

*K. Kalayian*

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.

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11 MINUTES OF MEETING held at the Airport

12 Holiday Inn, Buffalo, New York, on Wednesday, March 14,  
13 1984, commencing at 1:30 P.M.

14 CHAIRMAN: ROBERT HUFFAKER, Ph.D.

15 PANEL MEMBERS:

- 16 PAUL WIESNER, Ph.D.
- 17 DEYRA LEE DAVIS, Ph.D.
- 18 THOMAS CHALMERS, Ph.D.
- 19 MARTHA R. FOWLER, Ph.D.
- 20 PATRICIA MILLER, Ph.D.
- 21 FREDERICK G. POHLAND, Ph.D.
- 22 I. GLENN SIPES, Ph.D.
- 23 WARREN WINKELSTEIN, Ph.D.
- JAN A. STOLWIJK, Ph.D.
- THOMAS WELTY, Ph.D.
- DANIEL VANDERMEER, Ph.D.

1 DR. HUFFAKER: May I have your  
2 attention, please? First, we will be recording  
3 the proceeding this afternoon and the court  
4 reporter is here and I would ask that you please  
5 identify yourself until he gets the names,  
6 especially those people in the audience when it  
7 comes time for those to make comments. We would  
8 like as much identification as possible.

9 DR. WIESNER: I think there was some  
10 interest in going around the table and identifying  
11 who we are here and where we are from.

12 (Whereupon the participating consultants  
13 identified themselves and a general conversation  
14 concerning an adjourned date of the above  
15 proceedings ensued.)

16 DR. WIESNER: Now, with regard to the  
17 issue of what we are all about and I thought at  
18 least I would try to articulate that and then  
19 see if there are things that need to be clarified  
20 after saying it.

21 As Dan Vandermeer summarized this  
22 morning, there is a technical review committee  
23 comprised of representation from CDC, New York  
State Health Department, New York State Department

of Environmental Conservation and the USCPA.  
1 One of the tasks of that technical review  
2 committee is to address the issue of habitability  
3 of Love Canal. The health component of that  
4 technical review committee in the person of the  
5 New York State Health Department and CDC have  
6 asked you to come and give us some advice on  
7 that issue as individual experts.

8 Now, there are some requirements in  
9 our federal legislation that makes me say that  
10 specifically, that we are not here developing  
11 a consensus in a group. We are getting  
12 individual expert advice and that provides you  
13 with an opportunity to state your advice. I  
14 think some of the problem we were having in the  
15 beginning starting to talk about this is what  
16 is the kind of advice that we want or where do  
17 we feel the need is and that is not to limit you  
18 in terms of the arena or the scope of the advice  
19 that you will give us but the need that we  
20 felt was a commentary and your scientific  
21 judgment about what is the best strategy for  
22 approaching the problem of habitability in Love  
23 Canal and I think I want to say in Love Canal

1 because we are not under the exercise of  
2 establishing broad criteria or principles to  
3 be applied in every circumstance. Future groups  
4 or future interested parties may choose to use  
5 this exercise if they want to but as it applies  
6 to trying to solve the problem or address the  
7 question of habitability in Love Canal.

8 Now, I have avoided using the words  
9 "standards, criteria" et cetera because I think  
10 there is a preliminary step to that and that is  
11 the approach or the strategy and that is what  
12 we tried to describe in the materials that were  
13 sent to you beforehand and it's within the  
14 realm of possibility that any individual expert  
15 may advise this group that there is just no  
16 strategy that should be taken, there is nothing  
17 that can be done and that is a legitimate point  
18 of view. It's not one that is productive from  
19 the point of view of the agencies having to try  
20 to assist this community in solving this problem  
21 and then there are several other strategies that  
22 we identified in the paper that was sent to you  
23 before this meeting and it's that first step that  
we would like to get started on.

1 I can see from our discussions just  
2 informally so far that there is a question in  
3 some of our minds whether you can even address  
4 that step without having all the existing past  
5 data arrayed and organized and I think we have,  
6 at least I would like to put on the table, the  
7 question of should we try to have all of the  
8 past data arrayed and organized so you can decide  
9 the strategy or is it better to decide a  
10 strategy so you can determine how to array the  
11 data and organize it for future consideration.

12 Now, does that help at all in terms  
13 of what we see as a general charge of this  
14 group?

15 DR. STOLWIJK: Could I ask a question?  
16 I fear that in the general description of the  
17 problem, the word "habitability" is now being  
18 used a lot and "habitability" by itself means  
19 a number of different things that can be used  
20 in a number of different connotations. It would  
21 perhaps be useful to this panel to have it  
22 explained to it what a finding of habitability  
23 would entail and what the sort of logical  
consequences would be of a finding of

1 non-habitability. In other words, what are  
2 the consequences of such a finding. You can  
3 condemn a house as a safety hazard which is one  
4 way of looking at habitability but I think we  
5 are dealing here with something that has special  
6 connotations in this particular setting that  
7 isn't normally associated with the word  
8 habitability and perhaps the legal or other  
9 consequences of a pronouncement would be useful  
10 to have the panel enlightened about, what the  
11 consequences would be.

11 DR. WIESNER: Okay. I am not so sure  
12 I can respond to that without beginning by saying  
13 that I think it would be an important first step  
14 of individuals commenting on this to say what  
15 they are talking about habitability. We have  
16 been around and around on this quite a bit and  
17 there is a lot more ease in saying what is not  
18 habitable as compared to what is habitable.

19 DR. STOLWIJK: That is why I am asking  
20 the question, what will be the consequences of  
21 habitability.

22 DR. WIESNER: I think actually those  
23 consequences will devolve not only in the health

1 area but might devolve in the legal area and  
2 in the economic area. So, I could speak -- I  
3 can only speak to the health area. I don't  
4 know if someone else here can speak to the  
5 other and that would be to say if we were  
6 convinced, that the health perspective was  
7 convinced that there was a risk, a health risk  
8 related to inhabiting this EDA area, then the  
9 consequences would be to recommend avoiding that  
10 risk. That is, I think that is a consequence.

11 Now, with regard to other people who  
12 have got more experience with this, they may  
13 want to comment on the economic or legal  
14 implications. Does anybody -- somebody from the  
15 EPA or --

16 MR. OGG: I am Bob Ogg from the EPA  
17 and along this with a lot of other things I am  
18 supposed to do is to keep this project moving  
19 somewhat. I think Dr. Wiesner has put it in a  
20 good perspective but maybe I can put it in a  
21 somewhat larger framework as well.

22 When we decided to undertake the  
23 comprehensive review that was described to you  
before of the problems in this area, we have done

1 it under the statute of the Superfund Law and  
2 what we are not necessarily looking for is any  
3 limitation on your findings. So, it could be  
4 any particular use of that land would be  
5 appropriate for you to make a finding on, whether  
6 it's living there, whether it's using it, whether  
7 it's not using it for any purpose. Ultimately  
8 we would hope to fold in the findings and  
9 recommendations from the health people as to  
10 appropriate safeties or uses of properties into  
11 an engineering solution to decide whether or not  
12 that is achievable and what we are kind of doing  
13 is leaving the door wide open for any of your  
14 considerations. We will try and back you up  
15 with data if you need more data. We are  
16 proposing to array all existing data in any way  
17 that you want to see it. So, we need those  
18 practical kinds of considerations but if the  
19 idea that it's only for people to live there  
20 24 hours a day as a residential neighborhood  
21 bothers you, then set up some different framework  
22 in which to discuss this because we are not  
23 trying to close the door in any fashion on what  
the ultimate findings are.

DR. WIESNER: Okay. I didn't mean  
1 to foreclose it in that sense. Does that help  
2 at all? Tom?

DR. CHALMERS: I think it's important  
3 if we are talking about habitability, to  
4 recognize that we are dealing with a type of  
5 error that is involved and that it would be  
6 relatively easy if the data warranted it, to  
7 show that the area should never be lived in  
8 because of the irremovable toxins. It's  
9 absolutely impossible to ever prove that the  
10 area should be lived in because that is a type  
11 two error problem and unless one is going to  
12 say what is the risk that we are willing to take  
13 of being wrong and how big a risk, how big an  
14 exposure are we willing to accept, how big a  
15 difference between living somewhere else and  
16 I think everybody has to appreciate that to come  
17 to the decision that people can move back in  
18 is an impossible problem unless we set a range  
19 of increased exposure which we are willing to  
20 accept and the probability that we will be wrong  
21 in guessing that.  
22

DR. STOLWIJK: Probably the only kind  
23

of thing we can reasonably be certain of is  
1 the guarantee that concentrations of something  
2 or other would be let's say ten times one-tenth  
3 of what people had been living under previously  
4 or something ratio of that would give an  
5 indication of which direction the risk has  
6 moved. People have previously lived with and  
7 accepted, albeit unknown risk but they have  
8 experienced risks that were at some level and  
9 I think one of the things that the remedial  
10 treatment will undoubtedly produce is some  
11 reduction of these exposures to undoubtedly much  
12 less than a tenth of what they had been before.

13 DR. CHALMERS: But that is not as  
14 relevant as the comparison with the risks they  
15 might run living somewhere else assuming that  
16 they are going to be offered the opportunity of  
17 moving back, they have to know what to compare  
18 it with.

19 DR. STOLWIJK: That would be the ideal  
20 case, if you could make that comparison but I  
21 think the nature of the size of the population  
22 and the difficulties and problems in identifying  
23 appropriate control populations would probably

leave that a forever open question.

1 DR. WIESNER: I am a little confused  
2 on that. I didn't hear you talking about  
3 populations as much as the environment in which  
4 people were living.

5 DR. STOLWIJK: The exposure that that  
6 actually is -- I was talking about exposures  
7 as you will recall and I was trying to arrive at  
8 something that most people can easily understand  
9 and that is, that if you can relate it to  
10 historical perspective, what it was before and  
11 now it is one-tenth or whatever of what it had  
12 been at one time, that is something that the  
13 people can understand and relate to. One of  
14 the difficulties, one of the duties that I  
15 think we have as a panel is to not only arrive  
16 at some conclusion if that is possible but also  
17 present that conclusion in a fashion that is  
18 easily assimilated by the interested parties  
19 because if we present a finding now that it is  
20 in a public arena and we obviously have many  
21 personally concerned participants in the process.  
22 If the findings come out in a manner that does  
23 not communicate the essence of the finding to

1 those participants then we are not going to be  
2 very well accepted and we won't have done our  
3 job very well.

4 DR. WIESNER: Are there other comments?  
5 I really do want to have this. I think this is  
6 actually probably the most important step in this  
7 whole thing is trying to get some idea about what  
8 we see the charge as and what we are about.

9 DR. POHLAND: Do you feel that in view  
10 of the monitoring that was conducted after the  
11 issue of the Love Canal came up and maybe  
12 whatever data were available prior to that time,  
13 that you have a sufficient base to provide the  
14 kind of comparison that maybe you are looking  
15 for?

16 DR. WIESNER: Well, the Department of  
17 HHS made that kind of assessment and did provide  
18 that report and that report has been criticized  
19 in Congress and by OTA. We actually -- the  
20 department feels that it was a reasonable approach  
21 to it but it's had enough criticism that it's  
22 worthwhile for it to be reopened and relooked at.

23 DR. POHLAND: I would extend it a point  
further. I think the decision that may have been

1 made before was based almost solely on that  
2 information, this amalgamation of data in  
3 addition to some inference that, of course,  
4 remedial issues need to be attended to and  
5 monitoring and so forth. If we broaden it,  
6 therefore, with the notion that maybe this group  
7 can come to grips with what is an acceptable  
8 comparison level, then I as an engineer can  
9 respond to you and say, well, by looking at the  
10 proposed remedial actions and the monitoring  
11 and maintenance and so forth I can tell you  
12 whether I feel in my judgment, at least, those  
13 things are possible and if we could package it  
14 in that way, then perhaps we have something that  
15 would be a viable sort of judgment that can be  
16 accepted without this kind of uncertainty and  
17 maybe suspicion that I kind of felt was maybe  
18 connected to what has gone on before.

18 DR. DAVIS: Since the previous analyses  
19 have been made, I would like to read from the  
20 October 1980 HHS evaluation of results of the  
21 environmental chemical testings performed by  
22 the EPA, Page 4 of the text, "Full data are  
23 therefore necessarily lacking on which to base

truly complete judgment on chemical toxicity  
in the Love Canal setting."

At the bottom of that page it says  
"The first reservation is that appropriate  
measures must be taken to clean up the obvious  
contamination of local storm sewers and their  
drainage tracks. The second is the security of  
Area 11 must be reevaluated to guarantee  
permanent containment of chemicals in the dump."

In 1982 the HYS submitted a further  
evaluation which took into account the National  
Bureau of Standards Review and in that  
evaluation the National Bureau of Standards  
Review and I am quoting, "concludes that EPA  
did not adequately address the problem of limited  
detection and sensitivity in the analytical  
methods used. In the instances where EPA  
detected contamination, it is reasonable to  
conclude that chemicals were present. However,  
in the instances where EPA reports the absence  
of contamination, about 90 percent of the  
values reported, no strict quantitative  
interpretation is possible and judgments about  
the habitability of the area cannot be based on

these values."

1                   So, I would say that --

2                   DR. POHLAND: Hold it. That's not  
3 the end of it. Finish that up.

4                   DR. WIESNER: That is not the end of  
5 it. Don't stop there. No, not on that quote,  
6 there is a subsequent action.

7                   DR. DAVIS: All right, "Thus with  
8 the data now available to us, no definite  
9 recommendations or conclusions on habitability."

10                   DR. WIESNER: Maybe Dan can help you.

11                   DR. DAVIS: That is all I have here.

12                   DR. WIESNER: No, no.

13                   DR. DAVIS: That is all I received.

14                   DR. WIESNER: That is unfortunate.

15                   That is too bad.

16                   DR. DAVIS: That is all I received in the  
17 packet of materials you all provided to us.

18                   DR. POHLAND: It works towards the  
19 front and I think that the next things will  
20 address those.

21                   DR. DAVIS: Where it says "EPA assures  
22 that levels previously designated as trace or  
23 not detected are most unlikely to have exceeded

1 the value in the low parts per billion range  
2 and in no case would represent a value greater  
3 than one part per million."

4 Well, that would be fine except that  
5 we are dealing with dioxin, if we are, if I  
6 understand the statement which I am obviously,  
7 as you can see, this is not the best copy in the  
8 world.

9 DR. WIESNER: No, it is not. That  
10 is not a criticism of you at all. I think this  
11 is not the best copy and I apologize.

12 DR. DAVIS: As I understand this, it  
13 says that we are most unlikely to have exceeded  
14 values in the low parts per billion range. Well,  
15 one PPB is the action level that CDC has set for  
16 dioxin.

17 DR. WIESNER: Well, I mean, CDC has  
18 not set an action level of one part per billion.  
19 It has stated that there should be a level of  
20 concern about health effects if soil contains  
21 one part per billion in residential areas that  
22 people have access to and activity on. That is  
23 a much different statement to say that there is  
an action level of one part per billion and I

1 feel fairly protective of that because we had  
2 a panel just like this discussing that kind of  
3 issue and they cautioned us very carefully not  
4 to come out with one universal standard because  
5 there are factors of population, access and  
6 you know this better than I do.

7 DR. DAVIS: Are you saying that in  
8 areas where there are people, one part per  
9 billion would be a level of concern.

10 DR. WIESNER: That people have access  
11 to and have activity on, yes. It's a level of  
12 concern but it's not an action level.

13 DR. DAVIS: Well, I want to ask then,  
14 the National Bureau of Standards at one point  
15 provided some indication that the quality control  
16 program for this environmental monitoring had  
17 not been adequate and that there was twentyfold  
18 variation for a given sample doing split half  
19 sampling within different laboratories and I  
20 wanted to know whether there had been any later  
21 attempt to improve upon this or whether all the  
22 data that has been collected stops at a certain  
23 point and we are faced with evaluating previously  
gathered data or are additional data now being

generated.

1 DR. HUFFAKER: This is part of the EPA  
2 project, is to gather together and organize all  
3 available data and CH<sub>2</sub>N Hill is charged with  
4 evaluating the data and putting confidence levels  
5 on it, in other words and part of that, how  
6 tight it should be would be something we would  
7 hope you could give us some guidance on.

8 DR. CHALMERS: Would that data be  
9 available in the beginning of May, I mean, before  
10 the beginning of May?

11 DR. HUFFAKER: Mr. Hoffman said no.

12 MR. OGG: Well, part of the problem is  
13 we need to know how it should be made available  
14 to you. I believe what you are referring to is  
15 the decisions made in the past, were based  
16 essentially only on the EPA monitoring study  
17 and what we have perceived is there is a whole  
18 other body of information and we want to get  
19 that all together and get it ready for you. We  
20 have outlined a project schedule which, if it is  
21 appropriate, we can present it to you now. This  
22 is what our thinking is for the timing of the  
23 way this project should go.

1 DR. STOLWIJK: The other body of  
2 information was collected by the State Health  
3 Department?

4 MR. OGG: We are in the process of  
5 collecting that. We do not have it yet.

6 DR. STOLWIJK: But I mean, it was  
7 collected prior to this by the State Health  
8 Department?

9 MR. OGG: It was collected over time.  
10 The bulk of it ended in that same time period  
11 I believe. Most of the data is old but that is  
12 the question. Most of it is from that '80 time  
13 frame. Some additional studies have been done  
14 with environmental sampling. That will all be  
15 made available but the extensive work throughout  
16 the area was in that time frame that we are  
17 talking about.

18 DR. POHLAND: Well, what is the final  
19 or what is the current position on the validity  
20 of the data in terms of its overall monitoring  
21 and data evaluation and so forth? I read that  
22 document too that MES made and I am wondering  
23 whether there is a more current response to that.

MR. OGG: I am not trying to be cute at

1 all but the validity of the data depends on its  
2 use. It was my understanding that the third  
3 statement by CDC was based on a much smaller  
4 proportion. I don't know how much we threw out  
5 for that final decision. If I am inaccurate,  
6 please correct me but a large portion of it,  
7 because it was questioned, was eliminated from  
8 consideration.

9 DR. POHLAND: But the validity of data  
10 need not necessarily depend upon how you were  
11 going to use the data. I mean, there are  
12 statistical evaluations --

13 MR. OGG: I am not debating that at  
14 all. I mean, what I meant was the context in  
15 which it was used at that point was in determining  
16 how intensively we looked at it. What we are  
17 proposing now in this project is to have several  
18 steps taking place: one would be to pull  
19 together all existing data that we can lay our  
20 hands on and, two, would be to have an actual  
21 quality assurance review of all that data so  
22 that it can be presented in a more quantitative  
23 context for you and the third would be to actually  
have a peer review of all of this work which at

1 some point you should be aware of, that whatever  
2 the Department of Health and the Health and  
3 Human Services come out with, we would anticipate  
4 having another peer review take place. But,  
5 part of this process right now is to get the  
6 group to do quality assurance of the data.

7 DR. POHLAND: Do you have a time frame  
8 for that?

9 MR. OGG: Could you outline that for  
10 us? This is Steve Hoffman who I hope you all  
11 know because he is the person from our office  
12 who has either called you or has sent you the  
13 subcontract agreements and has been in contact  
14 with you in the last couple of weeks.

15 MR. HOFFMAN: Our general approach  
16 to the project has been one of being hired by the  
17 EPA to support this whole process, provide  
18 technical support whether it be collecting data,  
19 providing information to you, doing the quality  
20 assurance of the data as that is necessary. The  
21 basic outline, I think one of the things we will  
22 want to do rather quickly is send you a copy of  
23 our work plan that lays out the schedule of the  
interrelationship of all the tasks that go into

1 this entire project. It was based on the  
2 premise that the criteria for habitability,  
3 you folks would be presenting opinions on, would  
4 be developed relatively independent of the  
5 data base that exists right now, there would be  
6 a -- this is what we really ought to have to  
7 make a decision and then the data would be  
8 compared with what you thought you needed to have  
9 to make a decision and determine whether or not  
10 the data was accurate. That has been the basic  
11 thrust of the program as laid out by the TRC.

12 Now, our schedule right now calls for  
13 us to be collecting the existing data up until  
14 probably about the end of May as I recall. We  
15 would begin to put together some initial quality  
16 assurance procedures and criteria that need to  
17 be checked off and when and if we get the method  
18 by this -- this criteria by which habitability  
19 is going to be made, we would then decide what  
20 level of quality assurance was required and I  
21 think that is another area where your input would  
22 be helpful if you are going to develop or make  
23 your criteria for habitability based on a certain  
approach, then there may be different levels of

1 quality assurance on the data that needs to be,  
2 a minimal level for one approach and maybe a  
3 much greater level for another.

4 So, we are at this point in time  
5 collecting data and trying to get started on  
6 some of the other tasks but have not moved into  
7 the actual quality assurance until we know how  
8 the decision is going to be made.

9 MS. AUG: Excuse me, if I can just  
10 go back for a minute, maybe I am not hearing  
11 correctly but --

12 DR. HUFFAKER: Excuse me, can you  
13 identify yourself?

14 MS. AUG: Yes. I am Lisa Aug, the  
15 Niagara Gazette.

16 DR. HUFFAKER: Excuse me, I think we  
17 will not have interruptions at this time because  
18 I want to be sure that the individual consultants  
19 have an opportunity to discuss this. We will  
20 provide that opportunity later, okay?

21 MS. AUG: Okay. I think there is a  
22 point here that is getting --

23 DR. HUFFAKER: We will be happy to  
listen to it later, okay?

MS. AUG: Fine.

1 DR. WIESNER: Let me be sure that  
2 this area of discussion has been covered. I  
3 think there is good reason to go back and look  
4 at all of this data and look at the quality  
5 assurance and examine that and that is what this  
6 contract is set up for. I think we are back to  
7 the question I was asking, can they proceed with  
8 that without knowing the overall strategy and  
9 what kinds of comparisons are we talking about.  
10 I am hearing suggestions that someone is talking  
11 about a level and other people may be talking  
12 about comparing one area to the Love Canal area,  
13 an inhabited area to an uninhabited area.

14 DR. DAVIS: I was actually raising two  
15 questions, one was the reliability of the  
16 sampling and the other was the validity of the  
17 sampling and I have not heard about the validity  
18 of where these things were located yet. The  
19 reliability is in issue because it has been  
20 raised by several people about whether the samples  
21 were reliably gathered. The validity of the  
22 location of the sampling still concerns me,  
23 particularly in light of the fact that there was

1 not much sampling where the homes really are  
2 but the sampling always over the canal itself.  
3 There were a few wells and that was a question I  
4 tried to ask on the bus, whether they had  
5 dropped those wells in conjunction with the  
6 assumption about an isopleth or whether they  
7 had thought to try to identify a likely plume  
8 if such a thing would be moving through those  
9 different soils. Those are questions. So, I  
10 have questions about reliability and validity.

11 DR. WIESNER: I guess I would just  
12 wonder, do we need that presented before you can  
13 even talk about a strategy?

14 DR. DAVIS: I would just say that if  
15 the data, the data previous aren't good, then  
16 knowing what exists isn't going to help us  
17 very much. If we are dealing with data that  
18 aren't particularly valid or reliable, then  
19 we know we need new data.

20 DR. WINKELSTEIN: I thought we started  
21 talking about a strategy and then we got hung  
22 up on the validity of the data which is an  
23 important point but if indeed we are trying to  
today decide on some kind of a strategy, then we

1 can explore and see what we need to fortify  
2 and convince people with and so forth, then  
3 some of this -- well, by necessity now from  
4 what I hear back here, has to come sometime  
5 later on because it is quality assurance,  
6 quality control type of analysis that isn't  
7 going to start until maybe June so we really  
8 can't attend to that issue at this point but I  
9 think we can attend to what I think you started  
10 talking about and that would be a strategy to  
11 maybe get some kind of an agreement as to how  
12 we will proceed now and I have heard two  
13 different things. I have heard this gentleman  
14 saying that we should indicate what kind of data  
15 we need or what kind of data are needed to make  
16 the decision and then maybe criteria for the  
17 examination of that data and I hear you saying  
18 something a little bit different, that we should  
19 examine the situation at Love Canal and give our  
20 best advice as to how you might resolve the  
21 problem. Those are I think two different things.  
22 I am speaking from an epidemiological point of  
23 view. If I listen to you, Paul, then it seems  
to me what I need to give my, for whatever use it

1 is, advice, I need all the data that has been  
2 collected on the disease effects, the observations  
3 that have been made at the Love Canal site and  
4 the surrounding communities and I can evaluate  
5 that and say what is needed in addition to that  
6 or if I perceived according to what you said,  
7 I would sit down and outline what I thought would  
8 be necessary in order to make the decision.  
9 Those are two different things and then you could  
10 see if you have got enough data to meet those.  
11 I am unclear as to what strategy we should take  
12 but that, I think is, for me as an epidemiologist,  
13 is the question.

14 DR. HUFFAKER: The TRC made some  
15 assumptions about what you might want and maybe  
16 they are not well grounded, that would go the  
17 way Paul was talking or the way Mr. Hoffman was  
18 talking. That certainly is open. So, if you  
19 decide that is not the route you want to take,  
20 that you want the data prepared now --

21 DR. WINKELSTEIN: Which one do you want  
22 me to take? There are two different routes to  
23 take here. If I take his route then I have to  
ask you for all of the data that has been

1 collected and this is a real problem because  
2 all of us know that some has been published --  
3 very little has been published and some is not  
4 published and you have to give the epidemiologist  
5 whatever data there is. We look at it and then  
6 we can tell you what more we need. That is one  
7 way to proceed or whether it's adequate to make  
8 some advice on the basis of what we have.

9 DR. HUFFAKER: What do you want this  
10 data to look like? Do you want us to screen it  
11 before you get it?

12 DR. WINKELSTEIN: Well, that is the  
13 whole point. That is the whole problem of Love  
14 Canal. Nobody knows what exists and what  
15 doesn't exist. I mean, you know --

16 DR. WIESNER: I suppose maybe the area  
17 that I want to clarify on that comment is, are  
18 you speaking of human epidemiological data,  
19 only human?

20 DR. WINKELSTEIN: Only human, yes.

21 DR. WIESNER: Yes and I think most  
22 of our focus, most of our focus has been on the  
23 interpretation of the human risk related to the  
environmental data, not actual direct human

1 epidemiological data. There is very little  
2 human epidemiologic data that is going to help  
3 I think in making this decision.

4 DR. HUFFAKER: In the papers you  
5 received in the package, there is a publication  
6 that the Health Department has in final draft  
7 now that will be reviewed shortly and will be  
8 available to you, Nick said by June. There are  
9 two papers I believe to be submitted for  
10 publication, one by Beverly Pagan and one by  
11 Cook from Illinois I believe, a statistical  
12 critique of the EPA and those are all that I am  
13 aware of that exist, not very much.

14 DR. WIESNER: We will hand out the  
15 chromosome study that is about to be published.

16 DR. WINKELSTEIN: Well, there is a  
17 question. For example, what about the intramural  
18 documents? There must be documents in the Health  
19 Department or at CDC, the State Health Department.

20 DR. STOLWIJK: I think it might be  
21 useful once we get into that kind of question,  
22 it might be useful for the committee to have  
23 something that I think should be able to be  
provided fairly easily and that is a listing of

1 the kind of studies, published or unpublished  
2 that are actually in existence, data that are  
3 actually in existence so we can at least see  
4 what it is that we might like. You get into a  
5 Freedom of Information thing. If you don't know  
6 what there is, you don't know what to ask for.

7 DR. CHALMERS: With a little  
8 description of the dimension of the studies.

9 DR. DAVIS: Whether it's a peer review  
10 published and what is its status would be  
11 helpful but to go back to Dr. Pohland's point,  
12 he said to me that I was asking a lot of details  
13 and what about the overall strategy, do we want  
14 to in fact first flush out what data exists and  
15 then consider a strategy or --

16 DR. POHLAND: Well, the only reason I  
17 responded that way was because of what I heard  
18 back here and if we are going to meet in May,  
19 there is no way unless you all have a technique  
20 that I don't know about that you are going to  
21 wade through all that data and be prepared to  
22 really do much with it by May.

23 DR. DAVIS: I would think that in May  
we would collectively wade through the data. In

1 other words, that we would hopefully have  
2 received information between now and say April,  
3 the end of April and then in May we would then  
4 meet and share our views of what we received.  
5 I thought with respect to the epidemiology and  
6 picking up on Dr. Winkelstein, there was  
7 reference made in a 1982 report to the Legislature  
8 of an attempt to get environmental data, exposure  
9 data in those homes where pregnancy outcomes had  
10 been evaluated. Now, it's a very difficult to  
11 do environmental epidemiology and one reason is  
12 that exposure data and response data are seldom  
13 collected in the same place for reasons I don't  
14 really understand but getting dose and response in  
15 the same place is really an attractive thing to  
16 do epidemiologically and there was reference  
17 made to the fact that the state was conducting  
18 environmental monitoring in the homes where  
19 pregnancy outcomes had been evaluated. Was that  
20 done? Can it be identified? Can it be analyzed?  
21 Is that machine readable? Is that on tape,  
22 et cetera? Those questions I would like to have  
23 answers to because that is one area where human  
epidemiological data could be extremely helpful.

1 DR. HUFFAKER: I will have to look and  
2 see what is available. I don't know of any  
3 studies that have been done.

4 DR. DAVIS: If you would like, I can  
5 give you the exact place where a reference was  
6 made to it.

7 DR. HUFFAKER: I think I recall it was  
8 in one of the reports they talked about  
9 historically what areas and the swales and things  
10 of that sort and there was monitoring done in  
11 those houses both by EPA and by us but I am not  
12 aware of a study that attempted to put the two  
13 together.

14 DR. DAVIS: That was April of 1981,  
15 a report at Page 29 and it says and I will just  
16 read it if you would like --

17 DR. HUFFAKER: The '81 report?

18 DR. DAVIS: 1981, Page 29, "It has not  
19 yet been possible to correlate the geographic  
20 distribution of adverse pregnancy outcomes since  
21 1950 with direct evidence of chemical exposure  
22 as measured in 1978 and 1979. The Department's  
23 Division of Laboratories and Research is currently  
analyzing more than 3600 soil samples taken from

1 each of the 600 homes included in the pregnancy  
outcome study."

2 I hope that that analysis was done.  
3 It would be extremely useful.

4 DR. FOWLKES: Along those same lines,  
5 there has been much reference in the State  
6 Department of Health to various kinds of studies  
7 that were to have been done. I guess that is  
8 the syntax. To the best of my knowledge, they  
9 either haven't been done or been published and  
10 circulated to anyone in the audience outside of  
11 the department and it's a continual frustration  
12 to read this literature of promises of what is  
13 to come in terms of health assessment risks and  
14 epidemiological studies and I could go through  
15 that same report with the same sort of eye that  
16 Dr. Davis did for all of them with questions  
17 of what happened or what is the status of this  
18 kind of evaluation if you would like. I would  
19 identify those but that is my large question.  
20 What has happened since this summary report to  
21 bring any of these studies to completion.

22 DR. WIESNER: Let me see if I can  
23 understand it. Am I getting a sense from the

1 people here that we feel that the human  
2 epidemiologic data that does exist, no matter  
3 what form it is in, is going to be useful in  
4 making a determination about whether people ought  
5 to live in the Emergency Declaration Area.

6 DR. WINKELSTEIN: Well, I would like  
7 to comment on that. I think one of the questions  
8 that has never been answered is whether or not  
9 there were any adverse effects in the EDA, in  
10 the Emergency Disaster Area. If there were no  
11 effects in the past, I think it does have  
12 something to say about how you make a decision  
13 in the future. If there were effects in the  
14 past, I think that obviously has put another  
15 dimension on it. If there were no adverse health  
16 effects, then perhaps it's easier to come to a  
17 decision.

18 That seems awfully simplistic and yet  
19 it seems to me to be critical.

20 DR. MILLER: What you get is the half  
21 effect of where there is something that is sort  
22 of marginally significant but then it is  
23 explained away as essentially meaningless. So,  
you don't know. It kind of gives you an effect,

on the one hand and takes it back on the other.

1 DR. STOLWIJK: I think it's the fate  
2 of the kind of study that is possible in these  
3 isolated areas of relatively small numbers of  
4 people, that they lack the power to actually  
5 make very clear pronouncements. Typically you  
6 will end up with things that don't appear to  
7 be statistically significant or are not  
8 statistically significant. That doesn't prove  
9 either of two possible interpretations, one is  
10 that there is a small effect there but you cannot  
11 demonstrate it because the numbers are not  
12 sufficient to allow for statistical discrimination.  
13 The other is that there is no effect. That is  
14 another possible thing. The only possible  
15 conclusion that you can come to is you can set  
16 an upper boundary. If there is an effect, it  
17 certainly is less than some kind of risk ratio  
18 as compared to other situations.

19 I agree that in general epidemiological  
20 information will have only secondary usefulness  
21 in this kind of a setting. What you will end up  
22 with is a usefulness that says -- excludes very  
23 severe effects, excludes those because they would

1 have shown up. You cannot exclude a minor  
2 effect but if the effect is minor and you then  
3 simultaneously are able to demonstrate that  
4 current exposures or future exposures would be  
5 one-tenth or one-hundredth of what they were in  
6 the past, you might arrive at a constellation  
7 that collectively leads to some kind of  
8 ascertainment that something is possible to be  
9 done here. I think that is what there is, a  
10 combination of those two things.

11 DR. WIESNER: I think that is exactly  
12 the way we have seen it and I think we can  
13 probably close out this part of the discussion  
14 by saying both the State Health Department and  
15 CDC have to present to you whatever data is  
16 available from human epidemiologic investigations.  
17 We have none at CDC other than what is published.

18 DR. DAVIS: May I ask something on what  
19 Dr. Stolwijk was saying? The power to detect  
20 an effect is a function of two things. It's a  
21 function of your N, the number of things you are  
22 observing, the number of people and it's a  
23 function of expected relative risk in that  
population and we may be dealing with effects

1 where the expected relative risk might be two  
2 times or three times or four times and with the  
3 small number of persons studied you are not  
4 going to be able to detect that risk. Now, that  
5 doesn't mean that the risk isn't there, it just  
6 means that you don't have the power to detect  
7 it and in that sense I think, you know, no one  
8 here would dispute that we don't want to be  
9 doing fancy epidemiological studies on small  
10 numbers of people. However, it probably would  
11 be worthwhile to have a group such as this as  
12 individuals, of course, agree on that point for  
13 you, agree on the limitation of having, for  
14 example, an extensive epidemiological study  
15 conducted precisely because such a study on a  
16 small number will only find a very big risk  
17 which is just another elaboration of what you  
18 just said.

18 DR. WIESNER: I think that is very  
19 useful. How about then and maybe this isn't  
20 an area that Warren has a particular interest in  
21 but there is this concern of the strategy in  
22 addition to the good depiction of the human  
23 epidemiologic data. Now I am talking about the

1 strategy related to the environmental data and  
2 I think it's hard for us to focus on this but  
3 it is a very critical part of the advice that  
4 we would like to get from you and that is, do  
5 you think the procedure ought to be, display all  
6 the data in the best way that CDC and the Health  
7 Department and EPA can think about it and then  
8 have them go back and redisplay it after we  
9 thought about it or, and that is costly and time  
10 consuming, or is it better to describe what are  
11 the comparisons that are going to be made and  
12 then give very specific instructions about  
13 arraying and organizing the data.

14 Now, what is your -- I mean, I would  
15 like everybody's opinion on that. I just want  
16 comments on that.

17 DR. WELTY: In the committee when we  
18 talked about this, we had hoped that you would  
19 be able to give us some guidance before we  
20 arrayed all the data in terms of the criteria  
21 or the strategy for habitability, feeling that  
22 we would be able to display this data or CH<sub>2</sub>M Hill  
23 would be able to gather this together in a way  
that was a lot more meaningful if they knew what

strategy would be used for determining  
1 habitability but I don't know, in discussing  
2 this, whether you would be able to come up with  
3 this strategy without having at least some of  
4 the data to look at and there is already the  
5 published EPA reports which I believe total  
6 three volumes and are quite difficult to wade  
7 through but I am sure that they could be provided  
8 if that would help in making this determination  
9 on strategy and I would like to think that it  
10 would be worthwhile really thinking this thing  
11 through carefully before we have CH<sub>2</sub>M Hill go  
12 through the process of arraying the data and then  
13 saying, once we saw it, it really isn't the way  
14 we want it, we want it in a different way.

15 DR. STOLWIJK: I think, Tom, in that  
16 context, I personally would be interested in  
17 seeing not all of the data but that kind of  
18 array that would give us the best possible  
19 comparison for a given site and a given  
20 chemical or for the comparison for instance for  
21 the drainage flow that came out of the contain-  
22 ment area before and that comes out of it now  
23 that it's more suitably capped and more suitably

maintained.

1           I think any set of numbers in terms  
2 of exposure that allows us to see over time  
3 what it was at the time that the problem was  
4 first attacked which presumably represents close  
5 to the maximum kind of exposure that occurred  
6 before, prior to the whole problem being  
7 identified and if we can find out what in as  
8 many directly comparable locations and analyses  
9 are the experiences that can now be identified,  
10 it's that kind of comparison that would allow  
11 us to say that in 1978 it was such and such a  
12 level and in 1984 it is at such and such a level  
13 and my anticipation would be, given the amount  
14 of effort that has gone into the situation, that  
15 I would be very surprised that that level would  
16 not now at least be a factor of ten lower than  
17 it was in 1978.

18           DR. CHALMERS: In the EDA? It couldn't  
19 be really because it wasn't very high in '78 in  
20 the EDA.

21           DR. STOLWIJK: No, it would have to  
22 be lower than it was then.

23           DR. CHALMERS: That is tough.

1 DR. STOLWIJK: Then you would find  
2 out in the canal area itself and even in the  
3 canal area itself you can find out from the  
4 flow that you get from the drains, you can make  
5 a pronouncement as to how effective the capping  
6 now is and that would have a direct effect as to  
7 how much stuff is actually leaving, could  
8 possibly be leaving the area. I think it is  
9 those comparisons I think that lead to an  
10 easily identifiable way of judging how things  
11 are going.

12 DR. WIESNER: Can we get some reaction  
13 to that?

14 DR. HUFFAKER: Let me say something on  
15 the display of data. We talked earlier that it  
16 might be useful for you to have it in graphic  
17 form as a map overlay or something of that sort  
18 both by area and by time which would be easy  
19 to read, otherwise I think there is about five  
20 feet of computer files on this thing and it's  
21 just impossible to go through without some sort  
22 of help of this sort. That might help. The  
23 other point on the levels now and the levels then  
and I think I'm making basically the premise that

1 the material itself that came out of the canal  
2 and got back again and that is something I think  
3 you want to look at a little longer.

4 DR. STOLWIJK: Well, if there is not a  
5 serious reduction in the levels measured in  
6 various locations, that would then lead to the  
7 conclusion that the remedial action hasn't  
8 worked.

9 DR. HUFFAKER: That is right.

10 DR. POHLAND: Or that it wasn't  
11 coming from the canal.

12 DR. STOLWIJK: Well, that doesn't make  
13 any difference. If the situation has not  
14 improved, we would like to know about it.

15 DR. POHLAND: Not necessarily. What  
16 may be happening outside of the area of the  
17 influence of the canal may be masking what you  
18 are doing for the canal.

19 DR. STOLWIJK: My problem then still  
20 would be if the massive effort that has gone  
21 into the isolation of the canal area itself has  
22 not resulted in a reduction of the exposure  
23 levels in the outer area, then we may have  
24 misdirected our efforts.

1 DR. POHLAND: No, I don't believe so  
2 because I think, just technically now, let me  
3 speak --

4 DR. STOLWIJK: No, I am not questioning  
5 the efficacy of what was done. I am saying if  
6 you wanted to protect the people, then there was  
7 an allegation in terms of what was being done,  
8 that you fixed one problem and didn't fix  
9 another.

10 DR. POHLAND: I agree with that and  
11 the more I hear and discuss the issue, I think  
12 that in view of what has happened with construc-  
13 tion in the canal area and the rings around the  
14 canal area, it may well have been that some  
15 of the canal material was dislocated in a bad  
16 batch that was really carried off into one of  
17 these other areas. We are going to see the  
18 manifestations of that in your monitoring program  
19 which would not necessarily have anything to do  
20 in terms of this transport or migration from the  
21 canal itself through the ground, for instance.

22 DR. STOLWIJK: One of the ways we find  
23 out whether that in fact happened or not is to  
look at the longitudinal data and see whether in

fact it diminished. It should have diminished.

1 DR. POHLAND: But you may find hot  
2 spots in this analysis.

3 DR. STOLWIJK: But if the hot spots  
4 are not being eliminated by the current  
5 remedial action, then that doesn't serve the  
6 habitability of the area.

7 DR. POHLAND: Yes, of course.

8 DR. FOWLKES: I assume that one of  
9 the reasons that sociological expertise is  
10 included on this panel, it's recognized we are  
11 dealing with not only a scientific but a  
12 sociological issue and sociologists are often  
13 accused of thinking on the level of common  
14 sense and at the risk of confirming that  
15 perspective, I have a couple of --

16 DR. POHLAND: Are you saying sociology  
17 is incompatible with science, is that what you  
18 are saying, that scientists don't use common  
19 sense?

20 DR. WIESNER: Okay, you guys, let's  
21 go. Let's not lay the disciplines on the table.

22 DR. FOWLKES: That is one of the  
23 questions or observations I wanted to raise, as

the case may be.

1 DR. WIESNER: We are open to them,  
2 whatever they are.

3 DR. FOWLKES: Dr. Stolwijk really  
4 brought it up in the beginning, that whatever  
5 assessment we make with respect to scientific  
6 criteria, you have to have social legitimacy  
7 as well or have to go forward in a context that  
8 accords them credibility to the residents or  
9 the potential residents of the community and  
10 that has been precisely the problem of the  
11 scientific assessment up until now and there are  
12 two things that follow from that I think. The  
13 reason for going forward with looking at  
14 epidemiological data, the reason for pursuing  
15 your questions around what is happening in the  
16 drains and I could go further, is that we are  
17 raising two questions that the person who might  
18 live there would ask: What does it mean to me  
19 and my health and how safe is my house and I  
20 would even argue for perhaps an apple pie in  
21 the sky kind of strategy that we consider or I  
22 would as a sociologist, consider an aspect of  
23 strategy for assessing habitability, the

1 recommendation that the individual houses in  
2 fact be monitored in their air and in their  
3 basements, in their soil in a comparative  
4 framework with data that exists before so that  
5 we can begin to respond to specific questions  
6 that people have. People out there live on the  
7 basis of their houses and their own families  
8 which is not to say that we can answer all of  
9 them in scientific terms. We cannot say with  
10 certainty what will happen to them individually  
11 or what has happened to them individually as  
12 a consequence but we can begin to focus our  
13 questions in ways that might provide a reassuring  
14 answer than we have in the past.

14 DR. DAVIS: If I may comment on why  
15 that is a problem, I will quote here from the  
16 OTA report, Appendix C, "The small number of  
17 control areas sampling site seriously reduced  
18 the ability to detect differences in chemical  
19 contamination between the declaration area and  
20 the control area" and you would run into the  
21 same kind of problem that you need to sample  
22 a large number and a large number of times  
23 before you would have statistical power to detect

1 the difference and if you are prepared to do  
2 that, I notice there are no economists on this  
3 committee, thank heavens, if you are prepared  
4 to do that, though, that is a costly effort and  
5 you want to be extremely focused as to what  
6 you would be looking for if you were going to do  
7 it.

8 DR. FOWLKES: The monitoring of  
9 individual homes at the outset was not done  
10 comparatively. It was not done with reference  
11 to other homes but with reference to existing  
12 standards.

13 DR. WIESNER: There certainly may be  
14 a point between that in terms of including  
15 individual homes in some sampling scheme for  
16 comparison. I mean, you could certainly probably  
17 defend that.

18 DR. FOWLKES: Well, if we are prepared  
19 to ask the people to live in those homes and  
20 to raise their children in those homes, which  
21 is I guess one of the things that I guess we  
22 are to conclude, it seems to me that we ought  
23 to give some consideration to that.

DR. WIESNER: Yes. I would agree that

1 it deserves serious consideration. We have to  
2 also think of, epidemiologists not only think  
3 about who ate the potato salad but who didn't  
4 eat the potato salad and where else would they  
5 live if they weren't there and what are the  
6 degree of assurances that we can talk about in  
7 terms of others, the safety of other living  
8 places and if we are concerned about the people's  
9 health and you would have to look at possibly  
10 both sides of that. This could come to a, I  
11 think an illogical and unsupported conclusion  
12 that you might have to sample everybody's house  
13 in the country to prove that. So that there is  
14 a balance here between trying to provide some  
15 reasonable advice but I think the concern about  
16 the homes is a legitimize one to be raised.

16 DR. WELTY: I think one of the points  
17 that you are making is that there may be some  
18 sampling scheme where instead of sampling every  
19 single house, you could epidemiologically or  
20 statistically take a certain number from each  
21 of the zones in terms of doing a sampling scheme  
22 and that is one of the options that we have talked  
23 about and would like to have your consideration and

opinion on.

1 DR. WINKELSTEIN: One of the ways you  
2 can increase the power of epidemiological  
3 observations is to increase the period of time  
4 over which they are observed. After all, the  
5 Frammingham study upon which we base most of our  
6 knowledge of ischemic heart disease is based on  
7 7000 people but they have been observed over  
8 18 to 24 years and so forth.

9 Now, I don't know the exact numbers in  
10 Love Canal but there is some thousands of  
11 people, one, two, three thousand some number and  
12 presumably they have been observed by the State  
13 Health Department since 1978 -- no, they weren't  
14 but they should have if they weren't but at any  
15 rate, I mean, these are the kinds of questions  
16 that epidemiologists would ask. What have been  
17 the profile of outcomes amongst the people who  
18 lived there and, you know, if you -- somebody  
19 goes to the extent of declaring a place an  
20 emergency disaster area, presumably because they  
21 are being exposed to some kind of materials that  
22 are alleged to be hazardous to their health,  
23 I would think that they would be followed up to

1 see whether there were any adverse health  
2 effects.

3 Now, you know, I would ask that  
4 question as an epidemiologist. I wasn't brought  
5 into this until today but I think, I don't know  
6 what I would have advised four years ago because  
7 I can't tell you what I would have advised but --

8 DR. WIESNER: Well, I think the  
9 relationship of the Frammingham study you would  
10 agree is interesting from the point of view of  
11 looking at duration of follow-up but it doesn't  
12 really apply when you talk about the exposure  
13 arm of the epidemiological study because there  
14 was a predetermined and prefollowed and  
15 prospectively so that there is much more ---  
16 there's a great deal of difficulty on the exposure  
17 classification. So, the sample size question  
18 of Frammingham versus this don't apply directly.

19 DR. WINKELSTEIN: You know, the  
20 epidemiologists who are involved here must have  
21 done more than the one paper by Vianna and the  
22 other paper by the cancer group. I mean, they  
23 couldn't have done that little. I mean, logic  
tells you that these fellows did something more.

1 DR. WIESNER: Warren, I think that is  
2 true and I thought that we had made an earlier  
3 judgment that we were going to get whatever  
4 has been done presented.

5 DR. WINKELSTEIN: Well, I'm not sure.  
6 I am thinking out loud. I am wondering what  
7 would be the best way I would go about it as  
8 an epidemiologist. Should I sit down and  
9 say now, what should be done to answer this  
10 question and write those things down and then  
11 hand them to you and let you look at them and  
12 say well, we have done this, this, this and we  
13 haven't done that, that and that. That is one  
14 way of doing it. The other way is for you to  
15 give me everything there is.

16 DR. WIESNER: I think probably both  
17 are very good because in the end you are going  
18 to compare the two lists, right?

19 DR. WINKELSTEIN: Probably.

20 DR. WIESNER: Right. I hope so.

21 DR. WINKELSTEIN: But if you don't want  
22 to give it to me, I mean, if we decide that is  
23 the way to go, then each of us has to do that,  
you see, the toxicologist here has to do that and

1 the engineer has to do it and everybody, the  
2 sociologists have to do it.

3 DR. WIESNER: I think it's important  
4 that this effort has to be relevant to the tasks  
5 that we are working on with the technical review  
6 committee and that is trying to give some advice  
7 on the issue of habitability and the roles of  
8 individual consultants here are not to try to  
9 determine the overall policy of the New York  
10 State Health Department or CDC. I mean, we are  
11 trying to focus on information relative to that.

12 DR. DAVIS: Well, maybe we ought to  
13 define habitability then.

14 DR. WIESNER: We tried to put a very  
15 simple definition on that, whether it was  
16 suitable for people to live in.

17 DR. DAVIS: Well, maybe we should --  
18 I am thinking out loud about what Dr. Fowlkes  
19 said, maybe we should say that it means that  
20 it's okay for our children to live there. I  
21 mean --

22 DR. CHALMERS: But that is meaningless  
23 if you don't have a degree of risk which they are  
willing to have them exposed to. You have to

1 have a minimal degree. If you say you want  
2 absolutely no increase in risk over somewhere  
3 else, it must be you just cannot move in.  
4 So, to reduce it to your children, all you are  
5 doing is saying I would like the data. We would  
6 like the data whether your children are involved  
7 or not and then we have to decide upon how big  
8 a difference you are willing to accept.

9 DR. POHLAND: Not only that but by  
10 virtue of the fact that some people are still  
11 living in areas that are suggested as not  
12 habitable, they are there and so the risk that  
13 they are willing to take are much more extreme  
14 than maybe somebody else.

15 DR. FOWLKES: That is a median age of  
16 62.

17 It's not the case that they all  
18 represent an orderly free choice with respect  
19 to their decision to remain in many instances  
20 with such severe economic constraints in terms  
21 of money, that they would get more for selling  
22 their house as compared to what they could buy.

23 DR. STOLWIJK: But there is a real  
recognized difference between the risks people

1 are willing to accept if they have got to make  
2 the choice and the risks that they are willing  
3 to accept if they are imposed upon by somebody  
4 else. In this particular case the people who  
5 were originally there had a risk imposed on them  
6 that they didn't choose and obviously they were  
7 very upset about it. Other people, if they  
8 should move in again, may make that decision on  
9 the basis of much better knowledge as to what  
10 the risks might be and that is a different kind  
11 of decision than what is being imposed on them.  
12 So, I think we can recognize that there might  
13 be a two tier level of acceptance of well informed  
14 assessment of risk and I think that is the  
15 direction to move in. I assume that the real  
16 estate market is not such that there is a  
17 tremendous shortage of housing and that the  
18 people are all going to flock to these houses  
19 if they become available.

19 DR. POHLAND: Let me ask another  
20 follow-up question. If we use this criterion  
21 of children for instance and the group comes to  
22 the conclusion that no, the risks are too great  
23 for children, is it our responsibility then to

1 follow that up with, well, what do you think  
2 that area is good for, I mean, like an industrial  
3 park or a golf course or whatever?

4 DR. WIESNER: Well, I think that is a  
5 ways down the line and there may be a desire to  
6 get people's advice on that, areas uses that  
7 might be useful or might be acceptable but I  
8 think, I mean, that seems to me like that could  
9 be some time away.

10 DR. POHLAND: Well, that may be but  
11 I think that in terms of strategy, again, we  
12 ought to be considering this up front because  
13 we may, by our first decision, lock out all  
14 other decisions.

15 DR. WIESNER: Okay. That is a good  
16 point. That was part of the original statement.

17 DR. HUFFAKER: On the health studies,  
18 a couple of comments. They stopped in '78 when  
19 the people left the area. We lost our  
20 population. The remediation has taken place  
21 out there and this is not the same area that  
22 it was in 1980, for example when the dredging  
23 was done and so forth. So, we are looking at  
a different environment with a different

population.

1                   Now, we can go back and follow the  
2 people on the register from the canal and find  
3 out what has happened to them on a few parameters  
4 but not extensively. They are scattered probably  
5 from California to Florida. We can do a  
6 questionnaire again to see if anything interesting  
7 has occurred that we might measure by that thing.  
8 If they are still New York residents we can  
9 find out if they died, if they had cancer, if  
10 their children had birth defects and things  
11 like this from current registers. That is about  
12 the limit of what we can do. We would welcome  
13 advice from you people if there is something  
14 further that we should do.

15                   DR. POHLAND: I think you have a  
16 population out there that in a sense continues  
17 to be in the area of possible exposure that  
18 certainly could be followed up on too. You know,  
19 those are the ones that haven't moved away and  
20 now haven't had an interruption in whatever.

21                   DR. HUFFAKER: You may want to see our  
22 data presentation to decide whether that exposure  
23 data is --

1 DR. DAVIS: Are we going to get a  
2 presentation officially? On the agenda it says  
3 that we are going to have a council review of  
4 the health study.

5 DR. WIESNER: I think that has almost  
6 happened with the exception of the chromosome  
7 study. Can I suggest, I think we want to be  
8 sure we get on schedule for the 2:15 time because  
9 that is in the agenda for people to talk from  
10 the community and other groups. So, between now  
11 and 2:15 let me just hand out the chromosome  
12 study and make it available to you and I think  
13 it's fairly straightforward. There is a larger  
14 document that is referenced at the end of this  
15 that is available to anybody and also we will  
16 make it available to the individual consultants.

17 DR. SIPES: Is this the final form of  
18 the one that was previously --

19 DR. WIESNER: That is the actual  
20 published form that's coming out March 16th.  
21 On the Voles study, yes, I thought it was being  
22 sent.

23 DR. HOFFAKER: I thought it was too.

DR. DAVIS: Maybe you could mention it

1 to the people because I think that is very  
2 interesting and if you are familiar with it,  
3 Dr. Sipes, maybe you could refer to that.

4 DR. SIPES: I haven't read that but  
5 as I was sitting here listening, the epidemiological  
6 data, the only data that we have, we have to use  
7 that data except for something like this because  
8 of the exposure to numerous chemicals that were  
9 undefined for a period of time, there is just  
10 no animal studies you could even do a risk  
11 analysis on. So, that is why I was disappointed  
12 to hear there had not been follow-up through  
13 the epidemiological studies.

14 DR. WIESNER: This is just the published  
15 form of the cytogenetic study which I think  
16 you did receive in the pamphlet.

17 DR. SIPES: Yes, that was the preprint.

18 DR. WIESNER: That was a longer form  
19 with all of the more detailed tables in it and  
20 in discussions with one of the residents of the  
21 Love Canal area, she wanted to know the number  
22 of black participants in this study and I will  
23 send this along, this form and I will give it  
to you when we get a break.

1 We can either discuss the cytogenetic  
2 study or I can just leave it there for you to  
3 read.

4 DR. DAVIS: I have seen it and the  
5 only comment I would make is, first, with respect  
6 to the sister chromosome exchange, there are a  
7 lot of questions about the robustness of that  
8 end point as an indicator and the power of this  
9 sample to detect a risk again if not that great.

10 DR. WIESNER: Absolutely.

11 DR. DAVIS: You are dealing with  
12 extremely small numbers so it's not surprising  
13 that you don't find a difference between a  
14 population of 17 persons and 29 persons. Again,  
15 the risk would only show up if it were, I can't  
16 remember my specimen table but maybe tenfold,  
17 one hundredfold. It has to be an enormously  
18 greater risk. So, essentially this should not  
19 be regarded as evidence that there are no  
20 genetic effects from, chromosomal effects in  
21 Love Canal residents but rather that there were  
22 none detected in that small number of people  
23 tested.

DR. WIESNER: Yes. That is focusing on

1 the problems of the study and does not identify  
2 the value of it. One of the sources of concern  
3 of the residents early on was the claim of  
4 definite cytogenetic effects based  
5 on a study of self-selected people without  
6 control groups with poor techniques in terms of  
7 first multiplication of the lymphocytes in  
8 vitro, no blinding and extreme extrapolation  
9 and encouragement in the public domain that  
10 this is actually related to it and based on  
11 that information related to exposure to toxins  
12 from Love Canal and there is some basis for this  
13 report offsetting some of that concern and some  
14 basis for reassurance. The issue of power is  
15 present in all of these studies. So, I mean, I  
16 think it's important not just to -- maybe I  
17 should have made a presentation because I did  
18 ask for comments on it but I think actually the  
19 problem of power is identified and the problem  
20 of latency and the problem of these observations  
21 occurring after people have moved from the canal  
22 have all been identified. Also it is important  
23 to point out that this is not particular relevant  
to the EDA. I think that is one of the stronger

1 points that has to be made because this deals  
2 with people in the first two rings or the self-  
3 selected people from the previous study.

4 DR. STOLWIJK: You can see in Table 3  
5 the problem of the powers identified there.

6 DR. WIESNER: I have personally no  
7 feeling of defensiveness about that study because  
8 I had nothing to do with it but I actually think  
9 it is quite a good study under the available  
10 circumstances.

11 DR. POHLAND: Well, it can also be  
12 used as base data maybe sometime.

13 DR. WIESNER: I think it points out  
14 a common difficulty in environmental epidemiologic  
15 studies of using changes in human tissue or  
16 human cells as an indicator of a health effect  
17 when we actually do not know what the prognostic  
18 significance of some of these observations are.  
19 We don't know, for instance, whether these  
20 chromosomal aberrations as described here or  
21 any other paper actually do precede specific  
22 health risks in the future.

23 DR. DAVIS: It might be interesting  
to see whether some biological markers or

biological marks of exposure would be detectable,  
DNA circulating.

1  
2 DR. WIESNER: And if they were  
3 detectable what would you conclude from that?

4 DR. DAVIS: Well, you would have to  
5 have both a controlled population and a sample  
6 of Love Canal residents to see whether you had  
7 DNA addox.

8 DR. WIESNER: Let me pursue that  
9 because after you found that, even if you did  
10 find it, say in the control group or in the Love  
11 Canal, what would you conclude?

12 DR. DAVIS: I would conclude that there  
13 are increased rates of DNA addox.

14 DR. WIESNER: Well, that is the problem  
15 with the  
16 been conclusions related, that this is related  
17 to your future health and I think there is a  
18 basis for reassuring people that it is not  
19 related, that there is no evidence of its being  
20 directly related to the future health, the  
21 observations that were made before. Go ahead.

22 DR. DAVIS: Well, I would just say  
23 that while what you say is true, there is no

evidence, it doesn't mean that the effect  
1 doesn't exist. It may primarily indicate that  
2 the numbers were too small to have found such  
3 evidence.

4 DR. CHALMERS: You can put a figure on  
5 that. You can accept the evidence you want.

6 DR. DAVIS: Well, I think you can put  
7 a figure on it by looking at the confidence limit  
8 or the confidence interval and that may give you  
9 some idea. If you look here you see that it goes  
10 from .06 to infinity for the second group and  
11 it's just a small number. It would be better  
12 to have larger numbers of people and then if you  
13 did, you could specify your confidence interval  
14 and you could say that within that confidence  
15 interval you would accept the data.

16 DR. CHALMERS: But the control group  
17 is almost an equal number. It's hard to believe  
18 that you are missing something when half the  
19 test shows the control group worse, although  
20 again you are right, it may be a wide variation.

21 DR. DAVIS: Well, you know, we have  
22 just received this so it's difficult to know  
23 but -- whether the amount of smoking was the same

in each group.

1 DR. WIESNER: Actually the longer  
2 piece we will send to you also, it was done,  
3 every combination of multivariant and other  
4 kinds of analysis possible and the only thing  
5 that sorted out in the whole study was, that  
6 was consistent, was the association between  
7 smoking and cystochromatin.

8 DR. DAVIS: Were there more smokers  
9 in the control group?

10 DR. WIESNER: There were but as you  
11 correct for that and adjust for it, there was  
12 no -- actually it was adjusted for there and I  
13 mean, there were several present. This is a  
14 shortened version. The longer version, I don't  
15 think you are going to have any trouble with  
16 compounded variable of smoking as you see a  
17 longer version.

18 DR. STOLWIJK: That leads me to trying  
19 for some kind of an upper limit to the risk and  
20 then a reduction in the total exposure which  
21 removes the risk out of the realm of being of  
22 significance. I think that is really the only  
23 avenue that we have that is likely to produce

anything.

1 DR. WIESNER: Okay.

2 DR. STOLWIJK: But we are not going  
3 to be blessed with increasing observations.

4 DR. WIESNER: This is not to leave  
5 this particular study but it is 2:15 and I did  
6 stop you earlier and I meant to stop you because  
7 we wanted to have time for the consultants to  
8 talk but I think we ought to start with you  
9 since you had a question and I have forgotten  
10 your name, I am sorry.

11 MS. AUG: I just have a few quick  
12 questions, Mrs. Aug. First of all, maybe I  
13 wasn't hearing correctly but it sounded to me as  
14 if you and Mr. Ogg were defending the 1982 CDC  
15 EPA study, is that correct? Are you saying that  
16 that data is still valid? You said that  
17 Congress and OTA has criticized it but you seemed  
18 to hesitate. You stopped short of saying  
19 "We agree, we recognize that."

20 DR. WIESNER: I think you are right.  
21 Your observation is correct.

22 MS. AUG: That you are defending the  
23 study.

1 DR. WIESNER: Defending, you mean  
2 defending the study, that is the problem I am  
3 having. There has been enough controversy and  
4 discussion about the statement that was made in  
5 1980 that it's worthwhile looking at. That's  
6 it. We are looking at it and that is actually  
7 what is going on here, is our people raising the  
8 questions that should be raised.

9 MS. AUG: The other thing I would like  
10 to know, how many of the people, how many of the  
11 health scientists here have been involved in  
12 Love Canal work and secondly, how many are  
13 familiar with one or more Love Canal studies.  
14 First of all, I know Dr. Upton was involved and  
15 Dr. Miller or Dr. Fowlkes.

16 DR. FOWLKES: We had quite a different  
17 relationship to the Love Canal work.

18 MS. AUG: I understand that there is a  
19 big difference between Dr. Upton's involvement  
20 and your involvement but what was originally  
21 told by the TRC to the residents was that this  
22 group would be chosen on the basis of non-  
23 involvement in previous Love Canal studies, the  
implication from that being an open mind and lack

of preconceived notions.

1 DR. MILLER: If I could speak to that,  
2 our work which was funded by the team was  
3 funded in consequence of our initiation of the  
4 research. It was not team mandated research.  
5 So, I mean, we are like any other academics in  
6 the country who would phone up a federal agency  
7 and say we have got an idea, we would like to do  
8 a piece of research. So, I mean in that sense  
9 there is no way in which we were pursuing  
10 questions that were directed to us.

11 MS. AUG: I am not criticizing that.  
12 I appreciate that distinction. I just wanted to  
13 know if anyone was involved previously. Anyone  
14 else?

15 DR. WIESNER: Well, involved with --

16 DR. POHLAND: I haven't been personally  
17 involved with Love Canal. However, I have  
18 followed the developments in the literature on  
19 Love Canal. That is my profession.

20 MS. AUG: Right. That is what I am  
21 trying to --

22 DR. POHLAND: So, if I have read reports,  
23 I have obviously read reports because they are

public documents.

1 MS. AUG: I am not criticizing that.  
2 I am just trying to find out.

3 DR. POHLAND: Well, I couldn't sort  
4 out which answer you wanted.

5 MS. AUG: From the discussions it  
6 seemed to me that everyone is familiar with at  
7 least some Love Canal work, is that true?

8 DR. POHLAND: Of course.

9 MS. AUG: Canal information.

10 DR. WIESNER: Yes, in part because  
11 there were a series of packets that were sent  
12 to everybody before they came too and also it's  
13 a very, very openly discussed issue for anybody  
14 that is represented on this table.

15 DR. VANDERMEER: May I say something  
16 with regard to what I think the review committee  
17 was trying to impart to the community, we did not  
18 mean to say that we would not ask for advice  
19 from any scientist who was totally ignorant of  
20 or had never participated in any work at Love  
21 Canal. What we were trying to impart was the  
22 notion that we would not ask scientists who had  
23 served as consultants to HHS in the past in the

1 1980, '81 and '82 activity to serve again as  
2 consultants.

3 DR. WIESNER: Yes.

4 MS. GABALSKI: My name is Anita  
5 Gabalski and I work for the New York State  
6 Department of Environmental Conservation, Public  
7 Information Office at Love Canal. There are  
8 several people who have prepared a couple of  
9 statements and there are also people who would  
10 just like to ask specific questions. We would  
11 like to make sure, though, that some of those  
12 statements that have been prepared could be  
13 read to you so that you do get their sentiment.  
14 Maybe if we could start with Violet.

15 MS. IADICICCO: My name is Violet  
16 Iadicicco. I previously lived in the Love Canal  
17 area. The home I was in was purchased but I  
18 am still involved with rentals and so forth.

19 Please, by now you've toured the Love  
20 Canal. You've viewed the devastation to the  
21 houses and neighborhood, or whatever is left of  
22 it. If it made any impact on your thoughts,  
23 please, remember that it is only the exterior  
of the distress there.

1 I am a Love Canal homeowner, who has  
2 been caught in the southern end of the Love  
3 Canal, and in the northern end of the 102nd  
4 Street dump. I also have two unpurchased rentals,  
5 and one unpurchased business still sitting  
6 there.

7 As you begin to review the data that  
8 has been accumulated over the last five years,  
9 I hope that you will keep in mind that a lot of  
10 the data is incomplete, just as what you have  
11 seen is incomplete. There was once many more  
12 homes in the area than what you have seen, but  
13 by now, any evidence that might have been helpful  
14 has been buried with them. Considering how  
15 slowly everything else has been handled, one has  
16 to wonder: Why was there so much urgency to get  
17 rid of them?

18 I am not a scientist, and in no way am  
19 I qualified to decide if each of you is an  
20 expert in your field, but as one human being to  
21 another, please, view the data with humanism,  
22 remembering that what has happened here can and  
23 is happening in many other neighborhoods, possibly  
yours.

Remember also that each and every one of these homes held families. No data has been collected on all the heartache that has come from all of this. No data of all the unanswered questions that have been asked. No data on future health problems, or the probability of them.

We've been to many "informational meetings" that have been non-informational. We can only wonder how much "information" you will be given.

To have been told by Mr. Vandermeer at the last meeting, on March 8, 1984, that after all the data has been reviewed, if they find that they had "screwed up" they might have to start over. I am sure you would also have been disheartened, as we were.

"Start over" after all the millions that have been spent?

"Start over" after a lot of us stood by waiting patiently believing our government representatives, while each delay meant more stress!

"Start over" when many of us have

1 children with health problems that may or may  
2 not be what they are being treated for?

3 I have heard that it is difficult for  
4 a person who has a scientific mind to also  
5 believe in God. I pray that isn't true, and that  
6 His compassion will temper your opinions  
7 wherever there is any room for doubt, and that  
8 in the end you will come up with some honest  
9 answers, instead of elaborate, evasive answers  
10 that say, "We still don't know."

11 Please, find us some answers.

12 Thank you.

13 DR. WIESNER: Thank you.

14 MS. GABALSKI: Joanne Hale.

15 MS. HALE: I can talk real loud so  
16 the stenographer can hear me. I have been  
17 screaming for five years, I can scream now.

18 What I was wondering is, when you  
19 were having your discussions on data, obviously  
20 there was data back in 1978 during the first  
21 order that was issued and I understand that a  
22 firm called Triangle Research Institute was  
23 involved in this. Are we going to have the data  
given to all these panel members from that order

also? That is what I was wondering.

1 DR. HOFFAKER: What was the company  
2 you were talking about?

3 DR. CHALMERS: Research Triangle.

4 DR. HOFFAKER: Okay.

5 MS. HALE: What I was wondering is,  
6 are they going to have access to that data?  
7 I mean also because a lot of times the orders  
8 had seemed to be political. It was like when  
9 we were on the bus, they said this is the  
10 93rd Street. It was political because the  
11 residents pressured. Well, you know, residents  
12 can't always pressure the government into doing  
13 something they don't want to do. I mean, that  
14 is obvious but I was just wondering if that  
15 data would be included in this other data that  
16 you are talking about to base your decisions  
17 on and if so, could this group take into  
18 consideration that at that time in 1978 and in  
19 1979 when the second order, supplemental order  
20 was issued, it was also issued for pregnant  
21 women and children two and under and can that  
22 be a determining factor for the habitability of  
23 that area? Is there any way for a risk

assessment or a risk factor to be involved?

1           Could the fetus be the determining factor where  
2           the woman is contemplating pregnancy or the  
3           possible man contemplating fatherhood? Those  
4           are my three points and I just hope that you  
5           take that into consideration because this is  
6           how the order was first issued and if we are  
7           going to sit with the health problems, that is  
8           what these orders were issued under, mainly it  
9           was the pregnant woman and the child two and  
10          under. So, that is all I really had to say.  
11          Maybe you could discuss that, you know, amongst  
12          yourselves or whenever you do that.

13                 DR. WIESNER: We can do that now if  
14                 you want, I don't know, depending on how --

15                 MS. GABALSKI: I would rather, if we  
16                 could, stick with the formal statements because  
17                 there are a number of people who would like to  
18                 have their concerns addressed.

19                 DR. WIESNER: All right.

20                 SISTER HOFFWANN: I am Sister Margeen  
21                 Hoffwann, Executive Director of the Ecumenical  
22                 Task Force and I don't have a formal statement  
23                 to be made but I just would like to make a

comment that like so many of these people, for  
1 five years we have attended hundreds and hundreds  
2 of meetings. I have been involved in some of  
3 them that had specifically to do with compliance.  
4 Our organization which represents the Protestant,  
5 Catholic and Jewish communities of Western New  
6 York and also on a national basis supported us  
7 on that basis and has been very eager to learn  
8 from this experience and to help to contribute  
9 to what can be learned. I have also been  
10 involved in the Times Beach area. We have an  
11 ecumenical dioxin response task force there  
12 and I have been on that site many different times  
13 with the residents. So, we have concerns that  
14 are not just particularly local.

15 The data that I would like to make a  
16 comment on, the data that we are talking about,  
17 we need to have the data but as you know, it  
18 doesn't always reveal everything you need. It's  
19 interesting about the value and the value  
20 system, to talk about some of that and I hope  
21 you do. Our concern has been that in the 1982  
22 EPA study, environmental monitoring at Love  
23 Canal, the protocols were poorly drawn, very poor

1 structuring and we have been very concerned  
2 about a good peer evaluation and more than even  
3 the peer evaluation, the conclusions but the  
4 peer evaluation of the setting of the criteria  
5 and we have worked along with other groups.  
6 There are individuals represented here and I  
7 hope names of other scientists who could help  
8 be instrumental in this will be considered and  
9 that you help us and I just want to say that I  
10 feel very positive and that is a real compliment  
11 to the ladies and gentlemen here. I feel very  
12 positive, Dr. Hoffaker, about the group, the  
13 people here today and what we have heard you do  
14 in your deliberations and I would like to say  
15 on behalf of the task force particularly, we  
16 are glad that we can be part of at least to have  
17 observed this process.

17 DR. HOFFAKER: Thank you.

18 SISTER HOFFWANN: We appreciate your  
19 time. It's a very difficult thing and I do not  
20 envy you in your position at all.

21 MS. GABALSKI: Dr. Levine.

22 DR. LEVINE: Here I am. I am Adeline  
23 Levine. I am a sociologist, a professor at the

1 State University of New York at Buffalo and I  
2 have been following the Love Canal for a long  
3 time. I published a book in February of 1982  
4 which gives the history, provides a rather  
5 detailed history of the events leading up to  
6 Love Canal and up to the time, almost up to the  
7 time of the publication and provides some of  
8 the social and political context within which  
9 some of the scientific studies were done, some  
10 of which you are going to be referring to and  
11 I just wanted to bring it to your attention that  
12 there is this published resource available for  
13 your contemplation. Thank you.

14 MS. GABALSKI: Lewis Steele.

15 MR. STZELE: My name is Lewis Steele.

16 I am the attorney for the Love Canal Renters  
17 Association. That organization has among its  
18 members people who reside in the LaSalle  
19 Development, which development is located  
20 immediately on the western border of the Love  
21 Canal in Niagara Falls, New York.

22 I wanted to, for the record, and I  
23 don't want my clients to antagonize because I  
understand and I hear that the session has been

1 very positive and very, very well received but  
2 at the same time history is important and for  
3 the record I would just like to make sure that  
4 the news articles and the Niagara Gazette  
5 editorial is shared with you people and also  
6 is included in the transcript of the proceeding.  
(Handed)

7 I won't burden the people here with  
8 indicating what the article speaks to. They  
9 basically speak to the request of many individuals  
10 and concerned organizations that when you met,  
11 that you would have been able to find it  
12 possible to meet in Niagara Falls and more  
13 particularly to meet in the Love Canal area.

14 In addition there was considerable  
15 concern that the meeting be at a time and place  
16 that would be accessible to any scientist who  
17 the citizens would be allowed to select. Now,  
18 that didn't work out. Be that as it may, my  
19 client believes it's important to communicate  
20 that kind of concern to you. So, despite the  
21 fact that it's over at this point in time and  
22 we are not going to worry about it and we should  
23 certainly go forward, we want to make sure that

1 history is understood and the people understand  
2 what the concerns of the Love Canal Renters  
3 Association are.

4 To make a couple of brief other  
5 points if I may and I know there are other people  
6 so I will try to be as brief as I possibly can  
7 and if anybody thinks my time has run out and  
8 I haven't stopped, please tell me to stop. I  
9 mean that very much.

10 Several months ago a report came out  
11 that talked about contamination of sewers and  
12 talked about the contamination of Black and  
13 Berkholtz Creeks and talked about perhaps  
14 possible contamination of sources of Love Canal,  
15 chemical movement into the ground and/or  
16 overburden into the LaSalle Developments. It  
17 also points out the extent of dioxin contamination  
18 as you may know in the sewers outside the present  
19 boundaries of the Emergency Declaration Area.  
20 I also want to make sure that you people are  
21 aware that the streams and the outfalls in the  
22 area, despite voiced resident concerns that these  
23 areas be fenced, still remain to be fenced and  
therefore areas which we now have dioxin in them

1 and about them and other areas which we may  
2 reasonably suspect may have dioxin in them,  
3 continue to be perfectly and openly accessible  
4 to the public despite the recognized citizen  
5 concerns, at least some six months ago. Anything  
6 you could do to speed that along, my client  
7 would certainly encourage that. Now, although  
8 there is snow on the ground now and quite a bit  
9 of it, during this past winter there has been  
10 considerable dry space where there wasn't any  
11 snow and I wanted to make sure that your  
12 organization had access to the Malcomb Prenner  
13 Report and to the extent that you thought it  
14 was relevant, could review it. My client as  
15 well as Occidental Chemical Corporation has  
16 commented on that report and I would also ask  
17 you at your convenience if you think it  
18 appropriate, to review those two documents.

19 I would also indicate that I understand  
20 that the current environmental monitoring program  
21 does not deal with bedrock contamination. I  
22 just wanted to make sure that you people have  
23 some opportunity to evaluate the extent to which  
the bedrock aquifer underneath the Love Canal

and in the related areas is evaluated.

1           I think the final thing that I would  
2           like to say on behalf of my client is that we  
3           feel a whole lot more comfortable at this point  
4           about the scientists helping the government  
5           than we do with the government. The government  
6           told us that it's inappropriate for us to  
7           request resumes from the government of you  
8           people and that we would have to -- if we dared  
9           to state that, to ask for your resumes and my  
10          client would like to formally request resumes.

11           The government told us that rescheduling  
12          the meeting would necessitate a five month delay  
13          after consultation with you and that is what  
14          you people said. The government told us that  
15          it had no idea that there was a concern that  
16          people meet in Niagara Falls. That may be the  
17          case. I hope that if you people should get  
18          together again, that you would seriously  
19          consider meeting in the Love Canal area of  
20          Niagara Falls. The government told us that it  
21          was inconvenient to meet in Niagara Falls because  
22          your plane schedules today called for people  
23          to leave throughout the afternoon. I don't know

1 whether that is true but that is what they told  
2 us. The government told us that they scheduled  
3 this meeting for your convenience and given  
4 what I have heard, it seems to me that you  
5 people are more concerned about the problem than  
6 it is your particular convenience and I thank  
7 you very, very much for that.

8 Finally, the government has been very  
9 encouraging in making all your meetings on this  
10 tour open to the public and I apologize for not  
11 being able to attend them all but I am glad that  
12 the public had the opportunity to attend all  
13 of your meetings at this time.

14 DR. MILLER: Could I say something in  
15 response to that? Are you finished, sir?

16 MR. STEELE: Yes, ma'am.

17 DR. MILLER: I think it's unfortunate  
18 and perhaps rude that the meetings were held  
19 here. I don't believe that it's diabolical.  
20 I don't believe that it's a manifestation of  
21 evil. I suspect that it happened the way that  
22 most of these things do, somebody had six balls  
23 to keep up in the air at the same time and they  
all came down in Buffalo. If you would forgive

1 us and not hold us responsible for the actions  
2 of somebody we have no control over, then we  
3 will forgive you for the statement in your  
4 Niagara Gazette on Monday, March 12th to the  
5 effect that the scientists will be flying in  
6 for a meeting, no doubt are businessmen.

6 MS. CABALSKI: Walter McCullough.

7 MR. McCULLOUGH: Most of the points  
8 have been, I was going to bring up, have been  
9 pretty well covered. I am not as eloquent as  
10 the previous speakers, I'm sorry. I'm just an  
11 average guy on the street but I am particularly  
12 concerned with the effects on the children of  
13 the residents. I, myself, have a granddaughter  
14 that is only 60 percent the size she should be  
15 at two years old. My son-in-law is six feet  
16 tall and my daughter is five foot eight. There  
17 is another lady that is a waitress, her husband  
18 was raised in the Love Canal and he weighed  
19 270 pounds at nineteen and this guy is five foot  
20 nine and they tell her that her daughter is  
21 going to be petite and I think Dr. Pagan has  
22 substantially proven that the kids in Love Canal  
23 are smaller than the average. This is something

I think you should consider in your discussions.

1                   Another thing that I think might  
2 interest you is, the American Cancer Society  
3 has determined that Niagara County has the  
4 highest incidence of rectal and colon cancer  
5 in the State of New York and this might be  
6 something that you might think to consider and  
7 let's see, I am one of the people that was  
8 involved in that chromosome study and my doctor,  
9 Peter Sciarrino --

10                   DR. WIESNER: That is not the one I  
11 was talking about.

12                   MR. McCULLOUGH: Well, Hooker's own  
13 scientists agreed with Dr. Sciarrino and the  
14 second time around they came from Brookhaven  
15 Laboratory and I gave them another blood test  
16 and the results of which I am not too sure of,  
17 you know, all the bureaucratic talk and that  
18 I don't quite understand but I know I got it.  
19 Where I got it, I don't know. I have lived  
20 around the Black Creek for seventeen years and  
21 whether it came from there or not, I couldn't  
22 say but I guess if you jump in a garbage can  
23 you are going to get dirty and with all of these

1 chemicals, a lot of them have migrated through  
2 the last twenty years and they have formed other  
3 chemicals and we don't even know what they are  
4 over there and they are traveling through the  
5 air and through the soil and through the sewer  
6 systems and I don't know at what levels of  
7 exposure that are safe or unsafe but I do know  
8 I would rather have lived someplace else during  
9 that time. I don't think any of you would  
10 knowingly move in there with your families and  
11 expose them to any of that contamination. I  
12 don't think any of you would consider moving in  
13 there right now.

14 Personally, I like it there. I would  
15 have liked to have spent the rest of my life  
16 there but under the circumstances we couldn't  
17 and it's affected me personally, destroyed my  
18 family and that is all.

19 MS. GABALSKI: Thank you, Walter.

20 Sarah Rich.

21 MS. RICH: Good afternoon. My name is  
22 Sarah Rich and I have been asked to speak in  
23 behalf of the Love Canal Citizens Coalition.  
This coalition is composed of many groups and

1 individuals who have not always been in agreement  
2 with each other on many complex issues surrounding  
3 the Love Canal area. We have come together,  
4 however, because we see the need to communicate  
5 with one another and to set aside our differences  
6 in order to take this opportunity to participate  
7 responsibly in the very difficult process of  
8 determining the habitability of the Love Canal  
Emergency Declaration Area.

9 The groups represented by the coalition  
10 include as follows: The Ecumenical Task Force  
11 of the Niagara Frontier, the Concerned Area  
12 Residents, the Raintree Homeowners, the Love  
13 Canal Renters Association, the Love Canal  
14 Homeowners Association, and a number of individuals  
15 not represented by any of the preceding groups  
16 but whose views and concerns are just as  
17 important in considering habitability decisions.

18 We would like to take this opportunity  
19 to share some of the thoughts that we have  
20 agreed upon. We have agreed to continue to work  
21 together with each other. We would like to work  
22 with you in establishing the criteria needed  
23 to determine habitability and look forward to

1 sharing with you our knowledge of the area and  
2 the health and safety values that are so  
3 important to us. We are in the process of quickly  
4 selecting additional scientists to work with  
5 you in the task of arriving at the suggested  
6 habitability guidelines and measurements.

7 With regard to the selection process,  
8 we ask your patience in receiving our selection  
9 as we are committed to provide them to New York  
10 State and the United States as soon as we  
11 possibly can. In this regard we ask that you  
12 insure that our selection will be as fully  
13 informed on your habitability discussions as  
14 you will be.

15 More substantially now we are glad  
16 that you have gathered to provide assistance  
17 to the determination of habitability of Love  
18 Canal. We believe that it is in everyone's  
19 interest to have adequate information as one  
20 makes this determination and we encourage and  
21 implore you to make sure that that happens.  
22 Only in this way can we receive a product that  
23 we can all stand behind and having a product  
that we can all stand behind is critically

1 important to us and for the success of these  
2 we are all involved in here.

3 Finally, we ask you to be honest in  
4 your work. Don't hold anything back from us  
5 and don't play any tricks on us. One thing that  
6 sometimes people do when they go through an  
7 analysis process is to focus on the mechanics  
8 of the process and the conclusions. The most  
9 important factor, the personal value of the  
10 analysts remain unclear and unstated. We would  
11 not like to have this happen with your work.  
12 Please tell us in your analysis where you are  
13 starting from, what the personal values are  
14 that would drive your analysis thinking and  
15 would determine your analysis results. Although  
16 we have not yet had time to work it out with  
17 the government that has retained you, we want  
18 you to know that we look forward to reading and  
19 thinking about your thoughts and ideas on  
20 appropriate habitability guidelines and we ask  
21 you to provide adequate and timely opportunity  
22 for us to feed our ideas back to you on your  
23 work.

Thank you.

MS. GABALSKI: That finishes with  
1 our official comments now but could we have an  
2 answer or a discussion on Joanne Hale's question  
3 that was raised earlier and Joanne, if you could  
4 repeat the question?

MS. HALE: The question was, for the  
5 fetus, determining the factor in 78, health  
6 order 78 and the supplement order of 1979 that  
7 had to do with the fetus and a pregnant woman  
8 and the child two and under and I am wondering  
9 if that could be your determining factor but  
10 also including the woman that is contemplating  
11 pregnancy and the man that is contemplating  
12 fatherhood. Not many studies, I know myself,  
13 have not been done on that. I know there have  
14 been some but from what I have read up, I know  
15 there isn't a whole heck of a lot but I think  
16 that that should be a determining factor and  
17 I would like some sort of discussion between  
18 either yourselves or just, you know, throw it  
19 at me and so I know what your feelings are on  
20 that.  
21

DR. FOWLKES: Joanne, I understand that  
22 and sympathize with your concern, using the fetus  
23

1 and the young child as perhaps the most  
2 vulnerable indicator of health risk except to  
3 point out the obvious, it was an adequate  
4 indicator for the residents of the area in  
5 1978 and the risk posed to the fetus and  
6 children under two was thought to suggest or  
7 imply risk to the even larger population on the  
8 part of the residences. So, I guess what I am  
9 really asking you is, do you mean what you are  
10 saying and that is --

11 MS. HALE: Well, I am saying, using  
12 it for anyone. Are we going to start with the  
13 egg, the woman's egg, okay, and work our way  
14 up and say, well, children two and a half could  
15 move in but we don't want any babies in that  
16 area or we don't want any pregnant women? I  
17 would like to get that clarified.

18 DR. FOWLKES: Well, we run the same  
19 risk of getting the same sort of reasonable  
20 response in residents in 1978 which is why we  
21 draw the line at two and wouldn't use, say, a  
22 man at 65 with a heart condition. I mean, these  
23 are the most vulnerable I suppose or among the  
most vulnerable of human conditions but they

1 are not the only ones affected. I am just asking  
2 you if you would really be satisfied.

3 MS. HALE: That is going to be part of  
4 the Triangle Research Institute.

5 DR. FOWLKES: I think you also would  
6 like us to have, and I would too actually, the  
7 information upon which the New York State  
8 Department of Health based its decision or  
9 recommendation for that initial relocation.

10 DR. HUFFAKER: That was based on  
11 chemical findings in the houses and the  
12 determination exactly as you said, that the  
13 fetus and the little ones whose nervous systems  
14 were not yet complete were most vulnerable and  
15 on that basis they said they should not stay.

16 DR. FOWLKES: And that publication you  
17 feel is an inadequate summary of the State  
18 Health Department's concerns at the time as to  
19 what was in issue or what they feared was in  
20 issue.

21 DR. HUFFAKER: I'm sorry.

22 DR. FOWLKES: The public health time  
23 bomb report.

DR. HUFFAKER: Yes. Warren, perhaps

you could say it in a little different way.

1 DR. WINKELSTEIN: Yes. It would be  
2 hard for me to conceive of a public health or  
3 epidemiological recommendation that a place was  
4 habitable for adults but not for children even  
5 though it's conceivable, I mean, it is after  
6 all, we could perhaps say that people 75 years  
7 old could live in the neighborhood of a dump  
8 because it's unlikely that they would live  
9 long enough to develop cancer but as an  
10 epidemiologist and a public health person with  
11 any kind of social outlook, I would find it  
12 very difficult to make such a recommendation.  
13 So, my own feeling is that, although I wouldn't  
14 want to commit myself definitely, is that I  
15 would find it difficult as an epidemiologist  
16 to recommend habitability unless I thought it  
17 was habitable for people of all ages and both  
18 sexes and under pregnant and non-pregnant  
19 conditions.

20 DR. WIESNER: I am certainly very  
21 close to that point of view too and I think  
22 maybe in a more positive way, the question you  
23 have asked is, would you use concerns for the

1 early life reproductive and childhood as the  
2 most sensitive area that you would want to  
3 prevent adverse effects from occurring and I  
4 think the answer is, most of us would say yes,  
5 that is a very good way to start but then we  
6 wouldn't start saying, what is the next group  
7 that you can allow in there. I mean, that would  
8 be the basic central concern that one would  
9 have.

10 DR. FOWLKES: I think that is the  
11 question that she was asking or trying to. I  
12 think that was it.

13 SISTER HOFFWANN: I think that was  
14 the question that she was asking or trying to.  
15 I think that was the way, the way you just said  
16 it, discussed it, what you just stated and the  
17 other gentleman, the epidemiologist stated, that  
18 was what she was asking.

19 DR. WIESNER: Is that sufficient on  
20 that?

21 MS. HALE: Yes, perfectly clear. Thank  
22 you.

23 MR. SLACK: I have a question, Joe  
Slack. I understood that perhaps one strategy

1 for determining the habitability would be a  
2 comparison of risk, either a comparison of  
3 risk determined by some epidemiological study  
4 or perhaps some comparison of risk dependent  
5 upon environmental quality, chemical concentrations  
6 in soil and water. I got that. I believe I got  
7 that one but I don't know that I understood any  
8 other strategies that were going to be given  
9 consideration by this group and perhaps somebody  
10 could summarize the strategies that were  
11 discussed and will be given further consideration  
12 as a means of determining habitability, it would  
13 be useful.

14 DR. WIESNER: Okay. I think we ought  
15 to start that right after the break but I just  
16 want to be sure that we have covered all of the  
17 responses as far as the community is concerned  
18 before we break.

19 MS. GABALSKI: I have just one further  
20 request, Jim Patch would like to make an  
21 additional statement.

22 MR. PATCH: My name is James Patch from  
23 Lewiston and I have lived in the area for 45  
years, half in LaSalle and half in Lewiston.

1 First of all I want to say that we don't have  
2 one problem in Niagara Falls, we have major  
3 dump sites all over the place and the same  
4 general criteria applies to all of them, the  
5 same bedrock and the same migration. There is  
6 different numbers of people involved but it is  
7 silly to have ten different studies made of  
8 the same general problem. It's the same chemicals  
9 and they migrate the same, they have the  
10 insoluble phase that is very dangerous, it eats  
11 the rubber off pumps and wet suits and everything  
12 else and soon goes into the Niagara River with  
13 all the kinds of problems but I would like to  
14 enter this whole book if I could. This is a  
15 Nutrition, Stress and Toxic Chemicals by  
16 Arthur J. Vanders, M.D. and if anybody has a  
17 problem with communication which I have always  
18 had all my life as an engineer, this guy can  
19 talk so that lay people can understand. It's  
20 a credibility problem with the exception of one  
21 girl here. I haven't heard anybody that can  
22 talk to lay people and make it understandable.  
23 We have a credibility gap. He said it's possible  
to make it understandable, that any intelligent

1 lay person, practically any of these health  
2 problems, we all have the capability to under-  
stand, any intelligent lay person.

3 I have a little higher than average IQ  
4 but at least I had no trouble with this. The  
5 only problem was I had trouble putting it down  
6 because it covered so many controversies and  
7 was so darn interesting. For instance, Donald  
8 Kennedy, President of Stanford University,  
9 former Commissioner of Food and Drugs said it's  
10 the best section on the treatment of saccharin  
11 problems that he has ever heard and it's very  
12 clearly written and if you want to communicate,  
13 you have got to take a lesson from people that  
14 know how to communicate. Unless you have  
15 already got the knack.

16 The other thing is why in the world  
17 why don't you trust anybody? It took me two  
18 days to get a copy of this report that came out  
19 in May and you people haven't got it yet. All  
20 you have got is a little summary of the damn  
21 thing. You can't even trust your own people  
22 with the communication. The report gives the  
23 details of all this study. It took two days

getting it and I had to sign Freedom of  
1 Information and everybody suddenly didn't even  
2 have it. The County Health Department, the local  
3 DEC, none of them claim to even have a copy of  
4 the report. What kind of credibility can you  
5 get when --

6 DR. WIESNER: What report is that?

7 MR. PATCH: This is the report, the  
8 CDC report given to the individual people that  
9 took part in the study and no one else and they  
10 were told under threat of dire consequences not  
11 to give it to anybody and I can't tell you how  
12 I got it. I even took the name off of it.

13 DR. WIESNER: Well, it's widely avail-  
14 able and I'm sorry that that happened.

15 MR. PATCH: It isn't very widely  
16 available. The Gazette doesn't have a copy of  
17 it. The County Health Department claims that  
18 they don't have a copy of it. They didn't  
19 have a copy. This isn't available to anybody  
20 and I am only reasonably intelligent and I only  
21 had a chance to look at it a few days but one  
22 thing that is very obvious is there is an awful  
23 lot of discussion at the time that there was an

1 awful lot of early abortions in this area,  
2 women who could have children and moved into the  
3 Love Canal area and suddenly couldn't have them  
4 and then leave and they can. That wasn't  
5 mentioned in the questionnaire.

6 Why was there an average of 18 out of  
7 35 or so people in the Love Canal area that  
8 worked in chemical plants and the control group  
9 went up to 30, 32 that worked with chemicals  
10 and worked in chemicals. That is not a fair  
11 comparison. Was that carefully taken out in  
12 your analysis of variants? It didn't say so and  
13 that is in Table 4 and Table 6. Table 4 wasn't  
14 repeated for the second group but Table 6 which  
15 you will get when you get the thing shows that  
16 there was 11 excess out of 17 mismatches where  
17 there was again a high number of people taking  
18 the control group that worked in the chemical  
19 plants, presumably brought home chemicals in  
20 their clothes and their hair and this and that  
21 and certainly their blood was taken as far as  
22 the samples so they were a large portion of the  
23 sample which wasn't a fair comparison.

The other thing, if you very casually

1 read this book, you will see that you have  
2 mentioned, you haven't of course explained it,  
3 this period of latency exposure was very short  
4 for these people. The chemicals didn't start  
5 to come up until '75 or '76 when people began  
6 to notice that the chemicals were coming up  
7 anyway and in '79 everybody moved out and before  
8 that the pregnant mothers moved out. So that  
9 exposure time was rather low compared with  
10 smoking cigarettes all your life. You are  
11 asking people to live there the rest of their  
12 lives so the extended period of exposure is  
13 entirely different.

14 Second, in the article The Politics  
15 of Cancer which is a little more critical, on  
16 Page 158 it gives the whole history of how long  
17 it takes to overcome the effects of smoking  
18 after you stop and some of these carcinogens  
19 are quite similar to what you are talking about.  
20 It gives the number of years it takes to lose  
21 the effect and 41 months average time after  
22 they left before you start taking a sample is  
23 much too long to get an accurate picture of what  
the current exposure is. It's much too long.

1 DR. WIESNER: I think all of those  
points are very important.

2 MR. PATCH: And this is something that  
3 most anyone in the audience, if you take this  
4 step by step, like some of you people are  
5 capable of doing, you can get some credibility  
6 if you give us a chance but when you say you  
7 can't even have it, you don't have copies --

8 DR. WIESNER: I'm really surprised  
9 how that happened.

10 MR. PATCH: Well, we have got an awful  
11 political situation here.

12 DR. WIESNER: Well, actually I don't  
13 know that that is the political side of it  
14 because we want to make that available. That  
15 report is available to anybody who wants it  
16 and it was actually when we came around in --

17 MR. PATCH: My experience was two days.

18 DR. WIESNER: Okay. Well, one of the  
19 concerns that we did have, I mean to be honest  
20 with you, was to have a report that is in the  
21 press and confused before we were able to sit  
22 down and talk with the individual participants  
23 and there was a concern about moving rapidly

there but after we got the individual reports  
to the participants, this report is available.

So --

DR. DAVIS: May we have a factual clarification just on this point of the fetal protection? I think this is important. There is good, sound, theoretical reasons to think that the most vulnerable human process is spermatogenesis, that is the manufacture of sperm. So, just because people often think about protection of the baby, protection of the female, the male may be as sensitive or more sensitive than the female when it comes to the things that prevent them from producing healthy children but I agree with the comment that Dr. Winkelstein made and the others made, this should be a healthy environment for people throughout the age spectrum and for all the things that people do in their homes.

DR. WIESNER: The break has ended but I think all of us at the table are going to have to have five minutes to get up and stretch.

(Whereupon the above proceedings were recessed for ten minutes.)

DR. WIESNER: All right, maybe we  
1 should start. Two things now, one is, let's  
2 get some direction on when people are going to  
3 have to hit the road to the airport.

4 (Discussion off the record.)

DR. WIESNER: Now the second mention  
5 is that the CH<sub>2</sub>M Hill people have asked me to  
6 mention that one of the resources that they can  
7 make available to the consultants is setting  
8 up conference calls if you should want them as  
9 we go through this process. So, you don't  
10 have to have -- I don't know exactly what that  
11 means but if a conference call is something  
12 that you wanted to do between one or two or  
13 three or more of you, that can be set up.

14 I think they are going to have to  
15 write to the consultants and point out these  
16 services and point out exactly how to carry it  
17 out. I mean, it is not something that they are  
18 just going to remember off the top of their  
19 head.  
20

21 MR. HOFFMAN: Yes, it's pretty open  
22 in terms of the kinds of support we can provide  
23 in terms of budget and manpower but we are pretty

1 open in terms of what needs to be done. The  
2 only question I would ask is that if there are  
3 concerns about -- I would hope by now that all  
4 of you would have gotten in the mail a copy of  
5 the subcontract that needs to be executed so  
6 you can get paid and if you have questions  
7 regarding that, give me a call in terms of  
8 getting bills to us.

9 DR. WINKELSTEIN: What I was going to  
10 ask is, it seems to me that we ought to have  
11 sort of a starting point and I would like to  
12 toss out for discussion that perhaps after we all  
13 go home, maybe each of us should write a letter,  
14 not too long, sort of giving our view of what  
15 we would see ourselves doing and maybe we ought  
16 to send a copy to everybody else. I mean, we  
17 have to have somewhere to start unless you want  
18 us to work, I mean, if you want us to work in  
19 any sense interactively, we should do something  
20 like that. If you prefer us to work totally  
21 independently, tell us so because I am a little  
22 at a loss but I think it would be very helpful  
23 if I put my thoughts down and then I send  
everybody else a copy of my thoughts and they did

1 the same for me. Then we could begin to see  
2 where we are going.

3 DR. CHALMERS: Actually let them be  
4 distributed after all of the thoughts are in,  
5 whatever you want.

6 DR. WIESNER: I think that is a very  
7 good suggestion. We ought to just do it.

8 DR. CHALMERS: I would like to amend  
9 it by suggesting that everybody put it in a  
10 sealed envelope to send to you, a prediction.

11 DR. STOLWIJK: To be opened later.

12 DR. CHALMERS: Yes, only after a  
13 decision is made.

14 DR. WIESNER: As intriguing as that  
15 is, I would hate to be involved in a situation  
16 where we are passing sealed envelopes because  
17 this is an open forum so let's keep it open.

18 DR. HUFFAKER: I would suggest then  
19 that you send me your letters, we will reproduce  
20 the letters and make a mailing then back to  
21 all of you as soon as we get them and I'll have  
22 a copy for Anita and OGS and so on.

23 DR. WIESNER: Yes. I think that I  
like that suggestion because I think we would

1 like in the next hour and fifteen minutes to get  
2 to a clear point about at least some of the  
3 points that we would like to have you address  
4 in that letter. I mean, you can say anything  
5 you want to say but there are some very specific  
6 points that we would like to hear and I will  
7 start, I am deviating a little bit from the  
8 agenda and let me ask whether that is a problem  
9 for anybody because we have on the agenda  
10 previous habitability statement by CDC, OTA  
11 critique, CH<sub>2</sub>M Hill resources and then habitability  
12 options and strategies. I suspect if we spent  
13 the next -- we could easily spend the next hour  
14 and fifteen minutes discussing the next three  
15 items and the critical one to get this process  
16 started is the last one and that is talking  
17 about approaches and strategies but I want to  
18 open that up for discussion among the consultants.

18 DR. STOLWIJK: The last point of  
19 discussion, would you like to set a date by  
20 which you would like to have these for  
21 distribution?

22 DR. WIESNER: I love to set dates and  
23 one that is reasonable.

1 DR. STOLWIJK: Like the 26th of March  
or so.

2 DR. WIESNER: Is that reasonable to  
3 everybody else?

4 DR. STOLWIJK: Or is that too soon?

5 DR. PCHLAND: I have got final exams.

6 DR. WIESNER: You will pass them.

7 DR. HUFFAKER: All right. This is up  
8 to you. April 2nd is fine.

9 DR. WIESNER: No later than April 2nd.  
10 That is fine.

11 Joe Siack asked prior to the break  
12 what exactly were the strategies that we were  
13 talking about and I would be happy to open it  
14 up to anybody to try to summarize what those  
15 are or I can take a crack at it.

16 DR. PCHLAND: I think I would like you  
17 to take a crack at it because for one reason,  
18 it seems to me that somebody somewhere made a  
19 predetermined decision on how much effort it  
20 was going to take each of us to respond to our  
21 task, meaning CH<sub>2</sub>M Hill told me how many days  
22 I was going to spend and how fast I was going to  
23 get all of my thoughts together and so I guess

maybe it is worthwhile hearing from you.

1 DR. WIESNER: Okay. Well, I will  
2 respond to that. I think it may very well be  
3 that we can't predict how long it's going to  
4 take but we also don't want to say it is going  
5 to take forever because there is a need to  
6 respond to the community's concerns and to the  
7 general concerns around this and I think we have  
8 actually had added one general category of  
9 strategy in these discussions already. So, I  
10 see three strategies that have been on the  
11 board, on the table and there may be more to  
12 add to it.

13 The first one and that is the one  
14 that is not on the sheet that was handed out  
15 to you and that is time. I think that is a  
16 strategy that says the major approach to this  
17 problem should be looking at the chemical  
18 contaminants in the environment over time and  
19 use increases/decreases or no change as providing  
20 direction for what one would say about habitability.  
21 That comes from the table down at the end and  
22 at the left here.

23 DR. STOLWIJK: I think that would be

1 an element that would be a useful addition  
2 to anything else that we do.

3 DR. WIESNER: Okay. You don't see  
4 that as a strategy that stands on its own?

5 DR. STOLWIJK: No. I think that my  
6 prejudice is that the more arrangements and the  
7 more perspectives we can develop on this, none  
8 of them by themselves are going to be enough.  
9 That is my fear and I think that any additional  
10 elements that we can add to an overall determina-  
11 tion I think is going to be very helpful.

12 DR. WIESNER: All right. I appreciate  
13 that but that is at least a time frame, I mean,  
14 is a cut on the strategy.

15 DR. STOLWIJK: I think also what it  
16 would do for us is take an enormous amount of  
17 monitoring data and organize out of it those  
18 elements that I think are going to be of most  
19 importance to us which is another way of cutting  
20 it. So, we don't get the pile this tall but  
21 a pile that is most useful to us.

22 DR. WIESNER: Okay. If you look at the  
23 piece of paper that you got in the mail, the  
first option there is what I would consider a

1 second strategy. Now, again, these are not  
2 mutually exclusive but it is a category of a  
3 strategy and that is to do a risk assessment,  
4 namely, look at the chemical or chemicals at  
5 the levels and the projected, expected health  
6 risks from toxicological and other data and  
7 say that these levels are acceptable or not  
8 acceptable. That is a general -- that is a very  
9 common and general strategy that is used.

10 The third then is the one that is  
11 listed as number two on Page 2 which says,  
12 compare the levels of environmental contamination  
13 in the EDA to some legitimate control or  
14 comparison area which is currently inhabited  
15 and if there are no differences or if there are  
16 differences, make judgments about the habitability  
17 of the EDA. Then I think with those time, risk  
18 assessments and comparative area, there are  
19 many, many different combinations of these that  
20 you can think of.

21 DR. STOLWIJK: There is in that  
22 context, Paul, the possibility of the second  
23 option. There are some measurements that have  
been made inside the houses here.

DR. WIESNER: Yes.

1 DR. STOLWIJK: There have been over  
2 the past year or two, there has been a substantial  
3 attempt by Lons Wallace and his group at the  
4 EPA to determine in some hundreds of houses  
5 so far the occurrence of a very large number of  
6 chemicals using G. C. Masbeck kind of approaches  
7 and he has accumulated what are not uncommon  
8 levels of chemicals that he has found in areas  
9 that are not in any kind of problem. So, that  
10 might provide you with something to compare  
11 with. That is already in the literature and  
12 that was not collected for this purpose but can  
13 be used for this purpose. That is a comparison  
14 area that does not have prior concerns.

15 DR. WIESNER: What was his name again?

16 DR. STOLWIJK: Lons Wallace. I think  
17 he tends bar at the Research Niagara Park.

18 DR. WIESNER: Okay and that speaks to  
19 what is an appropriate comparison group if you  
20 use the area comparison.

21 DR. STOLWIJK: If you don't use that,  
22 I would despair about finding the amount of  
23 monitoring and the precision and the sophistication

1 of monitoring that would have been done in an  
2 unsuspected area. It doesn't get done. So,  
3 the data problem does exist. Lons Wallace I  
4 think does have that.

5 DR. WELTY: Do you think that data is  
6 appropriate to compare with the results of the  
7 1980 EPA study then?

8 DR. STOLWIJK: I think it is the only  
9 area of comparison that really was done on a  
10 similar level of effort in houses that were not  
11 somehow contaminated or alleged to be contami-  
12 nated. His effort was to try to find out what  
13 occurs in normal spaces. So, he has a bank of  
14 data that looks at that, that identifies both  
15 the chemicals and the concentrations of the  
16 chemicals that have been found.

17 DR. FOWLKES: This is within homes.

18 DR. STOLWIJK: This is within homes  
19 that he did that.

20 DR. FOWLKES: That takes into account  
21 normal use of pesticides and chemicals.

22 DR. STOLWIJK: Exactly, exactly and  
23 the totality of those measurements might have  
a basis for comparison that might reassure us

1 or not reassure us, I don't know what they would  
2 look like but I think that is a useful basis.

3 DR. WIESNER: Those three then, timing,  
4 risk assessment and area comparisons and in  
5 area comparisons I include environmental sampling  
6 within and without houses.

7 DR. WINKELSTEIN: On that risk assess-  
8 ment thing, is that that epidemiological that  
9 we were talking about? Is that what you were  
10 talking about?

11 DR. WIESNER: Well, I guess I have used  
12 this word so much, it's taking the known  
13 chemical or chemicals and looking at their levels,  
14 estimating the exposure that humans would  
15 receive including ultimately a body burden or  
16 a dose and comparing that dose or body burden  
17 to what is extrapolated or expected from animal  
18 toxicology data. I mean, this is the kind of  
19 stuff that people are doing with a plume.  
20 I won't prejudice my views on that.

21 DR. WINKELSTEIN: You are not talking  
22 about epidemiology.

23 DR. WIESNER: I am not talking about  
epidemiology.

1 DR. SIPES: Where do you get the data  
2 to draw that kind of a risk assessment when all  
3 the data in the literature is essentially on a  
4 dose response study to monochlorobenzene or  
5 to TCDD but here you are talking about a list  
6 of 200 chemicals where the data is just not  
7 there. So, that is the chronic problem now  
8 there, how do you do that?

9 DR. WIESNER: I have no idea how you  
10 do it. I don't think it can be done but I don't  
11 want to make that arbitrary decision that it  
12 can't be done. I would like to have you  
13 consider that as a strategy and not us just  
14 set it aside. I tend to agree with you. I mean,  
15 I think there are enormous problems with the  
16 risk assessment approach.

17 DR. DAVIS: Would we be able to  
18 identify the top twenty chemicals in volume  
19 then?

20 DR. WIESNER: They are listed in the  
21 report.

22 DR. DAVIS: All right.

23 DR. WIESNER: But it's the interactive  
effects that I think is the critical argument

against this.

1 DR. DAVIS: Well, the conventional  
2 approach that some have taken is just add them  
3 all up.

4 DR. WIESNER: That is right and others  
5 have multiplied the highest risk by some  
6 "fudge factor."

7 DR. DAVIS: Right.

8 DR. WIESNER: Or otherwise called  
9 safety factor.

10 DR. STOLWIJK: I think, Paul, whatever  
11 strategy we are going to approach and I think  
12 the ones that you have here are very valid ones  
13 and very appropriate ones and what has been  
14 suggested on the table may form slight additions.  
15 I think that we need to review the epidemiological  
16 data as well, as inadequate as they may be  
17 because I think what you are ending up with is  
18 each of them provides a little piece of the  
19 puzzle and it is the totality of the picture  
20 that is going to give us the only kind of basis  
21 for judgment. It also says at the same time  
22 that absolute and quantitative pronouncements  
23 are not going to be possible, period. They are

1 not going to be able to be made but if there  
2 is a -- there are a number of different  
3 perspectives that can be applied simultaneously  
4 in ways that anybody can understand. We can  
5 then arrive at some perception of the total  
6 problem that will then allow some kind of  
7 informed judgment, judgment though it may be,  
8 that might coalesce around some way of expressing  
9 it and with the reasons for it. They could  
10 spell it out at the same time and I think for  
11 that we need all the data that are listed here  
12 but we also need to, I think, the strategy that  
13 I would, if this is a strategy that I would  
14 suggest is that we look at all of these things  
15 and make a number of independent conclusions  
16 which then in their totality lead to an overall  
17 judgment. I think that is the only way we can  
18 do it and some of these conclusions are going  
19 to involve the inability to make absolute  
20 pronouncements. So, they will be relative  
21 pronouncements. The concentrations will be  
22 relative to what exists before. The epidemiological  
23 data will put upper limits on what could have  
happened because otherwise it would have been

1 seen in the epidemiological studies. If you  
2 then combine the decreases in concentration  
3 with the upper ranges of the risk that were  
4 there before, you multiply those two, you end  
5 up with some reasonably acceptable estimate of  
6 what might be occurring at the present time but  
7 it is going to take that kind of simultaneous  
8 assessment that I think otherwise I would  
9 despair of this group ever being able to make  
10 a pronouncement that is persuasive or credible.

11 DR. SIPES: I think he is right on.  
12 As far as my own opinion, looking at the total  
13 picture, we have to have the data, the  
14 epidemiological data because we can't go back  
15 to animal studies in this particular case as far  
16 as I can see. So, we have some epidemiological  
17 data, it may not be what everybody wants but --

18 DR. WIESNER: I want to just caution  
19 everyone on the epidemiological data, that I  
20 would not hold great expectations for it helping  
21 us.

22 DR. SIPES: The population was too  
23 small?

DR. WIESNER: Well, because there isn't

1 a great deal of it that I am aware of. I may be  
misspeaking.

2 DR. POHLAND: Also it is hard to  
3 distinguish from what was in the central area  
4 and what was in the EDA.

5 DR. SIPES: This is a place where it  
6 may be useful for the future because if -- I  
7 mean, I agree with Jan, these are the kinds of  
8 considerations that are going to have to go  
9 into making the decision. If the epidemiological  
10 evidence is not adequate to make the decision,  
11 that may be a factor in what happens but it  
12 also may be a factor in giving guidance to how  
13 one deals with these situations as they arise,  
14 have arisen or have arisen because if we find  
15 that there could have been and isn't, that  
16 would be an important thing to guide people for  
17 the future.

18 DR. WIESNER: Yes.

19 DR. DAVIS: Let me just say, somewhat  
20 in defense of toxicology with an epidemiological  
21 aspect, that if you make epidemiological studies,  
22 that is a study of people, the requirements  
23 for action, then you will not take any action and

1 you have got to be very careful about doing  
2 that because in the past that has been  
3 misinterpreted by some as saying until we have  
4 evidence of human harm, we won't do anything.  
5 I happen to think that that is not an ethical  
6 position. Some people have taken it. I suppose  
7 it's a political decision it sounds like. So,  
8 you are left with having to use other evidence  
9 and I don't know what alternative there is to  
10 using some kind of surrogate of risk, some kind  
11 of estimate of risk like animal data provides.

12 Now, there are all the problems with  
13 animal data but it is, to the extent it is  
14 available, there ought to be a way to use it  
15 and we ought not to say that it's completely  
16 irrelevant. We can tell you, you know, some  
17 chemicals are far worse than others. We can't  
18 predict it down to, you know, a .002 level but  
19 I would hate to see it not used where it exists.

20 Now, the fact that we don't have it  
21 for all of these chemicals, that is a serious  
22 problem but one has to, in this situation, you  
23 can't keep telling people wait.

DR. WINKELSTEIN: Isn't that the case

with dioxin?

1 DR. DAVIS: What, that we don't have  
2 adequate data?

3 DR. WINKELSTEIN: Epidemiological  
4 data.

5 DR. DAVIS: Well, actually there are,  
6 in CDC there are some data emerging on that,  
7 the MMWR two weeks ago, last week.

8 DR. WIESNER: The case report, I  
9 wouldn't go too far on the epidemiology on that  
10 but you couldn't establish dioxin as a dangerous  
11 chemical on that epidemiological data.

12 DR. STOLWIJK: I agree with you.  
13 However, that particular thing on the MMWR is  
14 a typical example of what one does when there  
15 isn't enough and you have to arrive at some  
16 logical thing, some logical way to proceed,  
17 right?

18 DR. WIESNER: I agree with that. I  
19 think that there is degrees of information but  
20 that report in the MMWR is not an epidemiologic  
21 study. It's a case report.

22 DR. DAVIS: I wasn't meaning to imply  
23 that it was but concerning the apparent lack of

1 epidemiological evidence on TCDD, I think in  
2 probably the next five years that will change  
3 but in the meantime, you know, we have evidence.  
4 We even have evidence reported in last week's  
5 Science Magazine that guinea pigs which were  
6 fed the dioxin contaminated soil from Times  
7 Beach got to be very sick and very skinny.

8 DR. POHLAND: You would get skinny  
9 too eating soil.

10 DR. DAVIS: More so than the control.  
11 So, I think that we ought to use the animal  
12 evidence. If we don't use animal evidence,  
13 effectively what you are doing is saying we are  
14 going to wait for human evidence and I think  
15 that that is not a good position. Now, there  
16 are problems with using animal evidence. The  
17 risk assessment is a bit of a black art. I  
18 mean, certainly I would agree with that but I  
19 think that where it exists it would be foolish  
20 not to use it. I am not defending it and saying --

21 DR. WIESNER: No. I think that we are  
22 coming to the point that I suspected we might  
23 come and that was that we are going to want to  
do everything and there may be a strong argument

1 in favor of that and the worry that I have and  
2 the reason I have kind of tried to slow this  
3 down from saying we ought to do everything right  
4 off the bat is we might leave components of that  
5 "everything" out and I want to be sure that  
6 any other strategy that would, you know, just  
7 a simple who, where, why, what, when, how kinds  
8 of questions, that epidemiologists and statisticians  
9 should be asking and I tried to listen to this  
10 through the day and I thought I heard a strategy  
11 from Dr. Fowlkes something about listening to  
12 complaints of the residents and I think that is  
13 important to do that but I am trying to -- I was  
14 trying to conceptualize that.

14 DR. FOWLKES: I was actually being  
15 conceptual and maybe not very articulate. I was  
16 merely suggesting a sociological reason for  
17 examining the epidemiological information which  
18 has to do with the question of what does this  
19 mean to me and my family and then the other was  
20 I think satisfied by Dr. Stolwijk's suggestion,  
21 to answer the question of how safe is my home,  
22 to at least begin to close in on that, that is  
23 the best way of putting it I think.

1 DR. WIESNER: So, that is not an  
2 overall strategy. That is actually the outcome  
3 that we are looking for.

4 DR. FOWLKES: Right. I would like to  
5 add to that and possibly to your burdens, I  
6 think it's very important that we don't operate  
7 with a predetermined definition of what is  
8 data, that is to say, that there is officially  
9 supported or sponsored data that have come out  
10 of the Love Canal problem, that is to say,  
11 government agencies in one place or another  
12 who have supported and done studies with  
13 additional interpretations and there are other  
14 studies such as Beverly Pagan. I think it's  
15 important that we operate, if we are going to  
16 go the whole route and say let's array the data,  
17 then let's array the data as it exists with all  
18 the debates intrinsic to it so that we are  
19 beginning to get a hold of it.

20 DR. HUFFAKER: Let me ask you a  
21 question: On the Pagan and Cook papers, both  
22 of these are someplace between preparation and  
23 publication and if we used them here we will  
make them public. This is part of the compact

that we have.

1 DR. FOWLKES: Well, in the Pagan  
2 study, for example, and this is just one  
3 example, there are earlier Pagan studies, other  
4 people other than the official scientists under  
5 government auspices have done studies, collected  
6 data and done studies and offered interpretations  
7 of Love Canal and that is all I'm saying is that  
8 to the extent that that literature is identified,  
9 it should be included in the definition.

10 DR. HUFFAKER: Well, help me out a  
11 little bit then and send those to me if you have  
12 them and if we haven't sent them to you in the  
13 package and we will reproduce them or get  
14 permission to do so and then send them back out  
15 for your consideration so everybody will see  
16 the same material.

17 DR. DAVIS: I believe someone here  
18 does have the John Christian article about  
19 the Voles. So, that will be given.

20 DR. WIESNER: We thought that was in  
21 the packet.

22 DR. WINKELSTEIN: There are also health  
23 department studies that aren't published.

1 DR. FOWLKES: Yes. I would like to  
2 see the official ones that haven't been issued  
3 yet.

4 DR. WIESNER: That is very troublesome.

5 DR. HUFFAKER: I agree with you.

6 DR. CHALMERS: You hit upon a very  
7 important issue which I had once when I was  
8 chairman of a group investigating the Food and  
9 Drug Administration in which we recognized all  
10 of the great advantages of having our hearings  
11 in public and having everything accessible to  
12 the public and against that we had to weigh the  
13 disadvantages of people who had scientific  
14 material in preparation who would be unwilling  
15 to give it to us if it meant giving it to the  
16 public for the very understandable reason that  
17 they wanted to finish going over the data and  
18 draw their own conclusions before it was argued  
19 in the press.

20 I think if you are going to fulfill  
21 both of these sometimes conflicting goals, you  
22 have to set up another mechanism and that is  
23 have an executive kind of, either a session or  
circulation in which material which is not to be

1 released to the public is made available to  
2 the members because I would hate to see us  
3 draw conclusions based on an absence of data  
4 when the data were available.

5 DR. STOLWIJK: There is also the  
6 peculiarity that some journals are very proud  
7 of their original publications and they will  
8 prohibit you from publishing anything that has  
9 appeared in the press anywhere and that is a  
10 valid constraint that might result in some  
11 materials not being available to us if they  
12 could be expected to end up in the public press.

13 DR. FOWLKES: I don't know to what  
14 extent or how much volume of research actually  
15 that we would be working with that gets into  
16 that category.

17 DR. CHALMERS: Well, we have heard  
18 of the availability of research that has not  
19 been reported through peer review journals  
20 as yet and therefore the authors would be  
21 unwilling to release it to the press.

22 DR. FOWLKES: But that is one author,  
23 one or two possibly, two pieces.

DR. WINKELSTEIN: Those could be critical

papers.

1 DR. FOWLKES: They could be and we  
2 might find out whether we want to keep it in the  
3 public and wait, depending on the waiting  
4 period.

5 DR. DAVIS: Sometimes committees like  
6 this can use it in executive session.

7 DR. STOLWIJK: We would hope that that  
8 would be possible so that we wouldn't be denied  
9 access to things.

10 DR. CHALMERS: And there is that  
11 possibility that we would be denied access to  
12 things.

13 DR. STOLWIJK: Yes. I would reject  
14 outright the possibility that we would not look  
15 at data because we wanted to be with the public  
16 because there is a possibility for making an  
17 informed decision based on all the available  
18 data.

19 DR. FOWLKES: I wasn't arguing with  
20 that. I just suggested that we see the time  
21 periods involved and if it is not overwhelming,  
22 on this point --

23 DR. WIESNER: Let me do one more round

on this. Are there categories of strategies that we haven't thought about?

1  
2 DR. DAVIS: Well, I can think of a  
3 question and maybe you discussed it before and  
4 I wasn't here, perhaps Dr. Pohland and others  
5 can identify what environmental data, what is  
6 the minimally acceptable data set of environmental  
7 data. I have heard it said that there are tens  
8 of thousands in the Niagara Falls area and that  
9 the experimental and control groups both had  
10 large numbers of persons working in chemically  
11 exposed work force. If in fact this is an area  
12 where there is extensive chemical exposure,  
13 then that is a very important piece of infor-  
14 mation and we may be in a very strange situation  
15 of recommending making Love Canal cleaner than  
16 anyplace else around it and I don't know if any  
17 of this is the case. I have not studied this  
18 data but I think that in a sense the environmental  
19 data, the characterization of the site, the  
20 hydrogeology of it and its surrounding area is  
21 very important and do these data exist now to  
22 answer the question of what is the environmental  
23 pollutant burden of the area around here in

1 general. If those data don't exist and you  
2 are doing sampling, you may be, you know,  
3 sampling like a gradient, if you will. Instead  
4 of sampling so-called dry and wet areas there  
5 may be degrees of wet or degrees of exposure  
6 and I think that that, to my mind, is kind of  
7 like the first question that we have to have the  
8 answer to. Until we know that, I don't think  
9 we can really get into all the more detailed  
10 ones.

10 DR. POHLAND: Well, as I understand it,  
11 in talking with the person from CH<sub>2</sub>M Hill, part  
12 of what I would like to see and maybe I don't  
13 want to wade through all the data but I would  
14 like to see the experimental protocol that was  
15 set up for the area and the basis for a decision  
16 for sampling and monitoring. Normally in  
17 circumstances of groundwater contamination or  
18 suspicion of groundwater contamination, there  
19 will be hydrogeological data available for the  
20 whole area from which can be made some reasonably  
21 valid predictions as to how things might behave,  
22 recognizing where the groundwater is and every-  
23 thing and I have to believe that was taken into

1 consideration but I would like to get that  
2 confirmation. At that point in time then some  
3 judgments can be rendered with regard to the  
4 adequacy of sampling and analyses.

5 The other things that I feel must be  
6 part of this overall strategy is that sooner or  
7 later this group has to come to grips with the  
8 decision and that decision is to inhabitate or  
9 not to inhabitate or maybe to recommend some  
10 other type of use function.

11 Now, implicit in that, in my mind,  
12 is that somehow the decision has to be conditional  
13 and that is certainly true if you decide to  
14 inhabitate. If you think it is inhabitable,  
15 then I believe there must necessarily be  
16 additional aspects to the control and there may  
17 be many other sources that have yet to be  
18 uncovered and the reliability of that control,  
19 the system for treatment, maintenance of the  
20 containment system and so forth. So, I think  
21 that every one of us must necessarily think  
22 about various options as we go through this  
23 process, recognizing the implications of any  
24 decision that is made and I think it goes beyond

1 that, if I may say one more thing, I think this  
2 particular case has gotten so much visibility  
3 that whatever we decide to do is going to  
4 implicate every other site of any kind of  
5 similarity and I am concerned when I hear about  
6 the desire to be completely confident in  
7 decisions relating to impacts on human beings  
8 because we will never be able to declare a site  
9 habitable if we want this complete confidence  
10 in the decision that we might make and if we  
11 should go so far as to say, well, we declare  
12 this area for whatever reason, uninhabitable  
13 for whatever use purposes, family dwellings,  
14 whatever, then I think we might as well recognize  
15 that at that point in time we may well have  
16 opened up similar questions everywhere else  
17 throughout the country.

17 DR. DAVIS: What would your view be  
18 on the report about the backup in the storm  
19 sewers?

20 DR. POHLAND: Well, I want to see that  
21 obviously because that is an uncertainty that  
22 has been heretofore not addressed. Now, I think  
23 it may be fortuitous in some respects that some

of this has probably disappeared into the environment and its vast dilutional capacity has taken it from the site. On the other hand, I would suspect that these studies will indeed demonstrate that soils which are notorious for absorption of certain types of chemicals in the sludge deposits in the rivers and so forth, will in fact demonstrate that these have been contaminated in the past and may not necessarily demonstrate they came from Love Canal but these are issues of uncertainty that I feel have to be packaged in our decision because if they are not properly addressed, the reliability and the faith that the user public or the listener or the impact that the populations have on what we do will be greatly diminished.

DR. STOLWIJK: Could I ask Dr. Pohland a question that sort of popped in my mind as we drove through the area? Based on your experience is it possible to say definitely yes, definitely no or maybe that the EPA would certify a landfill for hazardous wastes in this kind of geological formation in the circumstances that it's found?

DR. POHLAND: Maybe you should ask the  
1 EPA that. I guess it's not a fair question  
2 because of the fact that it exists but let me  
3 respond this way: I think that for a hazardous  
4 waste disposal site, this kind of landfill would  
5 not exist because nowadays you have to have  
6 what is loosely called a secure landfill which  
7 means basically a very impermeable liner with  
8 a monitoring system below that liner, or a double  
9 liner system with monitoring wells and so forth.  
10 It couldn't exist.

11 DR. STOLWIJK: And no groundwater.

12 DR. POHLAND: Well, yes and above the  
13 ground, high groundwater table. So, it really  
14 couldn't exist but the fact that it does --

15 DR. STOLWIJK: It can be maintained.

16 DR. POHLAND: It can be maintained  
17 but it requires a scheduling and attention to the  
18 fact that things don't last forever. The reason  
19 for the twenty years I suspect is the fact that  
20 the liner manufacturers won't give you a guarantee  
21 on their liners past twenty years. So, there  
22 are a lot of these things that just kind of pop  
23 up and we use them as guidance.

1                   So, in an engineering sense we are  
2                   not, I suspect, going to come up with the  
3                   ultimate solution to any of these problems but  
4                   at least what should be applied and scrutinized  
5                   is the state of the art technology looking for  
6                   something better in the future.

7                   DR. STOLWIJK: It is manageable but  
8                   you would not have chosen to do it that way.

9                   DR. POHLAND: Well, not if I knew what  
10                  was coming down the road.

11                 DR. STOLWIJK: And then the question  
12                 becomes, does the improvisation, so to speak,  
13                 with the Love Canal situation, approximate  
14                 safety standards of a secure landfill.

15                 DR. POHLAND: I think, from what I  
16                 have seen and of course I have to --

17                 DR. FOWLKES: But isn't that a criteria  
18                 or a strategy?

19                 DR. POHLAND: Yes. I think that the  
20                 techniques that were used and are being used and  
21                 intended to be used are sound.

22                 Now, outside of this area of influence  
23                 now which goes on out there, really nothing has  
                  been done other than monitoring to some degree

1 as I understand it. Now, if monitoring should  
2 develop in such a way that an additional area  
3 of concern outside of this containment area  
4 crops up, then that necessarily should be  
5 addressed separately.

6 DR. WIESNER: But that is interesting  
7 because I think as we wait long enough, we  
8 actually have articulated another strategy which  
9 says, is the setup and I am not an engineer so  
10 that is how I will describe it, is the setup  
11 for containment of the chemicals, how close is  
12 that setup to what occurs if you had preplanned  
13 a secure landfill. Isn't that the question and  
14 that would be a set of --

15 DR. POHLAND: Well, "close" is a  
16 relative term.

17 DR. WIESNER: But I think all of this  
18 is going to be close.

19 DR. FOWLKES: I wasn't asking for  
20 your conclusions. I was suggesting that perhaps  
21 it's an additional criteria that would have to  
22 be considered.

23 DR. STOLWIJK: If I understand it  
correctly, what we have here is something that

1 can be managed to work as well as a secure  
2 landfill. The difficulty is that it is done  
3 at a level of economic cost that is higher than  
4 it would have been.

5 DR. MILLER: But the question is,  
6 even at that, is that adequate.

7 DR. WIESNER: That is what we are  
8 going to find out.

9 DR. DAVIS: You know, we are dealing  
10 with all of this in some sense generalizing  
11 from the unknown to the unknown because the  
12 new regulations which have been so many years  
13 in getting in place now, they are out there  
14 today on the Love Canal site testing for  
15 compliance with Phase 2, is that right, Bob?

16 MR. OGG: I believe that was the first  
17 trip and the people who were dealing with that  
18 regulation, I believe that was the first trip  
19 to see what the site is all about. My assessment  
20 was they were just looking. This was the first  
21 inspection.

22 UNIDENTIFIED VOICE: The only purpose  
23 they were out there for was a retrophy inspection  
of the plant. That had nothing at all to do with

1 anything other than the Love Canal leachate  
2 plant.

3 DR. WINKELSTEIN: What were they doing  
4 out there in the middle of the field then  
5 digging a hole?

6 UNIDENTIFIED VOICE: They had some of  
7 their own people out there. They had DEC  
8 people out there.

9 DR. WINKELSTEIN: I'm getting confused.  
10 I don't know what you are talking about. We  
11 saw a team out in the middle of the field  
12 drilling a hole.

13 DR. WIESNER: Doug, I think that the  
14 question just was, what were your DEC people  
15 doing out there.

16 UNIDENTIFIED VOICE: As I recall, they  
17 were repairing in some of these areas, what  
18 they told me yesterday it was regarding some  
19 pump seals and stuff like that. They had to do  
20 some bracing up.

21 DR. WIESNER: Fine, good.

22 DR. WINKELSTEIN: I just wanted to  
23 know.

DR. POHLAND: Keep in mind, there are

two laws, RECRA applies to new sites and the Superfund applies to the old sites. So, it is not directly a RECRA thing.

DR. WINKELSTEIN: Just don't use all these acronyms you guys. Some of us don't know what they all mean. Some of us live in California.

DR. WIESNER: Okay. Now, we have listed in our minds anyway and the more I think about it we probably ought to write you a letter before you write us a letter in terms of trying to provide some summary of this, you know, in these categories so that we can get some specific responses but at least we have dealt with a list of possible strategies and although I hear a kind of a common individual opinion here that you ought to probably use all of these strategies and combine them and identify the uncertainty around each and there may be some additive certainty that we can give to the final interpretation as a result of that, I think everybody ought to go home and think about that idea before we bite off on it completely.

DR. WINKELSTEIN: Can I add something?

1 DR. WIESNER: Another strategy.

2 DR. WINKELSTEIN: I just wanted to  
3 mention something here that was sort of over-  
4 looked and that was in 1850, Emanuel Shaddok  
5 recommended that every community have an ongoing  
6 surveillance of its disease status and that has  
7 been forgotten. It's a recommendation for  
8 public health that for a variety of reasons  
9 people have felt is neither feasible nor anything  
10 else yet if we had what Shaddok had recommended  
11 in 1850, a lot of our problems could be a little  
12 bit more easily dealt with because we would  
13 know what the background pattern of disease is  
14 in the community. I am not recommending it.  
15 I am just tossing that out.

16 DR. WIESNER: Coming from CDC, we'll  
17 say "yea, yea" to that.

18 DR. DAVIS: That is what the new  
19 toxic substance agency is supposed to be doing,  
20 right? How many people are in that agency now?

21 DR. WIESNER: Well, if we could move  
22 on --

23 DR. POHLAND: I think he answered your

question, Levra, very well.

1 DR. WIESNER: If we could move on to  
2 the, I think related question and that is, do  
3 you need as individuals to decide on a strategy  
4 before we can give CH<sub>2</sub>M Hill some direction on  
5 how to array the data or do you want them to  
6 get whatever data there is in your hands so you  
7 can --

8 DR. DAVIS: From whatever sources.

9 DR. WIESNER: From whatever sources,  
10 data in the broadest sense and have you then  
11 look at it and think about it or do you want to  
12 wait for the next discussion to try to consider  
13 specific ways that the data ought to be arrayed?

14 DR. DAVIS: Can I recommend that we  
15 split into two or three groups right now and that  
16 each group answer the question? The groups could  
17 be epidemiology, toxicology and engineering and  
18 you don't even have to go into a group because  
19 of your expertise but --

20 DR. POHLAND: I guess I will sit here  
21 by myself.

22 DR. DAVIS: You don't even have to go  
23 into a group because of your expertise but

1 because of your interest in a particular issue  
2 involved and come up with, what do you need  
3 with respect to environmental engineering, what  
4 kinds of information do you need and what do you  
5 need in terms of epidemiology and toxicology.

6 DR. POHLAND: Well, my problem with  
7 that is that your discussions in areas outside  
8 my expertise is very important to me because  
9 it gives me a sensitivity to issues that I may  
10 not otherwise consider.

11 DR. STOLWIJK: I think we have done  
12 better sitting around the table making progress  
13 than we would have done it if we had sat in  
14 the corner.

15 DR. POHLAND: I will reiterate my  
16 position on all of the data. I don't think I  
17 want to wade through all the data and I don't  
18 think the project can afford me to wade through  
19 all the data and it was my understanding that  
20 at least for the environmental data, that CH<sub>2</sub>M  
21 Hill would make at least the first cut for us  
22 and I think that that would be wise.

23 DR. WIESNER: I think that that is  
true but I don't want -- I mean, that first cut

1 is going to depend upon what we want out at the  
2 end of it a little bit and do we have enough  
3 direction from listening to CH<sub>2</sub>M Hill.

4 DR. POHLAND: Well, they are having  
5 a work plan and I would be glad to review the  
6 work plan and see whether there are elements  
7 in the work plan that satisfy what I think I  
8 need in getting the data.

9 DR. STOLWIJK: I think it would be  
10 useful to have not only a complete listing of  
11 all the health effects data that are around  
12 that we discussed earlier, I think it would also  
13 be useful to have a complete listing of those  
14 bits of environmental data that sit around and  
15 what is in them, who took them and when they  
16 were taken because I think that if we had a list  
17 of that, then at least we know what might be  
18 of interest. If we don't have a list then we  
19 are sort of stabbing at it, we don't really know,  
20 such as a descriptive title and dates.

21 DR. HUFFAKER: I think that is almost  
22 available now.

23 DR. STOLWIJK: I assume that it is but,  
you know, if you go over it and go over it with

1 the technical review committee which probably  
2 together manages everything that goes on in sight,  
3 you collectively could probably make sure that  
4 this is a complete listing and make some assess-  
5 ments as to the total volume of data that is  
6 available and the nature of the data and when it  
7 was gotten.

8 MR. HOFFMAN: Well, there is at this  
9 point in time we probably have got a listing of  
10 all the documents in terms of title, authors and  
11 dates, not what I would call descriptive titles  
12 or key words but at least for probably 80 or  
13 90 percent of the information that is available  
14 on the canal at this point.

15 DR. WIESNER: When can you have  
16 100 percent?

17 DR. STOLWIJK: The difficulty we have  
18 with that is that if you use descriptive titles  
19 on the title of a report, that it often hides  
20 very effectively what is really in there. It  
21 may announce more than it has and it may not  
22 actually announce adequately all that is buried  
23 in there. So, some kind of an abstract that  
actually deals with the quantitative aspects of

1            what actual data is available under that report  
2            or what more data underlies it which often the  
3            report doesn't have all the data that is actually  
4            available on which it was based. Do you under-  
5            stand what I mean? We don't know all of these  
6            things. All of you people that are involved  
7            with it have a much better feeling but --

8                    DR. WIESNER: Well, no. I think you  
9                    could put all of us at the table in the same  
10                   category. I mean --

11                   DR. STOLWIJK: Well, what I mean is,  
12                   very often the strategy of how you are going to  
13                   pursue or how you are going to cut this data  
14                   really depends on what is actually there and if  
15                   you don't know the precise descriptives of what  
16                   the data set looks like, you can't really go very  
17                   far. At least I find it very difficult to go  
18                   from a title because I have to guess at what they  
19                   have.

20                   DR. WIESNER: So, we are asking as  
21                   quickly as possible and more complete than just  
22                   a line listing. We are particularly interested  
23                   in source, time and other backup that leads to  
                 the report.

1 DR. STOLWIJK: Most of the environmental  
2 data sets I suspect have been gotten at the time  
3 at a cost of hundreds of thousands of dollars  
4 per data set and I think it's worth actually  
5 spelling out what is in there before we disregard  
6 it or before we lose the opportunity to  
7 effectively use it.

8 MR. HOFFMAN: I guess my question is,  
9 it's related to the resources that the group of  
10 individuals has to review that kind of infor-  
11 mation and I mean, it could be a staggering  
12 amount of information.

13 DR. WELTY: I think they are just  
14 asking for a one paragraph description. If  
15 there were 500 samples taken in September of  
16 1980 by the New York State Health Department  
17 and these samples included.

18 DR. STOLWIJK: The determination of  
19 these and these chemicals and by definition it  
20 didn't look for any others presumably. It needs  
21 to say, the samples were of air or water or soils  
22 and these were the things and this was the method  
23 of determination used. I mean, that would be  
very useful and this was the geographic

distribution of where it was taken.

1 DR. FOWLKES: A summary of the research  
2 design.

3 DR. DAVIS: For example, in 1978  
4 volumetric sampling was done in the basements  
5 of homes and found high levels of such and such  
6 et cetera. By the way, that is indicated here  
7 in the Clark-Heath paper that in 1978 some kind  
8 of volumetric sampling was done in basements in  
9 those homes and was it done once, how many samples  
10 were drawn, what kind of analytic methodology  
11 was used and are those homes available for  
12 additional sampling now, would it be worthwhile  
13 to do it.

14 DR. WIESNER: Well, those particular  
15 homes but it may apply to other homes.

16 DR. STOLWIJK: And it still would be  
17 important, even the homes that aren't there  
18 anymore, it still would be useful for us to know  
19 what sorts of measurements were available in them  
20 because it still provides us with a perspective  
21 as to what the remaining homes are actually faced  
22 with. It still is a useful thing to have.

23 DR. WIESNER: Well, what I am hearing

1 is that we are willing to think and provide  
2 opinions on the strategies but right at this  
3 point in time we would like to get to work on  
4 seeing all of the -- as much array of the data  
5 and line listing and I think it's going to be  
6 useful to do that at some kind of operational  
7 interval, of course, you won't provide everything  
8 but something less than everything and not just  
9 a line listing and then if we need more or need  
10 less, to think about this further in May, we  
11 can give different direction on it but it sounds  
12 like the people want that to get started now,  
13 right?

14 DR. WINKELSTEIN: I think it would be  
15 useful if you could send us a scope of the  
16 work for the contract. You must have a contract  
17 with this outfit.

18 DR. WIESNER: EPA does.

19 DR. WINKELSTEIN: I think that would  
20 be very useful to send us the scope of work.

21 MR. HOFFMAN: We have been trying to  
22 get some copies here before you leave.

23 DR. WIESNER: Maybe what your question  
is, is what we are describing included in that

scope of work.

1 MR. HOFFMAN: We were just talking  
2 about that. The number of documents that exist  
3 that have information in it was in the thousands.

4 DR. FOWLKES: These are studies or  
5 just references?

6 DR. WIESNER: This is back to your  
7 comment about what is data.

8 DR. WINKELSTEIN: Well, once we set  
9 a scope of work, we don't really know what these  
10 guys are doing.

11 DR. WIESNER: My hope was that the  
12 scope of work was general enough that we could  
13 start providing them some more specific direction  
14 as we were.

15 DR. DAVIS: I know that this was  
16 mentioned earlier, that there is one set of data  
17 which would be extremely helpful to have and  
18 that is the environmental sampling in the homes  
19 of people who have pregnancy outcomes that were  
20 evaluated. There may, however, be other data  
21 sets that are just as important that I don't know  
22 about. So, how do we know?

23 MR. HOFFMAN: There may be a way to trim

1 this down to a manageable size, even though  
2 looking at just the title isn't going to tell you  
3 a lot but it may give you some level of, you  
4 know, send that out and everybody sends it back  
5 and says these are the particular ones we are  
6 interested in and we can focus our resources  
7 then on quickly putting together descriptors  
8 on those particular documents.

9 DR. SIPES: I think instead of  
10 thousands, you probably have 25 or 30 that really  
11 have a lot in them.

12 MR. HOFFMAN: I agree but that is not --

13 DR. STOLWIJK: Also whether or not  
14 you have a machine readable form of this somewhere  
15 and where it is would be a useful thing to have  
16 and you probably have that or somebody would  
17 have that but I think unless the thing is  
18 machine readable it really is not retrievable  
19 other than in someone's report. Machine readable  
20 conceivably could be resurrected.

21 DR. WIESNER: I think that if we are  
22 going to ask this group of consultants to comment  
23 and offer opinions, we need to provide them with  
the support and there ought not to be anything

in the way of that.

1 DR. MILLER: Could I ask, on your  
2 remark earlier about the testing and the air  
3 sampling in the existing homes, do you have any  
4 feeling about the ones that they are getting  
5 ready to knock down?

6 DR. DAVIS: I don't know. If the only  
7 reason that anybody knocked them down is if the  
8 home deteriorated and if there is no systematic  
9 reason to expect that they were more polluted  
10 than the others, then I don't.

11 DR. STOLWIJK: Also homes that are  
12 ready to be knocked down, the ones I saw, have  
13 no windows and as a result had no concentrations.

14 DR. DAVIS: The basements, you would  
15 get something.

16 DR. FOWLKES: Some of them are totally  
17 boarded.

18 DR. DAVIS: So, the answer to the  
19 question is that if there was some reason to  
20 think that where they were located was related  
21 to the pollution pattern, then you would want to  
22 look at them if they are fairly randomly  
23 distributed and then you wouldn't. I don't know

the answer to that either way.

1 DR. CHALMERS: I have an increasing  
2 iffy rash that we are going to get in trouble  
3 through not defining our question clearly  
4 enough and I am beginning to hear a lot of  
5 conversation about documenting the effects of  
6 the worst of the Love Canal toxins on people  
7 and following up and getting involved in the  
8 pregnancy study of people who lived in ring one  
9 and ring two and trying to follow the people  
10 who lived there and find out what happened to  
11 them. Although that has great academic interest  
12 and is of interest to the people who live there  
13 with regard to their health, it's totally  
14 unrelated I think to the question of, is it safe  
15 for people to move into the present existing  
16 houses and I want to introduce the thought that  
17 those are two separate questions which would  
18 take a tremendous amount of different kind of  
19 work to answer and that although they both should  
20 be answered, I think probably the one relating  
21 to the present existing housing is more pertinent  
22 to concentrate on with regard to the time  
23 schedule and the one relating to what has happened

1           to people who live in the worst of the areas  
2           is important from the public health standpoint  
3           but not relevant to whether people can move into  
4           the present place because I think we all agree  
5           there are marked differences in the degree of  
6           exposure to what people had originally before  
7           any of the capping now and we constantly go back  
8           to confusing those two questions in our  
9           discussions of epidemiology and follow-up of  
10          people and data gathering. I think that the  
11          emphasis should be put on looking at the EDA  
12          houses and the data from that area rather than  
13          data from the inner rings at this moment. I don't  
14          want to say we should suppress the other data  
15          because I think that would be very important to  
16          get from the standpoint of applicability to other  
17          dump sites and other public health problems in  
18          the country but we were asked to make a recommen-  
19          dation about whether people should move into  
20          those present neighborhoods or not and the only  
21          thing pertinent to that is what those houses  
22          were like four years ago and what they are like  
23          now with relation to relative risk, not the other  
          houses.

1 DR. WINKELSTEIN: Well, there is that  
2 term again, relative risk, I mean, that is an  
3 epidemiological term.

4 DR. CHALMERS: I am using it.

5 DR. WINKELSTEIN: I know but you just  
6 said that we couldn't use that.

7 DR. CHALMERS: I am using relative  
8 risk with relation not to the inner circle but  
9 with relation to what you would expect in the  
10 normal place where people might be living if  
11 they didn't live there.

12 DR. WINKELSTEIN: I guess I have a  
13 problem with that. I mean, my problem is a  
14 simple one, that it's such a complex question,  
15 it goes back to what Dr. Davis was saying, that  
16 is, in using dioxin as an example, I mean, that  
17 is one of the things they are worried about  
18 exposures to and yet if you have to put that on  
19 an epidemiological basis, I can't give you any  
20 risk estimate. They don't exist. All I can do  
21 is use toxicological extrapolations which I  
22 think is what you will have to do. I am not  
23 arguing with your point.

DR. CHALMERS: It would go to the

1 recognition that we are not trying to make  
2 that safer than anywhere else in the country.

3 DR. STOLWIJK: I think that Dr. Chalmers  
4 makes another important point and that is that  
5 if this group has hopes of getting into new  
6 evaluations of existing data, there is just not  
7 time for anything like that, nor does it have  
8 the resources organized properly. It can identify  
9 opportunities for others to pursue them but I  
10 don't believe that this group is going to do  
11 anything but to evaluate work and studies that  
12 others have done and reports that others have  
13 written. We are not going to get, I don't  
14 believe and I think you are quite right in  
15 identifying the danger, we are not going to get  
16 into creating new evaluations.

17 DR. CHALMERS: Unless we should decide  
18 one possible scenario would be that we would  
19 decide that no decision can be made about moving  
20 back in until certain studies have been done  
21 of the following type: starting de novo with  
22 new data and new material and this would put off  
23 the moving in by a couple of years.

DR. STOLWIJK: And I think that if we

could identify ways of doing that, that would  
1 be absolutely, just about zero.

2 DR. FOWLKES: You know, it might be  
3 the case that there are pieces, such big pieces  
4 missing that we are back to the question of the  
5 mandate and we seem to confuse that, it seems  
6 to be getting confused or maybe I'm getting  
7 confused. Are we in fact going to come to a  
8 point in which we make a decision on habitability  
9 or are we asking ourselves the question  
10 individually and collectively, what are the  
11 multiple criteria by which we could establish,  
12 according to which we would assess an area  
13 for habitability and then I thought that was  
14 what we were doing and then we were looking at  
15 available information or evidence in terms of  
16 whether it was there and what kind it is and  
17 how well it satisfies those criteria either in  
18 its presence or absence.

19 Now, we keep -- I'm not clear I guess  
20 and I'm really asking for an answer to what  
21 the mandate is. I am sorry to get stuck in  
22 this again but --

23 DR. WIESNER: No. There is certainly

no reason to be sorry about that. We are in the best of worlds in the following sequence: Deciding a strategy and criteria, looking at the data and see whether as it exists, how it matches up to that and then we may be in a situation of making recommendations and advice about whether you can interpret that data in light of this approach which would include professional judgment, opinions about habitability. This group is not going to make a determination of habitability. That is going to have to be made by the appropriate health authorities. So, I mean, in the best of circumstances that could move very logically along those lines but we did not want to start with a statement that this is how it's going to be done and this is the data that you are going to look at, give us in the next two weeks, give us a judgment on it. We want to have the consultants give us advice on each one of those steps and I think this is the very first process of doing that.

DR. FOWLKES: Comparing the component pieces of evidence. I hate to keep going back on that also but I do think that such a group as

1 this is going to have to go back to the State  
2 Health Department and say, what evidence do you  
3 have that is yet unpublished because I think  
4 that information, data interpretation, studies,  
5 we are talking about incomplete work in  
6 talking about this -- well, maybe I am but I  
7 think your epidemiological questions are logically  
8 going to -- there is going to be a hole there  
9 that leads us back to the Health Department to  
10 at least have an accounting.

11 DR. HUFFAKER: May I suggest in that  
12 regard that we have three of these papers that  
13 are out now and I can talk to Beverly Pagan and  
14 talk to Cook and ask them if they would have  
15 any problem with us using theirs in confidence  
16 and we will explain that perhaps further to the  
17 press and the homeowners about what the  
18 constraints are on this data and see how that  
19 flies. Also our own data itself is in the same  
20 mixture. I certainly agree that it ought to be  
21 made a part of this so I will talk to them about  
22 that when I get back and see what I can do.  
23 Some of the other epidemiological studies that  
have been done so far have linked morbidity and

1 mortality or lack of growth or something else  
2 by area or in time but never to chemicals at  
3 the canal and that is kind of interesting to  
4 toxicologists, where you live or when you lived  
5 there but not what you were exposed to.

6 DR. SIPES: That is also a question  
7 that I was going to raise, if we are going to  
8 use animal data, then you suggested we have to  
9 have some strategy for the chemicals that we  
10 will focus on. We can't focus on 204 or so.  
11 Now, how do we want to do that or will we discuss  
12 that at the next meeting?

13 DR. WIESNER: I don't think we are  
14 going to resolve how one would possibly use risk  
15 assessment in this criteria in the time that we  
16 have got here. Let me see if I can write down,  
17 I have three groups of people, consultants,  
18 residents and us in terms of expectations, things  
19 that need to be delivered to each other. We  
20 will start at the consultants just because some  
21 of those are tied together. We expect a letter  
22 back from you individually before April 2nd.

23 DR. CHALMERS: But we were going to get  
the minutes first I thought.

1 DR. WIESNER: After you receive a  
2 summary from us which we will try to outline  
3 the expectations and you can add anything that  
4 you want to that letter. We would make a note  
5 that we would like to have you add your CV's  
6 to that letter so that we can get them through  
7 the Health Department and to the citizens or  
8 anybody else who may want them and any comments  
9 that you have on leads and directions in which  
10 the contractor can array the data, I mean, that  
11 is a little general but --

12 DR. DAVIS: Can I ask a question about  
13 the list of about fifteen chemicals that are  
14 put in here? You say there are over 200 there.  
15 I have heard reports that there were other  
16 people that used the site for dumping and  
17 disposing. Has that ever been established?

18 DR. STOLWIJK: The city did.

19 DR. DAVIS: I thought the city and  
20 military. Have there been any further things,  
21 speaking of defendants in this case that the  
22 state has availed itself of?

23 What I mean is, it should be pretty  
simple to determine if there are some long-lived

radio nuclides there.

1 DR. WIESNER: I don't think anything  
2 is simple if you are sampling a poorly described  
3 and somewhat -- I mean, you can talk about what  
4 you know but you can't talk about what you don't  
5 know.

6 DR. DAVIS: Have you sampled for  
7 radioactivity at all?

8 MR. HOFFMAN: Yes. There was none  
9 found. We walked the site and we had people  
10 that wore rad tabs through their work because  
11 there was a concern that there would be radio-  
12 activity there and there was none found.

13 DR. WIESNER: I think what we will  
14 have to do is provide in the documents, everything  
15 that has been tested and observed. I think that  
16 as a part of the data base, the line listing  
17 that you are asking for.

18 UNIDENTIFIED VOICE: Wait a minute.  
19 93rd Street playground was closed because a lot  
20 of that soil came from the Love Canal dump.

21 DR. HUFFAKER: Let me comment on the  
22 radioactivity since it has come up. You know,  
23 the old Niagara, the atom bomb project was

1 based up here so there are several areas with  
2 a lot of tailings and things like that that  
3 are radioactive. There is a strip over there  
4 below the 93rd Street School, the one that we  
5 saw was boarded up that comes across where that  
6 sort of fill was used to build a roadway and  
7 that is above background. The area where the  
8 basketball courts were behind 97th Street School  
9 also had some of this material near the surfaces  
10 and that was picked up. It was also above  
11 background. But, there was no detectable  
12 radiation in the material that was down deep or  
13 in the leachate that was coming out of the canal  
14 itself. There was a story that the military  
15 buried a bunch of stuff out there. We asked  
16 them about that and we also looked for that sort  
17 of material and of course, not very possible to  
18 look through surface down twenty feet to see  
19 what is there.

19 UNIDENTIFIED VOICE: I think one of  
20 the reporters from the Buffalo paper had gone  
21 to Pennsylvania and found the records on that.

22 DR. HUFFAKER: We would sure like to  
23 see it if they have it.

UNIDENTIFIED VOICE: That was in the  
1 paper. There was a report on that. This is  
2 not just a story, a report has been done on  
3 that.

4 DR. DAVIS: Well, if anybody has that  
5 information, we would like it.

6 DR. WIESNER: I would like to ask  
7 Anita if you could help in terms of getting any  
8 things that we may not have available,  
9 particularly from CH<sub>2</sub>M Hill to get anything of  
10 this sort that we are somehow supposed to know  
11 but don't know.

12 The other thing is and I don't know  
13 whether this question has to be put to the  
14 community at this point in time but it has been  
15 raised, this concern about unpublished reports  
16 that we would not have access to unless we were  
17 in "closed" session and I am very sensitive not  
18 to having closed discussions but if that actually  
19 does come up, how would we handle it and see  
20 whether there is some way that we could deal  
21 with that as far as the community is concerned.  
22 I mean, I see our duty is to get the summary to  
23 the consultants and once we get the CV's from the

1 consultants get them into your system or to the  
2 community, that we will be talking further with  
3 CH<sub>2</sub>M Hill to do a line listing with some  
4 annotation and description and particularly with  
5 some priority for that data related to the EDA  
6 area.

7 MR. HOFFMAN: I guess one thing I  
8 would ask is that if you allow us a little  
9 license in terms of the major data sources, we  
10 could reduce the number of things we have to  
11 summarize.

12 MS. AUG: From the beginning it was  
13 that all, all, and that word has been used again  
14 and again, all information in the slightest bit  
15 pertinent to Love Canal would be collected. We  
16 have been sitting here all afternoon and every  
17 time a study is mentioned, CDC says, oh, oh,  
18 get that for us. We never heard of that before.  
19 Now, is Hill asking for or only collecting the  
20 major studies? Now, is all of the information  
21 going to be used or not?

22 UNIDENTIFIED VOICE: My impression was  
23 that this request was to bring this information  
to this committee prior to the -- well in advance

1 of the next meeting and what you are asking is  
2 is it possible to use less than all the data  
3 prior to the next meeting. It simply affects  
4 the reasonableness of it.

4 DR. WIESNER: I think the objective  
5 of this effort is to use all information avail-  
6 able and we need all of it but in terms of  
7 what is best first is what we are talking about  
8 here and what is best first is a good line  
9 listing description with annotations and with  
10 priority focused on efforts related to the  
11 EDA. So, I mean, I think we want to have all  
12 information but also we are not going to be able  
13 to burden the consultants backing up a truckful  
14 of pieces of paper and you can see from the  
15 nature of these individuals that they are going  
16 to be asking follow up this and follow up that  
17 but let's get it started rather than describing  
18 the whole thing.

19 Now, the two other things that we  
20 clearly heard a lot about is all of the information  
21 in the New York State Health Department related  
22 to the epidemiology studies and they have been  
23 recognized as a need and we need to get the long

version of the chromosome studies to everybody.

1           Other expectations between now and  
2 when there is the next getting together.

3           DR. WELTY: I just wanted to point  
4 out that epidemiologic studies that have been  
5 done have addressed the Love Canal rings one and  
6 two and that really, as far as I know, there  
7 have not been any studies addressing the question  
8 of health effects related to living in the EDA.

9           DR. CHALMERS: This is what I expected  
10 all along.

11           DR. WELTY: So, again, I wouldn't  
12 want people to get their expectations too high  
13 and to think that there is a whole lot of  
14 information that you are going to get that will  
15 be directly applicable to this question.

16           DR. WINKELSTEIN: I thought the Vianna  
17 study included the so-called wet and dry areas.

18           DR. WELTY: He used north of Colvin  
19 as the control as I understand it. This was part  
20 of the EDA.

21           DR. WINKELSTEIN: Yes but it is not  
22 part of rings one and two.

23           DR. WELTY: He used rings one and two

as the exposed but part of the EDA was used as  
1 the control.

2 DR. WIESNER: I think that in fairness  
3 to the Vienna study, we need to see that and  
4 other forms that are reported in his report  
5 to the Legislature and that is what we are going  
6 to work on. That has been of interest to every-  
7 body in this.

8 DR. CHALMERS: So, it may be the only  
9 good data is like the drunk looking for his keys  
10 under the lamppost, the only good data we have  
11 isn't really relevant to the question and as far  
12 as the question is concerned, we don't have any  
13 data.

14 DR. STOLWIJK: It has some relevance,  
15 Dr. Chalmers, because at least the mix of things  
16 that people were exposed to in one and two were  
17 similar to what was in the EDA, whatever there  
18 was. It is likely to be similar compounds.

19 DR. CHALMERS: I would think that that  
20 tremendous ion exchange resident and many other  
21 things in between, they would be very different.  
22 In other words, the different substances would  
23 infiltrate and stick to the various kinds of

1 soils on the way through so that you would end  
2 up with quite a different substance that went  
3 through all of this dirt filter.

4 DR. WIESNER: I think that is one of  
5 the concerns in some areas is that, that is the  
6 assumption that everything emanates centrifugally  
7 from the canal. There may be movements of  
8 materials other than that.

9 DR. DAVIS: Dr. Wiesner, could we have  
10 a blackboard the next time we meet, a chart or  
11 something to write some things down on because  
12 I would find it useful in order to try to  
13 summarize some of the questions, different  
14 strategy type questions and maybe does somebody  
15 want to do that now, orally, I mean, so that  
16 we can all hear it now, you know --

17 DR. WIESNER: I think that may have  
18 happened when you were out. I think so.

19 DR. DAVIS: Okay.

20 DR. WIESNER: But I would be happy to  
21 do it quickly. It was timing, risk assessment,  
22 I mean changes over time, risk assessment, area  
23 comparisons, all influences by whatever  
epidemiological data is available and then the

1 last one that was added I think while you were  
2 here was the comparison of how close is this  
3 containment to a secure landfill and I think that  
4 the general discussion was around the point that  
5 all of those perspectives are valuable.

6 DR. DAVIS: Maybe this is a part of  
7 that last one but I thought that after  
8 Dr. Pohland had talked you would also be  
9 interested in what hydrogeological and environ-  
10 mental sanitation practices and trends influence  
11 migration, in particular the storm backup and  
12 the sewer. I was confused at one point as to  
13 whether that wasn't supposed to be a concern of  
14 the state, that the sewers essentially don't  
15 work very well and that the area is such a wet  
16 one and yet it's very important to the potential  
17 exposure.

18 DR. POHLAND: If we could get a copy  
19 of the Malcomb Premer report as part of this  
20 data.

21 DR. DAVIS: And I don't know if that  
22 is a separate thing or not but certainly we need  
23 more than just, you know, the top area itself  
but there has to be a route of exposure so to

1 speak and the route is the swales or whatever,  
2 the waterways into the basement and if we saw  
3 the snow covered creek that stopped being a  
4 creek and went underground and that would be  
5 interesting to get those data as well as  
6 supplementary to that last question.

7 DR. FOWLKES: I would suggest the  
8 usefulness of a map if there is one that maps  
9 and documents the waterways, the creeks and  
10 sewers and so on and I, for one, would like to  
11 have a residential map. Is there a possibility  
12 of getting a copy of one back there?

13 DR. WIESNER: I think we ought to get  
14 what we think we need. I would like all of  
15 those things too.

16 DR. DAVIS: And we could then do  
17 overlays.

18 DR. WIESNER: That is down the ways a  
19 bit.

20 UNIDENTIFIED VOICE: No matter what  
21 you think about the EPA monitoring report and  
22 this data, we want to get a good idea of the  
23 setting and the different features and things  
that have been studied. The first volume of that

1 report is a good place to start. The people  
2 here haven't read that but that is a good place  
3 to start. It's a good study, a hydrogeologic  
4 study.

5 DR. WIESNER: So, you are suggesting  
6 that we send that along with the summary?

7 UNIDENTIFIED VOICE: Yes. By the  
8 questions asked I think a number of people haven't  
9 had an opportunity to read this thing yet and  
10 that is a good starting place.

11 DR. POHLAND: Well, inevitably I think  
12 that is going to be a major piece of evidence.

13 DR. HUFFAKER: All right. Everybody  
14 is about ready to start for the airport and  
15 various directions. Any of you who can stay  
16 for a little while we would appreciate it if  
17 you would stay and talk to the press, talk to  
18 the homeowners and one another.

19 (Whereupon the above proceedings  
20 were adjourned.)  
21  
22  
23