at the
18 chemicals that were found in the ground water in the
19 EDA, going down that list, you can almost skip page
20 1 and come over to page 2 where we have, again,
21 our metals and find on the next page then, around
22 113, 119 we find chloroform and a little bit of
23 xylene but if somebody can tell me what should be
monitored in the ground water in my list of

chemicals because if we are setting up some criteria
1 on concentrations that are measured---

2 DR. HUFFAKER: What do you mean by ground
3 water? That was never defined. Are we talking
4 about surface water or subsurface water or six feet
5 down? Our chemists had questions about why we
6 wanted to do it. If that was surface soil, you are
7 going to get the same thing you would see in the
8 ground water and that would be easier to do, if the
9 ground was wet, we could take the soil and the
10 water together. They would like some clarifica-
11 tion.

12 DR. STOLINE: I think maybe I could add
13 to that. That is called ground water in places
14 in the EPA report and it's also called shallow
15 well and that is all I know about it.

16 CHAIRMAN WELTY: Well, we are told that
17 there are, what, fourteen wells in the EDA, or
18 40 wells, 40 operational wells.

19 DR. STOLINE: But are these the 40 wells?
20 I mean, there are also deep wells.

21 MR. BROWN: Yes. These are 40 wells and
22 half of them are bedrock wells.

23 DR. STOLINE: Okay. Those are what are

1 called deep wells. So, there is twenty of those
2 type and then twenty shallow wells and that is
3 what we have here, the shallow wells, and that is
4 also what is referred to as ground water.

5 MR. BROWN: Right.

6 CHAIRMAN WELTY: So, we need to be specific
7 in terms of what we want to measure. Do we want to
8 measure the shallow ground water or deep ground
9 water or puddles or the creeks.

10 DR. WINKELSTEIN: Clearly we want to
11 measure the shallow ground water, don't we, or the
12 surface water?

13 DR. SIPES: I sort of agree with Bob's
14 statement, if we are going to measure soil and
15 these chemicals would be carried down into the
16 ground water, through the soil, correct? It
17 would be into the sort of shallow ground water and
18 then perhaps just measuring the soil would be
19 appropriate because in all honesty, you know, I
20 looked at the 119 or more than that, this list that
21 goes through 147 chemicals and there are some
22 chloroform there that may be a reasonable chemical
23 to look at. The rest are just metals that can vary
all over the place. There is a little bit of

1 oxothalate. As a toxicologist, I am not particular-
2 ly worried about that particular chemical. It's
3 there in very low concentrations and it is certain-
4 ly not a highly toxic chemical under any circum-
stances.

5 DR. POHLAND: I guess just thinking about
6 it in terms of the question that might arise should
7 you find something in the soil, it might be worth-
8 while to know whether or not that amount found in
9 the soil sample was, in fact, impacting the shallow
10 ground water. Furthermore, I think that if the
11 notion of trying to establish whether or not any-
12 thing is migrating to the area, if we have the
13 opportunity to include in our monitoring effort
14 for this reason the shallow ground water, I think
15 that that would be worthwhile and to fortify what-
16 ever decision may be made about the effectiveness
17 of the control and the mediation action.

18 So, I suspect what you are saying is that
19 it looks like you are not going to find anything
20 but---

21 DR. SIPES: What would you suggest, that
22 we use the same group of chemicals that have been
23 chosen for ground water or soil?

1 DR. PCHLAND: I think that would be the
2 only reason for doing it. I would go as far as to
3 monitor the wells in the locations of the soil
4 sample, just for comparatory evidence of the fact
5 that if anything were found, that apparently it's
6 not manifesting itself in the ground water at that
7 location.

8 The other thing is that if you didn't find
9 anything in the soil and you found it in the ground
10 water, then there might be some other scenarios you
11 can think about. I think we can't lose sight of
12 the fact that we are thinking about habitability
13 in terms of impositions on the health of the
14 inhabitants which implies at least a contact oppor-
15 tunity. The soil certainly is an obvious one and
16 so is the air but the water probably is not unless
17 somebody is really directly using it. So, the
18 water sample is probably the easiest one.

19 CHAIRMAN WELTY: Do you feel comfortable
20 with that?

21 DR. SIPES: Yes. That is fine. I have
22 one question on ambient air, whether indoor or
23 outdoor. Just from reading through the reports on
some of it, I guess it's the cartridges that are

1 used to trap, that we were getting false readings
2 or possibly elevated readings due to chemicals
3 present on that particular cartridge. Has that
4 been solved or is that still a potential problem?
5 We are monitoring for benzene or chloroethylene or
6 something, that was mentioned routinely in some of
7 these reports, that this is a common contaminant or
8 present in this particular cartridge and, therefore,
9 some of these spikes may be related to that.

10 DR. HUFFAKER: I don't know.

11 DR. SIPES: If we could find that out,
12 then I would feel better about a few of the
13 chemicals which we may want to use.

14 I think this is Dr. Stolwijk's list for
15 ambient air and we recognize some of the problems
16 particularly with benzene and tetrochloroethylene
17 and that, that they may be coming from samples and
18 sources other than the canal and there is going to
19 be a potential problem, gasoline, et cetera.

20 CHAIRMAN WELTY: Okay. I think we are at
21 the point of opening this up to the community. I
22 am sorry that it has been delayed but we did have a
23 few things that we really needed to cover. I need
also your, before we open it up, some feeling from

1 the group here as to how we might best proceed
2 from this point. Obviously we have a lot of
3 information that we can incorporate into a fourth
4 draft and send around to you, ask for your further
5 suggestions. Would that be preferable to having
6 another meeting or do you feel that we still have
7 enough things that we need to discuss that we should
8 have yet another meeting in Niagara Falls?

9 DR. FOWLKES: Well, we may not be able to
10 know that until you get the responses back from the
11 draft. My concern is that it feels like we worked
12 very hard today and achieved something like a very
13 important kind of underlying consensus and that a
14 lot of us aren't here and that people who weren't
15 part of this thought process may stand in a dif-
16 ferent relationship to the draft and I couldn't
17 begin to predict what the state of the thinking on
18 the part of the individuals of the group is going
19 to be like after.

20 DR. MILLER: There are a lot of loose ends.

21 DR. FOWLKES: Yes, there are loose ends.

22 DR. WINKELSTEIN: I don't feel that we have
23 reached a final agreement. We need another draft
consideration of it and probably another meeting.

CHAIRMAN WELTY: One proposal that I would
1 submit at this point is that we submit another
2 draft, circulate it for comments and if possible,
3 try to incorporate those comments into the final
4 draft which may be sent to each consultant to
5 append additional disagreement in areas where you
6 don't agree with the final draft, you could then
7 append your own comments. These would then be
8 submitted to the community where the scientists
9 would be present at a meeting to discuss and defend
10 the final product and his or her final viewpoint.

11 Would that be acceptable?

12 DR. POHLAND: I don't know. I just feel
13 that maybe you think we are farther along than I
14 think we are along. I think that our discussions,
15 notwithstanding the fact that some of our members
16 were not here today, were rather productive en masse,
17 together, have looked at some of the written res-
18 ponses and frankly what eventually evolves from dis-
19 cussion oftentimes gets modified quite a bit based
20 upon new perceptions and so forth.

21 I think the first part of what you said,
22 I am not sure we are that close to a final draft.
23 I think that is what I am saying. I think that what

1 you said first about sending out your next summary
2 of things and allowing us to get a crack at it and
3 then provide us with a rewrite maybe of the comments
4 and so forth would permit us to meet again and
5 maybe under those circumstances lead to the prepara-
6 tion of a final draft. That is just my feeling.

7 CHAIRMAN WELTY: Can we set a target date
8 of sometime in October?

9 DR. FOWLKES: You mean for the next meet-
10 ing? That would have to be preceded then by the
11 next draft and comments. So, you are talking about
12 October and this is already September 26th. I mean,
13 you are the one that has to pull this together into
14 the next draft and then integrate. I wondered if
15 you really meant October, that is all.

16 CHAIRMAN WELTY: I am concerned about our
17 citizens here who have been waiting for six years.

18 DR. POHLAND: But what we are saying is
19 that you say you are going to amalgamate our com-
20 ments into a new draft. You are going to send it
21 to us for our comments and I thought I heard that
22 then those comments would be in some way incorporated
23 for our next meeting. That is just, knowing people
that is kind of ambitious. Maybe by early November,

I guess, maybe, but I don't see it in October.

This is already the end of September.

CHAIRMAN WELTY: Off the record.

(Discussion off the record.)

CHAIRMAN WELTY: We are back on the record.

DR. FOWLKES: So, any of you who would like to join in and give a sense of how neighborhood life has gone on in the EDA, we look forward to seeing you there. Now, I'm sorry, but I don't think we are open for comments. That is just a general announcement to this public and whatever public you want to take that to.

MR. LAVERDI: I just wanted to say, since you brought it up, I am a resident and I am a representative of a certain area of Love Canal and I am very concerned about---I sat here and listened to you scientists criticize the DEC and Mr. Pitruzzello you asked him to resign because you thought that they didn't give us enough notice about the various trucks, the dioxin trucks. Now, I think the scientists here should know we have had some problems in the past concerning groups because certain

1 groups have their own opinion and other groups have
2 their own opinion. Now, let me finish. I sat here
3 all day and tried to listen patiently. I just want
4 you to know that some of the problems we have in
5 the Love Canal issue and some of the media atten-
6 tion that other groups had and people have tried to
7 get their point across, there has been a complete
8 unfairness to the whole history of Love Canal
9 concerning other groups and I just want this
10 committee to know that we do have a coalition of
11 group members who are designated that represents
12 portions of the Love Canal area and that we like to
13 have time with pertinent information that we think
14 that some of the scientists have here, the scien-
15 tists should have here concerning Love Canal and I
16 think that if you give me a week, I could prepare
17 some things for you and if you gave us sufficient
18 time.

19 DR. FOWLKES: You are certainly welcome to
20 send them on because tomorrow is not the end of the
21 task. It is the beginning and we are welcoming any
22 information you would like to send us. We have
23 spent a good deal of time in the community ourselves
and know it fairly well and we are really not

1 talking about anything as monumental as dumping
2 dioxin back into the canal.

3 So, I just don't want you to be alarmed
4 that anything of that magnitude is at stake and
5 this will just be the preliminary endeavor to going
6 home and drafting out on a map what seems to us to
7 be natural and logical neighborhoods.

8 MR. LAVERDI: I just wanted to say this,
9 I see here the doctor that has been working so hard
10 on this here project in trying to get a criteria
11 here and how we are going to go about a decision
12 here, mainly the habitability. I just wanted you
13 to know that the manner in which you proceed is,
14 you know, in all fairness more or less, you see,
15 you give us a little proper notification and I
16 also would like to know how did this go about that
17 the scientists got together to decide to come to
18 the Love Canal community?

19 DR. MILLER: Dr. Fowlkes raised all of
20 this because she was trying to inform the chair
21 that we were going to begin working on something
22 and that it would be arising in his hands and that
23 the dissemination of that document would be some-
thing that we have to anticipate before the next

1 meeting. We weren't really opening the meeting
2 open just quite yet, I don't think.

3 CHAIRMAN WELTY: No. Let me just finish
4 what I was saying, that we will keep the 14th of
5 November open for the next meeting then and the
6 timetable as outlined in the discussion period
7 which was off the record is as follows: On the
8 22nd we will try to have the fourth draft available
9 to the consultants and we would anticipate that you
10 would send us your comments by November the 5th
11 and we will incorporate what comments that we
12 receive into possibly a final draft that we will
13 send out to you by the 9th so that you will have it
14 in time to review it for the meeting on the 14th.
15 So, that is the tentative scheduling that we have
16 agreed to.

17 At this point I would like to apologize
18 for the delay in the comments from the community
19 and would like to get started on those now so that
20 we will have at least a half hour to do those and
21 still be able to get our consultants to the air-
22 plane in time.

23 Anita.

MS. GABALESKI: Joanne Hale.

1 MS. HALE: Yes. What I was wondering is
2 if the DEC and the EPA are present here. I guess
3 that would be Mr. Nelson, is that your name?

4 MR. NELSON: Yes.

5 MS. HALE: There still hasn't been a
6 decision made on the barrels in Love Canal and I
7 still don't understand how a habitability study can
8 be done if there isn't a decision on what to do
9 with these four hundred some odd barrels of dioxin,
10 contaminated material, and I have a problem with
11 that because I don't see how you can make a decision
12 if we don't know where these barrels are going.
13 They could still go back into the canal or they
14 could possible be above ground or stored there
15 indefinitely and the same rusting barrels that we
16 showed you in the pictures, those are the barrels
17 that are still there and they haven't decided to
18 transfer as far as I know. Maybe Nelson or Vince
19 could address that or I would assume that would be
20 a concern of you people.

21 CHAIRMAN WELTY: Let me just respond to
22 that, Joanne. We have not made a decision on habit-
23 ability yet either so we are working on the cri-
teria. I would certainly anticipate that by the

1 time these criteria are in place, that there will
2 be some decision about the barrels.

3 MS. HALE: But will that play a factor
4 if you are going to put it back into the canal and
5 it leaks out and his treatment plant isn't working
6 and we don't have any data, I don't quite understand
7 it. Maybe I am not a scientist but I have got
8 common sense.

9 CHAIRMAN WELTY: We have made it a contin-
10 gency that the remediation be effective and certain-
11 ly a part of that, I would say, would be taking
12 care of the barrels of dioxin that are on site. I
13 don't know if any of the other consultants want to
14 comment on that.

15 DR. STOLINE: We decided this morning in
16 our discussions that the criteria, that establish-
17 ing the criteria for habitability would depend upon
18 the completion of remediated work such as cleaning
19 up the sewers, cleaning up the creek and proper
20 management and operation of the plant. Neverthe-
21 less, the criteria would only---it was my under-
22 standing of our discussion this morning, it would
23 only be looked at after all of those remedial things
had been done.

1 MS. HALE: Could I ask a question of the
2 EPA on the standards? What are we going to do
3 with the barrels if there is a remediation program
4 in effect?

5 MR. BROWN: I can answer that. We intend
6 to do something with those barrels. We also
7 intend to do something with the excavation that we
8 take out of the creeks and sewers, the sediment and
9 we estimate right now that there are about 10,000
10 to 20,000 cubic yards of material to be excavated
11 from the sewers and be excavated from the creeks
12 and taken out of the sewers which is quite a lot
13 larger volume than what is in these drums right
14 now and we would like to take care of all of that
15 in one swoop. We would like to get right after
16 that, whether that is at the same place where the
17 canal is or at a secure land burial facility, that
18 decision hasn't been made yet and the public will
19 be involved in that.

20 MS. HALE: But what I am wondering is
21 that, you know, to EPA also, the DEC has been
22 sitting on the decision so I am assuming that up
23 till now it is in the federal hands because the
DEC has been sitting on it for quite some time.

MR. BROWN: No, that is not true.

1 MS. HALE: I mean, if that is true, they
2 have been sitting on it for quite some time. We
3 were asking for an answer of what was going to
4 happen to those barrels and we have yet in writing,
5 after we submitted it in writing, we haven't yet
6 got an answer one way or the other. We do know
7 that there were four ways of taking care of those
8 drums, one is in large containers in Love Canal,
9 one is small containers in Love Canal, one is in
10 large containers in CECOS and one is in small con-
11 tainers in CECOS and then, of course, we have the
12 forty foot tank which is now being decontaminated.
13 So, what are we going to do with that? I would like
14 to hear EPA on this thing.

15 MR. BROWN: Let me just say that the tank
16 is a separate issue but we are working together.
17 We are working in trying to get the costs from
18 CECOS and if it's possible to dispose of these at
19 the land burial facility and estimated costs, and
20 see if it is feasible to dispose of them at Love
21 Canal. We have to do a preliminary feasibility
22 study before we can get funding from EPA.

23 MS. HALE: Is it because the tank belongs

to Sabaston? Is that why it is a separate issue?

1 MR. BROWN: Yes and because it's decon-
2 taminated. The tank is decontaminated.

3 MS. HALE: How was that done? What is
4 the procedure?

5 MR. BROWN: The tank, the material was
6 taken out of the tank, all the sediment and all
7 that in the bottom and the water and stuff and the
8 tank was washed out with a high pressure, high
9 temperature wash using detergent the same way that
10 the other equipment on site that had become
11 contaminated was decontaminated.

12 UNIDENTIFIED VOICE: Let me ask one thing.
13 How about that large drain and ditch alongside the
14 canal? Where is that going into, the city sewers?

15 MR. BROWN: Into the storm system.

16 UNIDENTIFIED VOICE: The storm system.

17 MR. BROWN: Yes.

18 UNIDENTIFIED VOICE: I mean, that is coming
19 all along that tract up there and are they
20 monitoring that or---

21 MR. BROWN: That hasn't been monitored
22 and I will tell you why too. There is a synthetic
23 top, there is an earth fill and a top that is

1 a synthetic cover and on top of that there is more
2 earth fill and any rain water that comes off and
3 goes into the drainage ditch, if that isn't clean,
4 I don't know what is.

5 UNIDENTIFIED VOICE: Well, that is tied
6 directly into the storm sewer. I mean, I don't
7 know.

8 Here's another one. Let me ask this:
9 Concrete pipe 36 inch water main, is it possible
10 for penetration to that pipe of concrete pipe?
11 Is it possible that chemicals could penetrate that?
12 Is it possible or isn't it? I don't know. That
13 runs in front of me, the 36 inch water main concrete.
14 I have asked and nobody seems to know an answer to
15 that.

16 MR. BROWN: Is there any evidence of
17 contamination of the water supply?

18 UNIDENTIFIED VOICE: No, not really but I
19 was just---is it possible for penetration, I mean
20 through the concrete, you know, or at the joints?

21 DR. POHLAND: Well, joints can loosen up
22 and you can have leakage but remember that water
23 mains are under pressure.

UNIDENTIFIED VOICE: I brought that up at

1 a meeting and I never went to another one. They
2 told me that it's under pressure. Well, I knew
3 that it wasn't under pressure for at least a year
4 or more.

4 DR. POHLAND: The whole water main?

5 UNIDENTIFIED VOICE: Yes. I know that.

6 DR. POHLAND: No water came out of the
7 pipe?

8 UNIDENTIFIED VOICE: That is right. That
9 was shut off and I don't know if it is on now or
10 not. I'm talking back a few years and this runs
11 directly through Colvin Boulevard, right across the
12 canal.

13 DR. POHLAND: Of course, I don't know
14 what the circumstances are but usually if there is
15 going to be any leakage, it will leak out rather
16 than in.

17 UNIDENTIFIED VOICE: If it's under
18 pressure.

19 DR. POHLAND: Yes.

20 UNIDENTIFIED VOICE: Thank you.

21 You can't penetrate a concrete pipe.

22 DR. POHLAND: Well, the pipes are usually
23 manufactured to hold the water inside the pipes so

it would prohibit leakage unless it was cracked.

1 MS. GABALSKI: Does anybody else have any
2 other responses to Joanne's question?

3 MR. PITRUZZELLO: No. The only thing I
4 can tell you, Joanne, is when the DEC comes up with
5 their remedial options for disposal, that was just
6 discussed with the EPA and we don't know what the
7 options will be and when the decision will be made.

8 UNIDENTIFIED VOICE: Would the dioxin task
9 force have any decision on this? I understand there
10 is a federal dioxin task force who is supposed to
11 be made up of a group of individual scientists.

12 MR. PITRUZZELLO: I would guess. I don't
13 know if there has been a decision on it.

14 UNIDENTIFIED VOICE: But they are EPA
15 scientists, correct?

16 MR. PITRUZZELLO: Yes.

17 UNIDENTIFIED VOICE: Dr. Huffaker, my ques-
18 tion to you is, I saw you putting your hand on the
19 map over there and you was naming off houses where
20 you were going to put a neighborhood, right? I
21 didn't see you. I hope I didn't misunderstand you.
22 I didn't see you name off anything where LaSalle
23 would be included in there, you know, like the

1 houses on 91st and so forth and so on but you can't
2 do that. You know, we have been fighting all the
3 time. Don't leave LaSalle out. LaSalle was left
4 out in the beginning and please don't do it now.

5 DR. HUFFAKER: What I was doing over
6 there, you misunderstood. They were doing a check.

7 UNIDENTIFIED VOICE: I am sorry if I did
8 misunderstand you but I wanted to be sure that I
9 heard you right and see you right today.

10 DR. HUFFAKER: Okay. They were doing a
11 checkerboard and saying what if we came up with
12 these patterns and I was bothered a little bit by
13 that because of the way the map lies or the houses
14 on the map, they won't checkerboard in most cases.
15 They are really odd shaped things and I was point-
16 ing out down on 93rd Street and probably one com-
17 munity there in LaSalle would be another one, the
18 retirement community and so forth, still that there
19 was this problem.

20 UNIDENTIFIED VOICE: But all I am asking
21 is, I have asked this over and over, put a little
22 dot where I can see and if nobody wants to see,
23 I want to see it.

DR. HUFFAKER: Okay. I apologize. I am

not doing the defining of the neighborhoods.

1 Dr. Miller and Dr. Fowlkes are doing this, but I
2 was bothered about a different matter and that was
3 that you can't do it quite this way, that there are
4 other boundaries that have to be considered in it
5 and in the OTA report, if you recall, that they
6 talked about making a piecemeal part of that that
7 perhaps could be considered first for rehabilitation,
8 things like that, and I pointed out some of this is
9 a long ways from the canal and probably sources of
10 contamination and that was the message I was trying
11 to give. Dr. Miller and Dr. Fowlkes tomorrow will
12 be looking at these areas to decide whether it
13 should be checkerboarded or gerrymandered or in
14 whatever fashion.

15 UNIDENTIFIED VOICE: But don't leave a
16 neighborhood all by itself because that is right
17 in the Love Canal, okay.

18 MS. GABALSKI: Sister Margeen.

19 SISTER MARGEEN HOFFMANN: I had my ques-
20 tion written before your discussion and it may have
21 been answered. Will your final set of recommended
22 criteria be presented to the public here in this
23 setting with the scientific committee present and

1 by that I trust that you will be here at least one
2 more time and not have a contractor such as
3 CH₂M Hill or otherwise draw together or draw up the
4 set of recommendations or the criteria and that you
5 will present it to the public so that it will be
6 clear and there will be a consensus what the
7 criteria means, and if there is a question, that
8 individuals could question individual scientists
9 on the meaning so that it is clear that we have
10 some consensus on this.

11 CHAIRMAN WELTY: That is our intention.
12 We can't guarantee consensus, though, with all the
13 people here. I want you to be clear on that, that
14 each individual scientist may not agree with the
15 document as written but he or she will have an
16 opportunity to then append statements where there
17 is disagreement or they have other concerns.

18 SISTER MARGEEN HOFFMANN: You mean you
19 will have like minority reports or---

20 CHAIRMAN WELTY: I don't know what you
21 mean.

22 SISTER MARGEEN HOFFMANN: I guess I under-
23 stood that this committee---

DR. SIPES: We are not really a committee.

1 CHAIRMAN WELTY: We are hired individual
2 scientists and there is no guarantee that all of
3 the individual scientists will agree on one single
4 habitability criteria. There is a hope that that
5 can be achieved but the possibility exists that
6 there will be opinions that cannot be reflected in
7 one single document, in which case there will be
8 the opportunity for each individual consultant to
9 append his or her opinions on various parts of the
10 criteria.

11 SISTER MARGEEN HOFFMANN: Well, I guess
12 it's understandable that the community---why the
13 community wants to know on this opinion. Sometimes
14 it appears that the community is urged to come to
15 consensus and agree and why are we so recalcitrant
16 but I guess that is fair. What is good for the
17 goose is good for the gander.

18 MS. GABALSKI: Nunzio. Oh, I'm sorry.

19 UNIDENTIFIED VOICE: I just wanted to ask
20 if this is going to be a kind of a majority rules
21 type thing where, you know, if the criteria meets
22 a certain percentage and the rest don't like it,
23 will it be the majority of the thing and that is
how it's going to be done? Would you like a show

of hands?

1 CHAIRMAN WELTY: We are going to ask for
2 the consultants' opinion and then ultimately it's
3 the responsibility of the health agencies involved
4 to draw up, taking into account all of those sug-
5 gestions, the best possible criteria for habit-
6 ability and I can't say at this time that it will
7 be the majority rules or if one particular consul-
8 tant has what seems to be a very pertinent point.
9 That would then be the best way to write the
10 criteria.

11 UNIDENTIFIED VOICE: It would all go
12 back to Dr. David Axelrod then.

13 CHAIRMAN WELTY: Do you have any other
14 thoughts about how this process would work?

15 DR. HUFFAKER: Well, when we finish what
16 we are scheduling here and exchange documents and
17 so on, I hope we are pretty close to the final
18 document and you will be seeing those drafts as
19 they come through the same as you have the rest of
20 them. They will show in the distribution and then
21 when we finally reach something we hope is final,
22 the peer review process that we have talked about
23 earlier where it would go out to a group that is

1 completely divorced from us and one of the things
2 that has been suggested is the National Academy of
3 Sciences which is more than an arm's length, these
4 are people not involved whatever, don't work with
5 them and so forth and they will review this again.
6 There will be an opportunity, whoever does the
7 peer review, for you people to nominate people,
8 whoever it happens to be, to serve in the peer
9 review process and whoever does the peer review, it
10 will be up to them how they accept the people or
11 what is done and this is not within our control but
12 I think the point is that thereafter several layers
13 of information and a check on what is done here
14 before anything happens and then finally it comes
15 back and the last decision will be Dr. Axelrod who
16 has the legal responsibility for how it is handled.

17 DR. STOLINE: It would be my feeling,
18 just to interject another idea in this, that we are
19 certainly trying for a consensus of opinion here.
20 We probably won't get it on all points and I, as
21 one consultant, would welcome any alternative ideas
22 attached to the majority report as just an attach-
23 ment or an amendment or whatever and I welcome that
from anybody and if I have some other idea that I

1 would like to express, I would hope that it could
2 be attached to and forwarded to the people that are
3 peer reviewing our work before a final decision is
4 made because we are, quite frankly, dealing with
5 some issues here that haven't been dealt with
6 before. So, there may well be some areas that we
7 are not totally in agreement on and I think we
8 would maybe welcome the peer review process to take
9 a look at all of the evidence but we are, at least
10 I feel we are all striving for some sort of a
11 majority consensus on as much of this as we possibly
12 can and I feel like we are all working toward that.
13 I don't feel there is anyone here that isn't work-
14 ing toward that.

15 REV. DYER: How long is Commissioner
16 Axelrod going to be in office? Will he still be in
17 office by the time we get ready to get all of this
18 thing finished? I mean, if you are going to make
19 the decision and he is not going to be in office
20 then---

21 CHAIRMAN WELTY: There will be a commis-
22 sioner of New York State, whoever that person may
23 be is the one who will make the decision that we
are talking about.

1 MR. LAVERDI: I just wanted to say again
2 the importance of the fairness with the groups that
3 we have working in the Love Canal that has been
4 through the years, for the many years, that your
5 reputations are at stake here and remember that
6 and by being fair to all the groups in the area,
7 by notifying us and giving us enough time to, you
8 know, such as this last business about the scien-
9 tists saying, it would be much appreciated and I
10 have seen you sit here and work hard these long
11 days ever since this morning and I just want you to
12 know that as a resident I appreciate it and I
13 appreciate what you are doing and just for your own
14 sakes, your credibility here is at stake and that
15 you show all fairness with the concerned groups
16 that are fighting in the area to see to it that
17 there is a unbiased decision made here on the
18 habitability of that area. Thank you.

19 MS. GABALSKI: Sam Giarrizo.

20 MR. GIARRIZO: I will make this brief and
21 short because you have got to get out of here by
22 4 o'clock. My question is this: Are you going to
23 make your credibility biased or not, because this
not only affects me, it affects the people in the

1 neighborhood that live there. It affects the
2 people that lived there before and moved out and
3 their children and grandchildren.

4 Right now the kids are getting married.
5 They are of age. They don't know if they should
6 have children or they should not. They don't know
7 if they shouldn't have children. Do you know
8 what it feels for a woman to go through when she
9 is pregnant and going to have a child, to top it
10 off with uncertainty about the area she lived in
11 in the Love Canal, was it safe or not? That is
12 the question that we want answers from your panel
13 and whoever reviews your panel. That is all I got
14 to say. If it is going to be a fair and unbiased
15 opinion so that we can sit and relax and we will
16 go on with the future knowing where we stand.
17 That is all.

18 CHAIRMAN WELTY: We are going to make
19 every effort to give you, as a community, a fair
20 and unbiased decision on habitability. That is why
21 we have been making the effort to come up here and
22 I think every one of the consultants that we have
23 hired as well as the state and federal people are
working very hard to give you the answer to that,

1 that you have requested, and I hope, I will ask
2 you to have confidence in us and in our ability to
3 do this.

4 UNIDENTIFIED VOICE: But like you said,
5 the people have been waiting for a long time. We
6 waited six years and the people in the adjoining
7 neighborhoods have waited six years and we still
8 don't know what is going on. So, what are we going
9 to do, wait another four or five years and then have
10 another study? In the meantime, Joe Schmitt over
11 here gets married and she doesn't know what to do.
12 She doesn't know how her child is going to turn out.
13 She worries herself sick that she is going to have
14 a deformed child and why, because there is indeci-
15 sion and we haven't got no answers yet.

16 Sure, 25 years down the road you worry
17 about the guy that is going to dig up this barrel.
18 Someone made a statement on that. You worry about
19 him. Well, how about worrying about us today.
20 Twenty-five years down the road, I might not even
21 be living. So, I don't care about the guy 25 years
22 down the road. I'm worried about me today and the
23 kids that grew up in that neighborhood. I am not
only fighting for me, I am fighting for everybody

1 else that lived in the neighborhood, whether they
2 are still there or they moved out or they intend
3 to move out. That is the basic question on habit-
4 ability out there. It isn't how much this is going
5 to be compared to that neighborhood or this com-
6 pared to that neighborhood. We want to know exact-
7 ly where our neighborhood is and I will say how
8 safe we are in our neighborhood and that is what
9 it boils down to. Are we safe or aren't we safe.
10 Do we have to worry about something in the future?
11 If we have to worry about something in the future,
12 we weren't safe and what do we do to remedy that
13 effect that we are going to inherit from the canal.
14 Do we take medicine or what? That is what the
15 questions are. If you can come up and say yes or
16 no but we want to know what we got to do one way or
17 the other.

17 CHAIRMAN WELTY: Any more questions?

18 MS. GABALSKI: Any comments?

19 SISTER MARGEEN HOFFMANN: I would like to
20 make a comment. With Sam, I agree with Sam and I
21 talked about that and we are talking about real
22 people and I have used fictitious names but we are
23 talking about real people and we have had some

1 children born just this past couple of months to
2 women who lived in Love Canal and I am thinking of
3 one in particular who was 16 when I met her six
4 years ago, had a child and things seem to be fine
5 and then that child, she had to be flown to the
6 hospital because the child wasn't breathing and it
7 is very difficult to do that, counseling over the
8 telephone with that grandmother saying so and so
9 is really upset and she said to me, you know,
10 Mama, it's a Love Canal baby and that. That really
11 takes a toll on people. The second one we have
12 had like that to my knowledge and I guess that is
13 what Sam is saying and we are talking about, you
14 know, those people, he is saying not just for
15 himself but for those people that are going to
16 have children and we are concerned about people
17 and those are the kinds of questions and I think
18 he put it beautifully, that is exactly what the
19 real concerns are and so on, how can the people
20 take care of that. That is a concern and I just
21 wanted to have you think about that because they
22 are real people involved with thinking about that.
23 They come to my office and the picture of the baby
up on my mantel, that is what keeps me doing what

1 I am doing, because those are real people out there
2 and it's a month old baby out there that we are
3 doing this for and a 22 year old mother. Okay.

4 CHAIRMAN WELTY: I think you have to
5 appreciate that the same factors are motivating
6 the people that are sitting up here as well.

7 SISTER MARGEEN HOFFMANN: I am saying that.
8 I am just thinking about that. We are doing this
9 together and I realize that and I am saying that.

10 CHAIRMAN WELTY: The issue of habitability
11 should incorporate the concerns that you have
12 raised in terms of the criteria that we develop
13 and if the area is determined to be habitable, the
14 risk of those kinds of problems would not be
15 excessive in the area and in other words, we wouldn't
16 say that the EDA was habitable if there was suf-
17 ficient or is sufficient chemicals there that would
18 cause those kinds of problems. So, we are as
19 concerned about that as you are.

20 MR. LAVERDI: As a resident myself that
21 lived there, I resent the fact that people that
22 come into our area and state like Sister Margeen
23 has and it is completely misleading. There is no
facts to back up what she said. There is no

1 evidence to back up what she said and that is what
2 I have been trying to get to you. We are not going
3 to know anything about the habitability until you
4 scientists sit down and discuss this all with all
5 the information that you have had and then you come
6 up with each individual conclusion of this. Maybe
7 some of you will agree with each other and maybe
8 some of you won't, but me as a resident who lives
9 in the area, who is fighting this Love Canal issue,
10 I resent the fact that people come to Love Canal
11 understanding and speaking of cancer, people dying
12 and everything and we still haven't one substanti-
13 ated fact that will back that up. This is interest-
14 ing to the people of Love Canal.

15 So, I hate to interrupt you, Sister, but
16 from now when I come in to these meetings as a
17 citizen and as a person who lives in the Love Canal
18 fighting for the revitalization, if it is possible,
19 if the scientists say it is possible, I resent the
20 fact that people come before these scientists with
21 evidence that is completely irrelevant and I am
22 going to speak up at the meetings each time some-
23 body comes in with that because the only way we're
going to get the study here done is with facts and

1 I don't think these scientists work with anything
2 but facts.

3 CHAIRMAN WELTY: Thank you. We are going
4 to have to close it off now.

5 UNIDENTIFIED VOICE: Well, I want to say
6 something now. I think I'm on that list. Some of
7 the previous speakers spoke about your report or
8 your decision but I would like to say, don't let
9 somebody interpret it for you because that is what
10 happened last time. Now, I happen to know at the
11 meeting at the Hilton last time when they had one
12 meeting at the city hall and the next day at the
13 Hilton and it was a different story at the Hilton
14 than when they had the meeting for the legislators.
15 They said, well, there was some minor disagreement
16 among the scientists but eight out of ten were in
17 agreement with the rehabilitation which was a lie
18 and Congressman LaFalce, right after that, he
19 denounced that and I don't think any of these
20 gentlemen were with that group but Dr. Degan was.
21 I think that is the reason you are here today.
22 So, they can quote you verbatim. Don't let some-
23 body else interpret the work for you.

MS. GABALSKI: Mr. Steele is at the last

of the list and wanted to speak on behalf of the
1 Renters Association.

2 MR. STEELE: Is that possible? Thank you,
3 very much. I just wanted to first correct the
4 record. I misspoke when I indicated that my client
5 hadn't been told about the visit tomorrow. I have
6 been out of town Monday and Tuesday of this week
7 and I learned after I misspoke myself that they
8 hadn't been contacted by the two scientists and I
9 wanted to let the record show that the Love Canal
10 Renters Association had in fact been contacted
11 yesterday, I believe.

12 With respect to the format of the final
13 report or the final procedure, the Renters Associa-
14 tion would like to join the Ecumenical Task Force
15 in suggesting that there be a public and evening
16 presentation of the report and its views and that
17 the people who prepared the report or the habit-
18 ability recommendations be available to explain the
19 suggestions that they made and to answer any ques-
20 tions from the community.

21 Secondly, with respect to the format, I
22 think it would be important for the people who
23 write the report to, A, provide an opportunity for

1 all the scientists who may disagree, to insert
2 whatever thoughts they wished to have inserted and,
3 B, to go back and to recall the record and look
4 at what the different scientists may have said and
5 to the extent that a particular point of view did
6 not become a part of the final report, to explain
7 why the consensus was that it should not be so.

8 Secondly, in that kind of procedure, I
9 would like to request that the report include a
10 responsiveness summary to the concerns that have
11 been raised during each of the public comment
12 sessions, perhaps the Public Information Office
13 would be a good way or good office to review the
14 public session of each meeting and to cull from
15 those sessions the particular concerns expressed
16 and then present that list of concerns to the
17 report writers so that those people could respond
18 to the concerns in the final draft document.

19 I wanted to continue with a couple of the
20 concerns that I wanted to that I didn't get a chance
21 to raise in the morning session and point to page
22 10 of the third criteria draft and this is a con-
23 cern that would be common to several areas. When
we talk about remediation, that seems to me to be a

1 term that is too general and perhaps we should
2 specify when we say that remediation should be done,
3 that we should specify what that remediation should
4 be and what that remediation should include and
5 at what point should things be remediated to.

6 I also wanted to raise the issue of
7 Dr. Silbergeld's concern with the comparative
8 approach. She didn't raise it thoroughly in her
9 note and I am a little confused by it and would ask
10 that that issue be addressed and discussed. I
11 would like to understand what her concern was so I
12 can evaluate it and think about it and I would ask
13 that that document that you present deal with that
14 concern explicitly. She also talked about several
15 issues back or several comments back. She also
16 talked about certain kinds of health tests that
17 could be done, certain kinds of follow-up monitor-
18 ing studies in addition to those suggested in the
19 third draft working paper and I would encourage the
20 final paper to include a commitment to do those
21 kinds of follow-up studies.

22 On page 10 the statement reads, and I also
23 find it in Dr. Stoline's report or his contribution,
the statement that the other Love Canal chemicals

1 are much less toxic and the levels in the low parts
2 per billion are generally considered to be accept-
3 able and one to be considered acceptable in resi-
4 dential soils. I mean, if such a statement does
5 appear in the final report, it must be justified
6 in terms of scientific literature. As such, it's
7 a very important statement and it surely deserves
8 to be proven and demonstrated.

9 I wanted to encourage the discussion about
10 what to do with ground water and what to do with
11 the comparative levels. I guess that is still
12 being discussed. I don't yet have a sense of
13 whether people are saying any significant difference
14 between the Love Canal and the control group is to
15 mean that something is going to be unacceptable or
16 not habitable. I still don't understand yet what
17 decision rule the committee has set forth in terms
18 of what is or is not acceptable and that is some-
19 thing that is very important and I guess still
20 remains to be done.

21 There was a comment by Dr. Sipes about the
22 ground water monitoring indicator chemicals. Now,
23 a long time ago Dr. Pohland asked for the ground
water sampling results with the shallow monitoring

wells. We have asked for that information as well.
1 That is being done on a continuing basis. To date,
2 I guess that information is yet to be provided and
3 to the extent that the DEC is doing ongoing sampling
4 in shallow wells, perhaps they could give that
5 information to Dr. Sipes so that he could get a
6 sense of the extent to which the DEC's monitoring
7 program has identified chemicals that should be used
8 as appropriate ones for markers.

9 On page 14, given the existence of Love
10 Canal as an inactive hazardous waste depository,
11 the scientists and experts generally agree that
12 the overall engineering plan to accommodate the
13 environmental concerns is applicable and acceptable
14 provided that the effective operation and maintenance
15 are assured. I don't yet understand it. I guess
16 I join Joanne Hale, I don't understand what the
17 state and federal governments propose to be the
18 final engineering plan and consequently I don't
19 yet understand why it is or is not appropriate.
20 It seemed to me that we have to have in this area
21 especially firm decision rules and hard, objective
22 criteria about what remediation means and about
23 what constitutes an environmental and acceptable

1 engineering plan. What we have is a broad general-
2 ity that to date, so far, would seem to me to fall
3 short of what we should insist on.

4 On page 15, recommended to insure adequate
5 remediation analysis, point 1, analysis of shallow
6 ground water using an approved sampling protocol.
7 It's very important to my client that you people
8 evaluate a protocol that is suggested because we
9 are not going to be comfortable unless a protocol
10 that is used has your stamp of approval. So, that
11 is another area that we would like to have some
12 objective, firm, measurable goals.

13 Also the treatment plant operation, clearly
14 that is important, point 4, periodic reports. That
15 should be better flushed out, how often, what should
16 they contain. I would like to see this document
17 be as specific as possible to make sure that the
18 kind of specific things that you people are talking
19 about aren't forgotten as time goes on because you
20 people have invested too much time and energy and
21 effort for the knowledge here to be lost and not
22 kept track of.

23 Point 16, the health studies. In the
past the health studies have not adequately assured

1 that the renters in this area have been part of
2 them. I would like to ask that you people make
3 sure that the renters as well as home owners be
4 followed up in whatever health studies that you
5 people think are important to insist on.

6 On page 17, the QA/QC of the environmental
7 data says, any environmental data used in making
8 habitability criteria should meet the minimum
9 requirements for QA/QC as determined by the Love
10 Canal QA/QC study group. I think it's probably
11 important that you people specify what exactly you
12 would require. In particular, what is the Love
13 Canal QA/QC study group requiring? Is that suffi-
14 cient? Do you people agree? This would give us
15 a handle on what we should hope for and anticipate
16 in the future.

17 I apologize for going beyond your time and
18 I hope you will excuse me. Thank you, very much.

19 CHAIRMAN WELTY: I don't think we have time
20 to respond to all of your comments now but we will
21 take them into consideration. I would just like to
22 mention that the last point that you raise is
23 beyond the scope of this particular group in terms
of looking at the QA/QC criteria. That is a whole

1 other group that is looking at that and that
2 particular process will be peer reviewed. So, I
3 think that our group is focusing in on habitability
4 and the QA/QC issue is a separate question.
5 Thank you.

6 (Whereupon, the above proceedings
7 were adjourned.)
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23