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U.S. EPA DRYCLEANING PUBLIC MEETING

November 3, 1993

Ramada Hotel Pennsylvania

New York, New York

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MR. PORTER: Okay. I will open the meeting. My name is Fred Porter. I am with the office of Air and Radiation, the Environmental Protection Agency.

On September 22nd of this year EPA adopted final regulations under the Clean Air Act for dry cleaners using perchloroethylene. These regulations will result in a significant reduction in air emissions of perchloroethylene from dry cleaning establishments.

There were, however, at the time the agency took that action, two issues remaining which the agency felt it needed to explore further. Those issues were indoor air pollution and ground water contamination.

We are here today to solicit data and information on perchloroethylene contamination of indoor air such as within buildings, apartments, offices, commercial and retail establishments, as well as perchloroethylene contamination of ground water such as drinking water supplies.

Our focus is really three fold at this meeting. We want to discuss the nature of the problem and the causes of the problem, and solutions or remedies to the problem. First, we are soliciting data and information which document the extent to which these problems of indoor air pollution and ground water contamination may exist. Second, data and information which might document the extent to which dry cleaners using perchloroethylene may cause or contribute to these problems. Third, data and information which might document various solutions and remedies to these problems.

In addition to the comments offered at this public meeting, EPA is also soliciting written comments. Written comments should be submitted by November 22nd and sent to Mr. Bruce Jordan, Emission Standards Division (MD-13), that stands for mail drop 13, Environmental Protection Agency, Research, Triangle Park, North Carolina, 27711.

Anyone that didn't get that whole address and I said it rather rapidly just see me during a break, or just see any of us during the break and we'll be more than glad to give you that address. That address is, however, contained in the

September 22nd Federal Register notice. And so, if you miss us you can look at the notice and you will find that address as well.

Following this public meeting and receipt of written comments, EPA will review all the data and information received to decide what, if any, action at the federal level is appropriate. Such action could take many forms, such as additional research and development activities on alternatives to dry cleaning; and additional emission control techniques to further reduce emissions from the dry cleaning process.

It could also consist of guidance to state and local agencies on various solutions or remedies to the problems that I have mentioned, and/or it could consist of additional rule making at the federal level to address these problems.

I would like to cover now just a few of the administrative details of the public meeting so that everyone knows what the format is and what to expect.

We have a number of individuals who have asked to speak at this public meeting today, this evening and tomorrow. There are copies of the agenda as it stands this morning available at the table as you came in. That agenda basically shows the order of the speakers in terms primarily of when they called in and asked to speak. There was an attempt, however, on our part to generally arrange this meeting so that most of the speakers today talk about the problem of indoor air contamination and that most of the speakers tomorrow talk about the problem of ground water contamination.

That is not exactly the case, however, because there are a number of speakers who indicated that they could only attend today's session, could only attend the morning, or could only attend this afternoon and so we will have speakers speaking on ground water today as well as probably speakers tomorrow speaking on indoor air pollution.

The format of the first portion of this session is divided into two portions. The format of the first portion is that we will call speakers in the order indicated on the agenda. Each

speaker will be provided about ten minutes to make their statement. The panel assembled here at the front of the room will then be provided a few minutes to ask questions aimed primarily at clarifying or understanding some aspect of the speaker's statement which may have been unclear.

Following that, the audience will be given an opportunity for a few questions to also clarify or understand some aspect of the speaker's statement which was unclear to them. We will then call the next speaker.

I wish to emphasize that the primary purpose of this portion of the meeting is not to engage in a full discussion of views. The primary purpose is to allow each speaker the full opportunity to put forth whatever data or information he or she feels is pertinent to the issues of indoor air pollution and ground water contamination.

Near the end of the session today there will be another portion of this session. We will break and reassemble in the room that you passed through as you came into this room here. We will then engage in a round table discussion focused primarily on the statements that were put forward by the various speakers today. This is the opportunity for full discussion of the statements. It will be moderated by EPA and today's speakers will be invited to sit at the round table to participate in that discussion, although others sitting at the tables around the wall may also participate.

As I mentioned, this round table is the primary vehicle for discussing the statements made. The round table will probably last about an hour maybe more.

As I mentioned, for the most part today's session focuses on indoor air pollution. And as a result, the round table today will also focus primarily on indoor air pollution. There will be another round table tomorrow at the conclusion of the speakers tomorrow. And the primary focus of that round table will be ground water contamination.

Just a few words about some of the mechanics. If you have a statement to offer that involves the use of audio visuals such as

slides or overheads or something like that, please see the young lady in the purple jacket at the end of the room. She will be able to make arrangements. She will take your slides and she'll set them up for you.

Secondly, a recording and verbatim transcript of the speaker during the scheduled speaker portion of the meeting will be made. In fact, these are our gentlemen down here at the end who are making that recording and will produce the transcript. As such, it is very important and I may interrupt from time to time, it is very important for those people speaking, whether you are asking a question of the speaker or you are the speaker to state your name and affiliation so that the people making the transcript can properly identify who you are and who you represent.

We are not making a verbatim transcript of the round table portion of the meeting. We will, however, produce a summary of the discussion from notes that we take during the discussion. The transcript and the summary of the round table meeting will probably be available before the end of the year. Right now I do not have a date, but I suspect that it will be before the end of the year.

Finally, I would like to conclude just by introducing the members of the panel and then we will, unless there are any questions dealing with procedures or mechanics, or something like that, we will commence.

I am Fred Porter, I am with the Office of Air and Radiation. To my right is George Smith also of the Office of Air and Radiation. We have next to George, Pauline Johnson of the Indoor Air Division of the Office of Air and Radiation. There is a vacant chair. We are awaiting one other person and she will probably join us later by the name of Karen Levy, also of the Office of Air and Radiation. Next to the vacant chair is Nancy Sutley with the Office of the Administrator of the Environmental Protection Agency. Then we have Mary Ellen Weber of the Office of Pollution Prevention and Toxics, as well as Ohad Jehassi of the Office of Pollution Prevention and Toxins. And finally we have Robin Snyder of the Office of Water.

Are there any questions pertaining to the mechanics or format or administration that we need to clear up? With that, then I will turn to the agenda, and Nancy Sutley would like to address those attending the public meeting. Nancy?

MS. SUTLEY: Thank you, Fred. I hope everyone can hear me. Good morning and thank you all for coming. The proceedings over these next couple of days are important for EPA and we look forward to hearing from all of you.

The first question I guess is why we are here and perchloroethylene as you all know is a chemical that most Americans are familiar with, but it's also a carcinogen and a toxic substance. The agency has looked at the environmental consequences of the use of perc in dry cleaning for more than a decade.

Recently as Fred noted, the administrator signed a rule establishing requirements for the control of toxic air emissions from commercial dry cleaners. Some aspects of this rule presented a unique challenge to EPA. This is the first time that EPA has actually regulated these emissions from dry cleaners. It's one of the first air rules that regulates small businesses. Businesses that exist in every community.

There were issues raised in this rule concerning a number of media--the outdoor air, indoor air, ground water and solid waste. The rule development highlighted some additional concerns that we could not address in the air rule. These concerns of ground water, solid waste impacts, and indoor air levels are the focus of our discussions.

Let me talk a little bit about how this rule relates to the administrator's priorities. The administrator has identified four key priorities for her years at EPA with the goal of protecting the environment and public health.

The first goal is to establish partnerships with state and local governments and with those in the communities that are regulates, or those with interest in these regulations. This meeting begins the process of expanding our cooperative

relationship with the regulated community and with other stake holders.

The second principle has to do with pollution prevention and innovation. Pollution prevention encourages us all to rethink how we use potential environmental contaminants. Some of the greatest successes can come when we create flexibility in our programs to allow regulated entities to devise the best means to prevent pollution. And we are pleased to have people from the pollution prevention office here to talk about some of their programs.

The third goal is to look at pollution across media. Our goals are aggressive here. We are trying to dramatically decrease the environmental risk associated with perc, but we are not talking about just eliminating the chemical. That's not necessarily our focus. But looking at the whole multimedia issues raised by the use of perc in dry cleaners.

And we are looking forward to continuing to work with the industry on achieving this goal of reducing the environmental risk.

The last priority has to do with environmental justice and this term refers to trying to avoid having environmental hazards disproportionately affect the disadvantaged in society. The problems associated with perc that we are discussing today and tomorrow pose some special challenges, because many of the businesses affected here are located in densely populated and poor neighborhoods and as importantly are small businesses, a number of them minority owned.

But what are we doing with respect to perc besides issuing these regulations for toxic air emissions? And as I noted, this is the first time under federal law that dry cleaners will be required to control emissions. We are also trying to coordinate relevant EPA activities, and forcing within the agency to look across the media at the impacts of perc use through the existing agency expertise in air, water, solid waste, pollution prevention and small business assistance.

Finally, we are looking at ways to enhance our non regulatory programs with respect to this chemical. There is an opportunity created in this rule for additional regulatory actions that we may come to conclusion that that's what's necessary. But also we need to look at our voluntary programs.

EPA has enjoyed some considerable industry support for the Design for the Environment Program and some people here will talk more about that. In addition we are coordinating outreach activities with state technical assistance centers, and distributing pollution prevention information developed at EPA through the small business administration, small business development centers.

Through the environmental technology initiative that's began at EPA, EPA is working with the National Institute for Standard and Technologies Manufacturing Technology Centers and the Department of Energy's national laboratories on developing feasible pollution prevention options for small business.

At today's meeting we would like to open the discussion of the agency's continued role in reducing the environmental exposure related to perchloroethylene. We are trying to identify and begin to discuss new information available describing indoor air and ground water pollution. We appreciate your investment of time and effort in contributing to the success of today's discussions.

After today, as Fred noted, there is a number of things that may happen. The notice identifies a number of steps the agencies may or could take. As promised we will develop a written summary of today's meeting. The information collected will be made available to the public, and hopefully we'll have a good mailing list of people to send this out to.

This dialogue will contribute to and be incorporated into our efforts to develop criteria for the clean technology certification which will also be discussed today. And in addition, today's panel members are being asked to brief their assistant administrators from all the relevant programs on today's discussion and its implications for improving our multi-

part strategy to reduce emissions of dry cleaners' perchloroethylene to the environment.

And finally, I would just like to say on behalf of the administrator thank you for being here and we look forward to hearing from all of you. Thank you.

MR. PORTER: Thank you very much, Nancy. Mary Ellen Weber of the Office of Pollution Prevention and Toxics would also like to address us.

MR. FRUMIN: Is there an opportunity for questions of the EPA speakers?

MR. PORTER: Yes, I suppose there is. Would you like to ask a question? Could you state your name please and your affiliation?

MR. FRUMIN: Certainly. My name is Eric Frumin. I am the director of occupational safety and health for the Amalgamated Clothing and Textile Workers Union.

Thank you, Ms. Sutley. I just want to make sure I understood you correctly. Did you say that it is EPA's view that perc is a human carcinogen?

MS. SUTLEY: I believe there is some dispute about the level of carcinogenicity but it is as far as I know and you can correct me if I am wrong, that it's EPA's view that it is a carcinogen.

MR. FRUMIN: Is it EPA's view that it's a carcinogenic risk to people?

MS. SUTLEY: We haven't made a determination on the level of carcinogenicity.

MR. FRUMIN: Well, never mind the level. Do you think it is a cancer risk to people at all?

MS. SUTLEY: I think I better defer to someone who knows this issue better than me.

MR. PORTER: My understanding--if I might help out here--my understanding is that it a type C carcinogen which I could be wrong, but I believe is a probable human carcinogen. Now, I see a couple people shaking their heads. Possible. Probable.

MS. WEBER: If I may interject. The agency has been debating whether perc is a B2 or a C carcinogen. The agency has staff level recommendations awaiting the administrator's decision, which we expect will be coming in the next few months. The Science Advisory Board has asked some questions about the nature of the tests involved in making this classification, in fact, about the classification system. But we are as an agency convinced that the opportunity to prevent exposure to perchloroethylene should be explored.

MR. FRUMIN: Thank you.

MR. PORTER: Well, that's a very good introduction Mary Ellen. Why don't you just continue?

MR. SEITZ: If I may?

MR. PORTER: Oh, certainly.

MR. SEITZ: My name is Bill Seitz. I am the Executive Director of the Neighborhood Cleaners Association. On the question of carcinogenicity, the way that was answered leaves an awful lot of doubt and questions in people's minds. And I would like to clarify it.

Number one, despite the fact that there are continuing studies being made at the moment, perc has been classified as a possible carcinogen C. As possible carcinogens there are literally thousands of chemicals that we use on a day to day basis that have the same classification.

I would like to read just a brief paragraph from the Science Advisory Board in 1991, in their analysis of perc. And it says "Perchloroethylene, however, is an example of a chemical for which there is no compelling evidence of human cancer risk, but for which reduction is unnecessary; human exposure might be well prudent."

I want to make sure that the reason that we are here is to make progress; to develop dialogue to improve the conditions that exist. But I insist that this not be turned into a circus where people are going to make accusations that are inaccurate. Okay. Thank you.

MR. PORTER: Okay. If there are no other individuals who would like to ask us some questions I would like to, yes? Go right ahead, sir.

MR. FISHER: Bill Fisher, International Fabric Care. Actually, I would just like to add the last sentence which Mr. Seitz did not read from the last SAB report to the administrator, and that says: "The available scientific information does not suggest to us the same regulatory responses that would be appropriate for a chemical whose bioassay responses were clearly relevant to human cancer."

That's the full paragraph. Thank you.

MR. PORTER: Okay. Well, I can see we are getting right into our public meeting. With that beginning, Mary Ellen, would you please continue. Thank you.

MS. WEBER: Yes, thank you. That is actually a very good segway, because we are very interested in preventing pollution and looking for safer substitutes and safer alternatives, rather than making a statement in absolute or cardinal terms about the relevant risks here.

The Office of Pollution Prevention and Toxics is engaged in a design for the environment program activity with the dry cleaning industry that is voluntary. It encompasses multiple stake holders: labor, the environmental community, consumer groups, the government and the industry.

We are looking for alternative means of providing cleaning services that meet performance requirements and are cost effective. But importantly that minimize the multi-media exposures to solvents. And we are looking for information at this meeting about the environmental benefits of reducing exposures to perchloroethylene either because of fugitive or other kinds of emissions. We are looking for economic information that will allow us to help identify for industry, alternatives that they may have for reducing exposure to perc.

And we are most importantly, I guess making sure that whatever information we develop in our cleaner technology substitutes, assessment is made available to all the stake

holders. We have been especially interested in this industry because it is dominated by small businesses, and we therefore feel that it is important for the government to make available any information that we can to help develop alternative technologies, and alternative chemicals.

So, with that I will turn the baton over to Ohad Jehassi who will tell you a little bit about one of the alternatives that we have looked at to date. It is only one of the alternatives, but it has been a very interesting study.

MR. JEHASSI: Thank you, Mary Ellen. Once again, my name is Ohad Jehassi. I am an economist with the Office of Pollution Prevention and Toxics Design for the Environment Program.

Increasing emphasis on pollution prevent is one of the important advances in environmental protection. And within the Office of Pollution Prevention and Toxics some of our pollution prevention programs are evolving in some dynamic ways which are reaching beyond the traditional programs to motivate change in people's behavior.

The agency has established a new voluntary Design for the Environment Program which encourages the design of safer products and processes through the elimination or the minimization of pollution. The Design for the Environment Program works as a collaborative effort between government, industry and the public and we invite the industry and any other interested parties to work actively with the agency in trying to reduce exposures to toxic substances.

On the dry cleaning front, the Office of Pollution Prevention and Toxics has been working with the dry cleaning industry to reduce exposure to perchloroethylene, or perc. And perc is the solvent most widely used by the dry cleaners in the United States.

Our effort has shown that government industry and public interest groups can work together toward a common goal of environmental improvement. Within the dry cleaning project we have the combined efforts of not only the EPA, but of environment Canada; industry groups such as the Neighborhood Cleaners

Association; the International Fabric Care Institute; Green Peace; the Natural Resources Defence Council; Amalgamated Clothing Textile Workers Union; Dow Chemical; the Chlorine Institute; and the Toxic Use Reduction Institute at the University of Massachusetts.

Our work began in May of '92 when the Office of Pollution Prevention and Toxics (OPPT), through its Design for the Environment Program, sponsored the international round table on pollution prevention and control in the dry cleaning industry.

Now, at this round table we discussed some issues facing the fabric care industry. As a result of the round table, EPA and industry established a partnership to evaluate a whole array of control options and alternatives to perchloroethylene dry cleaning in an attempt to reduce exposure to perchloroethylene.

Immediately following the round table, EPA became aware of an alternative process--a potential alternative process--called multi-process wet cleaning which relies on the controlled application of heat, steam, pressing and biodegradable soaps to clean clothes that are typically dry cleaned. Once the partnership decided to test this alternative, we had to look for a dry cleaner willing to turn over the facility to us for a test.

In November and December of 1992 we conducted a short term high volume test. Well, as both EPA and industry were looking for this dry cleaner to do this test, we couldn't actually find a dry cleaner that would allow us to walk in there and take over their facility.

So, it was at that time since the partnership did want to test the alternative, the Neighborhood Cleaners Association offered its own facilities, the New York School of Dry Cleaning to conduct the test. We then had the problem of where are we going to get these clothes to be tested. It was at that point that EPA employees volunteered to bring in their own clothes to be tested.

Well, as we started the clothes drive for the test, the enthusiasm generated by the EPA employees resulted in five other federal agencies in Washington and the New York City Department

of Environmental Protection employees asking EPA if they can also participate in this unique clothes drive.

The industry, the Neighborhood Cleaners Association then sent a truck three times a week and shuttled clothing between Manhattan and Washington, D.C., to both pick up and drop off clothing for the test. Even former administrator William Riley donated a suit to be cleaned during the test.

In this test, we tested both the competitiveness of multi-process wet cleaning and also the performance of multi-process wet cleaning as compared to perchloroethylene dry cleaning.

For economic feasibility we compared the raw costs of performing the two processes at the test site and we then used the collected data to translate the raw costs into figures that represent typical dry cleaning plants. Now, for our performance tests, by the way these performance tests are preliminary, because they were short term, and they were also limited.

For the performance tests we designed these tests to compare the effects of perc dry cleaning and multi-process wet cleaning on clothes. And there were two parts to the performance tests. The first part of the performance test consisted of a general customer satisfaction survey. And in that part of the test we asked consumers that had their clothes cleaned during the test to rate the cleanliness, odor, etc. of the garments that they received back. Now, the consumers that received these clothes back did not know whether their garments were dry cleaned or multi-process wet cleaned.

For the test garment technical wear study, we had some EPA employees wear two sets of identical test garments over a four week period. Those garments were then cleaned repeatedly during the test period using either of the two processes, and were then compared to a similar control garment on the basis of appearance, odor and shrinkage.

Now, in the overall results for economic feasibility we found that multi-process wet cleaning compared favorably with perchloroethylene dry cleaning and for our preliminary performance test we also found that the multi-process wet

cleaning again fared comparably with perchloroethylene dry cleaning.

Now, let me explain why multi-process wet cleaning is competitive with perc dry cleaning. This chart estimates profit for new facilities that purchase equipment to meet the requirements of different dry and wet combinations. Now, in this chart as a dry cleaner designs a plant to do partial dry cleaning and partial wet cleaning, between 100% to 50% dry cleaning profits remain level. However, while still profitable, profits slowly fall for facilities that move to less than 50%, dry cleaning or more wet cleaning.

In summary, an operator can chose any mix of up to 50% wet cleaning and make the same level of profit or rate of return at any one of those mixes. However, after the 50% point even the smallest dry cleaning equipment would be under utilized. So, if one wishes to do more than 50% an operator may want to plan to do all wet cleaning and perhaps send any items that have to be dry cleaned elsewhere.

This next chart estimates profitability for existing plants that are interested in converting over. Now, because existing plants are designed for 100% dry cleaning, and originally purchased their dry cleaning equipment to do just dry cleaning, the equipment that they have will be increasingly under utilized as the percentage of wet cleaning increases, as they convert over. Since equipment costs have to be paid regardless, as a cleaner does more wet cleaning the increased costs of operating the two processes results in small decreases in profitability.

However, if a plant were to convert entirely, we would have a different scenario. So, if we were to assume that a dry cleaner could dispose of their dry cleaning equipment, they would be faced with a profit picture of a new wet cleaning facility with higher profit rates than the 100% dry facility. So, therefore the scenario for existing plants that are interested in converting is not that attractive unless regulatory pressures or other factors increase the costs of operating a perc dry cleaning establishment.

Now, there are a number of factors in these charts that may change the estimated wet cleaning profit. For example, the increasing perc regulations might increase the costs of doing regular dry cleaning, and that might make wet cleaning look more attractive. In addition, a wet cleaner may be able to charge a premium for the service. Once they offer this service they may be able to attract more business overall. They would also get lower insurance rates if they were a wet cleaner.

All of these were not included in this analysis. There are also potential factors that would decrease the profit of a wet cleaner. And in this analysis we assumed that the wet cleaning labor is available at prevailing wage rates for dry cleaning. However, the multi-process wet cleaning system requires more labor--three times more labor during the cleaning phase and it requires a higher skill laborer.

In addition, since there is more physical handling during the multi-process wet cleaning system, there is a potential for more garments being damaged and the potential loss of customers.

For the performance tests in the general customer satisfaction survey, both cleaning methods generated both positive and negative responses. However, overall consumer showed a statistically significant preference for the multi-process wet method. And for the test garment technical wear study the dry cleaned and multi-process wet clean garments again generally scored similar results. However, for some of the tests the multi-process wet cleaning received higher marks, especially in terms of odor.

Once again the performance tests were preliminary and we did not test for effects over the long term. So, effects over the long term are unknown. And the test garments used in the technical wear study were selected by industry to represent clothes that are typically sold in the market place, not necessarily what is typically dry cleaned. And finally, the wear patterns for the test garments may not accurately reflect actual real world wear patterns for some test garments.

Even though at EPA we are encouraged by these results, we understand that there are a number of obstacles to greater use of wet cleaning. And first are the FTC labelling laws. Many of you in this room are probably wearing garments that say dry clean only. However, if one were to bring that dry clean only garment into a wet cleaner and if that wet cleaner were not to follow the care instructions to dry clean only and if they were to damage the garment they may be in the position of being liable for any potential damage to that garment. So, that is an issue.

In addition, greater skill is required for this process. There is potentially greater room for error. And also, this is a low tech option and cleaners that we were talking to prefer a more automated process similar to one they have now with perchloroethylene.

And finally, there are approximately 34,000 dry cleaning establishments with current perchloroethylene technology and we still need to address those dry cleaners as well.

As Mary Ellen Weber mentioned earlier, this study is part of a much larger study which we are conducting with our industry partnership. And what we are conducting is a cleaner technology substitutes assessment. And this is a technical document where we will be evaluating risk among the various multi-media pathways. We are going to evaluate a whole array of alternative technologies and processes that do not rely on perchloroethylene. But in addition, we are also going to evaluate some pollution prevention and control technology options for existing perchloroethylene dry cleaners.

This is just our use tree for some of the alternatives which we are considering evaluating at EPA. The EPA-industry partnership will be deciding which ones we'll be looking at. Now, so far, if you look on the bottom, we have only just evaluated the multi-process wet cleaning system. We are interested in evaluating others. However, many of these we can just kick out rather quickly. And a number of these we already have some data on.

Now, at EPA as part of the partnership, we are also concerned with existing dry cleaners. So we will be looking at a whole array of control technologies as well.

Next slide. Now, as part of the partnership, we have organized ourselves into three work groups. The first work group consists of a technical committee and this industry partnership will be working with EPA staff on this technical document, the Cleaner Technology Substitutes Assessment. The second work group will develop a communications strategy and develop some information products on any information that we develop during this partnership.

Finally, the third work group is the implementation work group. Currently we are talking about designing a possible environmental certification program or possibly conducting some performance testing of some potential alternatives. Already EPA has been approached by a number of suppliers and vendors that have offered us equipment for free and we also have been approached by some dry cleaners interested in taking this equipment into their plants and testing them.

So, in the next steps, we are going to continue the work with our partnership on this technical document, the Cleaner Technology Substitutes Assessment. We are also going to establish an interoffice, interagency task force and start a dialogue to try and coordinate some of our activities on dry cleaning.

In addition, we are also going to do some more out reach--get some of the information that we develop here and disseminate that to the public. And finally, we are going to continue our work with the stake holders in the partnership.

Well, thank you very much.

MR. PORTER: Yes, thank you, Ohad. I will take this opportunity to ask if there is anyone here on the panel that would like to ask some sort of a clarifying question of Ohad. Okay. Well, let me just turn to the audience to see if there is anyone in the audience that would like to take the opportunity to

ask a question. There is a gentleman at the back. Would you please state your name and your affiliation.

DR. HWANG: My name is Dr. Dong Soo Hwang. I am with the Cleaner Association of New York. I understand that there are 190 (referring to CAAA chemical list). And EPA has to double up for all those 190; and perc is one of them. I wonder what are you doing, what is the status of the; for the other 189.

MR. PORTER: Well, I can't speak to all 189. I can speak to several. We have standards under development probably in the near future for about 15 or 20, the near future being over the next couple of years. Four years down I think we have another 30 or 40 and then we have like a seven year bin that we call it that picks up about 100. I mean, it's kind of a developing effort.

In the very near future, for example, I do know that there will be a National Emission Standard for Hazardous Air Pollutants (NESHAP) proposed, I think near the end of this year in December, I could be wrong about that date for degreasing operations, metal degreasing operations. There will be a NESHAP, well a NESHAP already has been proposed for hazardous organic chemical handling in plants like petroleum refineries and major chemical manufacturing plants.

But, if you want more specific information than that, if you just contact me after the meeting we can send you our plan. But we are working on the others.

DR. HWANG: Actually, another question is, it looks like EPA is spending much more time on such the perc. And it is sort of ignoring or ignoring the 189. What's the reason you spend so much time on such perc matter?

MR. PORTER: Well, I think that's probably an incorrect impression because perc is among the first. We have been working on developing standards for perchloroethylene and dry cleaning operations from the late '70s. So, when the act was amended in 1970 we already had a great deal of information, and having a great deal of information that standard went to the head of the

list. I mean, it was merely because of the availability of information that perc went to the head of the list.

DR. HWANG: Thank you.

MR. PORTER: Did I see that there was anyone else that would just like to ask a question or something? If not, then let's proceed. The first speaker that we have scheduled is a Barbara Warren of the Consumer Policy Institute.

MS. WARREN: Good morning. My name is Barbara Warren. I am representing the Consumer Policy Institute at Consumer's Union.

I would like to mention that we'll probably be following up with written comments. There was a failure of Federal Express, which is the first failure I have ever experienced, yesterday so that I don't have exactly the final version here.

I would also like to mention that I just returned from the American Public Health Association Convention where a very interesting resolution was adopted. I don't have the text of that. It's on organochlorines. It was adopted with the participation of the Chlorine Institute, so industry was heavily involved. And it does call for a phase out of organic chlorine compounds where substitutes are available. But I will be submitting that text with the written comments.

The Consumer Policy Institute is pleased to have the opportunity to address the Environmental Protection Agency regarding this important rule and its follow up hearings on the emissions from dry cleaning facilities. Although there are some serious fundamental problems with this rule, and the agency's approach to air toxics regulation in general, we recognize that this rule was originally drafted under a different administration.

The agency has made a number of changes in the final rule that are improvements over the draft version, and we appreciate the direction of these changes. Particularly important is the eventual ban on the process of transferring clothes during the cleaning process and associated fugitive emissions.

Also significant is the choice of refrigerated condensers and closed loop systems as the preferred technology over carbon adsorbers to avoid increasing waste water quantities. This shows enlightened cross media thinking and probably represents the first attempt under the toxic provisions to take seriously the Act's mandate to address non-air quality health and environmental impacts.

However, there are significant policy issues which have arisen in the context of this rule making which we find extremely disturbing. We intend to outline in our testimony the significant policy decisions by the agency and the regulation of hazardous air pollutants (HAPs) which we think violate the intent of the Clean Air Act amendments of 1990.

Secondly, more specifically, we wish to address the issue of regulating industrial emissions of HAPs because of their impact on indoor air. It is our hope that the agency will undertake a serious dialogue with interested parties and finally develop a national urban air toxic strategy which at the very least meets the requirements of the Clean Air Act.

Therefore, I will be speaking both about the general issue of regulating HAPs under the act and the more specific issue of regulating perchloroethylene emission from dry cleaning today. We appreciate this opportunity to address the issue of perc and indoor air, however we sincerely hope that this effort will not be mere window dressing on an otherwise inadequate rule. The public health impacts are too great.

Some historical perspective on agency air toxic regulation. The 1970 Clean Air Act gave EPA broad authority to list hazard air pollutants and to set emission standards that guaranteed an ample margin of safety. The emission standards were to be based on health considerations without regard to technological or economic considerations. However, only a handful of substances were ever regulated this way and only in response to court challenges.

In 1979 the agency agreed in an out of court settlement to accelerate the listing and regulation of toxic substances through

a generic approach. However, subsequently in the deregulatory period of the 80's the agency has instead adopted two approaches: one to increase the scientific knowledge regarding individual toxic substances; and the other to turn regulatory responsibility over to the states.

This has allowed states to set a wide range of acceptable levels of air toxics, and regulations from state to state with EPA playing no role in the determination. The lack of zeal in adopting and regulating HAPs lead Congress in 1990 to list 189 pollutants which the agency was directed to regulate under the amendments for stationary and area sources in order to protect human health. Tetrachloroethylene or perchloroethylene was one of these pollutants.

The focus of the 1990 amendments shifted to technology rather than health to avoid the historical pattern of delay that had characterized the previous twenty years. Now, the agency was to set maximum achievable control technology (MACT) or at the very least generally achievable control (GACT) standards for the emissions of all HAPs.

The Clean Air Act Amendments of 1990 require the administrator of EPA to do the following: under Section 112(c) the administrator had to publish a list of all categories and subcategories of major and area sources; and for those categories the administrator must establish emission standards. Emission standards for not less than forty categories and subcategories were to be promulgated within two years, by November of '92.

This is November of '93 and we have only two finalized air toxic rules with perchloroethylene and dry cleaning being one of them. Two out of forty, one year late.

For area sources, Congress provided a special provision which says that the administrator must list categories and subcategories of area sources which present a threat of adverse affects to human health or the environment either by a source individually or in the aggregate.

The administrator was further directed to make certain that the list is inclusive enough to ensure that area sources

representing 90% of air source emissions of the thirty HAPs that present the greatest threat to public health in the largest number of urban areas are subject to regulation under this section. The list must be complete in not more than five years, with the regulations promulgated in not later than ten years.

Now, we realize that the agency has not yet published this list of thirty. However, perchloroethylene or tetrachloroethylene has been one of the few chemicals repeatedly monitored in EPA's air toxics programs. Thus it is one that the agency knows the most about. It is ubiquitous in every urban area. Aggregate emissions are very large--over ten million pounds in New York City alone annually. In addition to these large aggregate emissions, if the agency takes seriously the mandate to address pollutants that present the greatest threat to public health it should consider the levels of risks identified by the New York State Department of Health in apartments above dry cleaners.

The high perc levels in combination with the large population affected should be cause for serious concern and for listing perc as one of the thirty. These dangerous levels found in apartments give those affected no warning. They do not smell it. But they could be breathing these levels twenty-four hours a day. Such large populations are necessarily not all healthy individuals, but include those with pre-existing liver or kidney disease, or nervous system impairment as well as young children, pregnant women and developing fetuses. All are exposed but very few know the danger and have received warning.

If the agency is to address the greatest risks to public health, the weight of the evidence of high levels of perc in indoor air can not be ignored. Additionally, the public has a fundamental right to know about the hazardous substances they are being exposed to.

Emission standards--under Section 112(d), emission standards applicable to new or existing sources of HAPS shall require the maximum degree of reduction in emissions of HAPs that the

administrator determines is achievable including a prohibition on such emissions where achievable.

In this case, the process vent emission standard of 100 ppm is insufficient and it is a standard that has largely been set by states to address VOC control, not control of hazard air pollutants. Additionally, there were no emission standards set for fugitives, when these emissions are prevalent and there are readily available measurement techniques using either an organic halogen detector or draëger tubes.

Maximum technology--under Section 112(d)(3), the maximum degree of reduction in emissions that is deemed achievable for new sources in the category or subcategory shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source. Emission standards for existing sources may be less stringent than standards for new sources but shall not be less stringent and may be more stringent than the average emission limitation achieved by the best performing 12% of existing sources.

In this case, the agency failed to establish what the top 12% of existing source they were using in terms of technology. If we look to the California data, some 50% of machines are dry non-vented. This figure was for state-wide dry cleaners and included area sources. In addition to this failure to establish an appropriate level of what constitutes MACT, EPA decided to only require MACT for new major sources and to apply GACT to area sources.

This might have been appropriate if the agency had appropriately established MACT and then proceeded with a reasonable definition of what generally available should mean. In this case, it appears that it has been defined to mean whatever any cleaner is currently doing as okay to keep doing as long as there is some control device. This contrasts sharply with Congress's explicit language regarding controlling major and area source emissions for new and existing facilities and how MACT was to be established.

Now, regarding the national urban air toxic strategy. Section 112(k) further defines the area source program saying it is this purpose of this subsection to achieve a substantial reduction in emissions of HAPs from area sources and an equivalent reduction in public health risks associated with such sources, including a reduction of not less than 75% in the incidents of cancer attributable to emissions from such sources.

Now, this provision is not limited to a list of 30 pollutants. In addition to research, under this section, the required strategy to be finished in five years must include specific actions to substantially reduce public health risks, and the implementation must be not later than nine years. Reports on actions taken related to area sources must be transmitted to Congress.

How can the agency possibly achieve this objective when the rule, once implemented, is estimated to only reduce emissions by 44%. In New York City that means that instead of over 10 million pounds of this solvent emitted annually just from this source category alone we might eventually have over 6.6 million, if non-major sources are finally ever brought into the program.

The indoor air situation is even worse since this rule is unlikely to have any impact whatsoever on indoor air in apartments. In addition, no attempt has been made to really address cancer risk in this rule. The cancer risk at the levels identified by the state health department in apartments is as high as one in a hundred. From a public health perspective this is a very serious risk indeed.

I want to note that the EPA has established a unit cancer risk factor which would indicate that they believe it is a carcinogen. Thus this rule can not meet the requirements of Section 112(k) as of its promulgation.

The research program--Section 112(k) goes on to describe the necessary research program. This section is very important because the description of the research program is clearly a mandate to both collect and evaluate new information. The agency received very new information when it received the results of

indoor air monitoring for perchloroethylene in apartments. The administrator is directed to report the preliminary results of such research within three years which being November of this year and not later than five years to deliver to Congress a comprehensive national strategy to control emissions of HAPs from area sources in urban areas.

It should be noted that this subsection contains specific language that this research can not be interpreted to preclude or delay implementation of actions with respect to area sources. Thus research should occur simultaneously with control. The administrator was further directed to support state and local agencies in area strategies to reduce risks.

The research must, for example, characterize the pollution from area sources and their contribution to public health risks. Further, the agency is directed to support state and local agencies in their efforts to reduce these risks.

What will EPA do for New York? Dr. Judith Schreiber has both identified and measured a significant health threat from perchloroethylene in apartments. We need support both to implement an appropriate program of inspection and compliance activities as well as for Dr. Schreiber to conduct further research on other area sources that may have similar impacts in urban areas. This research is critically needed and is an area that to my knowledge has not been explored by the agency.

Residual risk--Congress also made provisions for the agency to assess residual risk subsequent to the emission standards established under Section 112(d). The agency, however, has considered the matter, and despite adequate knowledge to recognize that this rule can not possibly address, adequately address the clear mandates of the act regarding the percentage reductions in emissions in health risk chose instead to select GACT and to fail to give appropriate meaning to the term.

The agency, operating with full knowledge of how little additional control this rule will really mean in actual practice, notes that it can avoid having to do a residual risk assessment because GACT has been chosen as the control technology.

A reading of the full text of the law, however, indicates that this was not the intent of Congress. Over and over Congress has said that emissions of HAPs from area sources--new and existing--must be controlled. Emission standards must be set. Specified reductions in health risks must be met, etc., and still we see a national urban air toxic strategy that can only be described as one of avoidance. Avoid the requirements of the Clean Air Act to the greatest extent possible.

While EPA suggests that it will consider doing a voluntary residual risk assessment we think it is clearly mandatory when the agency knows that its controls will not address the public health risk.

Indoor air--on August 9th we addressed a letter to the agency specifically on the subject of indoor air and the national urban air toxic strategy. Since the response we received did not adequately address our concerns I wish to raise them here. Nothing in our reading of the Clean Air Act in its amendments indicates to us that Congress wanted air to be compartmentalized into outdoor and indoor components. Yet, over and over the amendments refer to adequately addressing public health risks.

We are specifically asking the agency to render their opinion on the issue of whether the agency interprets its mandate as including indoor air--not in a Federal Register notice so that the public can provide comment. For too long the agency has danced around the issue of indoor air without resolving what, if anything, it intends to do.

With regard to air toxins in public health risks, this is an extremely important issue. While we recognize that there may be multiple federal agencies necessary to adequately address indoor air, this doesn't mean that EPA has no authority or mandate itself. In addition, in the case of these new findings on perchloroethylene emissions, we now have learned that emissions from external area sources can significantly impact indoor air.

What does this do to the body of agency research that has been collected without regard to external point or area sources? At the very least there will need to be a revisitation, and

examination of the data to see whether these external sources were appropriately accounted for.

Conclusions--it would seem fairly clear after a thorough reading of the Act that Congress intended that area sources be not only identified, but their emissions of HAPs be controlled. The final rule in our reading of the agency activities indicates that there has been insufficient effort directed at meeting the explicit requirements of the Act, as well as comprehensively grasping and integrating the different sections of the Act so that there is a coherent and comprehensive plan that makes sense in achieving its overall goals. Instead, it would seem that the agency has put too much effort into finding and using the loopholes in the Act, rather than addressing its clear intent.

Emission standards for not less than forty categories and subcategories, as I said, were to be promulgated within two years. This is November of '93 and we have only two finalized--two out of forty. In addition, when we look at this rule, we see that contrary to the clear intent of the Act to regulate existing sources, existing sources with existing equipment are only subject to fugitive controls--assuming they have some level of control already. And no fugitive emission standard has been set.

But even the minimal 44% reductions in perchloroethylene predicted by the agency vanish when one realizes that non major sources are allowed to be deferred under the operating permit program. Thus, all of Congress' repeated careful and specific directions regarding actually controlling area source emissions of HAPS vanish into no control, because state operating permit programs can defer the vast majority of these sources for years to come.

Thank you.

MS. RICE: I am Bonnie Rice representing Green Peace. I would just first like to make a quick comment regarding the carcinogenicity of perc. As several people stated here already today, we are here to hear new information concerning perc. And in the last two weeks a study has been published which gives further evidence of perc's carcinogenicity to humans.

The study was conducted on residents in Massachusetts who were drinking perc contaminated water. And one of the co-authors will be with us later today to speak to that study.

Green Peace welcomes the opportunity to provide comments to the U.S. EPA regarding the health and environmental risks posed by the perchloroethylene dry cleaning process. Green Peace is an international environmental organization dedicated to protecting the earth and all the life that it contains through nonviolent direct action, public education, and legislative lobbying. Green Peace has offices in thirty countries around the world with 1.8 million supporters in the U.S. and over 4 million worldwide.

Several years ago Green Peace began a campaign to phase out chlorinated organic chemicals because of the injury to health and the environment caused by these substances. In looking at the different sectors which use chlorinate organics, the dry cleaning industry stood out as one in which large amounts of a chlorinated chemical, perchloroethylene, were being used, but for which there were no clear alternatives and no programs in place or in development to eliminate the use of this hazardous chemical.

While transitional programs to phase out perc were in place for large companies, no attention was being paid to the small highly dispersed operators who together make up the dry cleaning industry, although this industry is one of the largest groups of chemical users who come into direct contact with the public.

However, within the last two years several alternative processes have been identified for professional clothes cleaning without perc. As mentioned, the EPA's Office of Pollution Prevention and Toxics has tested an alternative cleaning process which does not involve the use of perc or other toxic solvents. EPA's OPPT office concluded that multi-process wet cleaning is as effective, slightly cheaper, and preferred by customers over traditional perc-based cleaning.

OPPT also considered the economic costs and benefits of conversion from perc-based dry cleaning to wet cleaning. The wet cleaning operation required 42% less capital investment to install; gave a 78% better return on investment and increased

profits as well. Employment opportunities were also higher by 21%.

Based on current estimates of 158,000 jobs in the dry cleaning industry, 33,000 new jobs, skilled jobs would be created by switching to the wet cleaning process.

Even greater economic gains would be realized if the full social costs of using a toxic chemical like perc were reflected in the analysis. The study did not take into account the cost for remediation of air or ground water contamination, health care and other costs which are associated with the use of perc.

This process is now being done in multiple commercial settings in New York City. Other water-based methods such as the Mielle Kreussler system are being used successfully and are in increasing demand in Europe as well. Proving that viable cost effective alternatives to perc exist for professional clothes cleaning.

The existence of alternatives means that we can now quickly move ahead with planning the phase out of perc in the dry cleaning industry. Indeed, we can not afford to wait any longer as perc poses an immediate and significant threat to workers and the public through the air we breathe, the food we eat and the water we drink.

There is clearly sufficient evidence of the risk posed by perc to warrant the total phase out of its use in the dry cleaning industry. Numerous studies of dry cleaning workers have linked a myriad of health disorders to perc. Nervous system disorders, liver and kidney damage, miscarriages, infertility and several types of cancer including leukemia, bladder, liver, and kidney cancers have been associated with exposure to perc.

Studies conducted in New York, California and Germany have documented elevated perc levels in the air of residences near dry cleaners. In New York, these levels were frequently hundreds of times the New York State Department of Health guideline for perc in indoor air, representing cancer risks of as high as one in one hundred as Barbara mentioned.

According to an estimate in the EPA's 1992 round table document on dry cleaning, approximately one million apartment residences in the U.S. are at risk from potentially dangerous levels of perc in the air. Elevated levels occurred in indoor air even with well operated, new dry-to-dry non-vented machines. Thus, substantiating the statement of the director for the New York Department of Health, Center for Environmental Health that even state of the art control equipment may not adequately protect the many people living in apartments adjacent to dry cleaners.

The population at large is at risk from perc contaminated air as well. A study conducted on Staten Island and in New Jersey show that perc was among the toxic pollutants found at the highest concentrations in urban air. Perc has been identified in the blood, breath, fatty tissue and breast milk of the general U.S. and Canadian populations.

Contaminated ground water supplies in California traced to dry cleaners surely indicates only the tip of an iceberg. Disposal practices of the industry may well mean that a perc plume exists underneath virtually every dry cleaning facility in the country. This is a significant cause for concern as nearly half of the U.S. population obtains its drinking water from ground water sources.

Added exposure occurs through ingestion of perc-contaminated food. Being fat soluble, perc readily accumulates in fatty foods. Tests done in this country and in Europe show elevated levels of perc in foods near dry cleaning shops. Although ingestion is a less significant exposure pathway than inhalation, perc ingested from food adds to the total body burden and can not be ignored.

The EPA should take immediate steps to protect against any further environmental and health damage by developing a plan to phase out the use of perc in the dry cleaning industry. This plan must focus on implementation of clean alternatives and the elimination of perc use, not additional pollution control mechanisms.

Attempts to manage toxic chemicals have historically proven both ineffective and inefficient since pollution control only delays the release of the chemical or shifts the release from one medium to another. Additionally, synthetic chlorinated chemicals such as perc and/or its break down products are foreign to nature and thus can not be assimilated by living organisms or the environment. Hence, levels continue to build up in the environment and fatty tissue of wild life and humans with devastating effects.

Further, merely controlling emissions resulting from the use of perc in the dry cleaning process does nothing to address the complex mixtures of persistent toxic and bioaccumulative compounds including dioxins, ferons, and hexochlorobenzine, which are generated and released to the environment during perc production and disposal.

Green Peace calls upon the EPA to protect the health of workers, the public and the environment against further harm from perc by taking the following actions.

Ban any new perc dry cleaning facilities, particularly in buildings which contain residences or other businesses. Phase out all existing perc equipment and mixed-use structures by 1996 providing assistance and incentives for dry cleaners who wish to convert to alternative methods more quickly.

Develop a transition plan to phase out all use of perc as quickly as feasible for an orderly transition to clean alternatives for the entire industry. This transition plan should also include incentives and assistance to existing operators. Establish a strict monitoring and enforcement program for dry cleaners using perc while this transition is proceeding. In addition, the agency should expedite the publication of the agency rule classifying perchloroethylene as a probable human carcinogen.

The threats posed by the use of perc in the dry cleaning industry are enormous. Implementation of clean viable alternatives will prevent further injury to health and the

environment while relieving dry cleaners of the multiple pressures they currently face due to the use of perc.

EPA must use its resources and authority to assist the industry in moving from the old failed approach of pollution control to a new paradigm of clean production.

Thank you.

MS. WEBER: I just wanted to make sure it's understood that the entire multi-process wet cleaning report with the documentation will be in the public record so that anyone who wants to make any interpretations of the numbers can see the data that we actually did present and was the data that were reviewed by the stake holders.

MR. JEHASSI: Oh, in addition, in the meantime if you would like to order a copy of that report, you can call EPA's pollution prevention hot line at 202-260-1023.

MR. LEVINE: My name is Jerry Levine of the Neighborhood Cleaners Association, well known as NCA. We represent 4,000 dry cleaning plant owners. We are regional, mainly on the east coast with over 2,000 members in New York State. We have been around as an association almost since the inception of plant-on-premise dry cleaning in New York City. And there is a good reason why there is a dry cleaning plant on premises industry in New York City.

New York City is sort of unique of all the cities in the United States. I don't think you will find so many dry cleaners in mixed-use settings any place else except New York City. And there is a lot of reasons for it. We don't have room to put enough dry cleaning plants to service almost 9 million people in the City in areas where they will be not affect somebody as the previous speakers have said.

But, we had a different industry here in New York City back in the 1940's and before. Some of you have heard the term "taken to the cleaners." We in the industry consider that very negative and some people may wonder where did that come from. Why is it so widely used? Taken to the cleaners had some good reason. It was an unpleasant experience for the public to deal with the dry

cleaner in the early days, because you got smelly clothes. You got spots remaining. You had poor service. You had nothing that would make dry cleaning a pleasurable experience.

When plant-on-premises dry cleaners began to spring up in the early 40's in New York City, NCA became an association working with those dry cleaners. Very shortly afterward, the public decided that they no longer wanted the kind of dry cleaning that was coming from chain stores and from big wholesale plants because that was completely unacceptable. And so a dry cleaning industry was born in New York City and grew, and grew and grew. And obviously, the City supports a lot of dry cleaners because they need them. If the City didn't need these people, we wouldn't have an industry here in New York.

The public wouldn't accept the dry cleaning industry going backwards to where it was before where you might have factories outside of town supplying drop stores around the City. What you would have very quickly is poor service, dirty clothes, smelly clothes and since New York is a cosmopolitan city with cosmopolitan people that just wouldn't be acceptable to the public. We need a good prompt dry cleaning service and that's what we supply in New York City.

You have heard some people before me promote alternative methods of dry cleaning. An alternative method to dry cleaning could be called wet cleaning. A lot of people are not aware that dry cleaners wet clean a lot of garments every year. We don't throw it in the washing machine. We handle it in special ways to preserve what it looks like. But we can only wet clean certain types of garments. The other types of garments can not be wet cleaned. They must be dry cleaned.

The only other alternative is one part of which was tested at NCA and that is and I'll mention the name, it was called Eco-clean. Eco-clean wet cleans approximately I would guess about 10 to 15% of all the garments that would be brought in. The rest of those garments are simply spotted as best they can, because they are not really using adequate chemicals to remove many

stains and thrown in a plain laundry tumbler with a fabric softener strip.

I don't know how many of you in the audience would be willing to wear your suit after that was done six or eight or ten times, because your suit would smell. Your suit would be oily. All the body oils coming off would not be removed. And that is an alternative process. One which we in the industry consider completely unacceptable to the public. That can not replace dry cleaning.

Dry cleaners are being encouraged by their associations and they already do wet clean many garments that come in. They don't necessarily tell the public they are doing it. They do it because it comes out better. Very simple.

We recognize that if we can wet clean the garment and make it look as better than it did in dry cleaning we are going to wet clean that garment. But we are not going to throw in a man's suit or other expensive type garments to be ruined in the process, and we are not going to tumble dry them because that just won't be acceptable for the public.

We have a situation now in recent years, especially where perchloroethylene is being attacked by some sections of the scientific community and environmentalist. It's being accused of being a human carcinogen, permanently affecting the nervous system and other organs. There have been tests done using rats and mice which the industry considers flawed and really not meaningful and yet risk assessments have been formed using that test data, and that's where most of the news about perc has been coming from today.

Despite the lack of evidence, environmentalist and many government agencies are creating new regulations for dry cleaners--regulations which will drive an already weak industry out of business, or a good part of it. Dry cleaners can not survive on a wet cleaning process. A lot of this evidence which doesn't exist was used by the New York State Health Department to create a risk assessment for dry cleaners. We have had industry toxicologist look at the data they use and they don't agree at

all. In fact, they say that much of the data that was available was not used by the New York State Health Department, because it didn't support their cause.

We are getting a lot of pressure from all parts of the country because of this risk assessment. We consider those numbers unrealistic and unattainable for the public to be exposed to less than a 15 parts per billion perchloroethylene. We believe that just bringing home clothing from the dry cleaner, bringing home a half a dozen suits perhaps you can get 15 parts per billion. But we in the industry consider that a meaningless number.

We are urging EPA to consider something much more meaningful. We have a tremendous amount of workers, owners in the dry cleaning industry who have been exposed to perc over the past 40 or 50 years. Many of them still in the industry after 40 years. Those people, after being exposed to large quantities of perchloroethylene in the old days when it wasn't really regarded as a health hazard at all, are still walking around.

Even though this large group of people remains available to be tested, nobody has conducted tests to see what effect perchloroethylene has had on their long term health. We are urging EPA to spend some of the funds that are being used looking for alternative methods to find out whether or not the working industry who only use perchloroethylene is really being affected by this particular chemical.

Most of the studies that have been done previously on segments of the industry have really not been as conclusive as people would like you to believe. And one of those reasons is that some of these people were exposed to other cleaning solvents before perchloroethylene, such as carbon tetrachloride and some petroleum solvents which might have been carcinogens.

So, what I am saying in conclusion is that the dry cleaning industry will cooperate in every way to lower the amount of perc being admitted to the atmosphere and you will hear a little more about that in a few minutes. But, by the same token we can't be

eliminated and replaced by an alternative process that doesn't exist.

Thank you.

MR. JEHASSI: This is a question for the NCA. If you have any data or figures with the number of dry cleaners co-located with apartment residents or food stores that's a piece of data, we would like to get if you were to have it.

MR. LEVINE: Co-located, are you talking about New York City?

MR. JEHASSI: Are there national figures available?

MR. LEVINE: Not that we have.

MR. JEHASSI: Did you have anything for New York State?

MR. LEVINE: In New York City we believe that approximately 85 or 90% of the dry cleaners are in mixed-use settings.

MR. JEHASSI: Do you have any figures for the rest of your members in the other states?

MR. LEVINE: Not at the tip of my fingers, but I might be able to obtain that.

MR. JEHASSI: Okay. And the indoor air contamination problem, do you think that problem comes from process emissions or fugitive emissions?

MR. LEVINE: Fugitive emissions. We believe that the emissions can be completely contained in mixed-use settings. Contained to a level where the people in apartments above would not even be exposed to possibly the 15 parts per million that the health department considers a safe standard.

The industry has moved a long way and Bill Seitz who will be speaking in a few minutes will explain more about what was done.

MR. JEHASSI: Okay. Because I would be interested in your opinions as to what strategies might be effective in reducing fugitives.

MR. LEVINE: I think Bill will, do you want me to talk about that, Bill? He is going to talk about it.

MS. RICE: Yes, again, I am Bonnie Rice of Green Peace. I would like to ask another question and address the issue of the viability of alternatives that you mentioned. First of all, in

the OPPT tests there were no garments that were excluded from the wet cleaning process. As well, this type of process is being used in multi-commercial settings in New York City and doing very well.

And also, other water-based alternative methods have been developed such as the Mielle Kreussler system. Over 100 of those systems are being used and selling well in Europe.

So, I would like to have you again address why you think that these are not viable alternatives and that the industry should not pursue an alternative that will relieve dry cleaners of all the pressures they face, because of the use of a toxic chemical.

MR. LEVINE: Yes, we are familiar with the processes that are being developed in Europe and used in the Mielle Kreussler. We are familiar with that. It requires a washing machine that costs approximately $25,000 using some very exotic additives. It's also not going to satisfy all the demands because it can clean perhaps or launder perhaps no more than 40, 45% of the garments that are currently coming into a dry cleaner.

Yes, Bill?

MS. RICE: Now, that is, I would just like to comment on that. That is not my understanding whatsoever, and (interposing)

MR. LEVINE: We happen to be very close to it, because that's an industry that we are related to.

MS. RICE: And so are we, because we of course have campaigners in Europe. And this process does clean a large, cleans the clothes. It even cleans clothes that are traditionally cleaned with CSCs such as wedding gowns.

MR. LEVINE: A wet (interposing)

MS. RICE: I would just like to make that comment.

MR. LEVINE: Well, you know, it is a comment as you say, but I think there would have to be a lot of evidence to substantiate that and to our knowledge--and we are very close to the processes being developed in Germany and being used in Germany as well as the United States and there is somebody here who is even closer than I am who can tell you that the reports of

what this type of wet cleaning can do--are highly exaggerated and do not fit into the retail end of dry cleaning.

They may fit into some portion of the wholesale end if there is, but not into the retail end of dry cleaning as we know it in the United States.

MR. PORTER: If I could, excuse me, if I could interject for a moment. If we could please keep in mind what the format of the two sessions are. There is a specific format for discussion of the speaker's statements this afternoon. This format this morning is the opportunity for the speakers to get their statements on the record. This is an opportunity for clarifying questions to make sure we understand what those individuals are saying. But the main vehicle for discussion is the session scheduled later on this afternoon.

MS. RICE: Thank you. I did just want to clarify that statement and the real test again is in the market place where these things are successful. Thank you.

MR. LEVINE: We will clarify it later as was just said.

MR. WENTZ: Manfred Wentz with Textile Care Allies Trade Association. I happen to be on the Science Advisory Board of the Research Institute of Holenstein in Germany, which does most of the research for the German EPA, which has evaluated the Kreussler Mielle system. I happened to be the coordinator and the moderator of the presentation of Mr. Hasenklaver, who developed this process in Germany, at a scientific conference last year.

I happen to have followed this development in Germany just as recently as a week ago. While it is true that over 100 of those equipments were sold, they are supplementary wet processing facilities with attempt to increase wet processing similar to what we are trying to do over here namely to reduce perc consumption. But to consider the Kreussler Mielle process as a true substitute for perchloroethylene is not possible.

MR. FRUMIN: Good morning. I am Eric Frumin. I am the Director of Occupational Safety and Health for the Amalgamated Clothing and Textile Workers Union (ACTWU). I would like to

welcome this opportunity to inform the Environmental Protection Agency and the public at large about the severe risks posed by people's exposure to perchloroethylene from dry cleaning operations, especially in apartment buildings.

Perc is a very toxic substance. According to numerous state, federal and international health and safety agencies it is clearly associated with cancer and other serious diseases. The evidence contrary to what others have said this morning is simply overwhelming.

Industry groups refuse to accept this fact which we can only ascribe to either ignorance or greed. Given the amount of time for which this evidence has been commonly known within the chemical and cleaning industries, the excuse of ignorance is wearing quite thin.

Perc was proven to cause cancer in animals in 1986. By the same time, the several studies of workers exposed to perc in the cleaning industry consistently showed high rates of cancer mortality. Indeed, the National Institute for Occupational Safety and Health (NIOSH) showed that among dry cleaning workers in New York City and elsewhere who were definitely known to work with perc, the rates of bladder cancer were about four times higher than in the general population. There is a mistake in my written statement so I have to correct the figure there. The study is a matter of record.

Only two days ago, NIOSH revealed that a new update of this study shows a nine-fold increase in the rate of death from cancer of the esophagus among those dry cleaning workers whose only chemical exposure was perc. They were exposed to no other solvents. They were followed for decades and there was a nine-fold excess of mortality, of death among these workers from cancer of the esophagus.

This is indeed a startling finding and cries out for the massive restriction on the use and release of perc which we and our environmental allies are advocating here today.

EPA has yet to formally announce its classification of the cancer risk for perc. However, EPA has evidently viewed this

problem as sufficiently serious to call this meeting, and to begin a risk management initiative specifically addressed to the issue of risk to residents living in units attached to dry cleaners. According to an internal EPA report prepared for this initiative, EPA estimates the risk of cancer to some apartment residents at as much as one case of cancer for every thousand people exposed. This is hundreds of times higher than that allowed for all other environmental hazards regulated by EPA.

So, we ask EPA today, why had EPA refused to publicly announce its official view of the cancer hazards of perc?

Community residents need new rules protecting them from perc's cancer risk, including a phase-out of transfer machines and a prohibition on cleaners using perc in apartment buildings.

In the ten years since the cancer risk from perc was first documented, ACTWU and numerous environmental organizations have demanded stricter protection from government safety and health agencies. Our pleas to EPA yielded action only after extensive lawsuits and the passage of the Clean Air Act. But EPA's new NESHAP is a shocking disappointment. It exempts thousands of the smallest dry cleaners, precisely those who are most likely to be located in apartment buildings and threaten residents.

Worse, it allows existing cleaners to continue to use the deadly transfer machines which spew massive amounts of uncontrolled so called fugitive emissions into cleaning stores. These emissions create extraordinary risks to owners and workers, as well as to neighbors upstairs and next door.

According to what we understand to be the state Health Department's views here today the new NESHAP requires only one percent of the cleaners in apartment buildings with transfer machines to take serious preventive action.

As EPA and the industry well know, this equipment is completely obsolete. One cannot even purchase new transfer machines in the commercial market today. EPA's continued allowance of this technology demonstrates its half-hearted interest in protecting the public's health from avoidable exposure.

So, today we ask EPA, why have you allowed the cleaning industry to continue to use hazardous transfer machines, especially in apartment buildings?

EPA, of course, is not alone in its negligence. In 1989, the Federal Occupational Safety and Health Administration (OSHA) classified perc as a human cancer risk, adopting the risk estimates prepared for the Federal National Institute for Environmental Health Sciences.

But OSHA, following the Reagan Administration's public-be-damned philosophy of health regulation, failed to adopt a protective exposure limit for workers. In fact, OSHA admitted that its new OSHA standard of 25 ppm was linked to an estimated risk of over ten cancer deaths for every thousand exposed workers and owners in the dry cleaning industry.

So, we ask EPA--why have you failed to use your authority under the Federal Toxic Substances Control Act (TSCA) to request OSHA to set strict standards for perc?

We need to promote alternative cleaning technologies which are both economically achievable and environmentally sound.

EPA is well aware of the availability of other cleaning methods for many garments. In fact, we commend the Office of Pollution Prevention and Toxics for it's willing response to the request of the environmental community to test the feasibility of these methods.

The recent test was very encouraging. We have heard about it today. In addition, the economic projections show that the costs of operating a small cleaning business with alternative cleaning technologies are comparable, and in some cases may be better.

The other advantage to these alternative cleaning methods is that they rely on the upgrading of owner and worker training. We believe this conversion will lead to both more jobs and greater job security for cleaning industry workers. These are important public policy considerations in an industry which offers a ready source of jobs in poor communities.

EPA's continued efforts to promote this technology are laudable and we are pleased to be an active participant. However, these efforts are completely insufficient in the face of the national air standard which virtually encourages the cleaning industry to foolishly rely on the use of toxic chemicals instead of adopting economically and environmentally sound alternatives.

We cannot understand EPA's failure to take this technology into account when it issued the new national air standards. So we ask EPA--why are you setting weak rules allowing widespread emissions of perc when there are feasible alternatives which use little or no perc?

The current exposure of workers and community residents to perc from dry cleaning operations is a crisis which demands immediate action to protect the public health. We call upon EPA to: quickly establish new national air standards which rapidly phase out the use of transfer machines in all current cleaning operations, and effectively reduces the use of perc through the promotion of alternative technologies; establish a transition planning task force, including the cleaning industry, environmental organizations, trade unions, housing and community development organizations, and others to plan for training, outreach and public education programs to facilitate the feasible conversion to alternative technologies; and establish an economic assistance program in coordination with state economic agencies, for the cleaning industry to facilitate the transition to reduced usage of perc, including low-interest loans to owners as well as income and job training assistance for cleaning industry workers.

Only with such coordinated efforts will EPA succeed in preventing the inevitable death and disease arising from the widespread use of perc in New York and similar communities around the country.

Thank you all. I will be pleased to answer any questions.

MS. LEVY: Can I ask you to repeat your remarks about one percent of cleaners being in buildings with transfer machines--apartment buildings?

MR. FRUMIN: Well, actually, I ask that you defer that to the health department. This is based upon their survey of cleaners and I reviewed that survey, but I think they can present more detail for you on that. It's basically a health department survey and they will be testifying here today.

MS. LEVY: New York State?

MR. FRUMIN: The New York State Health Department.

MS. LEVY: Is that a nation-wide survey? What I am getting at is this their data that we haven't seen that gives us some information on what percentage of machines are located in which type of building?

DR. SCHREIBER: Yes, there is data that we have which (interposing)

MR. PORTER: Yes, may I ask were you planning on speaking? Okay, thank you.

DR. SCHREIBER: My name is Doctor Judy Schreiber. I am with the New York State Health Department. With regard to Mr. Frumin's statement and Karen Levy's question--we do have data from New York State survey of dry cleaners that we conducted last year that from the results of that survey we can make certain assumptions or extrapolations as to how many of these facilities would be covered under the NESHAP.

And I was planning on addressing that later in my comments unless you would like me to present some of that now?

MS. LEVY: Was that data in our rule making document for the (interposing)

DR. SCHREIBER: No. You have not seen this before.

MS. LEVY: It's recent and it pertains to New York State?

DR. SCHREIBER: Yes.

MS. LEVY: Thank you.

MR. PORTER: Yes, if you could address that in your statement we would certainly appreciate that. For the record, that was Karen Levy of the Office of Air and Radiation. I am sorry, Karen, you came in late. She didn't get your name.

Okay. Let me ask if there are any other questions from the panel. If not, let me ask from the audience. Yes? If you would state your name and affiliation?

MS. WARREN: My name is Barbara Warren with Consumers Union. I would like to ask Mr. Frumin a little bit more about this internal EPA report and the one case of cancer for every thousand people exposed. Also in relation to the new NIOSH data. I was not familiar with this internal EPA report.

MR. FRUMIN: Well, we received at the last CTSA meeting a, it's a public document, a document from the docket that EPA has established which includes a risk assessment for cancer incidents I believe, not mortality among apartment/house workers. And they present various scenarios depending upon whether the residents are working adults who spend more time out of the house, or people who live in the house more than if they are out. And in any event for some of the exposed populations, the cancer risk estimate is one case per thousand, which I think is simply unheard of in environmental regulation. And it astonishes me that that assessment has existed within EPA since at least the date of this document May of 1992 and today as of yet this morning we heard from the administrator's office, her representative today that EPA still has not taken a position on the cancer risk to people.

That's the thrust of my comment on that issue. Just to answer the other question she asked. The other study that I referred to was the NIOSH study. It was referred to previously by Mr. Levine in his comments.

This is a study that was done by NIOSH on a large number of exactly the kinds of people whom Mr. Levine suggested EPA now do a new study on. This was a study done on about 1,600 workers in the dry cleaning industry over about a 30 years period and there were within that group about 600 or so whose exposures were so well documented that they were able to--NIOSH was able to--determine that they were exposed to perc and no other solvents in their work.

And that study was published in 1987 and at the time there was a several-fold risk of cancer among the group as a whole, the entire cohorts as it's called, cancer of the bladder. But the group that was exposed to perc only had not been followed for a sufficient period of time. I think they were only followed up through 1975.

So, there was no increased rate of cancer death among the group of workers, the 600 or so, who were exposed to perc and only perc. And this, of course, led to a fair amount of disagreement in the interpretation of the study, because the high rate of cancer was among people who were exposed to perc, certainly, but also to other solvents like Stoddard solvent.

Well, two days ago NIOSH at an international meeting on cancer and occupational cancer in women in Baltimore announced the update of that study. They followed the group for another fifteen years through 1990. And we now see among the group of workers whose exposure was to perc and nothing else, not Stoddard solvent, nothing else, a nine fold increased rate of death from cancer of the esophagus.

Now, we also saw a four-fold increase rate of death among the whole group--those exposed to perc and Stoddard solvent--from cancer of the esophagus. And it shouldn't surprise us that we find an increased rate of death among dry cleaning workers exposed to perc and other solvents from cancer of the esophagus. That finding was all earlier made by the National Cancer Institute in a study that it published no later than 1990 and I believe in its earlier version as well, where they found a similar increased rate of death among dry cleaning workers from cancer of the esophagus.

So, we see some very clear trends here. We continue to see strong increases in the rate of death from the urinary kidney and bladder cancer and now from intestinal and esophageal cancer as well. So, it's well past the point when one can say well, there is no bodies piled up at the damn door. The bodies are piled up at the damn door and they include people who worked in this

industry for decades and who were exposed to perc, and nothing but perc.

MR. PORTER: We have another individual who would like to ask a question and I would like to call on that person. If you would state your name, but before you do, may I state that the EPA document referred to as I think Karen Levy or someone here on the panel indicated is available in the public docket for the September rule making. But if you will call either myself or George Smith in North Carolina. Our number is 919-541-5251 or 1549. We will make a copy of that document for anyone who would like to receive it.

And now the gentleman would like to ask a question.

MR. FISHER: Thank you. William Fisher, International Fabricare. Mr. Frumin, you made some statements about positions on cancer classification. Are you familiar with EPA's Science Advisory Board, sir?

MR. FRUMIN: Yes, and I heard what you--the statement from EPA Science Advisory Board--that you read into the record, that you and Mr. Seitz read into the record this morning. And I am well aware of it.

It is not the same thing as EPA taking a position, and frankly EPA is free to take it or leave their Science Advisory Board's advice. But I don't consider that (interposing)

MR. FISHER: Thank you for that opinion. Do they provide independent judgment to the agency?

MR. FRUMIN: I don't know that much about how they operate.

MR. FISHER: Is there a labor representative on the Science Advisory Board?

MR. FRUMIN: There may be. I haven't seen their list of members.

MR. FISHER: So, you don't know anything about them, but you would like to say that their opinion is not worth anything?

MR. FRUMIN: No, I didn't say that. I said EPA is free to take or leave their advice.

MR. FISHER: I would like to ask you to move on and ask about something else. You are referring to the new NIOSH study.

MR. FRUMIN: Yes, I am.

MR. FISHER: Thank you.

MR. FRUMIN: Well, it's an old NIOSH study which was recently updated with new results.

MR. FISHER: We'll call it new for now. If I read you a statement would you perhaps be able to verify that? "Within the PCE (perchloroethylene)-only subcohort there is no statistically elevated cancer mortality either for specific sites or overall." Table eight. That is the statement of the author, Dr. Avima Ruder of NIOSH, in her study which you have been claiming represents bodies piled at the door.

MR. FRUMIN: Well, you are incorrect.

MR. FISHER: I would like to read that again to make sure that you did hear it.

MR. FRUMIN: You are looking at an old version.

MR. FISHER: "Within the PCE only subcohort there is no statistically elevated cancer mortality either for specific sites or overall." Table eight.

MR. FRUMIN: What's the date of (interposing)

MR. FISHER: Those are the author's conclusions, sir.

MR. FRUMIN: What's the date of the document you are looking at, sir?

MR. FISHER: The date of the document that I am looking at, sir, is September 24th, 1993.

MR. FRUMIN: Yes.

MR. FISHER: September 24th.

MR. FRUMIN: So, two days ago in Baltimore, Maryland at the Marriott Inner Harbor Hotel, Dr. Avima Ruder presented the data which I just described to you which she said was more recent than the report that you and I both received from her. But that new report says (interposing)

MR. FISHER: Four weeks old?

MR. FRUMIN: That's right. She did this analysis, if you will allow me to answer your question.

MR. FISHER: I suppose it has been reviewed.

MR. FRUMIN: Will you allow me to answer your question? That analysis which she conducted subsequent to the document which she prepared dated September 24th and sent to you, I and others found that among the workers who were exposed to perc only, the PCE only cohort, the group that you just referred to in the quote that you read from that study, there was an excess cancer mortality from cancer of the esophagus which is not reflected in the document that you and I have. And the excess was as high as nine times the comparison population rate, whatever the comparison population was.

And this was a finding which they found startling and which, incidently, as I understand it, NIOSH is going to make available to EPA in short order without waiting for the proceedings to be published.

So, this was presented on Monday morning at around 11:00 a.m. in Baltimore.

MR. FISHER: Let me ask you, are you aware that mortality rates and the continence levels associated are often given as a range?

MR. FRUMIN: Whether she had a mortality rate of 9.02 with a confidence interval of I think 1.15 to 3 point something. So, she considered it statistically significant to at least two, you know, P is less than .05, maybe less than .01.

MR. FISHER: Well, I suppose that we are going to have to look at that after (interposing)

MR. FRUMIN: I would hope so.

MR. FISHER: May I finish? After two or three years of doing this re-analysis with Dr. Ruder publishing her material just a month ago, that then there is a startling departure from that that is less than three weeks old. It's certainly very unusual in the scientific community and I hope that we will all have the opportunity to observe that data since just four weeks ago she stated that there was no increase.

Thank you.

MR. PORTER: Yes, on behalf of EPA, I am sure we would all like to see the data being referred to, so I would like to ask

both Eric Frumin if you could do what you could to forward to us your copy of the statement or paper, or findings or whatever that were presented at the conference. And if I could also ask Bill Fisher if he would forward to us as well the paper statement document finding, whatever he was referring to in his remarks.

I think we would appreciate that.

MR. FRUMIN: Well, I would like to put a fine point on it. Bill and I are looking at the same document. It's the draft study which Dr. Ruder sent to us and others in the industry. Dr. Ruder did not distribute written copies of the slides which she showed at the conference on Monday.

However, I asked her and also her supervisor Dr. Marilyn Fingerhut, head of the industry wide studies branch at NIOSH in Cincinnati to make this information in written form available to EPA as soon as possible, because of the urgency of the findings, its relevance to this very proceeding that we are having here today. And she promised to do so without awaiting the formal publication of the proceedings of that conference which is ordinarily the way the scientists would do it.

MR. PORTER: Okay. I do appreciate that. And Eric, if at some time during the break you could give me the name, address, phone number.

MR. FRUMIN: Would be glad to.

MR. PORTER: We'll definitely follow up on that. Are there any other questions to clarify any of the remarks made by the speaker? If not let me then move on, thank you very much, Eric. Let me move on to our next speaker which is William Seitz of the Neighborhood Cleaners Association.

MR. SEITZ: My name is Bill Seitz. I am the Executive Director of the Neighborhood Cleaners Association. I am also the Director of the New York School of Dry Cleaning which is a training facility. And I have a number of things to say, originally I was going to keep my remarks to a particular area, but based on some of the comments made I have, I feel it incumbent upon me to respond to some of the statements made this morning.

The last speaker, Mr. Frumin, categorized the dry cleaning industry as either being ignorant or greedy. Pretty strong statement to make. Since he has characterized the dry cleaning industry in that way I wonder if Mr. Frumin would consider himself and the people that he represents either a combination of ignorant or greedy.

This is conjecture, but as long as people are making accusations, I want to make one for the public. And that is Mr. Frumin represents a union that is involved in the dry cleaning and the laundry industry. And in New York State, particularly New York City which is where we are really focusing, the union membership of the dry cleaning industry of New York City of the retail dry cleaning industry is literally non existent. The reason for that is it's made up of small business people, and it's economically in many cases, unfeasible for the union to really get involved.

Wouldn't it be nice if we could go back to the good old days of the 40's when there were great big wholesale plants out in the outskirts with great big machines and trucks and drivers and all those good things happening where we might be able to get some new union members. And how about if we could get rid of all the dry cleaners in New York City and kind of, go back historically to the good old days, wouldn't that be great for the union.

Let you chew on that for awhile.

The question of the wet side, the multi-process, wet cleaning process, we are the people as was mentioned, I just want to make sure you understand, the New York School of Dry Cleaning, Neighborhood Cleaners Association, were the people who were involved in that study. We were involved in that study because we really had an interest in testing the theory and feasibility of this concept at that time called Eco-Clean. And we had some serious reservations about it. But despite our reservations we felt that it was incumbent upon the industry to respond to that study. And we did.

I honestly feel that the report that you have heard from OPPT is really a terrible, terrible distortion and exaggeration

of reality. That the facts that you are hearing are not facts. And I want to clarify some of that and I want to read a statement about the feasibility of the multi-wet processing.

There is not a clear scientific measure of cleanliness even under laboratory conditions. Defining cleanliness for garments as they are typically worn is even more difficult. The performance evaluation did not attempt to rigorously examine the levels of cleanliness. The garment may have been cleaned well enough, removing soil and stains, could allow such fiber materials to build up to an unacceptable level.

A short term performance test can not examine this issue. And I go on, thus, the performance evaluation did not examine the cleaning effectiveness on heavily soiled garments worn in industrial setting construction site, etc. The performance evaluation did not examine whether detergents, solvent based chemicals, or alkaline substances uses as spotting agents in the multi-process/wet-cleaning process remain in the garments when returned to customers.

Such chemicals are typically removed during the rinse cycle of a perc-based dry cleaning cycle. But some of the garments cleaned by wet processing are not rinsed. The performance evaluation did not collect any information or assess whether any chemical residue remaining in the garments is potentially hazardous. Such information is beyond the scope of this current study and additional research is needed on this question.

And I go on, wet cleaning appears to be a viable option to reduce the usage of dry cleaning solvent. However, the EPA recognizes that obstacles exist to greater use of the wet cleaning process. U.S. Federal Trade Commission care labelling rules may prevent wide-spread wet cleaning of garments with care labels that read dry clean only.

Now, where did this information come from? Is this a report that NCA put out? This is the report of multi-processing wet cleaning put out by EPA. This is their statements. This is their findings. This is their information. But we haven't really heard that being said here today. And I feel as if there

is some attempt to distort the facts. And I think it's important for the people here to understand that.

I want to make what I consider to be a very logical, very simple question that I ask you to accept even though I am a representative of the dry cleaning industry and I am suspect. But I ask you just to listen to what I say logically.

If a wet process were as good as these people make it out to be, can you think of a better group of people to do that than the 3,000 dry cleaning plants already in existence. We are talking about under the new air rules a potential investment of $7,000 for retrofit. That's part of the information in the Clean Air Act. Seven thousand dollars would more than pay for any kind of auxiliary equipment that the dry cleaning industry would need to go into these multi-wet processing techniques.

As my associate Jerry Levine points out, the dry cleaning industry has always been wet cleaning. I have been in the dry cleaning industry for 50 years. When I started working in the dry cleaning industry the first job I had was they gave me a pair of boots and an apron and a corn brush, and I was a wet cleaner. I am intimately involved and aware of what cleaning is all about.

And when we did this study I was intimately aware and involved in what we were doing. Remember that this study was done in November, in mid November and December. It was done on a select group of garments from a group of people who you would consider, who you would classify as white collar workers.

It was not an attempt to get a thorough report. This was a beginning of a study. And despite all of that, we now hear that there is a new process available by experts like Eric Frumin and by Green Peace. But they unfortunately leave out the facts. The person from Green Peace stated that there are already operations in place. She failed to mention that both of these operations or three of these operations have as a base coin-op laundromats and that wet side processing is just an adjunct to that. Just an omission. It's not important. Just goes to the heart of the economics.

What these people will do because the world is looking for solutions will cause people who may be greedy and may be ignorant, or a combination of both to buy into a concept that has no future. I assure, I insist that logically you must accept what I say when I say that the dry cleaning industry is best equipped to handle the wet processing method and they have. The technology exists and when you refer to what's happening in Germany I am glad that my friend Mr. Manfred Wentz is here to give you the facts.

There is a company called Electrolux. I was in Australia at a symposium several weeks ago and they have a wet cleaning process and that wet cleaning process they say may increase up to 20 to 30% of the wet process. You can not--not because I say so, but because the fabrics that we deal with say so--you can not wet clean. You can't immerse the majority of the garments that people wear in water without dyes bleeding, without fabric shrinking, without distortion of tailoring effects, and what have you.

The other part of the Ecoclean process--the wet processing--is almost a farce. The idea that you can steam a garment and give it back to the customer time after time after time is just utter fantasy. But fantasy that is being used today as an attempt to destroy an industry.

Let me tell you a little bit about the dry cleaning industry, history of the dry cleaning industry, and the use of perc. Perc has been used in the dry cleaning industry now for well over fifty years. Prior to the use of perc, the dry cleaning industry used petroleum solvents, then carbon tetrachloride and perchloroethylene.

The industry didn't have any government regulators at that point in time. And they found out and decided on their own experience that carbon tetrachloride was hazardous. And it was removed from the dry cleaning industry not by any agency order, but by order of the dry cleaning industry who found it to be wanting. That was quickly followed by trichlorethylene which had a very, very limited life span and was followed by a chemical

called perchloroethylene, tetrachloroethylene, PCE and any other variation that you want to call it.

Perchloroethylene is a stable chemical compound. All right---yes, it is toxic. It was toxic sixty years ago. As there have been many, many other chemicals that are toxic. But the important thing that we want to point out is that it is controllable.

It has become more and more controllable as the industry has made the commitment to government, to EPA, to OSHA, to everybody else that we are an industry that's not greedy, that's not ignorant. But we are an industry made up of small people who are committed to understand the needs of society. And we have responded.

When you talk about transfer units, a short ten years ago the industry was composed of 70% transfer and 30% vented or non-vented dry cleaning machines. I don't know if all of you are familiar with the difference in terms, so let me explain briefly.

A transfer unit is where you have a separate dry cleaning machine. You take the garments out. You put them in a separate dryer. During the transfer process the garments are not dripping with solvent, they have gone through an extraction process, but there is perc present in the garments. Yes, there is some, not loss of perc, but perc that is being put into the atmosphere and it must be controlled.

And so what the industry has done over the last ten years has literally, the pendulum has swung. Today, over 70% of the dry cleaning industry equipment is either non venting or vented non-transfer units. I think that speaks very, very well of an industry that's being accused of being ogres.

The other thing I think is important for you to know especially in the New York area is that the industry is made up of small business people. And when I say small I am not using government statistics. We are really small. The average dry cleaner employees somewhere between three to four to five, maybe six people at most. In many cases, the operator of the dry cleaning machine is the owner. And in many cases that owner has

been exposed to perc operating that equipment for many, many, many years.

It's interesting that the Neighborhood Cleaners Association has a workers compensation group, probably one of the most successful workers compensation groups in the country, consisting of dry cleaners and for the last five years we have paid upwards of a 35 to 50% dividend. And the reason I mention that is that the reason we have been able to pay that is that the number of claims, the amount of industrial claims that we have been faced with is literally non existent.

When Mr. Levine says, why don't we test people in the industry, and Mr. Frumin says that's already been done, there is information presently available in New York State since we are talking about New York State where that information is easily determined. And that's not anecdotal as I am accused of very often. That's fact. There is a group. There is information. These are people who have been working in the dry cleaning industry for over 45 years that we know of. That's a pretty good test.

Let me bring you up to date on what I consider to be again vital information in terms of where the industry is, how the industry operates, and where the industry is going.

As a result of an edict or an order from the governor of New York State, Governor Cuomo last year, Governor Cuomo insisted that any kind of regulations, any new regulations that impact on business must go through what he referred to and what is now called negotiated rule making. This is where people who are involved in the industry, people who have some kind of relation to the industry, and people who are against what's happening in the industry get together in a forum, in a group and the objective is for us to meet and hopefully at some point to reach a consensus.

That negotiated rule making committee has been in operation now for four months approximately. There have been approximately I think fourteen meetings. There are six more meetings to go. And it's interesting that Mr. Frumin is on that committee.

Ms. Warren is on that committee. And despite the fact that they are on that committee and the purpose of the committee is to find ways to reduce the hazards and the dangers of perc--not to ban it, not to get rid of it--but to find ways of using it more safely. And the dry cleaning industry accepts that challenge as we have in the past and says let's go forward.

And in those negotiations we have talked about the phasing out of transfer units. And in those negotiations we talk about solvent barriers. And in those negotiations we talk about mixed use and stand alone. And in those negotiations we talk about ventilation, because we have a vested interest in wanting to see the dry cleaning industry continue.

Yes, we have a vested interest. I make no bones about that. But by the same token there is not the evidence to support--alleged evidence--that this industry doesn't care and that the people are, as Mr. Frumin says, people are dropping down in front of buildings. Where is this evidence? Dry cleaners have been located in apartment houses for over 45 years. Where is the evidence that dry cleaning solvents have been this terrible, terrible thing. That's anecdotal.

The point I want to make and I want to kind of summarize and talk about indoor air, mixed use equipment. Equipment is getting better all the time, despite what you hear about equipment not serving the purpose. If you look in Germany and everybody looks at Germany when they want to. All right. And then when they don't want to, they make out like it doesn't exist. But the equipment that the dry cleaning industry is using--fourth generation dry cleaning equipment as its referred to--is equipment that's being used in Germany and it's being accepted in Germany.

Solvent barriers--there are ways of preventing solvent from passing through the dry cleaning facility into an adjoining store or an adjoining apartment. That's not conjecture. That's fact. We know it's fact, because we have tested it. Germany has tested it. Okay.

The future of the dry cleaning industry in terms of technology gets better every day. Every day there is improvements. And every day there are more dry cleaning facilities that accept that challenge and respond to it. There are 35,000 dry cleaning plants in the United States who have shown by their actions.

One of the things that I haven't mentioned that I should have, is that perc consumption in the last ten years has been reduced upwards of 40%. There is 40% less perc being consumed in the dry cleaning industry than there was ten years ago, five years ago. Why? Because the dry cleaning industry is greedy? Because the dry cleaning industry is ignorant? No. Because the dry cleaning industry is made up of people who are also part of society.

Yes, we have a couple of bad actors. And we'll find a solution for them. But by and large you are talking about an industry made up of small business people. In New York City we now have almost 50% of the dry cleaning industry Korean-owned. People who have come from other countries who have invested their life savings, who are working 16 and 18 hours a day trying to survive to make a place for themselves. And they are doing all of the things that we ask them to do. But that's not good enough.

The only solution is to get rid of dry cleaners. And I say this is not Germany, this is not Hitler's. This is not the solution. What we are talking about is an industry that has shown by its actions and its performance that it deserves to live and to be given a chance to exist.

Thank you.

MS. WEBER: Mr. Seitz, I was wondering, do you have any information on the age distribution of the existing transfer machines? You know, how they are distributed in terms of their use.

MR. SEITZ: How old are they?

MS. WEBER: Yes.

MR. SEITZ: I really couldn't tell you, you know, for sure, but I would say that probably the youngest transfer unit could be as young as ten years old and the oldest could be as old as thirty years old on average. Somewhere, you know, that makes, does that help you in any way?

MS. WEBER: Well, I guess what I am trying to fish for is how long it would take to amortize the cost of the transfer machine?

MR. SEITZ: Well.

MS. WEBER: What we are looking for is phasing it out.

MR. SEITZ: Let me just respond to that, if I may. When you talk about amortizing, that machine has already been amortized. Okay. That's not what I am talking about. What I am talking about is a dry cleaning plant that's a mom and pop that's doing seventy, eight, ninety thousand dollars a year that has a profit of approximately 10 or 12% of sales which because mom and pop are also the spotter, the dry cleaner and the presser they manage to make a living of somewhere in the neighborhood of twenty to twenty-five thousand dollars. Their net profit on their business is what--on $70,000, $10,000 and the rest is sweat. Okay.

When you talk about replacement of that equipment with state of the art, or $35,000 or $40,000 that's a tough number for those people to handle. So, it's not a question of amortizing. It's a question of whether these people can exist.

One of the things that we have asked for and have not gotten any response as of yet is some way, some assistance on the part of the city or the state or the federal government, some financial assistance. I am not asking you to give these people dry cleaning machines for nothing. But give them an opportunity to buy equipment at a low interest rate or long term so that they can continue to exist and pay the machinery off. That's what we want to do.

MR. JEHASSI: Okay. I have a comment as well. First of all, the goal of the Design for the Environment Program at EPA is

to reduce exposures to perchloroethylene, not to eliminate perchloroethylene.

MR. SEITZ: I appreciate that, because that's always been my philosophy. Now, the other thing I want to make a comment on. The industry is not wedded to perchloroethylene. I mean, we have no contractual arrangement with chemical companies that say we have to use perc. Let me assure you, again, that if there were a better solution whether it be water. Somebody talks about using oranges, you know, citrus cleaning. Well, if oranges would clean the clothes, we would use oranges. Might even use grapefruits. Okay.

The point I am making is that we are not rigid in our approach. We are as flexible as you want us to be, providing you give us an alternative that's doable. The reason that the dry cleaning industry is using perc today, I can't talk about tomorrow, the reason that the dry cleaning industry is using perc today is because there is no alternative. If there were an alternative let me assure you that the dry cleaning industry would be the first group of people to respond to it. We would be stupid not to.

MR. JEHASSI: The other comment I want to make is that at this point in time EPA is not recommending that dry cleaners move towards multi-process wet cleaning. What we have done with this report is we are releasing information as we develop it. And that's what we are doing here.

MR. SEITZ: No, I was responding there, Ohad, to the remarks made by Green Peace where she said that there is already in existence an alternative.

MR. JEHASSI: Right, I don't (interposing)

MR. SEITZ: There is no alternative if you have to put in a battery of twenty-four coin-op washing machines in order to make that economically feasible. That was an omission that just happened not to be made. But not one that should go unchallenged.

MR. JEHASSI: Okay. I would also like to say that the alternative we tested, the multi-process wet

cleaning system was just the first of potentially a number of alternatives that we are planning on evaluating in partnership with the industry and the environmental groups.

MR. SEITZ: And I couldn't agree with you more because that's the basis on which we entered into our discussion. All I am saying is that the impression that one would get listening to the rhetoric today is that this is a foregone conclusion, as though the votes are already in.

MR. JEHASSI: Okay.

MR. SEITZ: There is no question about it. This is it.

MR. JEHASSI: Okay. Now (interposing)

MR. SEITZ: But because you are greedy and avarice you are not going to do it dry cleaner. That's bull. Pardon the expression.

MR. JEHASSI: Okay. And finally, I would just like to emphasize that the performance test that we conducted was preliminary. Okay. And in the report we do list all of the limitations to the performance test. So, you might want to get a copy of that to see those.

MR. SEITZ: Okay.

MS. LEVY: May I also follow up on some of Mary Ellen's questions about the age of the equipment that's in place now. Could you just give me some insight from your experience, at what age are transfer machines typically retired? Is there a (interposing)

MR. SEITZ: An interesting question, and I am going to give you an interesting response. There are transfer units in operation today properly retrofitted, properly maintained that do a perfectly fine job of meeting present standards. Okay. There are (interposing)

MS. LEVY: Without respect to standards, my question is (interposing)

MR. SEITZ: Without respect to what?

MS. LEVY: Without respect to air standards is there a typical useful life?

MR. SEITZ: Yes.

MS. LEVY: Is there an age at which a cleaner would look at a machine and decide to replace it anyway?

MR. SEITZ: Actually in the case of the dry cleaning machine itself, some of that machinery is built so that it will last for another hundred years.

MS. LEVY: So, without any other outside interference you would expect that operators would continue to repair and replace parts as they break, but that the machines would stay (interposing)

MR. SEITZ: No, I would say in the normal course of events with or without EPA. Now, I must say that EPA certainly has stimulated the activity of the dry cleaning industry. And I don't say that sarcastically. I say it in a very positive way, because in the process of doing that there have been a number of economic payoffs, too.

So, the industry has been, you know, the industry every once in a while needs to be jerked up or shooken up, shaken up, shooken up, to move in a direction and the industry has done that. As I indicated the pendulum has swung from a 70-30 to an almost 80-20. And it is only a question of time before the rest are gone. Not because the machine won't last, but because technology is moving ahead and even the smallest people would like to do it if they could.

MS. LEVY: Because they can make perc go farther?

MR. SEITZ: Are also part of the equation.

MR. PORTER: Let me just make a couple of statements here. I know that dry cleaning is very intriguing and very interesting, and as evidenced by the audience we all have a lot to say and to discuss. I would like to point out that the primary vehicle for the discussion as I mentioned earlier is the round table sessions.

We have some twenty speakers that have requested time to speak during the day session of the meeting today. We also have an evening session and that's about full, too. If we are going to accommodate everybody's wishes and needs, we do need to try to

focus primarily on the statements and discussion in the round table meeting. But I know it's very, very interesting.

Let me ask, is there anyone in the audience that would, yes? The lady in the back?

DR. SCHREIBER: I am Dr. Schreiber from the New York State Health Department. I just have a couple of points of clarification on what Bill mentioned. One is, Bill, with regard to your statement about other industries using hazardous air pollutants or ones that would be considered HAPS, we agree. But we would add additionally that we know of no other industry that contributes to indoor air contamination in residential settings to the degree that the dry cleaning industry does.

And that's primarily as I will discuss later on because of the number of facilities and, although they are small businesses, certainly the way that the solvents are used within those industries can create a very great indoor air pollution problem.

MR. SEITZ: Are you asking me a question?

DR. SCHREIBER: Sure.

MR. SEITZ: Can I respond to that?

DR. SCHREIBER: Go ahead.

MR. SEITZ: Okay. Now, you are one of the people who has been attending the negotiated rule making committee meetings. Haven't you?

DR. SCHREIBER: Certainly.

MR. SEITZ: You are aware of the fact that one of the topics that we have discussed at great length is reducing emissions into apartments?

DR. SCHREIBER: We were both present at the table, Bill.

MR. SEITZ: Okay. And so when you say am I aware of the problem obviously not only am I aware of the problem, but wouldn't you say that the industry is also attempting to find a solution and that the solution is not really too far away.

DR. SCHREIBER: I was not questioning your good intentions.

MR. SEITZ: All right, as long as we understand what we are saying, okay.

DR. SCHREIBER: One other point that I would like to make is I think you mispoke. The workers compensation board in New York State did find in at least one case.

MR. SEITZ: One case, not in my group. I am talking about, Dr. Schreiber, I am talking about approximately in New York State approximately 1,400 members who are in our group. If you multiply that by employees using five as an average you are talking about what does that number come to real fast, 7,000 people. All right. Seven thousand people who are in the group, I think that kind of accounts for a little bit.

Yes, there was one case in Syracuse, all right, which unfortunately went before the workers comp board and didn't have the benefit of anybody from the dry cleaning industry to audit it and this person was awarded. That happened to be an owner of a dry cleaning plant in Syracuse. And on further investigation we were told that he was a pretty heavy smoker and drinker, but that didn't really enter into the situation.

DR. SCHREIBER: Well, the workers compensation board found that the gentleman's exposure to perc because of his occupation as a dry cleaner contributed to his cancer and his death.

MR. SEITZ: I agree. I won't deny that that's what they concluded.

DR. SCHREIBER: Just as a point of clarification, Bill.

MR. SEITZ: That's what they concluded.

DR. SCHREIBER: I would also like to point out that we do believe the dry cleaners want to do the right thing. But it is exactly those small mom and pop facilities that you referred to that we have found associated with very great impacts on indoor air quality.

MR. SEITZ: Right.

DR. SCHREIBER: And I just would like to stress to the audience and the EPA that merely because a business is a small business they should still be held responsible for impacts on indoor air quality.

MR. SEITZ: If that's a question to me, although it doesn't sound like a question, I am going to make it a question and say

that I couldn't agree with you more. And I have criticized the Clean Air Act on this. I think the coin op dry cleaning machines should not have been exempt. And I have made that point already.

I don't think that anybody should be exempt from their responsibility to the public. Okay.

DR. SCHREIBER: We agree.

MR. SEITZ: Because in addition to being executive director of the Dry Cleaning Industry, I think of myself first as a human being. I have a family. I have children. I have grandchildren. And I don't want anybody--including anybody in my family--to smell contaminated air or drink contaminated water. And that's my first interest.

And I have spent, as I say, the last fifteen years convincing more and more dry cleaners of their responsibility and they have responded. That's why I think we deserve to exist. Thank you.

MS. FISHER: Bill Fisher, International Fabricare. You will be pleasantly surprised--just clarification on two numbers that were talked about. Mr. Seitz was talking about the previous level transfer equipment used in the dry cleaning industry. And he was citing a 70% use ten years ago. And that was probably more true in particularly the New York area because they were moving more to dry-to-dry equipment earlier.

On a national basis, twelve years ago, the figure was 85% transfer, 15% dry-to-dry. And those studies have previously been submitted to EPA. Mr. Seitz's current numbers I would agree with, and that is in fact industry now has approximately 70% dry-to-dry and about 30% transfer. So, we have gone from 85% to 30%.

Secondly, Ms. Levy asked about installation of transfer equipment. Again, because of the location of many of his members, Bill would be the less likely to see this. I will tell you that in the approximately two weeks that there has been some public information out within the dry cleaning industry on the new NESHAP, and because there were some radical changes between proposal and the promulgated standard, we have been contacted already by fifteen plants who installed transfer equipment post

promulgation. And I believe that the air office, in fact, has received calls from quite a few of these people who are concerned about the fact that they are now going to be mandated to scrap that equipment.

So, I just wanted to clarify, yes, we have heard from some people like that.

MR. PORTER: And yes, Bill is correct. We have received a few phone calls. Yes, I see a young lady would like to ask a question.

MS. UNGERSAK: Janet Ungersak with the EPA, Office of Research and Development. I understand that you believe that controls are sufficient to prevent excess risk (interposing)

MR. SEITZ: I think that's part of it.

MS. UNGERSAK: Is that based on perc being classified as a carcinogen or non carcinogen, or is it irrelevant?

MR. SEITZ: Well, I couldn't say that it's irrelevant. Even though perc is considered a possible carcinogen there is a low level of risk. But the important question or the important issue, rather, is that perc is toxic. I can't deny that, because it's a fact. And toxic chemicals need to be controlled and that's really the driving force in terms of reducing emissions.

MS. UNGERSAK: Thank you.

MR. PORTER: Yes. Are there any last questions of the speaker? If not then thank you, Bill.

MR. SEITZ: Thanks for the opportunity.

MR. PORTER: Our next speaker is a Mr. Michael Henry with NRDC. Yes, thank you.

MR. HENRY: Good morning. My name is Michael Henry. I am representing the National Resources Defence Council, which is a national environmental advocacy group with about a 170,000 members around the country, and a staff of lawyers, scientists and resource specialists.

NRDC has a long standing interest, involvement in the perc issue. We have been involved with the EPA regulatory process, with the California regulation that was approved last month. And I am a member of the New York State Reg Neg committee.

In general NRDC's approach to issues involving toxic substances is to air on the side of safety and not to take chances with human health and the health of the natural environment, even when there may be some uncertainty out there about the precise dose response curves, or the precise effectiveness of control technology. Though we don't like to find out those mistakes later in terms of lost lives, or lost health as so often has happened in the past.

NRDC also understands and takes very seriously the potentially significant economic burden that environmental regulations may have on businesses. Particularly on small family-run businesses that are typical in the dry cleaning industry.

Environmental regulations should make sense. They should not ignore economic concerns. Certainly in the early days of environmental regulations there is plenty examples of regulations that may not have been the most logical. It is also important to remember, however, that no industry, not even one made up of small businesses has the right to ignore the economic cost it's pollution imposes on society. Nor the right to inflict injury on innocent and unwitting neighbors.

Moreover, in some cases it's the most marginal operators, the ones with the least financial stability and resources in the dry cleaning--for example who are operating antiquated or poorly maintained equipment--who pose the greatest threat.

We welcome this meeting and we are very glad that EPA is expressing renewed and long overdue interest in meaningfully addressing the serious health risks posed by perc emissions. We hope and trust that this meeting is only the first step in a serious and timely response to the available data that really compel a determined effort to minimize human exposure to perc.

I'll get onto specifics about indoor air and ground water in a minute. But first I really need to reiterate our belief that the NESHAP regulation that came out last month is completely inadequate. It's based on eight- or nine-year old concepts of what technology is out there. It's based on the concept that the

great advance in dry cleaning equipment is the invention of the dry-to-dry machine. It's conception of MACT technology is ludicrous. It exempts large numbers of dry cleaners. It imposes meaningful controls, only a handful.

In addition, it does not consider the multi-media pollution issues and does not consider the public health issues. So, there is really no rational cost benefit justification underlying the regulation as a whole.

In short, the September regulation does not come close to meeting EPA's mandate to protect the public health and the environment. EPA must draft new regulations on the dry cleaning industry, and they must include a phase out of transfer machines which have long since paid their way and should be taken out of use as soon as possible.

A phase out of the large carbon adsorbers which generate large amounts of waste water and often break through because not properly maintained, releasing huge amounts of perc. A phase out of coin-op machines. Setting realistic and achievable admission limits. The admission limit in the NESHAP of 100 ppm for process vents is ludicrous; 5 ppm limits are widely considered achievable in practice. And a transition to closed loop dry-to-dry machines with the refrigerator condensers and secondary controls.

EPA should be looking very hard at the new California regulations which were approved last month. They require all dry cleaning plants to install or convert to dry-to-dry non-vented closed-loop machines. I also suggest that you take a look at the California technical backup document which has the answers to a lot of questions which I am hearing from the panel today.

Now that California rule is not some radical dream rule of radical environmental fringe groups. We have some problems with it ourselves. But that California rule was adopted in consultation with major industry groups out there and with their consent and approval. That's not some ridiculous rule. And the gap between the EPA rule and the California rule is so wide that something is missing somewhere and I don't think it's out in California.

Now, despite the progress embodied in the California rule, EPA can not rely on the states to do its job for it. The promulgation of the NESHAP with its pronounced under-regulation is inevitably going to serve as a drag in every state that addresses the dry cleaning issue and perc pollution. It's going to lend support to efforts in each state to dilute the effectiveness of what regulations are in the book. We are already seeing that a bit in the New York State Reg Neg with the EPA release.

Nor should equipment manufacturers and marketers be presented with having to come up with, to comply with 51 different sets of standards and requirements. If the EPA holds with that ridiculous rule, every state is going to have to do something to protect its citizens; and they are all going to do something different.

Let me move onto some of the particular concerns about indoor air. Here in New York, especially in New York City, the problem of contamination of indoor air is particularly acute from dry cleaning establishments. In New York State, there are estimated to be approximately 2,750 dry cleaners located in buildings that they share with residential apartments and/or other businesses.

The New York State Department of Health has estimated that about 170,000 people in New York State are exposed to elevated perc levels in their own homes. The indoor air problem--perhaps the single risk most urgently in need of addressing--is virtually untouched by the NESHAP.

You are already aware of the serious health consequences from short- and long-term exposure to perc--the damage to the nervous system, kidneys, liver. In addition, we have heard a lot of talk today back and forth about perc's carcinogenic affects. I think they are becoming more and more firmly established. For instance, a recent review of 23 epidemiological studies concluded that the evidence strongly suggests exposure to elevated levels of chlorinated hydrocarbon solvents including perc are associated with an excess human cancer risk.

In any event, perc's role as a carcinogen certainly must be assumed in establishing a regulatory structure charged with protecting the health of residents who may be involuntarily and unknowingly exposed in their own homes to a toxic industrial substance twenty-four hours a day.

Where are the bodies? There have been no studies of residential exposures. We should do some. They will take some time to come through. But meanwhile you don't play around with human lives just because you are not completely convinced in every circumstances that the cancer risk has been absolutely proven.

And also, you have to remember the nature of the exposed population. The people exposed in their homes include infants, pregnant and nursing women, elderly people, people with health problems including immune deficiencies. It's not unreasonable to expect that an infant or a new mother or an invalid is going to be spending twenty-four hours a day close to or in their apartment.

And most exposed residents don't even realize that they are being subjected to harmful levels of perc even when they are experiencing some of the acute perc health affects. They may not attribute it. It has not been that wide spread of a publicity effort yet.

Now, the Albany study conducted by New York State, which was referred to in the notice for this meeting, established the link between dry cleaners and elevated levels of perc in the adjoining apartments. Other New York surveys and measurements demonstrate the severity of the risk. New York City and New York State Department of Health have measured apartments above dry cleaners; I believe at least 29 or 30 dry cleaners have taken measurements above now.

In nearly all of them, the New York DOH guideline of 100 micrograms per cubic meter was exceeded. There may have been one or two that met the standard. And that guideline, by the way, is the same guideline that Germany came up with completely

independently. And that guideline does not take into account cancer risks.

Perc levels up to 62,000 micrograms as opposed to the 100 microgram level were measured in an apartment in New York City. And measurements of several thousand micrograms are common. A level of 6,000 micrograms was measured in an apartment twelve stories above a dry cleaner.

If you use California's estimate for excess cancer risk, which is for lifetime exposure of 40 chances in a million per one parts per billion of perc, if you take a straight line extrapolation from that and use the perc levels commonly encountered in the New York studies it translates into a cancer risk greater than 1 in 100. That is unheard of in the environmental health context. That is extraordinary.

This should be on the top of EPA's priorities of what they are going to address; and address meaningfully. EPA has a long history of doing lots of charts comparing where their resources go, compared to where scientists think their resources should go. We should take a look at this problem.

In addition, it appears that the indoor air pollution problem is not limited to dry cleaners in the same building as apartments, but seriously affects apartments located in nearby but separate buildings. Now, these are enormous levels of risks and they must be reduced immediately. The tendency to inaction on this point is understandable, but it's not justified. Inaction may be understandable, because typically when you learn of an environmental health risk of this magnitude the awareness comes creeping in slowly, bit by bit as the scientific evidence accumulates slowly.

By contrast, the elevated levels of perc present in these affected residential apartments is a pretty recent discovery--only a few years old. And it may be somewhat difficult for society and regulators to understand how such a serious risk could have gone unnoticed for so long. After all, the local dry cleaner situated on the ground floor of an apartment building or

in a strip mall has been a familiar and unthreatening sight for many years.

But the fluke that the residential risk has gone so long unnoticed can not be an excuse for complacency. A perchloroethylene dry cleaning shop is an industrial facility using and emitting a highly toxic chemical. No one today would suggest siting dangerous industrial facilities in a residential building anymore than you would suggest siting a hazardous waste dump in school yard.

The industrial use of toxic chemicals simply does not belong in residential and retail buildings. The recent studies confirming this obvious truth with respect to dry cleaners should not come as a surprise and must not be ignored. That must be the starting point for EPA to address the indoor air pollution issue with respect to perc dry cleaners.

EPA should use all the authority it has under the Clean Air Act or TSCA or whatever else it can find to ensure that in the future dry cleaners located in or nearby residential buildings do not use perc. This does not mean making dry cleaning impossible in urban areas. It may mean that industry will need to reorganize itself with some prodding and help and financial support from EPA and other governmental agencies so that the local store is a drop off, pick up, and finishing store. Or to the extent that it does dry cleaning on site, it only does multi. It might do wet cleaning on site or some other alternative technology for a portion of the work and send the rest off site.

I don't quite understand the argument that if you go back to a centralized system it will mean that the people behind the counter become unfriendly again. Certainly, no new perc dry cleaning plants should be permitted to open in or near residential buildings.

Now, with respect to existing dry cleaners. Again, it's a serious risk and it requires serious action. Now, the problem we have here is not yet clear whether even the best existing control technology--refrigerator condensers with a secondary filter, getting the inner drum levels down to 300 ppm as in the German

regulation, vapor barriers, room enclosures, high volume air exchanges, stringent maintenance and operation requirements.

If you have all of those bells and whistles, there is still no evidence that you can get the perc levels in the adjoining apartments below the 100 microgram standard. A standard which does not take into account the cancer risk.

Now, those elements are the minimum required for a co-located facility. But whether they are enough, remains to be seen. Until regulators can point to multiple real world examples of apartments adjoining operating dry cleaners where perc levels are below the 100 microgram standard, we must assume that those levels can not be met before we encourage huge investment in those kind of technologies.

Now, additionally, another question is whether the essentially low-tech background of many dry cleaning operators can provide sufficient assurance that the control technology of ventilation systems and all the rest of it are always operating properly. It is not realistic to expect to consistently achieve in a small mom and pop dry cleaning shop the same sort of operating standards and safety procedures that regulators--and I think sometimes equipment manufactures--assume in the state of the art hazardous waste incinerator in a nuclear plant.

Remember that even one upset or perc spill can contaminate and adjoining apartment for up to six months. Again, this points back to my primary observation. The industrial use of toxic chemicals simply does not belong in a residential apartment building. Historically it has happened. We know better now.

It also points to the absolute necessity for comprehensive and effective training and certification requirements for all workers employed in a dry cleaning plant. Further, that training must not be designed and supervised solely by industrial groups.

Dry cleaners work with the toxic industrial chemical. They must be held to the same standards in their operations as others who work with those chemicals.

Now, even with these requirements, a regulatory approach that relies on expensive high-tech equipment requiring strict

operating standards and still may not be effective to reduce the health risks to acceptable levels should give us all a bit of pause. It doesn't sound like good regulation.

A better approach is simply to remove the perc operations from residential buildings. In that regard the efforts of the Office of Pollution Prevent are critical. It's report on the multi co-process, wet cleaning is timely and must not be ignored. This is a promising alternative cleaning process.

Now, I understand this is not the final test. This is an initial test. But it's an awfully promising initial test that seems to indicate that you can have a cleaning process that almost eliminates the use of perc and other toxic solvents--appears to generate more jobs and achieve more satisfactory results than perc dry cleaning.

EPA must continue to aggressively explore, develop and promote non-perc approaches. In the long term that might be the biggest favor EPA could do for the industry. The serious health risks to exposed neighbors of perc dry cleaners are not going away if perc is going to be used. And the industry is going to leave itself open.

Let me just very briefly talk about some of the water pollution issues. The soil and ground water pollution issues next to the indoor air pollution may be the biggest perc pollution issue. In New York State, perc has been a major constituent contaminant in a very high percentage of hazardous waste sites. And there has also been a major problem in New York City. Perc waste water is dumped down the drain, flows to the sewage treatment plant and gets volatilized back into the air.

Indeed, one study showed that taking long-term ambient air measurements near a New York City sewage treatment plant found the ambient air measurements greatly in excess of air guide one values. This presents a clear example of the shortcomings of a single media focus. Water gets dumped in the sewer; water pollution becomes air pollution--same thing for evaporators. Evaporators should not be permitted. They are simply taking the pollution from one place and sticking it somewhere else.

EPA regulations must result in the significant reduction in the amount of perc-contaminated waste water that is produced--and require stringent treatment measures for what remains. EPA must do all it can to require and encourage the development and general use of dry-stripped filters where filters are required. This means, at a minimum, the phase out within a reasonable time of the large carbon adsorbers--means mandating that filters on new equipment be dry stripped by hot air. And supporting research and development into replacement methods for carbon filters of Dow system and others.

Additionally, effective on-site treatment of waste water should be required--at a minimum, double filtration and distillation. The EPA drinking water standard for perc is 5 ppb. Germany, which has a comparable drinking water standard, recommends that perc waste water not be discharged from the plant in any concentrations more than 300 ppb.

Now, EPA should consider that German standard as a starting point. More stringent standards for perc in waste water are now apparently attainable at reasonable expense. The zero waste system for example claims that it can reduce perc levels in water, waste water, to 40 ppb or less; and with extra filtering lower the amounts even down to 5 ppb. And that's not a very expensive piece of equipment.

In conclusion, the health risk presented by perc, particularly in the context of indoor air contamination and water pollution, is significantly greater than that presented by many other environmental risks which are the subject of much more stringent and expensive regulatory schemes than the EPA seems to think fit for the dry cleaning industry.

EPA's efforts to date have been patently inadequate to meaningfully limit the dangers from perc. EPA's recognition of this shortfall is welcome and should be applauded. It must now exercise its regulatory powers to an extent proportionate and responsive to the danger perc poses to human health.

This meeting must represent the beginning of a genuine commitment by EPA to develop adequate and effective regulations

that limit human exposure to perc. Again, it may be difficult to accept, but we have here a health problem that is a lot more serious than a lot of other problems EPA is concerned with.

NRDC welcomes the opportunity to participate in this process and will be happy to continue to do so. Thank you.

MS. SNYDER: You mentioned a technology that reduces the level of PCE in waste water to 40 parts per billion or less. Can you elaborate on that?

MR. HENRY: I have seen basically some promotional literature and some operating manual for a system manufactured by the Zero Waste Corporation I think, which uses double filter and a distillation tank. And then it actually recirculates some of the water, the perc free or perc reduced waste water back into the boiler system, I believe. I can show the material I have on that, if you would like.

MR. LEVINE: Jerry Levine, Neighborhood Cleaners Association. To dispute all that Michael said would probably take me the next three days. I could do it probably reasonably.

One thing I do want to question is the use of the term standard of 100 micrograms which in my opinion shouldn't be called the standard, because it's a recommended level to the New York State local health departments by the state, which is a risk assessment as I mentioned earlier, which is based on what our toxicologist calls subjective information, where disregarding other information which would contradict those numbers. And with enough safety factors built in to make it very, very low standard of 100 micrograms.

I don't call that a standard, as I said. I think that's a suggested risk assessment for the lack of a better word now. And that just can't be put forth as that's what the industry has to live with because of one particular study which is certainly questioned by much of our industry.

MR. HENRY: Just to respond very quickly. If I said standard I mispoke. That shows the danger of departing from your written text. I believe legally it's a guideline. Whether it's a low guideline I would dispute, as again it does not take into

consideration cancer risks. And I don't believe it's based on one study. It's based on several studies which have been combined and a risk analysis run factoring in various safety levels.

Judy Schreiber is the best person in the world to defend the study. She has done so very well so far. As a member of the New York State Committee, there has been quite a bit of talk challenging the DOH guideline, but I have seen nothing yet come forward that seems to significantly shake my confidence in it.

And again, the German number which is the same number independently arrived gives some independent confirmation of the validity of that guideline.

MR. HENRY: It's old home week here.

MR. SEITZ: Two questions. Number one, you make reference to the California regulation on transfer units. What is California's phase out period for transfer units, do you know?

MR. HENRY: I have not seen the regulations as finally adopted two weeks ago. And my understanding is there may have been some changes in the phase in periods. I believe that there is a two-tiered structure where the dry cleaner operator makes an election that if the transfer, if they are going to go to a new piece of equipment they have a longer period of time, maybe it's either three or four years. Or if they are going to go a rebuilt closed loop system they have eighteen months. That's the latest version I have seen. If you know more (interposing)

MR. SEITZ: Well, my understanding is that there is a phase in, there is two levels as you say. One is four years and one is six years.

MR. HENRY: Okay. That may be the change that happened the last go around.

MR. SEITZ: The second question. Obviously you say it's like old home week. Your reference, of course, is the fact that we both serve on the New York State reg neg, or neg reg, or whatever they call it committee. While I could separate what we are talking about in terms of the Clean Air Act and the negotiated rule making committee, would you say that in terms of

the activity and the progress of that committee that that is addressing itself to the number of questions that you have raised in a serious way? Namely the difference between mixed use and stand alone, the need for solvent barriers, the need for proper ventilation, the need for certification.

Are all of these things part of what we are negotiating to the best of your knowledge?

MR. HENRY: All of those issues have been discussed. Everything in New York regulation, the reg neg process to date has been in such a tentative conceptual framework with some of the crucial questions still left hanging. For example, how we are defining a mixed use facility versus a stand alone facility. But it's hard for me to say at this point whether I am satisfied with the sort of consensus that have been arrived at so far. They certainly are all issues that are being discussed.

MR. SEITZ: Whether you are satisfied or not--because I may not be satisfied on the other end--but the point I am making is that has there been an effort on the part of this committee to meet some, to reach some kind of consensus. Specifically what I am saying has the industry, to the best of your interpretation, has the industry, the dry cleaning industry been positive in terms of attempting to find solutions, in your opinion?

MR. HENRY: I believe that the industry representatives on the committee have been good faith participants and have brought a lot of energy and brought information to the table. I sometimes do have doubts about the resistance to some parts of the industry to accepting what I consider health data that indicates to me that the problems is of a certain seriousness.

MR. SEITZ: Okay.

MR. HENRY: I do believe that everyone at the table has been making Herculean efforts to find common ground and to bring good faith to the table. And I hope that will continue. It's a big job. It's a limited amount of time and we'll have to see whether it's going to be successful.

MR. SEITZ: Okay. Thank you.

MR. PORTER: Yes, I saw some, yes, go ahead, sir. If you would state your name again?

DR. HWANG: My name is Doctor Dong Soo Hwang and with Korean Cleaner Association of New York. You mentioned, you cited the California report which said one death out of a million for 1 ppb. And then you used New York State Health Department guideline to arrive at 1 death for one hundred. If I extrapolate this data I come up with 100 deaths for every one at 2.5 ppm. But you know that New York State health guideline is so that the instant exposure. Would you dare to say that at 2.5 ppm everyone would die of cancer?

MR. HENRY: I am not quite sure I understand your question. What I was (interposing)

DR. HWANG: Excuse me. Let me repeat it again, because your way of doing is sort of, doesn't make much sense. You extrapolated the California data to New York State Health Department data to come with one death out of a hundred. If I further extrapolate to have a hundred deaths for a hundred, the; 2.5 ppm. Is it clear to you?

MR. HENRY: Let me tell you what I did. The California Cancer (interposing)

DR. HWANG: I am not asking what you did. I am (interposing)

MR. HENRY: Well, that's the only way I can answer the question. Because (interposing)

DR. HWANG: By the way, is my question clear?

MR. HENRY: I am not quite, you are saying that at 2.5 ppm (interposing)

DR. HWANG: Everyone would die of cancer using your logic.

MR. HENRY: I was talking, okay. I am saying that at levels typically found in New York City apartments about 10,000 micrograms (interposing)

DR. HWANG: No, no, I am not saying about New York City study. I am saying about the death of cancer you calculated.

MR. HENRY: Well, you are saying that you took forty.

DR. HWANG: If I used your logic at 2.5 ppm everyone would die of cancer.

MR. HENRY: I don't know. If you stuck someone in a room breathing 2.5 ppms of perc for the seventy years I am not sure how that comes out. I am not that, I need to figure this out with pencil and paper. I can't do that right here. Besides which, I always get confused converting micrograms back to ppms and back without my little handy chart. But, I know that, what's 10,000 micrograms? Someone help me out.

DR. HWANG: Well, maybe it's better you stay out of (interposing)

MR. HENRY: Well, how many ppms is 10,000 micrograms?

DR. HWANG: Thank you.

MR. HENRY: That's about one part per million?

VOICE: Close to one and a half parts.

VOICE: 6,800 micrograms to one part per million.

MR. HENRY: Per million, right? So.

DR. HWANG: It doesn't matter whether they are converging. But at 2.5 ppm everyone would die of cancer if we follow your logic.

MR. HENRY: Well, I think when I did my calculations I came up with a high number at which you would get a hundred out of a hundred. Obviously you know statistics don't work that way. The epidemiological studies on cancer risk is a risk analysis of excess deaths. Actually it would be somewhat less, I suppose, because some people would be dying from cancer anyway without the perc exposure. But I think the numbers hold up.

Now, also, as we know EPA has their own study which shows one in a thousand excess cancer risk based on their cancer risk values which are less than California's. So, it seems to me that we are probably in the same ballpark.

MR. PORTER: Let me just suggest that since we are talking off the tops of our head and calculations that the two speakers may want to follow up at a break and kind of review their calculations, that sort of thing.

Oh, yes, would you like? Oh, yes, go right ahead. If you would state your name please?

MS. WARREN: Barbara Warren, again, from Consumers Union. Michael, a few people have brought up the issue of the New York State negotiated rule making. And I just wanted to, I guess put on the table whether it was your belief that New York State's efforts should be a substitute for EPA's efforts in terms of regulation. This goes back to a previous pattern of EPA of leaving it up to the state on air toxics and I just wondered what the Natural Resources Defence Council might say about that.

MR. HENRY: Yes, no, as I addressed in my comments that would be a very serious mistake on EPA's part. First of all, with the EPA NESHAP sitting out there with a very low level of regulation they tend to drag down the efforts in each state. When the EPA and NESHAP came out last month the next meeting after that of our committee they started being waved around as, you know, see how bad these are. You should be glad. You should be satisfied with whatever you get here. And I think that scenario will be repeated around the country.

Also, we are talking about major equipment manufactures with nationwide marketing. You know you don't want to have to meet 51 different standards.

MR. PORTER: I guess I can only assume that this afternoon's discussion at round table will be very short because we will have discussed much of everything here. But I see somebody else would like to ask a question. Go ahead, sir.

MR. LEVINE: Just one more comment. On the statement that indoor air, especially in residential settings is a concern for EPA based on an emission from dry cleaning plants into apartments. The situation that we are describing is almost totally unique for New York City. There is virtually no place else in the country that has this type of a situation. Maybe a certain amount, a few stores in San Francisco. Maybe a few stores some place else.

When you have a strictly localized situation I think it's the job of the local state agency and not a federal agency who is

trying to govern one state or one city in the United States. That's not the job of the federal government. That's the job of the local agency whether it be New York State DEC or New York State DEP. Not the federal EPA.

MR. HENRY: I don't know how widespread dry cleaners are in residential buildings. I know Philadelphia has several.

MR. LEVINE: Philadelphia has none. It's illegal in Philadelphia and it always has been.

MR. HENRY: Well, I have talked to someone in their department of environmental whatever it's called, protection or something and unless have, maybe he was talking visits over this past several years, he has certainly had occasion to visit apartments above dry cleaners with highly elevated levels of perc which they have had to work with the dry cleaners to shut them, to get new equipment, or barriers in.

Also, adjoining facilities in strip malls and other commercial and food establishments I do not think are as limited and do present more of a nationwide development pattern.

MR. FISHER: I am of International Fabric Care. Your clarifying comment on the California Air Resources Board Standards, which I participated with them in developing over the past two years; and in fact was present two weeks ago when they were adopted. The Air Resources Board with the concurrence of the full committee made the decision that they would adopt some limited requirements on co-location.

And that it would be entirely appropriate for the air quality management districts, within the state then, to move beyond that, depending on their particular problem, such as the bay area. That would certainly be analogous to federal agency and state regulations. Thank you.

MR. HENRY: They may or may not be because the California Air Resources Board system is set up very differently where the individual districts are an integral part of the regulatory process. And they have authority in all regulations to go a step further. The EPA and the states are not necessarily always

hooked together the same way when we are talking about regulating a substance like perc.

MR. FISHER: I believe that I said that it was analogous that the states could adopt their own regulations and that would be appropriate. Thank you.

MR. SEITZ: Yes, just a clarification on Philadelphia. Philadelphia historically has never permitted dry cleaners to be located in apartment houses. And that goes back to a regulation. It goes all the way back to 1930 something and the reason for that was that the solvent that was used in that period of time was petroleum solvent.

And the hazard was flammability.

That regulation was never changed. And that is why there are no dry cleaners in apartments in Philadelphia.

MR. HENRY: A fellow down there, he was talking about these may have been two or three family buildings or you know, maybe not a huge apartment buildings. He did (interposing)

MR. SEITZ: Anybody (interposing)

MR. HENRY: He did tell me of instances of (interposing)

MR. SEITZ: Maybe outside of Philadelphia.

MR. HENRY: I believe this was Philadelphia. Maybe these establishments pre-dated the zoning regulation.

MR. SEITZ: I know that because, two years ago, they attempted to try to change that and they were defeated.

MR. HENRY: I will go back and check that out. This is not something that you need to get through in great detail. I did talk to a fellow down in Philadelphia agency who had has an occasion to be called in to residences where there are high levels of perc from dry cleaners. And he had to work with the dry cleaner to alleviate the problem. So maybe these are buildings that predate the existing zoning codes. Maybe it is not widespread, but he certainly has had several experiences doing that.

MS. RICE: I just have a quick request or a clarification on procedure. So, this isn't for Michael, but it was my understanding that we are not supposed to be making comments and

using the time that way. I have plenty of comments to make. But, I have refrained. So, I would just like to get a clarification on that, because it doesn't seem to be flowing.

MR. PORTER: I would certainly like to extend my thanks to you and anyone else from refraining from, yes, the objective of this portion of the meeting is to let speakers make the statements that they would wish to make. And that questions from the panel or the audience are really to be focused on questions to clarify something that the speaker may have said. The vehicle for discussion is really the round table, which is this afternoon. But, I mean, it is sometimes hard to distinguish whether someone's question is discussion or clarification. I am doing the best that I can. And I thank you very much for bringing that point up.

Let me just say that it is now a quarter past twelve, and we do need to break for lunch. We are not going to go straight through lunch, I assure you. But I would like to proceed until about one o'clock. I am hopeful that if we then break around one, maybe most of the lunch crowd will be over and we can break and adjourn in a reasonable amount of time.

With that said, and assuming that there are no further questions to clarify some of the statements of the speaker, I am going to ask our next speaker a Mr. Tom Langner if he would like to step to the podium.

Mr. Langner, I don't see an affiliation so when you introduce yourself, would you? Thank you.

MR. LANGNER: My name is Tom Langner. I am a retired professor of psychiatric epidemiology from Columbia University. And I have done longitudinal studies of mental disorder in New York City. And my area is not air pollution.

But, let me say, on the basis of my studies of mental disorder, anybody who lives in an apartment, above a dry cleaner, and thinks that they are not be being exposed to great hazards, is a crack-pot, a psycho-ceramic, or maybe even psycho-meshugana.

I have lived with my wife on the fourth floor above a dry cleaner for about 3 years. During that time we have been exposed

to various levels of perc fumes. My wife is expecting a baby girl, this coming week. In fact I have to phone her right away to make sure that she is not going into labor.

We have been even more concerned about the baby's exposure to perc than we were about ourselves. We first called the New York City Department of Health, the Bureau of Environmental Investigation. We found that they were short staffed, having only three inspectors for all of New York City.

They were able to come after several months, but on the day they came, there were no perc fumes. The exposure is intermittent. The violation can't be established on a day when there are no spills, no leaks, and when no delivery of perc has been made.

They said that they did not have the staff to make emergency calls. Since we might have fumes one day and then not for another two or three weeks, it seems impossible to get a reading and record a violation.

The two inspectors who came were well trained. They came with good equipment. A draëger pump and tubes and photo-ionizer. They said they would make a report and we should call again if we smelled perc. I called after the next perc episode, but the Department of Health said that our case had been referred to the New York City Department of Environmental Protection.

Numerous calls were made. I would say about 30 calls in all. The DEP telephone numbers had been changed. We were told to call a central complaint bureau. They took the messages, but again, nothing happened. Then a month later, DEP sent an inspector.

He did not have any equipment to measure the perc levels, but he said we would use our noses. Again, there was no strong smell. But I found on some days, there was one part per million, which my wife could smell. This is because I purchased the equipment and trained myself to do this under the guidance of Judith Schreiber and some telephone calls to other people.

Let me say that my wife could smell and become acutely sensitive to smells during her pregnancy. If the various levels

of government can't afford the proper equipment, I would suggest a modest proposal in the manner of Jonathan Swift, which is let's use pregnant women to monitor the low end perc levels.

After several more telephone complaints we talked directly to people at DEP. And they sent an inspector on the morning of a very severe spill. This visit was from the DEP Air Resources unit. The inspector said that it burns my nose.

Well, it certainly was a violation. After two years of frustration we were finally making some progress. The inspector went to the dry cleaners, downstairs, and a violation was finally issued. After that we had clear sailing for the summer months.

During this time I had been in contact with the New York State Department of Environmental Conservation, Division of Air Resources, and the state Department of Health Bureau of Toxic Substance Assessment. In contrast to the New York City DEP and Health Department, they are extremely supportive and informative.

With guidance from them I got a draëger pump and some tubes that went from one half part per million to twenty five parts per million. And I started to test perc levels when we could smell perc. What I didn't realize, of course, was that when you can't smell perc, you are still exposed to high levels. In September and October we started smelling perc again.

The grace period after the violation had ended for us. Each time that we called central complaint. Once an inspector came, but it was on a day when no perc smell. During the last two months, we have had readings between one part per million and five parts per million. And one day we even had a reading of twenty-five parts per million, this is on the fourth floor of an apartment building.

I would like to put those figures in perspective. The allowable level of perc for apartments is 100 micrograms per meter cubed. One part per million is 6.8 milligrams per cubic meter, or 6,800 per cubic meter. So, one part per million of perc is 6,800 micrograms or 68 times the permissible level, according the New York State guidelines.

A recent reading of 5 parts per million, or 340 times that level. When there was a spill at the cleaners, my tube turned pink up to the 25 parts per million and it would have gone on, I am sure, except that was the end of the tube. Though we couldn't get further stain. It was on this day that we were able to get a DEP inspector who issued a violation.

Twenty-five parts per million is seventeen hundred times the allowable level for children in apartments, which the state has set as a guidelines. These levels of 15 and 25 parts per million can be compared to research findings. In Judith Schreiber's article she found a range of 300 to 55,000 micrograms for apartments above dry cleaners in morning samples. We found a range in our apartment of 6,800 micrograms to 17,000 micrograms. This is essentially when levels were smellable. And we didn't test the low end very well.

Schreiber's samples ranged from 100--in her evening samples--from 100 to 36,500 micrograms. This shows that evening levels and night levels do not fall to zero, and apartment dwellers are getting a 24 hour exposure, especially small children, aged and infirm who are at home most of the day.

The 6,800 microgram level we found is in the low to mid range of Schreiber's morning samples, but certainly not at the low end. The 5 and 25 parts per million level found on different days are way beyond anything acceptable and could be considered toxic for children or a pregnant mother.

Most important, the 25 parts per million is at the OSHA maximum level for dry cleaning work place for an eight hour exposure. For apartments in contrast we are talking of 24-hour exposure. The non working hours of 16 hours when cleaners are closed, show levels in apartments of one third to two thirds a la Schreiber.

So, on a 25 part per million day as measured in our apartment in the morning, we could expect a 24-hour exposure of twice the amount allowed for the work place. I won't go into all the calculations for that.

My conclusions--daytime daily non smellable levels of perc may be around 1 part per million. This means that inspectors can't use their noses. They must use tubes or perhaps the newly developed badges. Higher levels must exist daily in apartments that are below us, nearer to the dry cleaners. And it has been mentioned before that an apartment that was twelve stories above a dry cleaner had very, very high levels.

Since our level is 68 times the allowable 100 micrograms, apartments above us must also be in violation. And there are young children, or pregnancies in all but one apartment in our building. So, all these people--adults and children--are at risk for developmental problems, central nervous system defects, possible learning disabilities due to C&S damage, kidney, bladder cancer, etc.

This is not to mention headaches, tearing eyes, sore throat, the kinds of discomfort, daily discomfort that come with these levels. Given two years of warnings, delays, and botched inspections it's about time that some strong action is taken to stop these violations. Now, in conversation with the health department I found out that the severe violation we experienced was due to a spill during delivery of perc. Other days smellable levels were due to rags used for spot cleaning which were left in open bins. The equipment which is a dry-to-dry type is up to date and was not leaking, therefore human error is involved in this case--and probably in many instances.

And we say human error can be corrected, procedures can be tightened up, faulty machinery can be replaced or repaired, and ventilation can be improved. But in my opinion, perhaps not enough to protect the publics health as our personal experience shows.

Let's hope that after this election there will be some attempt on the part of the city administration to protect its citizen in this area. If enough of the thousands of people who live above dry cleaners protest, maybe they will get some action on a federal level, too. They should copy the parents of school children exposed to asbestos.

Thank you.

MR. FRUMIN: Eric Frumin, Amalgamated Clothing and Textile Workers Union. Mr. Langner, you say you moved into your apartment about four years ago?

MR. LANGNER: Three and a half.

MR. FRUMIN: Yes, when you were investigating the apartment or at the time that you moved in, did anyone inform you about the health hazards from living in an apartment near a dry cleaner?

MR. LANGNER: No, and we thought we would be well above any problems.

MR. FRUMIN: I see. Has the cleaner in the building ever spoken to you about the hazards from the chemical?

MR. LANGNER: No, we have been told by inspectors not to speak to the cleaners.

MR. FRUMIN: Well, I understand that the inspectors told you that, but what I am asking is did the cleaner ever approach you to tell you about the, what might be the hazards of perc such as well, if you ever smell something let me know, or you know, something of that order?

MR. LANGNER: No, that never happened.

MR. FRUMIN: Do you know whether any of the other people in your building have ever been approached by a cleaner to alert them to a possible problem with the perc from the cleaner?

MR. LANGNER: Not that I know of. I have spoken with all those families.

MR. FRUMIN: Thank you.

MR. PORTER: Yes, are there any other? Yes?

MR. LEVINE: Jerry Levine, Neighborhood Cleaners Association. I certainly don't want to dispute anything that you said about being over a dry cleaner. It seems amazing to me knowing the history of what's been going on, that the New York City Health Department didn't seal the dry cleaner's machines as they have with, I guess, about forty or more in the city where people have issued complaints. And they were very quick to check the levels in the apartment upstairs.

You did make a statement early in what you said about smelling perc at 1 part per million. Are you aware of what the odor threshold is for perc?

MR. LANGNER: I was told it was 50.

MR. LEVINE: It's 50, which means (interposing)

MR. LANGNER: Which I don't believe for one moment.

MR. LEVINE: Okay. Even if it's 40 and nobody really questions that it's not much different from that. So, my only question is how could you smell perc at 1 part per million which you measured when nobody else can smell it.

MR. LANGNER: Let me give you an example. My wife was complaining and she said that she smelled perc again.

MR. LEVINE: How could you know if it's perc?

MR. LANGNER: I said it's just your imagination and I then took out the draëger pump and on the first stroke I got no color at all. I then pumped five times and I got (interposing)

MR. LEVINE: I have to continue. What you did is you just, it is made to go a certain amount of pumps or strokes, whatever it may be to get a number. Once you override that with your own idea that number is no longer valid. What you did is you just created a situation (interposing)

MR. LANGNER: I am not overriding it. I took that number of strokes and divided it into the reading and I came up with 1 part per million.

MR. LEVINE: It doesn't work that way.

MR. LANGNER: Yes, it does. I have read the instruction manuals and I have read a good deal on this. And I am not stupid.

MS. SUTLEY: May I clarify here just a moment? Just to acknowledge that there is a great deal of variability in human ability to perceive odors. So, we would expect to see some people able to perceive odors quite a bit below what would be a typical number.

DR. SCHREIBER: Judy Schreiber with the State Health Department. Yes, just to concur with Karen and with what Mr. Langner says. I think it's very well recognized that there

is a great deal of variability in odor thresholds and some people are more sensitive and can detect an odor with their nose at a much more sensitive level than others. And I would not question your wife's saying that she can smell it if she says she can smell it. I would tend to believe her, especially given the circumstances where we have documented high levels in your apartment.

MR. LANGNER: I would like to say, too, that during pregnancy women develop a hyper anesthesia of various kinds. And one of them is the sense of smell.

MR. RISOTTO: Steve Risotto from the Center for Emissions Control in Washington, D.C. I just had a couple of questions. You have mentioned the fact that it was your belief that the apartments below you and above you were exposed to comparable levels. Were measurements taken that you are aware of?

MR. LANGNER: No, because I was doing this all on my own. I couldn't get the Department of Health or DEP to do these measurements.

MR. RISOTTO: And in terms of conversations with people in the building were they experiencing similar incidence?

MR. LANGNER: They were. But on the second floor there was a person who was working and was never there during the daytime. So, he wasn't that concerned. And there were some people who I found a general tendency, I think we all agree with this, that unless it hits home we don't really want to do anything about it. And most people are very loath to take any action or to take a stand on these issues.

MR. RISOTTO: And one other question. The duration of exposures, presumably your threshold is higher than your wife's, but in your case, how long would you smell perc typically during periods when you smelled it?

MR. LANGNER: About two hours in the morning.

MR. RISOTTO: About two hours. Okay. And then the other twenty-two hours presumably (interposing)

MR. LANGNER: I wouldn't smell it, but she would.

MR. RISOTTO: In her experience when she smelled it what would be the general duration?

MR. LANGNER: Probably all morning long.

MR. RISOTTO: All morning.

MR. LANGNER: If we could open the windows and put on a fan then we could disperse some of it and it would go down to non smellable levels.

MR. RISOTTO: Thanks.

MR. LEVINE: No discussion. I just wanted to make one point about odors. Dry cleaners use other chemicals besides perchloroethylene that don't have such a high level of toxicity. One of them is amyl acetate which you can detect at very, very low levels. And all I wanted to know is how could you be sure that all the odors that you were smelling were perchloroethylene and yet not another chemical which is much less toxic?

MR. LANGNER: Because the tube I was using is specific to perc.

MR. LEVINE: No, I was talking about odor, not about measurement.

MR. LANGNER: I don't know about that, but my wife complained about the odor. I made the test and I got the stain. And the stain is specific for perc.

MR. SEITZ: The question I wanted to ask, this is the Bill you are talking about Bill Seitz, Neighborhood Cleaners Association.

It's my understanding that if you call the New York City Health Department by law they must respond. There have been somewhere in the area of, somewhere between 40 to 45 dry cleaning facilities over the last two years where the health department has responded where they measured and the measurement was below the level of what you could smell. So that the odor is not the criteria for whether you have achieved, you know, whether you are in excess of the standard. And if that happens the health department will respond. So, I am surprised that in your case that the health department for some reason didn't do what they did in 40 other cases.

MR. YEZDANIAN: Tom Tanner, the inventor of our equipment will take the role of scientific technical advisor. I will be--my name is Aram Yezdanian of Safe Earth. And Tom will take that role.

I represent Safe Earth and Perconerator Manufacturing Company in Neptune, New Jersey. And I would like to give you another perspective on today's proceedings--a little bit different than what you have heard all along.

We would like to share with you an overview of the technology developed specifically for the dry cleaning industry with emphasis on meeting and surpassing current air emission standards and spill containment regulations.

The dry cleaning industry is a vital segment of the small business sector providing an important service to the public and creates thousands of jobs throughout the country. It's importance can be measured by the continuous growth in use of dry cleaning service by all of us. And how we rely on the dry cleaner to keep us looking clean, fresh and presentable.

The history of dry cleaning dates back to the late 1890's when benzene, a cleaning solution, was scrubbed by hand into the garment on a board and then hung up to dry. There was no submersion. Now, if this sounds like Bill Seitz's earlier presentation I am sorry. We didn't collaborate on this. This benzene method lasted well in the early 1900's and today mineral spirits are still in use maybe in 3 to 5% of the industry.

The next step was using carbon tetrachloride. Eventually it was used in dry cleaning machines. And by the early 1940's perc was introduced and its effectiveness was quite apparent. And early machines like Ban Box, Savage and others were the pioneers in using perc.

Perc is a very successful product. Yet, the forerunner of a serious problem destined to be a major pollutant that the public and the dry cleaner had no knowledge of. Thus began a long history of pollution both in the air and underground.

It's impact on the health and safety of those in the work place and the consumer and the environment is now a serious

threat and must be correct. It boils down to being a new beginning for the dry cleaner, a very vital segment of our society.

Today we face the formidable task of correcting the abuses of the past. Years of testing, evaluation and new technology have brought us to the point where corrections and adjustments can be made. The EPA has established national emission standards for hazardous air pollutants for perc dry cleaning facilities. The object is to achieve significant reductions in perc emissions from new and existing facilities.

There are three generations of dry cleaning machines. We have heard this before and we'll hear it again. Transfer, dry-to-dry and refrigerated. This is an example, a good example of a transfer unit. And here the operator transfers garments from the washer extractor to the dryer. Now, this is resulting in exposure to perc for the operator and the surrounding area with some toxic vapors.

Now, this is an example of a transfer unit in Mayopac, New York, where the local Putnam County Department of Health closed the dry cleaner down because of complaints from the apartments above. The perconerator safeguard system, which is our product, was placed in this particular unit and after testing and review by the New York DEC he was able to reopen his dry cleaning store. That he didn't stay in business after that was a personal problem, but we had corrected the problem.

This is a continuation of some of the equipment that's used, including the filter, and the alarm system which is going to alert anyone in the store, even off hours, that there is a spill in the system. That could be because of operator negligence, or it could be by any kind of a rupture of a pipe for any reason.

I'll go through the system and how it operates. This is an example, again, of the perconerator system. This unit is a dry-to-dry with surrounding the doorway, the door was also opened and closed for entering; putting the clothes in and pulling them out. This is what we call a vapor scoop, which will remove and reduce the pollutants coming out of the door when it's opened.

Again, this is a single filter that's used as part of the process. Now, we are looking at a second generation dry cleaning machine which is a dry-to-dry unit. Here the garments are put in dry, processed and removed dry. Now, this requires a control device with a vent to the outside air. We are showing here now again the perconerator control device around the door that will clean the air and filter it at the same time.

Now, we have filtration systems that are available that automatically strip and clean the contaminated part of the filter. Water given off by stripping goes through the filter, evaporated and dried and recirculated through the filtration system and we are using a proprietary product at the present time.

Continuing now, this is a third generation unit which is the same as the second with a refrigerated recovery system. It does not require any outside venting with the perc safe guards, perconerator safeguard system. Basically all generations of machine need an additional safeguard system, a new control device. None of them can completely remove what is present any toxic vapors.

Safe Earth Enterprise presents a solution for pollution. For the Safe Earth dry cleaner who really cares. As a dry cleaner what are some of the challenges he faces now and in the future, the reality of protecting the environment for his sake and the health and safety of everybody around him in the store.

How can I help meet these challenges? By understanding the need for my participation and applying my experience and desire to use the best technology available today. There was a statement made before that the dry cleaner is not capable, possibly, of running and using this new technology either be it dry cleaning machine, or any control devices.

Well, I disagree with that completely, because the dry cleaner is not an idiot. He is making a living from this and maybe over a quarter of a million people or more in this country are making a living from it.

Therefore, if he is taught properly and shown how to use it he will us it.

What are some of the existing problems? The potential danger of health problems result from chemical exposure. The potential disaster that may result from a chemical spill--perc in this case--in your plant and the accompanying toxic vapors that are harmful to you, your customers and the environment. It's not just him in his store, his workers, it's everybody, people coming in and everything around him.

What's available now to help prevent such mistakes and possible serious damage? We call it the Enviro Clean Process. What is it? It is a test and a proven method of using a safeguard system called a perconerator designed specifically for the dry cleaning industry. It can be installed or retrofitted to any existing dry cleaning machine, including transfer units or the latest in dry-to-dry refrigerated systems.

How does it work? This is the guts of the perconerator safeguard system in a few sentences. It provides a chemical spill containment apparatus that operates automatically to detect a perc or chemical spill and responds by trapping and removing the chemical fluids and vapors from the open area adjacent to the machinery. It continuously removes small, but significant concentrations of a toxic vapor from the atmosphere adjacent to the machine during periods of normal operation.

How do I benefit? The dry cleaner immediately protects himself, his employees, his valued customers and complies with existing and future regulations. He becomes a socially conscious business person who is meeting his or her obligations to the public. He distinguishes himself from the other dry cleaners in the area who should be in it also and establishes himself as a competent and professional dry cleaner, which would probably result in better business for him.

Now, this is a diagram of a typical dry cleaning machine. It could be any chemical processing machine. This red line; this perconerator basis you will see a little later on.

We are looking at a typical installation of a dry cleaning machine or any other chemical processing machine. It is sitting in an enclosure which is going to protect any spill resulting from any breakage. The cut lines that you see on the bottom is the base of the actual perconerator system. And I told you before that it's automatically removed and taken into a holding tank and the machine is shut down until the perc that has been spilled from five gallons or whatever gallons will be put back into the system.

We are looking at now a dry cleaning machine sitting on the actual perconerator base. This is a clear picture of it. This is the base we are talking about. This is the dry cleaning machine itself. That is just a spotting board which we'll get into later on. This is the frame of the enclosure which will enclose the entire system and make it safe for the operator.

By the way, it can be retrofitted to any existing dry cleaning machine at a very cost effective price. I am not selling you anything today.

This yellow piece is now called a hamporlator. This is called the hamporlator. Now, don't forget this is in an enclosure which we are going to demonstrate to you in a few minutes. This is the hamporlator which allows the operator to open the door and any fumes that are coming out are removed through a filter system. He is going to get very little or no exposure anymore from what he is doing. Realize how many times he is opening and closing this door each day.

Now we have another. What we are doing is building up the entire system so you can see it. Again, the enclosure, the hamporlator, the alarm system which I will go into and the actual holding tank. Whatever is spilled in the system is automatically removed and put back into this holding tank.

Again, now, this is another view of the perconerator system with the enclosure around it. This is the grate on which any perc spills will be going into and removed eventually. In the back you could store some of your hazardous materials without any exposure to anybody in the store or the plant.

Again, we are looking at the holding tank. We are looking at the entire filter system, which is the guts of removing the toxic vapors.

Within this enclosure we have included everything that's possible. You have your eye wash station. You have your first aid kit. You have your fire suppression system and you have your block out kit. In the event the machine breaks down it will block out certain parts of the machine so no one will come in by mistake and try to open and start the machine from operating. You prevent a lot of damage.

I am trying to build up for you something that shows you an entire, total protection apparatus. Three different looks at it. This is the rear of a dry cleaning machine with the enclosure. The perconerator scoop around the door. But now we have the added hamporlator which I showed you and I'll show you again, and a single filter.

This is the entire perconerator safeguard system as you would see it properly installed. We are looking at the enclosure. We are looking at the hamporlator within the enclosure. Nothing is going out. You have your filter removing any of the vapors that come out. You have your eye wash station. You have your emergency alarm system with beacons and lights that in the event there is spill you are going to prevent it from going into the ground and contaminating the ground.

Again, this is a build up of the systems. In the rear of the building here is what we call a vaporlator. That is a spotting station where the spotting goes on. It has a storage area for any chemicals you are using in your spotting and as a spotter is using it, it is removed again into a filter. Again, no more escaping in front of the operator himself. And that's placed within the perconerator system.

Now, we are talking about reduction in use of perc. This is still in its planning stages and it's proprietary at this time. It's eventual use, it's first use is to remove any residual perc from the clothing. You can clean it and dry and hang it up and you can pick up the garment and it's going to smell. You can

squeeze perc out of any part of the garment you want. You are never going to thoroughly dry from a dry system.

This will remove any residual perc that's remaining. But when it comes to reduction of use of perc we are working now on and it's not a fruit salad. It's a citrus based solvent, non toxic and in this system when it's eventually open and manufactured it will show you a 30 to 20 to 30% reduction in the use of perc.

We are hitting two corners here. We are protecting right now, but we are also using the idea of reducing the use of perc through this equipment.

There is a safeguard system available now. It's tested. It's proven. It's patterned, and it's very cost effective. It is prepared to offer a certification program now designed for all areas of the dry cleaning industry. In other words, this incompetent that's suppose to be running the dry cleaning store, which is not true, is going to have available to him a program designed to show him how to use the environmental protection apparatus.

The program will be administered by qualified individuals including industrial hygienists, EPA certified inspectors and supervisors, OSHA competent persons and certified safety professionals. This is going to be a free service to any dry cleaner who wants it.

We are determined to show that the dry cleaner can use this equipment and be a part of the protection that we are looking for from everything. Let's have a new beginning. Let's protect ourselves, the environment and go on with conducting business in the proper manner.

Follow the regs, establish a dry cleaner as a serious and concerned citizen and get on with the business of carrying and earning a living.

Thank you.

MR. SMITH: I would just like to just make a point. To anybody that reads our regulation this is the room enclosure. At

least, the part with the housing and the filter which I believe is a carbon adsorber.

MR. YEZDANIAN: Yes.

MR. HENRY: I am Michael Henry from National Resources Defence Council. Just a couple of questions. One, the hamporlator unit, does that take the place of one of the panels of the entire enclosure?

MR. YEZDANIAN: No, it's within the enclosure itself. In other words, we have created a clean room. The worker, the operator, one or two people whatever it is can operate in that room fully protected. So, when he is in that room he still has the outside enclosure behind him.

MR. HENRY: So, the hamporlator is within, addition to the fully enclosed.

MR. YEZDANIAN: Yes.

MR. HENRY: And what is the door to get into the enclosure?

MR. YEZDANIAN: There is a what you call a strip door that you will go right through on a ramp and inside.

MR. HENRY: Like what they have in a walk in refrigerator?

MR. YEZDANIAN: Right. Nothing is open. It's closed on the top and all sides.

MR. HENRY: So, it automatically opens and (interposing)

MR. YEZDANIAN: Yes.

MR. HENRY: And also now, the spill detection system. How does that work?

MR. YEZDANIAN: If there is a spill it's contained in the base that I showed you with the grates. It is automatically removed to the holding tank. It's not done by hand. And then the system is shut down. And then you respond by returning the spill back to where it belongs. Meanwhile the vapor removal system is in operation also.

MR. HENRY: So, when you say there is an automatic leak detection system it's detecting a flow of liquid perc from the base?

MR. YEZDANIAN: Yes. And then when it's contained it's removed.

MR. HENRY: Okay. Thank you.

MS. WARREN: I would like to ask about this device that's suppose to remove the perc from the clothing.

MR. YEZDANIAN: The final stage of removing any residual perc.

MS. WARREN: How long would the clothes stay in that device?

MR. YEZDANIAN: About ten minutes.

MS. WARREN: Ten minutes. So you would be moving clothes through there constantly.

MR. YEZDANIAN: Yes. It's on hangers. In other words, the last step when the clothing is removed it's hung up and given to the presser. We are going to stop at that step and we are going to put this step in. And remove.

MS. WARREN: There would be, I guess, a fan that would go (interposing)

MR. YEZDANIAN: There is a whole system, well, I can't say too much about it right now, except for the fact that it will also sterilize and deodorize anything that's left in the garment.

MS. WARREN: Thank you.

(Lunch recess.)

MR. PHILLIPS: My name is Alan Phillips. I am with Air Quality Laboratories in Santa Monica, California, I hope. I have to make one quick comment before I get into the discussion and that is how appalled and shocked I am at the perchloroethylene bashing that I have heard this morning. And I'll comment more about that when I get into the water issue tomorrow. And say what my views are on it as a solid, as used by the dry cleaning industry and other industries and I really believe that it's unwarranted bashing.

Anyway, I am here specifically to address about 7g in the outline "he extent to which evaporators are in use and their impact on air quality as well as waste water contamination.

Our company manufactures a machine called Zerowaste. And it has done so for three years. We have several hundred machines in

the market. I want to talk about some of the myths in the dry cleaning industry.

Myth number one, dry cleaners produce only a gallon a week. I think that's a myth. In truth, the water produced is more in the range of three to five gallons per day. If somebody is producing one gallon a week he ought to look at another business to go into because he is not doing enough volume to warrant owning dry cleaning machinery and paying rent.

Another one is waste water called contact water has very little perc in it. The truth is while the amount may be as low as 150 to 300 parts per million under normal conditions, cleaning machines often, not often, but sometimes malfunction usually at the still or water separator. When this occurs the water that is discharged can contain as much as 50% perc. That reads in gallons, not in parts per million.

The suspended perc under those kind of a problem situations does not separate easily, if at all. If disposed of improperly you have got a major problem. If you use simple evaporation you definitely have a major problem. You have an indoor air contaminate as well as an outdoor contaminate.

Let's talk about the dry cleaning machine's source of water, if you will. As far as I can recollect there are three ways that moisture get in a dry cleaning machine: in the thing called the wheel or the basket; the moisture is in the clothes put in there--perspiration, oils, fatty acids, other body materials, also whatever spotted the clothes to begin with, wine, dairy products, etc.; the other area is humidity in the air. When a dry cleaning machine goes through its change of cycles and starts to heat up to cause the perc vapors to vaporize or the perc to vaporize off the clothes it's going to carry off the air and water that's in the air inside the machine.

Third area is soap used in conjunction with perc. I never heard it mentioned today. The dry cleaners use soap. They do not dry clean just with perc. They use soap which they buy from a soap manufacturer. That soap does have a quantity of water in it. Some as much as 50%. And that evaporates. Now, through the

process we end up with a perc concentrate with a little bit of water. But we are talking about lots of gallons and we end up with three to five gallons of water. Some of that perc in that water separates nicely. Some of it takes a longer time, and some of it doesn't separate at all.

What we are is in the technology business. We were put in this business by dry cleaners in California who asked us to design and build a machine that would resolve their problem without creating another problem and would be legal for that day and for the foreseeable future. No one can foresee all the future. No one knows what regulations will happen in five or ten years. But we can pretty much keep an eye on what's going to happen in the next year or so.

So, we came up with a device. We felt that equipment should separate the perc from the water even though it's going through a separator in the back of the dry cleaning machines. Those separators are fairly small. We felt that a large separator, ours happens to be 10.6 gallons, and it does a much more effective job of separation. We call it a quiescent separator, meaning that it's not shaking. It's not allowing the water and perc combination to vibrate and therefore stay stirred. So, if it stays quiet then the perc has a better chance of dropping.

We feel that the water above a certain level in the machine--bottom level being where we collect the perc--should be sent through carbon filtration. And that will pull out the suspended perc. I am talking about our own equipment. I have no hidden agendas. I am not going to advertise somebody else's, but there is other equipment obviously that does the same thing.

We have designed our machine to have an extruded filter because extruded filters work better than carbon powder filters because water does not tract or form a stream. So, they become much more efficient. Think of a river bed cutting, a stream cutting a bed. That happens in a filter also. Water will form a track and stay in that track, therefore the rest of the filter doesn't get used.

We went to a standard oil subsidiary and they designed this filter. It works terrific. Beyond that, we have a second filter which protects the first filter which says that if you blow the second filter you have got a back up filter. From there we go through electronic testing where we sense if there was any perc left in the water. If it's not, the water is then pumped onto a boiling section and turned into steam.

Until June of this year that was a terrific machine except for one problem. It was totally illegal. Illegal because of the EPA regulations. We petitioned the EPA in a long letter two and a half years ago, and then we waited. And in the meantime we had to do something. Dry cleaners were calling us. They needed equipment to get rid of this water. They could not afford to give it to the hazardous waste hauler. We ran an experiment in the Town of Santa Monica with a dry cleaner who gave all of their waste water from their dry cleaning machine to Safety Clean. It was their hazardous waste hauler.

The bill the first month went up $800, the second month $750. You are talking about major money going to haul water away. We then got in touch with the EPA and believe it or not the EPA came to our rescue and said to us if you can redesign your machine in such a way that you can recycle the water here is and they quoted us the regulations which we would fall under.

So, we went back and forth a lot of faxes with them and did develop an inexpensive add on device to our existing machine which now recycles water, which sells quite well. Probably 50% of what we sell are the cyclers.

Now, last thing I want to mention is that the air issue is married to the water problems. Evaporated perc will drop to the floor or ground and will eventually migrate to the aquifer. It will go through cement. And then we all argue about that, can a vapor go through cement. I think there is enough evidence now to show that it can.

With all due respect to the previous speakers, mostly from the environmental areas, and I have to tell you that I am an

environmentalist at heart. I live in Santa Monica and I am active with the Heal the Bay, and the Sierra Club.

However, it is my firm belief that perc if handled correctly can be very, very safe. And if it's handled incorrectly like anything else can be very unsafe. If you handle gasoline, any petroleum product incorrectly you are going to have a major problem. If you handle perchloroethylene incorrectly you will have a major problem.

One of the things we do is we work with an outfit in California called Cal OSHA which is the California OSHA organization, state OSHA. And we go into dry cleaning plants and we do air testing, eight hour correct legal tests method using a pump, calibrating it five times a day, closely monitoring the most at risk operator, which is usually the dry cleaner. And that's what we do. We end up with a printed record from the computer, which we bring to the plant or the printer, and it is acceptable in most courts of law. I don't know of any that doesn't accept it.

And we have found startling great results. I have to tell you in the ten plants that we tested in one year the worst offender was 12.5 parts per million eight hour TVA. Now, we are talking about 25 parts per million or 50 parts per million and we are finding in our business of going out to the market and testing it finding 12. Most of them average in the 3 to 4 parts per million. I know this has got nothing to do with a Zerowaste machine, but I thought I would throw that in.

On a machine like ours you are talking the water from about 250, 300 parts per million and you are reducing it down to the range of 40 to 80 parts per billion. We suggest to our customers they take that water and run it into their boiler as feed stock or run into their water tower which ever they prefer. A lot of cleaners in certain areas of the country don't have water towers. They all have boilers. Use it for make up of water in boiler. That's no problem at all. When you are down to 80 parts per billion you are down pretty good.

I'll wind up by just saying that once again, that technology is the name of the game. Technology, technology, technology. And that's the business that we are in. And if you have any questions fire them off.

MR. ROBERTSON: My name is Peter Robertson and I work with a law firm in Washington, D.C., that's council to IFI. IFI, as the people at the head table well know, has worked cooperatively with the agency for many years on a range of issues of mutual concern and continues to do so to this day.

IFI intends to continue to work in that spirit of cooperation, but as a threshold matter I have to say that it's not entirely clear to us the legal basis for the hearing that the agency is holding today. Nor for some of the potential further steps such as additional regulations affecting perc dry cleaning that the agency has mentioned in the final perc NESHAP as potential outcomes to this process.

The Clean Air Act, under which the final perc NESHAP was promulgated, does not apply to indoor air or to ground water contamination. IFI has asked us to prepare and we'll submit for the record before the November 22nd deadline legal memoranda that address the issue of the agency's authority to regulate indoor air pollution and ground water contamination.

To turn to the substance of the questions that the agency presented in their public notice, and they pose a number of very good questions designed to gather as much information on ground water contamination and indoor air contamination as they could. I am going to address indoor air issues. Mary Scalco of IFI will later address the issue of ground water contamination. And I am going to try to tailor my remarks to the questions that the agency posed in the Federal Register notice.

The threshold question is how many dry cleaners are co-located in buildings with residences or businesses. We know that there are approximately 30,000 dry cleaners in the United States and we believe that many, perhaps even most dry cleaners are co-located in buildings either with residences or other businesses.

But the classic example of a dry cleaner is one that's located in a strip shopping center that doesn't contain any residences.

We know that to a fair degree the indoor issue tends to be a regional issue, obviously focussed here in the northeast and particularly in New York City. And it's important to note that at least to the best of our knowledge no one is exactly sure of the answer to this question.

And because this question is a matter of the utmost importance in determining the ethicality of any steps that the agency may take to reduce indoor air pollution we think that more study on this threshold question is obviously required. And equally important issue is the severity of indoor air contamination by perc and the adequacy of the data on this problem.

Well, as with the question of the number of co-located facilities the extent and severity of perc indoor air contamination from dry cleaners is not definitively known. The available data is limited. The New York study referenced by the agency examined only six residences, all located above dry cleaning plants. Of these six, perc contamination from three of them could have come from other sources.

One resident in one of the six study residences brought home dry cleaned clothes on a daily basis in spite of the instruction in the survey not to do so. Another failed to answer that question on the questionnaire calling into question the data from that residence. And in addition, one resident in one of the study homes worked in a dry cleaning facility.

Regarding the extent and severity of perc contamination of fatty foods in residences, restaurants and food stores insufficient data is available to answer this question completely as well. Thus, before we can move forward on this issue more study has to be done on the extent and the severity of contaminations of fatty foods in residences and elsewhere.

EPA's TSCA dossier on the indoor air issue says several studies have reported finding perc in food, including butter and margarine bought in stores near dry cleaners. But the text does

not identify these studies and the references for the dossier include only the New York study and three internal EPA memoranda. No primary scientific sources are cited.

The agency is also asked about the extent to which perc indoor air contamination results from fugitive emissions or process vent emissions. Unfortunately little is known about the relative contributions fugitive emissions and process vent emissions to the possible vapor transfer to co-located spaces. The very limited evidence in the New York study mentioned several times here today seems to suggest that fugitive emissions are primarily responsible for indoor air contamination. But I emphasize that our information currently is more anecdotal than scientific. And I think we need to look at this issue more closely before anyone moves forward on this matter.

An important ancillary question is the amount of fugitive emissions from different types of dry cleaning machines and associated equipment. Of course, it's no surprise to anybody in this room that the greatest amount of fugitive emissions occurs in connection with transfer machine systems when perc saturated clothes are transferred from the washer to the tumbler.

Fugitive emissions have been significantly curtailed by dry cleaners following IFI and other trade associations detailed maintenance bulletins over the last several years. And will be reduced further by the good operating requirements and the inspection and maintenance provisions of the final perc NESHAP.

This issue will require further study after the NESHAP has been in place long enough to gauge its effectiveness in controlling fugitive emissions.

Regarding methods for reducing perc contamination of indoor air, IFI notes that as a general matter, proper operation of dry cleaning equipment will do as much as virtually anything else a dry cleaner can do to control fugitive emissions. IFI has worked hard to educate its members for years about proper operating techniques and will continue to do so.

Regarding specifically the inquiries about particular technologies, on the use of instruments to inspect dry cleaning,

to inspect dry cleaning equipment for leaks of perc, IFI would support a requirement for the use of low cost photo ionization detectors to detect perc leaks.

Regarding increased room ventilation and or ducting of emissions outdoors. Increased ventilation and ducting may be appropriate for some co-located facilities. As we noted earlier, though, we do not yet have enough information about the relative contributions to indoor air contamination of fugitive emissions and process vents. Thus, ventilation and ducting could, if improperly installed and operated, increase rather than reduce perc levels.

The collection of steam press emissions. IFI knows of no data indicating that perc is present in fugitive emissions from steam presses and the agency has not given us any indication, at least that it has such information.

The use of vapor barriers. At the international round table on dry cleaning conducted as part of the Design for the Environment Program, IFI offered to enter into a cooperative program with OPPT to study the effectiveness of vapor barriers. And IFI subsequently met with Mark Greenwood to further discuss such a program.

To date IFI has not had a response from the agency about that offer and we are not sure that the data is sufficient to conclude that vapor barriers are effective in reducing indoor air contamination. But clearly it's a subject we are willing to discuss and explore further with the agency.

Improved training of dry cleaning workers, or other information dissemination activities--obviously something that IFI has been a major part of and obviously we continue to support. We think that improved training has the potential to reduce significantly fugitive emissions in dry cleaning plants. IFI has for many years made available information to its members regarding inspection and maintenance of dry cleaning equipment in order to reduce fugitive emissions.

IFI will launch an environmental certification program in the near future that will promote more training for dry cleaning

employees. One result of which should be still more improvement in dry cleaning operating practices. This environmental certification program could certainly include training designed especially to help workers in co-located plants detect and correct fugitive emissions.

Regarding a phase of existing transfer machine systems. The final perc NESHAP effectively bans new transfer machine systems, but does not limit the period of time that existing transfer machine systems can remain in service. IFI does not oppose the phased elimination of transfer machine systems in dry cleaning facilities co-located with residences and existing food stores or restaurants.

We do believe that dry cleaners who have recently installed transfer machine systems should at the least be allowed to use that equipment long enough to recover the tax benefits of depreciation--seven years under the current depreciation scheduled in the internal revenue code. While we do not oppose the limited phase out mentioned just now, IFI notes again that it does not believe that EPA has the legal authority to ban existing transfer machine systems to control indoor air pollution.

We believe that banning all existing transfer machines is a drastic and unwarranted step in the face of the limited data available on the extent of indoor air contamination. Before the agency moves to adopt any ban on transfer machine systems under any circumstances we believe that appropriate further study on the extent and causes of perc indoor air contamination should be conducted so that the ban is narrowly targeted on those facilities that pose the most risk.

The extent of which evaporators are in use--Alan Phillips addressed that question--and their impact on air quality as well as waste water contamination. As yet only a limited number of dry cleaning facilities are evaporating their separator water and we think this is so mainly because the agency only recently exempted separator water evaporation from the need to have a treatment storage and disposal permit. Most of those facilities

that are evaporating separator water are in California where this issue has received the most attention.

Now, the net impact of evaporation on air quality we believe is zero, because nearly all the separator water would otherwise be legally disposed of in sanitary sewers pursuant to the domestic sewage exclusion of RCRA. The perc in the separator water would then travel to the publicly owned treatment works where it would become a volatile emission during phase one aeration.

In the proposed perc NESHAP, the agency itself noted that the amount of perc so emitted to the air was insignificant. Now, the use of evaporators would virtually eliminate ground water contamination of perc through disposal of separator water in leaking sewer lines. It was for exactly this reason that the dry cleaning industry IFI, NCA, TACOTA, Alan Phillips, and others were proactive in seeking to work with the agency to have separator water evaporation approved.

The agency asked about the economic impact of a requirement to replace existing carbon absorbers with refrigerated condensers. The agency is already aware of the enormous potential impact of this step. As it noted in the final perc NESHAP, the agency decided not to require the replacement of existing carbon absorbers with refrigerated condensers because of the severe financial costs to replace these units.

IFI believes that assuming proper operation of either a carbon adsorber or a refrigerated condenser that the refrigerated condenser has no benefit compared with carbon adsorbers in preventing indoor air pollution. We also believe that better training in the operation of carbon adsorbers and the requirements of the NESHAP to check exhaust stacks periodically will do much to reduce even further such emissions.

The agency inquired about the economic impact of a requirement to replace existing transfer machines with dry-to-dry equipment. As I said just a moment ago, IFI does not oppose the phase elimination of transfer machine systems in dry cleaning facilities co-located with residences or existing food stores or

restaurants. But it is important to note the severe economic impact of a requirement to replace all existing transfer machines with dry-to-dry machines.

If the agency decided not to require the replacement of existing carbon adsorbers with refrigerated condensers because of the severe financial cost to replace these units, clearly the significantly greater financial burden that would ensue if dry cleaners are forced to replace all existing transfer machine systems would be enormous.

Nonetheless, IFI does not oppose a phased elimination of transfer machine systems as described earlier. This in conjunction with the agency's prohibition of any new transfer plants in the final NESHAP will move the industry inevitably towards dry-to-dry machines.

Regarding the appropriate federal role in encouraging or requiring steps to reduce perc contamination of indoor air, we believe that the appropriate federal role in reducing such contamination is a voluntary cooperative effort between the agency, the industry and other interested parties. This voluntary cooperative role, as I understand it, is exactly the role envisioned for the agency in the indoor air legislation currently under active consideration in the House of Representatives of the United States Congress.

IFI would, as it has always been happy to, work with the agency in such a voluntary cooperative role to try to reduce emissions that lead to indoor air contamination.

The agency also asked us to comment about the proposition that EPA should voluntarily conduct a residual risk analysis for area source dry cleaners as well as a statutorily mandated risk analysis for major sources to assess the remaining health and environmental risks after installation of MACT and GACT technology. And they noted that based on the results of this analysis, the EPA could assess whether more stringent health based standards are warranted.

Bill Fisher is going to address this question in more detail later, and I'll simply say that to us, the legislative history of

the provision at question here is crystal clear. It prohibits the agency from doing a residual risk analysis on sources that are controlled with GACT technology. Bill Fisher has portions of the legislative history which he is going to read for the record, so I won't discuss that further here.

Finally, the agency asked about the examination of coin-operated dry cleaners exempt from the dry cleaning NESHAP to evaluate their potential contribution to indoor air pollution. IFI does not believe that coin-operated dry cleaners should be exempt from the dry cleaning NESHAP.

That's all I have on indoor air unless there are any questions.

MS. RICE: Bonnie Rice from Green Peace. Could you just clarify your last statement about you do not feel that the EPA should do any kind of risk analysis or further study?

MR. ROBERTSON: What I said is that the legislative history to my reading of it is crystal. That for area sources that are regulated under GACT authority, the intent of Congress was that residual risk analysis and further health-based regulations not be done. The language of the statute is permissive. I recognize that. It says that--I don't remember the exact wording--but I remember that it's permissive. The legislative history--there were three individual Senators who stood on the floor when this amendment was offered and talked about this in great detail.

As I say, Bill Fisher will address it. But it seems clear to me.

MS. RICE: Yes, it just seems to me that the intent from the EPA was to gather some more information on the subject, and if you and IFI and the industry feels that there is a lack of information that any further efforts to glean more information on the subject should be welcomed. So, I am somewhat confused.

MS. LEVY: May I contribute here for a moment? I think what he is referring to is a particular provision of the Clean Air Act that is a formal point at which we have to do a residual risk analysis. And there are two points to be made here. One is

the legislative history. I think as an attorney you would advise me that this doesn't restrict the agency's authority.

Traditionally the courts have used that to interpret the statute only in unusual circumstances. But also that would not prohibit the agency from performing any other kind of informal risk analysis as we make our own decisions. The residual risk has a particular meaning in the context of the Clean Air Act.

DR. SCHREIBER: Good afternoon. My name is Judy Schreiber and I represent the New York State Department of Health. I hold a PhD in environmental health and toxicology, and direct the department's efforts to evaluate dry cleaners' impacts on public health.

I am also the department's negotiator in the negotiated rule making effort in the development of state regulations. I am here today to respond on behalf of my department on the recently adopted National Emission Standards for Hazardous Air Pollution source categories perchloroethylene dry cleaning facilities.

New York State appreciates the opportunity to provide additional information and comment on the issue of indoor air and ground water contamination associated with dry cleaning facilities. We commend EPA for issuing the final rule and for moving expeditiously to consider how to address these remaining issues. As will be noted in our testimony, the final rule should help reduce contamination, but we believe it will not be adequate to control PCE emissions from facilities located near residences and other businesses.

Our data show that the indoor air exposures resulting from dry cleaner emissions are a significant public health problem. The New York State Department of Health also believes that the EPA should voluntarily conduct a residual risk analysis for area source cleaners because the population exposures will still be significant after the NESHAPS is implemented.

Dry cleaners have also contaminated ground water and people are exposed to perc in their drinking water. These exposures occur generally as a result of poor operating practices and improper waste disposal.

I'll offer the following comments in response to EPA's specific request for information and this oral testimony will be followed up with written testimony that will be quite a bit more comprehensive in terms of supplying a lot of the actual numbers and figures that we have found both regarding exposure and health risk from our various studies and investigations.

Regarding the number of dry cleaners co-located in buildings with residences and businesses, we in the State Health Department conducted a survey of dry cleaners in New York State with the cooperation of the Neighborhood Cleaners Association. And I would like to report on the findings. Just to preface these remarks, all of these dry cleaner surveys were reported by the dry cleaners themselves and we have not made site visits to the locations to verify the information. So, all the information is as reported by the dry cleaners.

Our data show that over 1,600 dry cleaners operating in New York State are co-located in buildings with residences and other businesses. In urban centers, dry cleaners in high rise apartment buildings can expose a large non-occupational population to elevated levels of perc in their homes.

Almost 50% of an approximately 3,800 dry cleaners in New York State are located in New York City. In New York City at least 899 dry cleaners or about 75% of the dry cleaners in those locations operate in buildings which also house residences or other businesses. In the five surrounding counties, at least 526 or about 66% of dry cleaners operate in buildings which also house residences or other businesses. Those are the suburban metropolitan counties. Elsewhere in the State at least 184 or about 33% of dry cleaners operate in buildings which also house residence or other businesses.

I think these data show that although there is a higher percentage of co-located facilities in the New York City area, elsewhere in the State we still have a very significant population of dry cleaners that are operating in buildings with residences or other businesses.

We are particularly concerned about the number of dry cleaners operating in residential buildings. Based on the survey results, we know of at least 471 such dry cleaners operating in residential buildings in the State. One-third of the facilities in New York City or about 392 dry cleaners are in residential buildings, compared to about 5% in the rest of the State.

About one-third of the dry cleaners which operate in residential buildings use transfer machines, which are generally associated with the highest fugitive emissions and the greatest impact on indoor air quality.

With regard to business proximity we are also concerned about the number of dry cleaners operating in buildings with other businesses. Based on the survey results we know of at least 1,138 dry cleaners that operate in buildings with other businesses. These facilities are sometimes located in strip malls where multiple businesses are located. State wide about a quarter of the dry cleaners in buildings with other businesses use transfer machines. So, there is still a very large population of transfer machines which can impact businesses and residences that are located in the same building.

And I will provide tables which give you more details of the numbers that we found and what kind of machines types we have found based on our survey results.

Regarding the extent and severity of indoor air contamination, New York State Department of Health in various studies and investigations have found levels of perc as high as 200,000 micrograms per cubic meter in the indoor air of dwellings located in the same building as dry cleaning facilities. Ambient air concentrations are also significantly elevated. These data suggest that perc concentrations are also elevated in the indoor air of nearby buildings but ones that are not located in the same facility as where the dry cleaners is located.

In the New York State study, indoor air concentrations in the study homes were significantly associated with the machine type used in the dry cleaning facility. The indoor air concentrations in study homes above facilities using transfer

machines were much higher than the concentrations found in facilities above dry-to-dry machines. In terms of magnitude, the concentrations above the transfer machines, in apartments located above facilities with transfer machines, range from 1,700 to about 17,000. Whereas above the dry-to-dry machines the range was 300 to 400. So, clearly there was a very big difference in the resulting air quality that we found in these apartments.

The residents above the facility with the old dry-to-dry machine had the highest concentration of all in that study, about 55,000 micrograms per cubic meter of perc in the apartment air. Sampling results show that exposure continues as highly elevated levels at night despite the fact that dry cleaners are not operating during that period. Therefore, the 24-hour mean concentration to which residents may be exposed is very high.

We have continued with more recent investigations subsequent to the New York study, which was submitted to the docket at the original request for comments. The New York State Health Department and local health departments have continued to conduct air quality investigations in response to complaints and also as a follow up to the survey of dry cleaners.

All of our results point to the high probability that dry cleaner emissions impact residences in the same building. The impact appears to be associated with the type of machine used for cleaning. Transfer and vented dry-to-dry machines are associated with the largest impacts on indoor air quality.

Indoor air concentrations in residential buildings with transfer machines have been found to range from a low of about 40 micrograms per cubic meter to a high of 197,000. Indoor air concentrations in apartments above vented dry-to-dry facilities have ranged from 160 to 55,000 micrograms per cubic meter. While the indoor air concentrations in residences above non vented dry-to-dry machines are quite a bit lower ranging from 6 to about 19,000 micrograms per cubic meter.

In apartments above the nine dry cleaning facilities using transfer machines, seven resulted in concentrations exceeding 1,000 micrograms per cubic meter. In apartments above the vented

dry-to-dry machines, we also found six out of seven had concentrations above a 1,000, while in the non-vented facility apartments, we find only one exceeded a 1,000 out of 10 that were investigated.

So, clearly the non-vented dry-to-dry machines appear to have the least impact on indoor air quality of residences in the same building.

Almost all of the indoor air measurements exceed 100 micrograms per cubic meter, and almost always exceed indoor air concentrations in control or background homes. Background homes generally have about 25 to 28 micrograms per cubic meter, on the basis of our New York State study and also in national studies that the EPA and others have conducted.

In a high rise building that we evaluated with the New York City Health Department, we found elevated levels of perc throughout the building. In this twelve story apartment building, the perc concentrations measured at the 12th floor were about 6,000 micrograms per cubic meter and were similar to concentrations that we found in the 2nd floor and 4th floor apartments.

These results indicate that the impact on indoor air quality can be elevated in apartments that are a distance from the dry cleaner location. The New York City Health Department has conducted over 100 evaluations of dry cleaners and found that about 70% of them needed repairs or other modifications in order to be in compliance either with the Department of Environmental Conservation Regulations or impacts on indoor air quality.

We have also found elevated concentrations of perc in the indoor air of dwellings near dry cleaners. The highest levels we found were in an apartment building abutting where a dry cleaner operated. That neighboring building apartment had a level of 3,100 micrograms per cubic meter. And we also found in a building thirty feet away from an operating dry cleaner a level of 1,450.

So, it is not just the dry cleaner's impact on the apartments within the same building, but in fact, we have found

impacts in neighboring buildings nearby but not in the same location.

Because most of these investigations were conducted in response to residential complaints, they may not be representative of all or most dry cleaning facilities. However, the New York State study investigated all dry cleaners co-located with residences in the capital district in Albany, New York. And based on the New York study and our field experience, we believe that the vast majority of dry cleaning facilities contaminate indoor air in neighboring dwellings.

Stores and strip malls are also affected by dry cleaner operations. An indoor air investigation of three businesses located near a dry cleaner in a strip mall found elevated levels of perc as high as 34,500 micrograms per cubic meter in a pizza parlor, a deli, and a fish market. These store owners expressed concerns about the potential contamination of their produce by emissions from the dry cleaning facility, and also expressed concerns about the effects of perc on themselves and their employees.

With regard to the severity of the exposures, we refer you to our analysis, to the analysis we presented in our original document submission to George Smith, which will be attached to our written comments.

The levels of perc measured in residences are above the levels that have caused central nervous system effects in humans and liver effects in mice. The average levels in apartments above dry cleaners with transfer equipment provide little or no margin of exposure for central nervous system effects and liver effects for individuals living in those apartments.

Our recent assessment of acute effects after short-term exposure to perc finds that people may be exposed to perc in their homes at levels that also provide little or no margin of exposure to doses associated with acute effects on the central nervous system.

Furthermore, these effects are consistent with health complaints that residents have voiced to our staff during the

course of indoor air investigations that we have conducted. The cancer risks estimated using an inhaled dose model and conservative physiological-based pharmacokinetics model are in the range of 1 and 10,000 and greater and are significant cancer risks.

Regarding the adequacy of existing data, the New York State Health Department has collected a large amount of data on indoor air contamination from dry cleaning facilities. These data show that people are exposed to high levels of perc in indoor air. Whether or not the NESHAPs will significantly reduce these exposures is not known. First and foremost, the health department believes that perc exposure of residents should be reduced as expeditiously as possible.

Data are needed on the effectiveness of control technology and other remedial measures to reduce perc in indoor air. We have recently re-evaluated two dry cleaning facilities where elevated levels were found in indoor air of apartments. These two facilities installed room enclosures and vapor barriers, as well as providing increased ventilation. And we expect to have the results of these analyses prior to the date of submission of written comments, although we don't have them today. In fact, we are waiting with baited breath to find out the results of those re-evaluations.

Regarding the extent and severity of food contamination from perc, the New York State Health Department has not conducted analysis of food in residences, restaurants, or food stores that are co-located with dry cleaning facilities. I have reviewed data from the literature which suggests that fatty foods such as butter and margarine are contaminated when in proximity to dry cleaner sources and I'll provide references to the docket on the studies that I have reviewed. Several of them are from German literature where they have done some studies on food contaminants.

We have conducted pharmacokinetics modeling of inhaled perc on breast milk. Some studies that I have conducted--assuming continuous exposure, maternal exposure to the indoor air at

concentrations identified in the New York study, and selected occupational exposure levels. Breast milk perc concentrations ranging from 16 to over 8,000 micrograms per liter were estimated.

For comparison, the allowable concentration of perc in drinking water is 5 micrograms per liter. So, the estimates based on inhalation and tissue distribution suggest that levels to which an infant may be exposed via contaminated milk are well above the level that would be considered allowable in a drinking water source.

If the nursing child also inhales perc under these conditions, breast milk exposure comprises only about 5% of the child's total perc exposure. The vast majority of the exposure will be directly from the child's inhalation of indoor air and it will get a secondary dose of perc via the ingestion of contaminated breast milk. And I will submit the studies that I have on this.

Regarding the question of the extent to which the perc contamination indoors results from fugitive or process vent emissions. Reviewing the data we have on hand, we find that transfer and vented dry-to-dry machine operation generally results in the highest perc levels in apartments, up to 197,000 and 55,000 micrograms per cubic meter respectively. Non-vented dry-to-dry machines result in much lower apartment levels. We have measured up to 1,900 micrograms per cubic meter in apartments above those facilities.

There are multiple sources of fugitive emissions including gasket leaks, separator water, emissions from leaking over overload carbon absorption units, pressing stations and so on, which result in widely variable contributions to indoor and ambient air contamination. However, the contribution of vented versus fugitive emissions is very difficult to evaluate without more detailed information. We do not have the data to distinguish between these various sources, nor to approximate what proportion of the emissions from machines are due to vented or fugitive perc emissions.

Vented dry-to-dry machines result in a much greater impact on indoor air quality than their non-vented counterparts. This could be due to the impact of vented emissions directly and also from a greater degree of fugitive emissions from the older and leakier dry-to-dry vented machines in comparison to their non vented counter parts. So, it's difficult to assess how much is due to fugitive versus vented emissions.

Regarding the question of methods to reduce indoor air contamination levels, the most obvious method of reducing perc contamination of indoor air is to remove the source of contamination--the dry cleaner. Dry cleaners in residential buildings clearly impact the concentration of perc in a dwelling. The EPA could consider the extent of their authority under the Clean Air Act or other acts to not permit dry cleaners to operate in residential buildings, or conversely not allow residences in buildings where dry cleaners operate.

Another option that EPA could consider is a two tiered regulation which would require dry cleaning facilities located in residential areas, either in the same building or nearby to have more stringent controls on their emissions than cleaners located elsewhere. These measures could include room enclosures, vapor barriers, effective ventilation, and requirements that only the best controlled machines be allowed to operate in dry cleaning facilities in proximity to residences or other concerns such as food or restaurant proximity.

The EPA could also look into financial incentives for the dry cleaners to upgrade their equipment or possibly to relocate to a building where there will be less impact in terms of residential exposures.

The New York State Department of Environmental Conservation will provide more specific comments with regard to the methods of reducing perc emissions from cleaning facilities. In several cases the health department has found that methods including improved maintenance, increased room ventilation and vapor barriers appear to be effective in reducing levels of perc in residences with dry cleaning facilities.

However, the data are inadequate to evaluate the relative effectiveness of each remedial measure alone and the measures may not be adequate to reduce emissions sufficiently for public health protection. Specific data will be provided in the written testimony on that question.

Phasing out of transfer machines will undoubtedly help reduce emissions of perc from dry cleaning facilities. Transfer machines have the greatest potential for contamination of indoor air within the buildings where they operate and also pose the greatest potential exposure for workers in the facility.

We believe that transfer machines should be phased out of mixed use buildings as quickly as possible and should only be allowed to operate in the interim under stringent performance criteria with suitable regulatory enforcement provisions. The EPA should consider allowing existing transfer machines to continue operation for a limited period of time rather than indefinitely.

Other strategies to reduce indoor air concentrations of perc include the use of alternative non chemical cleaning technologies such as the wet clean process recently evaluated by the EPA. We encourage the EPA to further explore the use of methods which would reduce the amount of volatile solvents used by the cleaning industry.

Regarding evaporators, we do not have any information on the extent of use of evaporators or their impact on indoor air quality. However, it's generally considered poor industrial hygiene practice to allow a toxic material to re-enter the work place environment, in this case, by allowing evaporation of perc from waste water.

The relative effectiveness or relative performance of vented versus ventless machines, based on the data that we'll provide in an attached table, non-vented dry-to-dry machines have much less impact on indoor air quality than vented dry-to-dry machines for the facilities that we have evaluated.

Regarding the costs and affordability of various options. The New York State Department of Environmental Conservation will

be providing comments on the effectiveness of various measures. And I will also be submitting a report that our two departments did together looking at both the economic impact and the public health impact of various requirements on the dry cleaning industry.

Regarding the appropriate federal role in encouraging or requiring steps to reduce perc contamination of indoor air, we believe that the exposure levels identified indoors in residences and businesses near dry cleaners identified by our studies and investigations are high risk environmental health problems. Both cancer risk and non-cancer risks associated with these levels of exposure are very highly elevated and may impact a very large non-occupational population, which includes sensitive subgroups such as infants and children, the elderly or infirm, and pregnant women and nursing mothers.

Section 112(c)(3) of the Clean Air Act directs the administrator of the EPA to list each category or subcategory of area sources which the administrator finds "presents a threat of adverse effects to human health or the environment." The greatest risk of adverse health effects to human health are from exposures to perc indoors because the contaminant concentrations indoors are so high, and the length of time that people exposed indoors is very long. Therefore, EPA should control the dry cleaners emissions which impact indoor air quality, since those emissions pose much of the health risk.

Regarding the residual risk analysis, the New York State Health Department strongly believes that the EPA should voluntarily conduct a residual risk analysis for area source cleaners because the population's exposures may not be adequately reduced after the NESHAPs is enacted, even if all the required cleaners comply with the regulation.

The risks may not be substantially reduced for two reasons. One, many of the dry cleaners who pose the risks will be excluded from regulatory requirements because they are small solvent consumers. And two, the regulatory requirements for those

cleaners who are included in the NESHAP may not result in adequate reductions in population exposures to perc.

We have found in our investigations that even the small solvent consuming facilities are likely to contaminate indoor air. The small source facilities can have a very large local impact on residential indoor air quality, up to 49,000 micrograms per cubic meter. These facilities may not be adequately controlled by implementation of the NESHAP which requires small area sources to have leak detection and repair and storage of all perc solvent and wastes in sealed containers, but do not require additional emission controls on the equipment itself.

Indoor air perc concentrations were elevated in nearly all apartments above 26 dry cleaning facilities that we have evaluated. Of these 26 facilities, 5 out of 9 transfer facilities, or 55% of transfer facilities and 9 out of 17, 53% of dry-to-dry facilities would be considered small area sources for which no specific emission controls would be required. And this is based on the analysis of data that we have looked at apartment indoor air and then gone back looked into the question of what solvent consumption; where they would fall within the NESHAP as a small or large area source.

So, about 55% of both transfer and dry-to-dry facilities of those we have evaluated would be exempt from any further controls under the NESHAP.

In New York State, the most stringent controls under the NESHAP would be required for only 27 of 2,561 dry cleaners who responded to our survey. And those controls would only apply to 4 dry cleaners operating in residential buildings. Twenty-two cleaners which operate transfer machines would be considered major facilities in New York State based on our survey data. Only four of those operate in buildings with residences. Seven operate in buildings with other businesses, and eleven operate in stand alone buildings.

Five cleaners, which operate dry-to-dry machines would be considered major sources in New York State. Of those, one operates in a building with another business and four operate in

standalone buildings. Therefore, in New York State only 27 of 2,500 or more dry cleaners, about 1% would be required to have the maximum controls on their facilities.

Analysis of the New York State dry cleaning survey responses indicates that about 25% of existing facilities using transfer machines would be considered small facilities. And would be exempt from process vent emission control requirements under NESHAP. State wide about 55% of the dry-to-dry machines or over 800 dry cleaning facilities would be considered small area sources and would also be exempt from any process emission controls.

The remaining large area sources operating dry-to-dry machines in this state, about 650 of them, would be required to comply with the NESHAP. We are in the process now of evaluating what we believe the effect of the NESHAP would be on controlling emissions as they impact indoor air near those facilities.

Regarding coin-op dry cleaners, we do not have any information on the number of facilities or their potential impact on indoor air quality.

And then as I mentioned earlier, we will be submitting a large a amount of information in the written comments which will provide more of the detail upon which these data are based.

MR. FRUMIN: Eric Frumin, Amalgamated Clothing and Textile Workers Union. Dr. Schreiber, you described a number of contacts between the department and residents in apartment buildings for various purposes, surveys, measurement and so forth. How many, approximately, do you know, how many of these were you personally involved in?

DR. SCHREIBER: I was not personally involved in most of them. Many of the investigations have been conducted throughout local health departments, the New York City Health Department in particular, I think, has been doing a terrific job with limited staff. I was involved in the original New York study that was conducted in the capital district.

MR. FRUMIN: Okay. Well, based upon those that you were personally involved in and any information that you might have

gleaned from the others who were personally involved, do you have any impression as to the level of awareness of apartment house residents regarding the health risks from perc before the health department contacted them?

DR. SCHREIBER: Certainly, before the Health Department contacted them I would say that the vast majority of residents were unaware that an exposure may be taking place, and unaware that that exposure may be related to either cancer risks or non-cancer end points.

We have, however, anecdotal information from my staff who go out and take the air measurements that some of the people complain about symptoms which are consistent with central nervous system effects such as headaches, dizziness, tingling, nausea, and the like. But the Health Department has not conducted a rigorous evaluation of impacts on the residents in these buildings.

MR. FRUMIN: I understand that. My questions deal more with the awareness of the health risk rather than an evaluation of the actual health effects themselves. So, in other words, what you are saying is that there were some people who made complaints, who were observed either because of complaint investigations or for other investigations that you might have approached them who were experiencing symptoms. Aside from those people, the others who were not experiencing symptoms, would it be correct to paraphrase you as saying that the overwhelming majority of them had no real or significant awareness of the health risk of exposure to perc in the building that they were living in?

DR. SCHREIBER: Yes.

MR. FRUMIN: Are you aware of any efforts that have been made by any other involved parties, building owners, cleaners, machinery suppliers, chemical suppliers, whatever, to provide information to residents in these buildings regarding the health risk?

DR. SCHREIBER: I do not know of any concerted effort to make that information known. We do have what we call a fact

sheet which provides the resident with some basic information about dry cleaners, the dry cleaning process, perc, what types of effects are associated with it based on studies and so forth that we give out as a public information brochure to the residents when we go to do an air analysis in the apartment.

MR. FRUMIN: But that information is information that's provided by the health officers not by another party?

DR. SCHREIBER: Yes, I don't believe there are any other outreach efforts on the part of the dry cleaners or the EPA or other regulatory authorities regarding potential exposures in these situations.

MR. FRUMIN: Or regarding potential health risks.

DR. OZONOFF: I'll be brief in any event. My name is David Ozonoff. I am a physician professor of public health and chair the Department of Environmental Health at Boston University School of Public Health.

By practice I am an environmental epidemiologist. And mainly I have been concerned with health effects of hazardous waste, particularly ground water contamination, but also air exposures.

What I would like to talk about for a few minutes today is to call your attention to a new study that's just been published. It was directed by Dr. Anne Aschengrau and myself on behalf of the Massachusetts Department of Public Health and the Massachusetts Department of Environmental Protection in the Cape Cod region, the upper cape region of Massachusetts.

This was a population-based case control study of bladder cancer, kidney cancer and leukemia in this particular region. And the reason that it's germane to this particular proceeding is that there was a very unusual and specific exposure to perchloroethylene in this population. This is about five towns with populations of probably 60,000 people.

This exposure was through the water, although everything I say here is germane to air exposures as well, because perchloroethylene that's in drinking water for domestic use also results in inhalation exposure. In fact, probably over half of

the exposures to perchloroethylene from perc in the water supply is actually inhalation exposure.

The exposures in this case resulted from a particular type of product that was sold to the water companies in this region. It was a water main that was lined with a plastic lining. And the way this product was sold was that within 48 hours of receipt of an order the manufacturer of the pipe would paint the inside of the pipe with this plastic, vinyl plastic lining and the vinyl plastic was dissolved in perchloroethylene. That was the way they were able to paint the inside of the pipe with it. And then it would be sent off to the water companies and installed in the ground. And the assumption was that all the perc would have disappeared.

Unfortunately, that wasn't the case and 600 to 700 miles of this pipe went into southeastern Massachusetts in the years 1969 through 1979 and nobody knew that it was leaching perchloroethylene into the water supply. So, for ten years substantial populations in this region were drinking this.

Again, the way the mains would go in is if they needed to do some maintenance or a main broke somewhere they would install the new pipe. So, this was in reality like a vast natural experiment where some people on some blocks would be drinking water that had perc in it, and then in the next block they wouldn't be.

We were able to obtain the records from the water company of where all this pipe was located, so we knew the households that had perchloroethylene-laced pipe in front of them. And we got the records as to when the pipe was installed and what the diameter of the pipe was and how long the pipe was and what the water flow directions were. And using that information and a mathematical model developed by collaborators at Clark University, we were able to estimate exposure to all the cancer cases--bladder cancer, leukemia and kidney cancer--that were diagnosed between 1983 and the end of 1986. These are cases obtained from the cancer registry. So, all cases were included.

And we were able to compare their perc exposure with the perc exposure of some thousand plus control subjects randomly selected from the population by various methods.

The assignment of exposure, which was based on maps from the water company, was done blinded to case control status. That is, when exposures were assigned we didn't know whether somebody was case, or whether there was a control. And using age of the pipe, the length of residence that the people were living in the household in front of the water main, the diameter of the pipe, and the estimated load on the pipe we were able to assign exposures to everybody.

The idea then was to compare the cancer cases and the non-cases on perc exposure and in making that comparison we took into account a variety of differences that might have pertained between the controls and the cancer cases. That is we controlled for quite a number of variables including age, sex, their vital status, what their education was, and whether they had any occupational exposure to perc, benzene, or any other solvent.

And then for the particular cancers we also controlled for a number of other variables like smoking, history of urinary tract infection, history of kidney stone, occupational history, whether they worked in rubber dye manufacturing, cable manufacturing, leather and so forth.

In other words we took care, I think to dot all the i's and cross the t's, and the results of the study are as follows.

When we considered a latency period of five years for leukemia we came up with odds ratios of just under 2. That is roughly double the risk for leukemia. If we compare the people with the highest perc exposure--that is above the 90th percentile--the odds ratios which were statistically significant went over 5, they were almost 6. That is a 600% increase in leukemia risk for those who were exposed to perc in the drinking water.

If we didn't consider a latency period--that is included the entire period, not knocking off five years for it--the risk went

up even further to almost 9, 8 plus, also statistically significant for leukemia.

Considering bladder cancer, we were only able to make an analysis without latency, that is not considering a latency period and the risk there was slightly over 4. Now, this is an unusual epidemiological study of perc unlike some of the others that you have heard about. There were no, essentially no other exposures, at least none that we didn't control for.

Because the study is still had rather small numbers of cases in it, some of the effect estimates are slightly unstable. That is the confidence interval does not always include 1. But they are markedly elevated. And it's unlikely that any residual confounding could result in such a large increase.

Furthermore, because of non-specifications in the model, and because we used average latency period, there is likely to be a good deal of what epidemiologists call non-differential misclassification error. That is, mixing up the exposed and unexposed group. And it's well known that the result of that is to underestimate risk. That is to buy us things to show less risk than would be there if you had accurately specified exposure.

We feel quite confident, therefore, that these are not only real risks, but they are very substantial risks. But, I think it's important to note that if these results were only an isolated finding, that they would have to be considered in that light and confirmed with numerous other studies. But the fact is we do have numerous other studies. They are not an isolated finding.

Beginning way back when the National Toxicology Program showed mononucleo leukemia in mice, the same disease that we are seeing in this study, there have been numerous studies. They have been discussed here, I am sure, at this hearing of dry cleaners showing increases in cancer by lots of different study designs, standard mortality ratios, proportional mortality rates, cohort studies, and case control approach even involving pancreatic cancer. And there have been other studies involving ground water contamination.

The well-known Wuberin case in Massachusetts, which was a childhood leukemia case in which one of the contaminants, the second most prevalent contaminant, was in fact perc in the ground water.

I think, therefore, that from the standpoint of the weight of evidence for an epidemiologist and also from the mechanistic side this is a very clear case of sufficient evidence of human carcinogenicity and I think the book essentially is closed on that particular question. This is a human carcinogen.

Last week the American Public Health Association met in San Francisco and unanimously passed a resolution asking for the sunsetting of organo chlorines and very high on the list of bad actors of organo chlorines was perc. And I think it is the view of myself and many other public health experts that perc is a dangerous and persistent material in the environment. And should not be used in any way which might result in human exposure much less the massive kind of population exposure that perc is currently causing.

I would be glad to answer any questions about the study or anything else I have said.

MR. PORTER: Yes. I have to apologize. Did you mention where copies of this study may be obtained?

DR. OZONOFF: Yes, it was published last week as a lead article in Archives of Environmental Health, September/October issue. I actually have a copy of it here. It's page 284 volume 48, issue number 5. It's a peer review journal. The companion article was the mathematical model by Webler and Clark showing the exposure estimates.

MR. PORTER: Is there anyone in the audience who would like him to repeat where that article has been published? Yes, I see one hand. Would you please repeat that again?

DR. OZONOFF: Sure, it's Archives of Environmental Health, volume 48, September/October 1993 issue. Not on your newsstands, but in your libraries. Page 284. The lead author is Anne Aschengrau. I am the second author and then there is a cast of thousands after us.

DR. SCHREIBER: Judy Schreiber from the New York State Health Department. I was wondering if you could elaborate a bit on the levels of exposure of the people who were exposed to the water in the study so that we could get a sense of how that compares to the airborne levels that we are finding in the dry cleaner apartments.

DR. OZONOFF: That's a good question. We don't know completely what the levels are. When this problem was discovered a sampling was done at various points in the distribution system. The levels in that system depend a great deal on what the load is and where you are located. At dead ends were high. And the levels ranged as high as 7,000 parts per billion. Seven milligrams per liter.

But most of them in the medium range were down below 100 parts per billion. So, 100 micrograms, tenth of a milligram.

DR. SCHREIBER: So, just for myself and other people in the audience let's say if it was 7,000 was the highest micrograms per liter?

DR. OZONOFF: Yes.

DR. SCHREIBER: People drink about two liters a day which would give a person an exposure of about 14,000 micrograms per day?

DR. OZONOFF: That's right. Add a little bit more for air.

DR. SCHREIBER: A little bit more for airborne.

DR. OZONOFF: But these are exposures that are far, far lower than the occupational exposures.

DR. SCHREIBER: Right. And also, in fact, are far lower than what we are finding in these apartments. Let's say if we find 20,000 micrograms per cubic meter in apartment air and a person breathes roughly 20 cubic meters per day, they are getting 400,000 micrograms per day from inhaling contaminated air, compared to let's say 14,000 micrograms per day from ingesting contaminated water.

DR. OZONOFF: That's exactly right. And you make a very important point, which is that the air exposure route is very often the most massive exposure route. People are sometimes

fooled because the units sound like they are the same, parts per billion. But one is a volume per volume measure and the other is a mass per volume measure, or a mass per mass measure.

And the rule of thumb that I use is that every part per billion of chlorinated hydrocarbon like PCE in the water supply is worth about 15 to 30 in a water supply. So, if we had a part per billion of perc in air that would be something like 15 to 30 parts per billion in water. We would shut the water supply off at that level, because the level is 5 that we use as our MCL.

DR. SCHREIBER: And you may have mentioned but I didn't catch, how long were people exposed in this study? What is your estimate?

DR. OZONOFF: Of course, various times. The maximum that, well, the maximum that they could be exposed was from 1969 to the present, because in fact, the pipes are still there. The way the department has managed it, because they couldn't dig up 700 miles of pipe was a program of flushing and bleeding. So, by running huge amounts of water through it they were able to get the levels down under 5 in most instances.

But before the problem was detected there could have been at least ten years of exposure to quite high levels.

DR. SCHREIBER: Well, thank you, your study is very interesting.

DR. OZONOFF: Thank you. Let me just add one more thing. We are following up with an NIH grant on this, and we are looking at five other cancer types. So, I hope in the next six or eight months we'll have additional information about risks of colon, bladder, lung, pancreas, brain, and breast cancer.

MR. WENTZ: Manfred Wentz. A question. When you made your study, did you also test for other toxins in the water?

DR. OZONOFF: Yes. Actually we had quite good information on what was in the water supplies. They were relatively clean. They didn't even have much in the way of trihalomethanes in it. I think the highest trihalomethane level was 13 parts per billion. And that was sort of an out. So, these were fairly clean water supplies. There were some supplies that had say

20 parts per billion of TCA, which as far as I know is not a carcinogen.

MR. WENTZ: Did you find also low molecular rate PVCs in there?

DR. OZONOFF: PVCs?

MR. WENTZ: Yes. Low molecular weights of vinyl chlorides.

DR. OZONOFF: Oh, you mean vinyl chloride.

MR. WENTZ: Yes.

DR. OZONOFF: No, we did not.

MR. WENTZ: Did you analyze for it?

DR. OZONOFF: It was analyzed. It was looked for and the Department of Environmental Protection did not find vinyl chloride. Vinyl chloride is a degradation product of perchloroethylene, but usually under anaerobic conditions. So, once this gets out into the soil one might expect it to, the chlorines to get stripped off down to vinyl chloride, but that didn't seem to happen in the flowing water right after it leached.

Now, the PCE did, the reason we had to take age of pipe into consideration is because the fusion coefficient tended to decrease exponentially with time and so we had to take that into account.

MR. WENTZ: One more question. Do you have in your paper, published numbers of the exposure of these people who drank water?

DR. OZONOFF: We just have the numbers, rough numbers that I gave you. The exposure estimates we believe, although they are expressed in milligrams per liter, we don't take them seriously. We believe that the model produces an ordinal variable.

MR. WENTZ: And could you identify the source of the contamination?

DR. OZONOFF: Yes, it was the lining of the pipe.

MR. WENTZ: Just the lining of the pipe.

DR. OZONOFF: The lining of the pipe (interposing)

MR. WENTZ: Where did the perchloroethylene come from? That's my question then.

DR. OZONOFF: Pardon?

MR. WENTZ: Where did the perchloroethylene come from in the water?

DR. OZONOFF: It came, well, the lining of the, the plastic lining was applied by taking the vinyl, a product called ticotex, and dissolving it in perchloroethylene. Then painting the inside of the pipe.

MR. WENTZ: So, it was a residue of the coating which remained in that piping?

DR. OZONOFF: That's exactly right.

MR. WENTZ: During the manufacturing process?

DR. OZONOFF: Yes.

MR. WENTZ: Thank you.

DR. OZONOFF: So, it's a unique exposure since it's only perchloroethylene and not anything else.

MR. DUGARD: Paul Dugard, HSIA. Am I correct in assuming that the rankings of exposures that you have used against the apparent occurrences of cancer are actually based on modeling results rather than actual measurements?

DR. OZONOFF: They are based on modeling results, yes, because we don't have measurements going back fifteen years to allow it. And of course, now they have mitigated the exposure. So, and in fact, that's a potential problem in the sense that it produces non-differential exposure misclassification and that's why we believe that actually our results probably substantially underestimate the risk. I am glad you brought it up.

MR. DUGARD: I think it only underestimates the risk if there is a true causal relationship. And the best you have here is a correlation which doesn't prove the causation.

DR. OZONOFF: Well, you know, people are often fond of saying that epidemiology only shows association. It doesn't show causation, which is true, but only trivially true, because that's true of every science. Causation is not a empirical result. Your results don't come with labels on them that say causation. Causation is a judgment that you infer from your results on the

basis of the background and the context, the breath, the nature, the depth, the scope of the rest of the science.

And I think the reason the results are particularly important first is that this is a perc only exposure. Second, the risks are quite high. And the third is, it's occurring against a background of established science--that this isn't a sign that says dig here, this is a hole in the ground that's got the object at the bottom of it. So, people have done a lot of work prior to this. We don't claim that this is a new discovery on our part that perc causes cancer.

MR. DUGARD: So, did you begin your work with a hypothesis, or a belief, because that's not clear from that statement?

DR. OZONOFF: I don't know what kind of distinction you are drawing, but we are scientists and we conducted this study by the scientific method. We looked for cancer risks in perc for a particular reason. And that reason is that the scientific literature shows that there is a cancer risk with perc. That's a hypothesis.

MR. DUGARD: Circular reasoning. But, a further point is that you talked about the 90% plus percentile. Could you tell me what sort of numbers of people were involved in that, or proportion of numbers of people in the study actually fell into that top group?

DR. OZONOFF: I don't, I am trying to, I don't know what the (interposing)

MR. DUGARD: To put it qualitatively. Was it a small number?

DR. OZONOFF: Yes.

MR. DUGARD: A very small number.

DR. OZONOFF: These numbers are small, although a number of the effect estimates are sufficiently stable so that we feel confident that chance is not an explanation for this. Some of them are not as stable. But as I say, you have to make a very important distinction between public health significance and statistical significance. And they are different. Things can be statistically significant and of no public health significance.

And things can be of public health significance without being statistically significant.

That depends upon the context and the background. A number of these results are statistically significant, that's not the important point. Environmental epidemiologists--I would refer you to Munson's book and others--put the question of the stability of the effect estimates much lower on the list than the other criteria used in judging causality.

MR. DUGARD: Okay. Well, I'll leave the audience to judge the significance of that philosophy. Thank you.

DR. OZONOFF: Sure. That's audience significance.

MR. FISHER: Thank you. Bill Fisher from International Fabricare. I suppose that with some prior notice that this was going to be for discussions--toxicology and epidemiology--that there may have been different, other people present here as well. But be that as it may and as a non-toxicologist or epidemiologist, let me ask you if you are familiar with NIOSH's cohort mortality study which is an SMR study?

DR. OZONOFF: Yes.

MR. FISHER: Dry cleaning (interposing)

DR. OZONOFF: It goes back quite a ways. This is David Brown's study, you mean?

MR. FISHER: Well, yes.

DR. OZONOFF: Yes.

MR. FISHER: It goes back to about '87 with the original publication. The perc-only exposed sub cohort in that study, about 600 people. I think the industry, and as NIOSH has identified and recognized knows, that the average exposures were about 40 to 50 parts per million as an eight-hour TWA. And that shows no increase in any types of cancer for the sub cohort. How would you compare that result to what you are stating for very, very low comparative exposures here?

DR. OZONOFF: Well, first of all, it's my understanding that that's not the case as far as this perc-only sub cohort is (interposing)

MR. FISHER: You are referring to the unpublished data that Mr. Frumin was talking about.

DR. OZONOFF: Yes.

MR. FISHER: It's amazing how this stuff always come out the last minute before anybody else can look at it. But be that as it may, we will have an opportunity (interposing)

DR. OZONOFF: Science is an amazing thing, I guess.

MR. FISHER: Yes, it's amazing, but it's amazing how it comes out just before a public meeting. That's the amazing part, before anybody else can look at it.

DR. OZONOFF: I can't talk about the timing of it, and I am sure that there will be ample opportunity for people to discuss the scientific validity of it. But, I think it's important that these results don't stand alone. It's not a question, you know, whether in this sub cohort, which was relatively small, and as I think back on my earlier paper 600 (interposing)

MR. FISHER: One-third of the population, yes.

DR. OZONOFF: Something like that.

MR. FISHER: Six hundred people.

DR. OZONOFF: The proportion is important. Yes, it was 611, I think.

MR. FISHER: Six hundred, yes.

DR. OZONOFF: But there are questions of latency. There are questions of statistical power involved and those questions would need to be examined with negative results, also.

MR. FISHER: The study examined people with exposures from 1960. Would you think there would be sufficient latency?

DR. OZONOFF: There is sufficient latency for, yes, for a variety of things. If they are all followed up, the length of time. You know, the data will be available and we can discuss it. There are elevations in this cohort as I recall. The stability effect estimates do not, doesn't reach conventional limits always. On the other hand, now with this new result, presumably enough time has passed so that the estimate is stable enough. But we'll (interposing)

MR. FISHER: Let me backtrack for one second.

DR. OZONOFF: Why are we talking about things that neither you nor I have?

MR. FISHER: Well, that's what I said. Let me backtrack for one second, because evidently no one other than Mr. Frumin has seen the results that he is discussing here, nobody here. So, can you give a comparison between the sub cohort and the published data that you have seen and I have seen versus your own study relative to rates or risk.

DR. OZONOFF: No, I can't. I mean, there (interposing)

MR. FISHER: Thank you.

DR. OZONOFF: We are a case control design and that's a cohort design. But epidemiology is, I have a definition of a public health catastrophe. A public health catastrophe is a health effect so powerful even an epidemiological study can detect it. You know, when people bring me epidemiological studies to show me no effect, it doesn't surprise me. What does surprise me is when well-conducted studies do show effects, because even well-conducted studies have a hard time seeing things. I mean, they have got to be very large for you to see them. It's like walking into a very dark room and only being able to see the hugest possible objects.

So, it is when you do see things in an epidemiological study that you have some confidence and faith in it, and I'll leave it to others. This is extensively peer-reviewed by many pairs of eyes. But I'll leave it to others to judge their confidence and faith in it.

Then I think you really have to worry about it. And this is not the only study. It's not as if this is the only thing that's ever been.

MR. PORTER: As I said earlier, given that Dr. Ozonoff is not going to be able to remain here to take, to participate in discussions, I think we need to kind of view this as the discussion period of what he has had to say.

I know there are several other people who want to ask questions. But let me ask you. You indicated you have a copy of your paper here with you, right now?

DR. OZONOFF: Yes, I do.

MR. PORTER: Can you part with that copy?

DR. OZONOFF: Sure. I had promised it to somebody else, but I'll let you fight over it.

MR. PORTER: We will run downstairs and get some copies made, because I know there are several people that would like the opportunity to look at that study and hopefully we'll get back before you leave. If you could get that and (interposing)

DR. OZONOFF: There is a companion paper which I don't have.

MR. PORTER: Right.

DR. OZONOFF: That describes the model.

MR. PORTER: This will let those--and I do have to say for the record, I can't promise anything, but it may be that this study in cooperation with the earlier study referred to that was just discussed awhile ago, it may mean that we need to extend the comment period associated with this meeting for sufficient amount of time to allow people that may wish to obtain these studies and look at them and comment on them--allow them the opportunity to do so and get their comments into the record with this meeting.

Having said that, let me turn over here, Eric, I believe you wanted to say something.

MR. FRUMIN: Eric Frumin, Amalgamated Clothing and Textile Workers Union. Dr. Ozonoff, have you spoken with any of the study subjects, not the control group, but, well, I guess; of course the study subjects were dead, but with the families (interposing)

DR. OZONOFF: Well, they are not (interposing)

MR. FRUMIN: Or others in those communities.

DR. OZONOFF: They are not all dead. I mean, these were incidence rates.

MR. FRUMIN: These were incidence rates?

DR. OZONOFF: Because so many of them are still alive. And the information that we obtained on them were either from their next of kin, or from the subjects themselves.

MR. FRUMIN: Right. Do you have an impression as to their awareness of the hazards from perc at the time your study began?

DR. OZONOFF: I would say that most of them had little or no knowledge or information about it. The contamination of the water from these pipes was known in the area at the time it was discovered, and that it had sort of died down and people had forgotten about it.

I can say that there was very little information. In fact, actually, in my dry cleaner there was no information and anybody that worked in that shop either, for that matter, when I brought it up to them.

MR. FRUMIN: Right. And since your study was undertaken, in addition to whatever efforts were made by yourselves as the investigators or by the public authorities involved, water, health or whatever, were there any efforts by yourselves or the others to inform the residents about the health risks from exposure to perc?

DR. OZONOFF: We did the best we could. We had a very large public meeting down there with hundreds of people with all the TV stations. We spoke to newspapers at length. I have answered many questions. I would have to say, this was part of a very, very large study, maybe the largest and most complex environmental epi study in the country.

This was a section of it. There was lots of other parts to it that kept us occupied with questions as well. But this was certainly one of them. We made an effort and we also communicated our results to the state authorities and to EPA.

MR. FRUMIN: Do you know if the manufacturers of perchloroethylene were aware of your efforts?

DR. OZONOFF: My experience is that they are aware of almost everything.

MR. FRUMIN: Well, put it this way. Have you or the other investigators had any direct contact with the manufacturers?

DR. OZONOFF: We had no direct contact with them.

MR. FRUMIN: And did the manufacturers of perchloroethylene ever to your knowledge provide information to the affected communities about the health risks from perc?

DR. OZONOFF: Not to my knowledge and I am quite confident that they never did.

MR. FRUMIN: I see. Thank you.

MR. LANGNER: I have been a mental health epidemiologist. And I would like to ask for your comments on this rather complex matter. Take the case of Dr. Selikoff who over 25 or 30 years had found associations between asbestos and asbestosis. And take the case of the Suppola suit over lung cancer where the woman died and so on, and the suit went on and on for years. So, we have seen 25 or 30 years, at least, of suits over cigarette smoke.

At what point do we move from significance levels of .01 or .05 or correlation coefficients that are significant, you know, based on sample, size and so on, and significance levels that you set, somewhat arbitrarily? When do we move from the assumptions, the association to the assumptions of causality, if ever? And is that in your view only in the eyes of an epidemiologist, or is there some public consensus after the stonewalling and all the fighting and caterwauling, you know? What is the process? Because we have seen it with many, many, in many cases, you know.

DR. OZONOFF: We have indeed, you mentioned Dr. Selikoff who passed away this last year. But I had the privilege of knowing him. He was a great figure in asbestos epidemiology and it takes nothing away from him to say that when he started his studies in the early 1960's we knew that asbestos caused cancer. In fact, in 1949 there was an editorial in the Journal of the American Medical Association accepting the fact that asbestos and cancer were related in a causal fashion.

So, even in that particular case we have known that asbestos caused cancer for a long time and really took no effort. I would hate to see us go down that same road with perc. Although I fear that we have already gone aways down that road already.

I did a state-of-the-art literature review of perc and discovered quite a lot of literature prior to 1970 on perc. And of course, during the 1970s, the cancer information started to come out. This is, could never be considered a benign compound. When we were talking in the American Public Health Association about sunsetting organo chlorines, the chloralkali industry, one of their responses was, "Well, chlorinated compounds like perc are very valuable, in fact, they are used to kill organisms in water for disinfection and they are the basis for most pharmaceuticals." Whether it's most or not I think is open to question.

But, I think what that says to me is not that we should get rid of pharmaceuticals, but we should allow limited use for certain things, but that we are dealing with a class of compounds that's highly biologically active here. The fact that they are good pharmaceuticals is telling us that they have an effect on living things. The fact that they are part of pesticides tells us that they are capable of killing living things.

The fact that study after study is showing a cancer risk for perc shouldn't be a surprise to anybody. Perchloroethylene is the last in the series of chlorinated ethylenes which starts out with vinyl chloride, which is a confirmed human carcinogen. When it gets into ground water anaerobic decomposition strips it down to vinyl chloride.

Dichloroethylene, trichlorethylene proceeded. All of them are suspect and there is good evidence that they are also carcinogens.

It's not credible to me that the cancer perc connection can be questioned. And I am not really answering your question, because your question is more rhetorical in nature.

MR. LANGNER: To just say that, do you think we should wait 20 or 30 years the same way, the same kind of delay that's happened in these other cases?

DR. OZONOFF: I think that would be a terrible thing to do.

MR. SMITH: Bob Smith from Cleanrite in St. Louis, Missouri. I just had a couple questions with regard to your

control group versus the test group. Did one of these pipes service a local beer manufacturer or soda manufacturer?

DR. OZONOFF: No. There are no such manufacturers that we were able to ascertain.

MR. SMITH: Okay. In the use of water in the home, is it true that if you cooked with the water it would evaporate on the stove so it wouldn't be available in the food?

DR. OZONOFF: Well, I think, I am probably not the right person to ask that. It has a reasonable vapor pressure so that; my guess is that you would transfer it from one medium to another.

MR. SMITH: Okay. Thank you.

DR. OZONOFF: From the water into the air where it would be breathed.

MS. WARREN: Barbara Warren from Consumers Union. Dr. Ozonoff, I was wondering if you could say anything about how the human body would handle perc exposures, the difference maybe between inhalation and ingestion? Is there a difference in the absorption by those two routes?

DR. OZONOFF: Well, again, I think other people would speak better to that than I. When you ingest it it goes through the portal circulation which is not true for inhalation. But eventually, even within inhalation, it circulates through the body; would go through the portal circulation and probably would be converted by phase one detoxification mechanisms into the active carcinogen, which is probably what's happening.

Most of the literature I have seen suggests that what happens is that the body, in its attempt to detoxify perc, actually changes it to a carcinogen in arian oxide. But there is also literature growing up around glutathione metabolism, too, which suggests that might be another way. And one of the metabolites of phase two detoxification, trichloracetic acid, is also thought to be a carcinogen and is involved in probably congenital malformations, as well.

MR. HALLEY: I am John Halley from the New York State Department of Health. I would like to start with a comment in

response to a question from back there, because a study that we did in which there was a very highly contaminated ground water problem. We took both water samples and air samples in a house fed by that perc contaminated ground water and found very clear evidence of it partioning out of the water into the air.

But I had a question about your presentation. You said that the concentration in the water decreased exponentially with time, is that what you said?

DR. OZONOFF: Yes. Well, the migration of perc through the vinyl linings seem to decrease exponentially. We were fortunate in that in 1981 a masters student at MIT decided that she would do her masters thesis in civil engineering on this. Took sections of the pipe and ran it through a lot of tests. And we have a lot of results as to the time course of leaching of perchloroethylene from the lining. That model is based partially on that thesis.

What seems to happen is, as the lining ages the diffusion coefficient decreases. So, it's not that it's a first-order reaction in that, as the amount of perc in the lining decreases, the concentration gradient decreases. There still seems to be plenty of perc left in this lining. But what happens is that it has a harder time getting out of the lining with time. That exponential decrease then causes an exponential leaching rate into the water.

MR. HALLEY: That raises an additional question that I would like to come back to, but do you know something about the half life for concentration in the water as a result of this. How long does it take to get down to half what the concentration was before?

DR. OZONOFF: In the water, well, this is circulating water, so I don't think its half life in the water is very long. Just through aeration.

MR. HALLEY: No, I mean, water in the same pipe, how many years does it take before the concentration of water and the equilibrium where this wall is half what it was?

DR. OZONOFF: Well, we do know that. I would have to look. The companion paper actually I think has that information in it. And it's a paper by Thomas Webler and Helena Brown.

MR. HALLEY: Okay. Good. Just one more question then. If there is some time effect in the actual plastic of the wall, then, rather than just kind of the stuff being washed out of the wall, then why does flushing the lines do any good? It would seem to me that would be simply a very temporary improvement.

DR. OZONOFF: Yes, that's exactly right. That's why they have to continually flush and bleed.

MR. HALLEY: Okay.

DR. OZONOFF: And that's what they are doing. They are wasting an awful lot of water doing it.

MR. PORTER: Okay. We do have one other speaker that I am aware of that absolutely does need to speak today. Cannot return tomorrow. I am assuming there are no further questions of Dr. Ozonoff. Well, I am sorry. Okay. We will accommodate you as well then before we break for roundtable. Thank you very much, Dr. Ozonoff. I do appreciate it.

I gather we don't have your paper back to you, but if you can wait a little bit we will probably get it back to you.

Let's see. Our next speaker then will be Michael Barylski.

MR. BARYLSKI: We will try to be brief. It seems like a lot of the things that we were going to say have already been said. And it seems like to some extent I feel like I should have a word processor on my lap maybe revising this as we have been going along.

My name is Michael Barylski and I have been representing the New York State Department of Environmental Conservation as the department's negotiator for the proposed revision to our regulation for regulating perchloroethylene dry cleaning facilities.

Accompanying me is Jack Lauber who is our Division of Air Resources technical expert on perc dry cleaning facilities. We are here today to respond as everyone else with regard to the NESHAP that EPA has put forward.

At the outset, we would like to say that EPA Administrator Carol Browner is to be applauded for recognizing that the current regulations may not go far enough to protect public health and safety. This public meeting is a first good step for EPA to take in evaluating whether or not there is a need for further regulatory action.

It is the position of the DEC that EPA's recently adopted regulation is not adequate for regulating the use of perc in dry cleaners and that further action is warranted. In New York State Governor Cuomo recognized the value of the negotiated rule making process and directed the DEC to identify a number of regulations that might be developed in this manner. At the recommendation of the Department, Governor Cuomo approved for negotiated rule making the revision of the New York State DEC dry cleaning regulations.

While these negotiations are not yet complete, it is our belief that the product of DEC's negotiated rule making committee will be much more effective in addressing the use of perc in dry cleaning facilities, especially when they are co-located with residential units and other uses.

Just prior to addressing the items of information sought by EPA, we would like to take just a couple seconds to address what we feel is a major inadequacy of the final rule.

The most significant deficiency of the EPA final rule is that it does not deal with the issue of minimizing impacts to individuals that may be living or working in close proximity to perchloroethylene dry cleaning facilities. We estimate that 2,750 of the approximately 3,500 dry cleaning facilities in New York State are co-located with other uses, namely residential units and businesses.

Now, the numbers that you may be hearing DEC talking about and the Department of Health talking about may differ a little bit. And that's because there was a survey that was taken and the numbers that the Department of Health are using are only those numbers that came from the survey. On the other hand the

DEC is using numbers that have been extrapolated for the entire population of facilities that we feel are in New York State.

So, the number of dry cleaners, we estimate that 79% of dry cleaners in New York State are co-located with residences or businesses. This translates into approximately 837 dry cleaning facilities that would be co-located with residential uses and another 1,920 that are estimated to be located in buildings with businesses.

We have heard some discussion of how this plays out in terms of the population, and while we don't have it in our paper at this time, we note that our review of the California regulation estimated approximately the same number of facilities in the State of California, but only estimated approximately 100 facilities that were co-located. And it's our understanding that at least prior to the adoption of their final rule, which we did not see from several weeks ago, that they were essentially indicating that all of those should be looked at on a case-by-case basis.

Clearly, in New York State we don't feel that it would be appropriate to try to address on a case-by-case basis all 2,750 facilities that are co-located.

With regard to the questions that have to do with the extent and severity of indoor air contamination and the extent and severity of contamination of fatty foods, we will defer to the Department of Health on those issues.

With regard to the question with regard to the extent to which perc--whether or not indoor air contamination results from fugitive emissions or process vent emissions--we believe that perc indoor air contamination results largely from fugitive emissions rather than process vent emissions. We note that in many cases, where high perc concentrations are found in apartments, fugitive perc emissions in the work room were generally greater than 50 parts per million.

MR. LAUBER: With regard to the amount of fugitive emissions from different types of dry cleaning machines and other ancillary equipment, we believe that fugitive emissions are

highly variable. Obviously the older machines, such as the transfer machines, have the highest types of fugitive emissions.

However, significant fugitive emissions come from the machine door when opened--especially from the unvented third generation refrigerated condenser machines, which can add variable emissions of up to several thousand parts per million at the loading door.

There are a lot of other points of fugitive emissions of perc, including: storage of perc, leaking equipment, vaporization of waste water, improperly dried clothes, emissions from maintenance and cleaning of stills and spotting boards, and during filter replacement.

EPA has asked for comment on methods for reducing perc contamination of indoor air. We believe that improved operation and maintenance along with frequent perc testing can reduce fugitive perc emissions. The use of halogen and total hydrocarbon detectors--PIDs, FIDs, OVAs--these types of instruments can be very usefully and effectively used for monitoring dry cleaning equipment for leaks of perc.

These instruments can range in price from several hundred dollars for instruments that dry cleaners can use, up to several thousand dollars in terms of more sophisticated instruments that are used by government officials and consultants.

For mixed-use settings, we believe that both the local exhaust ventilation rate of 100 feet a minute through the machine door and localized general exhaust ventilation of the machine room with an air change every five minutes or less is necessary to properly control fugitive perc emissions.

Regarding steam press emissions--they should be controlled wherever possible. However, the provision of effective general exhaust ventilation as noted would minimize the effects of residual perc fugitive emissions from the steam pressing operations. We also believe that the use of vapor barriers should be required in mixed-use settings. And there have been some quite effective ones developed as of recent date, which in

conjunction with general exhaust ventilation, ought to minimize indoor air impacts.

Mike.

MR. BARYLSKI: With regard to the question of whether or not there should be a phase out of the existing transfer machines, the Department of Environmental Conservation does believe that for all existing transfer machines, it is certainly desirable as soon as possible, especially in mixed-use situations.

With regard to suggestions for strategies, controls, technologies, and pollution prevention methods that can reduce fugitive emissions, we would note that there are several strategies that EPA might consider pursuing, including encouraging the use of drop off stores, specifying a dry-to-dry non-vented machine with a refrigerated condenser and an integral carbon adsorber for mixed-use situations, and also continuing to evaluate alternatives to dry cleaning.

MR. LAUBER: With regard to the question of waste water evaporators and impact on air quality, etc., we'll have more to say in our written comments. We are studying the problem looking at various pieces of technology. We recognize that it is of significant concern and we would like to see waste water properly treated wherever possible.

Moving on to EPA's concern and question about the relative performance of vented versus ventless machines and reducing perc emissions. The New York State DEC believes that ventless fourth generation machines--that is refrigerated condenser machines with integral carbon adsorbers--should be specified as MACT, similar to what California has done, especially in mixed-use settings.

These fourth generation machines have perc concentrations as low as 300 parts per million in the drum versus greater than 8,000 parts per million for third generation refrigerated machines. We believe that EPA is incorrect in not specifying such controls and in believing that retrofitted third generation refrigerated condenser machines are equivalent to fourth generation machines.

Ventless third generation machines with refrigerated condensers can have significant fugitive perc emissions during the unloading cycle. The DEC is recommending supplemental door fans and carbon adsorbers capable of 100 feet per minute local exhaust inward air velocity, and less than 50 part per million fugitive perc emissions that would be at the door. And a control MACT vented emission within a range of 5 to 20 parts per million.

EPA only specifies such controls for new major sources greater than 2,100 gallons per year perc usage, which would probably not exist in New York State. Such controls should be required for most dry cleaners of this type, especially in mixed-use cases.

Vented machines should meet appropriate MACT emission standards such as the DEC-proposed 5 to 20 part per million perc emission standard, which is necessary in order to achieve health risk-based toxic ambient criteria. EPA's 100 part per million perc emission standard for carbon adsorbers is grossly absolute, being a standard used decades ago for controlling perc as a volatile organic compound and not as a HAP.

DEC's review of EPA's final rule identified a potential problem with regard to the issue of refrigerated condensers. The NESHAP does not specify the efficiency of retrofitted, vented, refrigerated condensers. Our staff has found that external refrigerated condensers on existing dry-to-dry vented machines were found to be inefficient, with perc emissions exceeding 500 parts per million. EPA may want to consider the use of performance standards to ensure that its objectives are realized.

MR. BARYLSKI: To the question of cost and affordability, we note that throughout the record there have been a number of references to the DEC/DOH study regulating perchloroethylene emissions from dry cleaning machines and economic and public analysis. And we won't go into that information again.

With regard to the appropriate federal role, the Department believes that the Design for the Environment dry cleaning project currently underway is an appropriate way to encourage steps to reduce indoor, outdoor, and ground water perc contamination

problems. However, the current perc NESHAP with its general available control requirements and exemptions for area source dry cleaners may prove to be, in our opinion, a disincentive for existing sources to participate in this program.

EPA should consider using its authority under TSCA to regulate perc and indoor air settings similar to its regulatory approach for other contaminants. EPA could also encourage technology transfer between government and private sector concerning alternative dry cleaning technologies and methods. Also perhaps promoting dry cleaning technology transfer even on an international scale.

In addition, review by OSHA and the OSHA standards for perc may also be an appropriate area in which the federal government should play.

With regard to the question, regarding the proposition that EPA should voluntarily conduct a residual risk analysis, the Department disagrees with EPA's assessment that the existing scientific evidence indicates that the carcinogenic potency of perc is relatively low. The available scientific information indicates that perc causes cancer in at least three types of tumors in rodents which were observed in two species in two sexes, and by two routes of exposure--both inhalation and oral.

While the available epidemiological studies conducted to date may not be adequate for providing conclusive evidence that perc is a known human carcinogen, they do not provide conclusive evidence of a non-carcinogenicity in humans.

There is still a large amount of uncertainty concerning the human metabolism of perc even though there has been a considerable amount of research concerning this issue in the past few years. It is difficult to estimate the total body burden of a lipophilic compound such as perc after continuous low levels exposure since it constantly accumulates in the fatty tissues of the body.

The consideration of the available animal and human toxicity information in connection with the potential population exposure estimates from area dry cleaning sources does not justify

statements that concerns about perc carcinogenicity should be characterized as low.

The Department strongly believes that the available toxicity information briefly discussed above and exposure information on area source dry cleaners is documented by the New York study warrants further research and a residual risk analysis under section 112(k) of the 1990 Clean Air Act Amendments.

I am going to skip a lot with regard to specific levels because I have heard many of the levels and many of the studies earlier. With regard to the question of the examination of coin-operated dry cleaners, DEC will defer to others to provide reliable data on this issue. However, we believe that the population of coin-operated dry cleaners is small.

With regard to operator training and certification we believe that operator training and certification is important to successfully controlling perc emissions. However, there are no studies that we have performed, nor do we know of any that have been performed that evaluate various types of programs.

Remainder of our comments related to the ground water issue. The first question was to the extent and severity of contamination of ground water with perc from dry cleaners and the degree of health threat posed by this contamination. In New York State, the Department of Environmental Conservation currently has 18 sites listed on the registry of inactive hazardous waste disposal sites due to dry cleaning facilities. All 18 sites show evidence of ground water contamination.

With regard to the question of the relative contribution of waste water discharges sites listed on the registry of inactive hazardous waste disposal sites due to contamination from dry cleaning facilities, identify the improper disposal of perc as a probably source of contamination.

With regard to cost of treating contaminated water, we were not conclusive. Cost for clean up of these types of sites varies from case to case, obviously. However, a typical ground water remediation at a dry cleaning facility can require as much as

3 million dollars or more in capital cost and up to $400,000 or more for operation and maintenance. This is in 1990 dollars.

Jack?

MR. LAUBER: Thanks, Mike. Concerning EPA's question about the degree of solid or hazardous waste generation associated with prevention control technologies, how these wastes are managed, and their environmental impact--waste generation associated with control technologies includes filter mark, still bottoms, spent carbon from carbon adsorbers, cartridge filters, waste water generated from stream stripping, carbon adsorbers and waste water from water separators.

Steam stripping of carbon adsorbers is the largest source of waste water generated by dry cleaning facilities. And the average commercial facility using full-size carbon adsorber generates 1,500 gallons of waste water per year which contains about 2 pounds of perc. And the average commercial facility using refrigerated condenser and a properly operating separator generates 52 gallons per year of waste water, which contains generally less than a tenth of a pound of perc.

The use of control systems that do not require direct contact between water and perc would greatly reduce waste water generation and certainly we encourage some of these new innovative technologies--integral carbon adsorbers, etc.--not involving direct steam stripping.

Typically, treated waste water is discharged to sewer systems. I just want to note we have significant study going on in the New York City area in terms of perc emissions from the New York City sewage treatment facilities. Results will be forthcoming, but we think it's a significant problem.

Filter muck and cartridge filters as well as spent carbon is typically handled as hazardous waste and shipped to a hazardous waste facility. In some cases, as noted by previous speakers, waste waters may be also shipped to hazardous waste facilities.

MR. BARYLSKI: And the last question with regard to potential measure to prevent or minimize further contamination, gets into the question of transferring contamination from one

medium to another. We would note that the priority in issue in New York State concerning the use of perc is indoor air quality and the impacts from perc from dry cleaning facilities on nearby residential and commercial units in urban areas.

This does not mean, however, that the issue of perc in waste water, whether in ground water or in the sewer, is not of concern. However, our approach to waste water controls must be that indoor air perc levels must be reduced and that other controls on waste water or other multi-media controls are to be supported and will be supported unless there is an unacceptable trade off or impact on indoor air quality.

The use of equipment that minimizes the generation of waste waters or solid waste including contaminated carbon cartridges should be encouraged. More information is needed, however, to determine if certain equipment such as evaporators, boilers, and spin disk filters do indeed minimize waste streams in an environmentally protective manner. The Department of Environmental Conservation has not yet gathered sufficient information to make a determination at this time regarding such equipment.

And finally, regarding the use of emission control technologies that eliminate physical contact between water and perc--their use should be encouraged in light of the differences in volumes of waste water generation.

MS. SNYDER: I think you said $400,000 a year costs for clean up for operations and maintenance?

MR. BARYLSKI: Yes.

MS. SNYDER: How many years is that on average?

MR. BARYLSKI: I can't answer that.

MS. SNYDER: Okay. And that's per site?

MR. BARYLSKI: I think each site is going to be highly variable.

MS. SNYDER: Right.

MR. BARYLSKI: And the number of years would (interposing)

MS. SNYDER: I am just looking for (interposing)

MR. BARYLSKI: Depends on the extent of the contamination. And I am not sure that we have any sites that we have in fact walked away from at this point in time.

MS. SNYDER: Okay. I am looking for averages.

MR. PORTER: There being no further questions, let me ask are there any questions from the audience to clarify. Yes, go ahead.

MR. WENTZ: My question is to you concerning a statement which I want to make sure I understood correctly. Did you say that the add-on refrigerators are less efficient than the built-in refrigerators?

MR. LAUBER: We evaluated a few in conjunction with the NCA; we evaluated a few external refrigerator condenser that were added to older dry-to-dry vented equipment. And during the aeration cycle we took measurements in the duct and we found over 500 parts per million. These refrigerated condensers appear to be undersized. We didn't know what the temperature of the coils was. They had no temperature monitoring whatsoever. And we just don't believe they are effective. And we think there should be some specification or standards in conjunction with such equipment.

MR. WENTZ: As an engineer I suppose you agree if the design features would be equivalent it wouldn't make much difference having a built-in versus add-on refrigerator?

MR. LAUBER: California has found, I believe, in their report that there is a variation of four times in terms of retrofits. You know, taking dry-to-dry vented machine and converting it, trying to convert it to a closed loop design. Emissions can vary up to four times, depending the efficiency of the retrofit.

I believe that we still haven't seen newer dry-to-dry vented machine completely converted to closed loop. I know there are certain retrofits of that type. But I hear, you know, they have to really be done right. And of course, there are all kinds of retrofits. We think that there should be standards, not just specifying refrigerated condensation generically. There should

be more specific standards specifying the efficiency or the adequacy of such retrofits.

MR. WENTZ: Thank you.

MR. SMITH: Bob Smith from Cleanrite, again. I was one of the fellows that originally designed this vapor condenser process. And I have to agree with you. There is a lot of variation in the equipment. However, 500 parts per million does not sound like an unusual amount of parts per million for a vapor condenser because they operate between 100,000 parts per million usually down into the 3,000 parts per million range.

So, you said you measured 500 parts per million in the discharge aeration tube. Was that while it was still in recirculate or was that going outside with the door open?

MR. LAUBER: No, that was going outside the door. In fact, in one case, we were working with the Department of Health, this was in the stack. Actually a hole was made in the stack and the photoionization instrument probe was put in the stack.

This is significant in terms of we prefer a standard in the range of 5 to 20 to prevent adverse ambient impacts. In this case, that vent was 20 feet from a residential window and we think that kind of emission can pose a significant problem to that receptor. And certainly is not acceptable. And I think EPA, we are encouraging EPA to evaluate this particular problem. I mean, that type of retrofit in our opinion is improper and certainly not state-of-the-art.

MR. SMITH: In terms of the new, what you call the fourth generation machines, there is no question that the machinery itself is tighter. It's impossible to take an old machine that's ten years old and make it run like one that's three years old. So, I am not arguing that point at all. But the vapor condenser process, per say, does not get down into the 300, 500 parts per million.

MR. LAUBER: No, we recognize that. And that is why we favor certainly the fourth generation machines and other types of retrofits, because we realize that we were looking at the equilibrium vapor pressure and generally speaking you are lucky

if you can get down to 8,000 parts per million. That's the equilibrium vapor pressure, assuming you have got pure perc vapor in the gas frame. And that's about at 45 degrees fahrenheit.

And so that, we recognize that in this case those emissions were probably diluted, you know. Obviously they were diluted during the aeration cycle. So, but still we believe emissions should be in the 5 to 20 part per million range for effective control in meeting ambient criteria.

MR. SMITH: When you mentioned secondary control, are you speaking specifically of either carbon absorption or maybe the new Dow transfer system?

MR. LAUBER: Something of that sort. I think you need some type of supplemental carbon absorption. Fourth generation machines have it built in. And that's the only way you can go the next step beyond refrigerated condensation to those levels.

MR. SMITH: I'll be honest with you. I am sorely upset with the carbon adsorption manufacturers that make the carbon and the data that they have given us over the past ten years. It's not factual. They do not operate according to the way they say they do, and I find a lot of erroneous information with regard to carbon adsorption of that stream that we are talking about as a secondary process.

We have been testing this thing now for months and months and I'll be honest with you. I am not satisfied at all with the data I am getting. So, I don't know who to believe.

MR. BARYLSKI: What we would like to have the data that you have, because we still have not made final decisions with regard to some of that. So, if you could supply us with that, we would appreciate it.

MR. LAUBER: And as Mike said in his comments, we believe that EPA should be strongly involved in technology transfer amongst the states so that they can disseminate information whether it's coming from California or internationally from Germany, that we have a good exchange of information of what's out there. I think EPA can play an important role in this regard.

MR. SMITH: I would just like to clarify one point. You keep mentioning 8,000 parts per million. The vapor condenser operates with colder coils, much colder coils than that. And the average is about 2,700 parts per million when we are ready to open the door. So, we are starting at about that level to work with the secondary control device.

MR. LAUBER: We are talking about saturated vapor and you draw the curve and we are talking about saturated vapor. You know, it may be slightly less saturated, but the saturated vapor levels are the levels I know California has used as a reference and when that 8,600 is that number at 45 degrees fahrenheit.

MR. SMITH: That's true.

MR. LAUBER: And that is, you have to assume saturation knowing the operation of the machine and the technology. And we just can't change the law of thermodynamics.

MR. SMITH: Well, it doesn't; the actual data is about 2,700 to 3,300 parts per million.

MR. LAUBER: That just tells us that either you are much colder than that temperature, than the reference temperature 45, or that the gas stream is not fully saturated with perc. But we want to see more data to substantiate that.

MR. HWANG: My name is Dong Hwang, Korean Cleaners Association of New York. Jack, you mentioned about 100 feet per minute of the exhaust fan and when I, as you know, I participated in New York State negotiated rule making process. And at the time we agreed with the 100 feet per minute. After that, I talked with several manufacturers and what they are saying is that they didn't observe 100 feet per minute because they used an approach of 100 ppm in the drum based on standard. So, it looks like; also be discussed about the effective cross section of at the door.

But it looks, I did some investigation on the putting; to reduce the effective cross section of the door and it looks like it's on the earliest; putting that kind of barrier for the third generation or fourth generation dry clean machines. So, I would

like to suggest that from the realistic point of view to require 100 per minute ventilation at the door.

MR. LAUBER: Yes, I think you have raised those concerns before and I hear what you are saying. You have some important points. We are not saying that the 100 feet per minute is a panacea, and should be applicable in each and every case. We are saying that certainly for the older vented machines, second generation and if you have a third generation machine with a door fan, 100 feet per minutes is desirable to minimize the escape of fugitive perc emissions at the door.

If a fourth generation machine can achieve 300 parts per million in a drum, the chances are they won't need that ventilation. It's an unvented machine. We have some indication from California and others, and Germany that when you can achieve 300 in the drum you don't have a problem. The fugitive emissions chances will be less than 50. That being the case, you don't need ventilation for fourth generation machines--and we may not require it. But we hear what you are saying. The one point I want to just make quickly--in our examination of the dry-to-dry machines with external refrigerated condensers, we saw one machine that had close to 500 feet per minute through the door--very powerful fan. But when the clothes came out at the end of the cycle, there was way over 100 parts per million of perc fugitive emissions. The guy who was running the machine was not drying the clothes properly. In other words, he probably has to add another five minutes to the drying cycle. He was short circuiting--the drying cycle was too short.

So, we hear what you are saying, and we are going to take that into consideration accordingly and certainly you are going to be part of those discussions.

MR. HWANG: Thank you.

MR. CHITTUM: My name is Chris Chittum and I work for the Montgomery County Combined Health District, Division of the Regional Air Pollution Control Agency. We are a local air agency working for Ohio EPA in the Dayton, Ohio, area.

What we did was a study, actually it was an investigation of citizen's concerns regarding potential exposure to perc from a dry cleaning industry in their neighborhood. This neighborhood was a historical type neighborhood. The houses were at least 80 years old. Some of them even had dirt basements. The area in question was called Huffman Hills.

The company we were dealing with is a company called Multi Service. That was the name of the company. Their operations consisted of having three dry-to-dry machines that they operated roughly sixteen hours a day, five days a week. They had excellent control equipment and they had a refrigerated condenser on every one and they had a carbon adsorber at the end of all three. They were all hooked together.

Their use of perc--they added in roughly 55 gallon increments. This helped alleviate any half empty drums lying around to lower emissions that way. If they had to add, they added all of it at once.

We had been looking at this company for a long period of time. There were some problems we had had in the past and currently we had some problems with them also. It goes all the way back to the middle of 1987 when they got their first permit to install. They were allowed roughly 9.7 tons per year of per emitted. It was about that time also that Ohio EPA discovered they were dumping their still bottoms in the dumpsters. That was halted. And action was taken against them for that.

It was also discovered then just before '88 that they had two underground storage tanks. One of them that contained virgin perc and the other contained oil and such. They had a leaking underground storage tank that ended up in those tanks being removed. Later that year they had a spill, and they have an alley in which they load and unload perc, and load and unload their waste oil. They have an above ground tank for their waste oil now. There was an alley spill there also.

So, this company isn't the best actor, but we hopefully have been working with them to get their act together. At this time about the middle of '88 right across the street was a Lutheran

church that had a day care center in their basement. And they had called to complain of some fumes that were coming in their basement and they didn't know what it was. Turns out it was xylene coming through in an uncapped vent pipe in a bathroom that was down there. And we immediately looked across the street to see that it was this dry cleaner.

Turns out that what the City of Dayton Waste Water Department discovered was that instead of discharging through the sanitary sewer they had an illegal connection to the storm sewer. And this storm sewer went to that roughly vent pipe in the day care center. And so that was halted.

Now, the origin of the xylene was still a question, because the company doesn't use xylene in their cleaning process, and we had to find out where it was coming from. It turns out the company that they were getting these rags from were disposing of their xylene waste by pouring it upon the rags and then giving this to the dry cleaner and saying hey, clean up our rags. And that's where it was coming from.

So, that was also halted. After all that, they asked for a revised permit to install, to increase their air emissions to 17.5 tons per year. After that time, we didn't see any action against the company roughly again until 1992.

The next thing that happened because of the underground storage tanks they attempted to put in a monitoring well to see if there was any movement of the perc underground. This is kind of our of region because I deal with air pollution and it wasn't, you know, ground water pollution. It's a different department.

The City of Dayton routinely monitors their waste water discharge six times a year. And it was in this time of middle '91 that they had tested their waste water and found it to be 16 parts per million of perc in that waste water. And that was the highest reading they had ever seen from them. And it was not an unusual reading. I mean there is other companies in Dayton with comparable discharges. It just happened to be the highest one they had read from Multi Service.

At that time they were placed upon a registration status by RAPCA, the Regional Air Pollution Control Agency. This basically just lets us know that they are a dry cleaner and they emit perc and such. No real active status with them.

In the middle of '92 the City of Dayton asked RAPCA to do an air risk assessment of the Multi Service Company because they wanted to do some expansion and there was opposition to this. Using an EPA-approved ISCLT model, we modeled them at 97 in a million risk from that. At this time the neighborhood people started complaining of various ailments saying it was coming from Multi Service. And we initiated a health study because of that.

We started doing some air sampling and I'll get into that some more. At that time we took an ambient air measurement with a canister roughly 15 meters down wind of the company. And the concentration detected was 367 micrograms per cubic meter which correlated to a risk of 191 in million. Because of that, and our completed health study and stuff, they agreed to do some plant changes, some fan changes and some other controls.

We redid the modeling and it came out quite a bit different. You know, they came out to 14 in a million due to these changes and we were quite happy with that.

In the future, we hope they said, they would install some monitoring wells on their site to see if there has been any movement of the underground storage tank. We are real unhappy with them about that. But we kind of have our hands tied right now on that monitoring well issue.

They have also agreed to move their operations out of this neighborhood into an industrial park, but although they have the site purchased already it's still in question when they are going to move. They say late '94, '95, actually.

I'll get a little more in depth to the health study now. Like I said, the past problems they had the xylene soaked rags where the fumes were infiltrating a child care center; the waste water was being discharged to the storm sewer, not the sanitary sewer; and they had the underground storage tank leak in '88. And, as I said, the extent of this leak is still unknown to this

day. And we are still trying to work with them to get them to put monitoring wells in.

Their current permit to install allows them 17.5 tons per year of perc emissions. During this investigation it was discovered that they exceeded these limits in '91 and '92 by roughly 8.1 and 2.2 tons, respectively. This kind of got them in trouble, but it turns out we were unable to enforce these emission limits due to a ruling made by the Ohio Environmental Board of Review. This was overturned because at the time the current regulations were based upon perc being a VOC and it turns out because it wasn't a precursor they overturned it and we were left with our hands tied. Could not even enforce the fact that they went over their emission limit.

That has been taken care of. They have re-written the regulations and we are in the process of giving them a new permit to install, actually for an increased emission amount.

All we could do was basically issue them a warning letter saying hey, don't do this again in the future. The past operations, all their emissions were exiting through two wall fans off their north wall, prevailing wind came from the southeast. They were roughly three by three at a height of five feet off the ground. Directly around the plant were residences enclosing the plant roughly 300 degrees.

Like I said before, the modeling at the permit level of 17.5 tons per year risk came out to be 97 in a million. The ambient air sample that we took detects 54 parts per billion or 367 micrograms. The risk was 191 in 1 million. As you can expect the neighborhood was quite upset at this. You know, it was higher than we told them it would be and this was an actual measurement that we took. Because of that we decided to do some sampling, some more specific sampling.

The neighborhood people were complaining of various ailments, from anywhere from headaches, dizziness, nausea. There was even one woman she had actual entire body blood mineral depletion and she had to go into the hospital for a couple weeks

to have some IV drips, you know. As to the relevance of it, we don't know, but that was one of the complaints we had.

Our health department sent out a life style survey to determine, you know, the possible causes of all their complaints, but unfortunately we had less then 10% respond and we couldn't draw any conclusions from it. You know, is this person an alcoholic, do they drink and smoke all day long, or what? Unfortunately we couldn't draw those conclusions.

We did get some medical records from a couple residents. There were roughly 73 households we sent these out to and we got 9 records back. Three people had had blood work done for VOCs hydrocarbons, and of those three, of the nine records, I am sorry, three had the blood work and two of those showed detectable levels of TCA, but those levels were determined to be average for the average population. So, it's not like it was anything out of the normal.

The only person that had any perc detected was at the detection limit of 0.5 parts per billion. So, a very, very low amount in the blood. Of the remaining six records, something we thought not so unusual, but it was there. There were four previous cases of epstein-barr virus infection. Okay. And it's well known that it's a viral infection and it's not caused by chemical exposure as far as we know now.

We had decided to go in the homes and do some testing in the homes. We did roughly 18 homes with charcoal tubes, basements, second floor, first floor, windows and such--all around the area. In the area in question, there are two buildings called MS for Multi Service, the north wall was where the emissions were exiting from.

We did charcoal tubes, one or two tubes in the various homes for roughly an eight hour period. Along the street called Huffman at the address of 43 to 49 we did a similar canister test on the balcony there. And that's where we had the high detection limit which resulted in 191 in million risk.

We also did a canister measurement down at the church called St. Paul's where they had the day care. Nothing was detected there that was of any concern.

We also did testing in the sewers along east 4th Street. And in the sewers we had, in the air we actually detected 4.2 parts per million and Multi Service was determined to be the only source that could be contributing perc at the time, because we did an upstream and down stream test. Like I said, 18 homes and buildings were tested. The detection limit of that test was 6 parts per billion.

Only one home out all of them had any to test. What we did--that was at 48 Ringhold--the inside, we took a test inside the actual basement drain, roughly five inches in the drain, and we detected 200 parts per billion. About ten feet away from that we did one just in the ambient air in the basement, and we got 10 parts per billion there.

We strongly feel that the contamination was from the sewers. It came through that trap, through a dry trap, up a sewer lateral.

Because of this health study, we have asked them to make some changes. And what they did for us, well, I'll talk about that. We are going to be issuing a new permit to operate. And they have asked for an increase in their emissions from the 17.5 to the 23.4. The only way that we agreed to do this is they keep the risk below 97 in a million. We don't have any regulations that kind of prohibit them from any risk level. And that's what we think the NESHAP needs to address.

That risk was calculated from the original permit they had at 17.5 tons. So, we said, okay, you have got to meet at least the risk that you were meeting with the original permit. The changes they made--they had their wall fans--they reversed them. So, now instead of pulling the air off of the machines it pushes air onto the machines. And they have actually told us that has increased their refrigerant recovery amount.

In all emissions, fugitive or process emission, now go out the ceiling, okay, instead of an emission .5 feet off the ground

we are now 25 feet off the ground. So, it's roughly like a stack. That's a big massive five foot fan that puts out like 49,000 cfm. So, we are pretty confident all the emissions are going out that point. We remodeled the risk with these new changes and we saw that the risk would be roughly 14 in a million.

Now, some of the irony of this is because of this new NESHAP that came out since it does not address risk. I mean, because it's new, it precludes the Ohio air toxics policy of requiring risk to be at least or lower than 10 in a million. Like I said, we came out with 14 in a million. So, because the NESHAP does not address risk they are allowed to have higher than 10 in a million.

This next slide is just kind of quick overview of the risk that we looked at. The sample we took in '93, the ambient concentration 367 micrograms, the risk came out to 191 in a million. Their usage in '91 we back calculated. The model calculated to 141 in a million. Their '92 usage amount--they used less in '92--was 108 in a million. They were permitted at 97 in a million. And the last one--the current operations--we modeled them down to 14. So, we are real happy, and we think that they made some significant changes to the risk amount.

A little bit more about the underground storage tanks. Like I said, there were two underground storage tanks. One with the virgin perc, and one with the waste oil and still bottoms in it that was detected to be leaking. The contamination and the amount released still has not been determined in that we still consider this a big problem as does the Ohio EPA and they are working on that right now. And they are 3,000 feet from one of our primary well fields. And we are pretty sure it's going to get into that contamination area.

The only contamination that was looked at like I said, this was four years after these tanks were removed and the spill happened. They decided to check it out per Ohio EPA. They had forty foot soil borings performed. You can see in this area here each boring was roughly ten feet apart. In the center of that

slide there is where the center of the tanks were. They went down to roughly forty feet. Contamination was discovered down at 35 feet deep. The concentration was highest at 18 and a half feet--was 6.7 milligrams per kilogram.

We disagree with this testing method. The spacial testing was inadequate. All soil borings were performed in one horizontal line. There was no right or left, north, west, east, south type testing. And we say, this is four years afterwards, down 35 feet and they did no spacial testing at all. So, hopefully in the future that will come up.

The sewers as I said before, they are allowed to discharge their perc contaminated waste water from their perc water separators into the sewers in low concentrations as long as it's not odorous or foul. The city's regulations allow them to do that. And the city still samples them six times a year, and the highest they detected was 16 parts per million. And the air samples detected 4.2 parts per million in the air in the sewers.

As a result of the study in the NESHAP that recently came out, we feel that EPA needs to look at acceptable risk levels from perc, or all hazardous air pollutants in general. And maybe with these risk levels you need to be looking at emission limits, not just control technology on dry cleaners. Okay. Because we think the risk is significant factor in exposure to citizens around there.

And of course, because of the NESHAP, you know, the stricter controls on the emissions are going to result in greater amounts of perc being recovered and hence you are going to have a ground water problem if they are discharging in sewers. And we would like to see that addressed, you know, our recommendation is there some type of limit on effluent concentrations you can recommend to dry cleaners.

Real quick before you ask the question. This study is out. I have sent a couple to the EPA down at RTP. I have got four copies here I made myself in case somebody needs those.

MS. WARREN: Barbara Warren, Consumers Union. I was wondering if you could talk a little bit more about you mentioned

that because the NESHAP doesn't address risk now Ohio is prohibited from (interposing)

MR. CHITTUM: Not that exactly. Because there is no risk stated in the NESHAP, we really don't have any basis to prohibit the company basis on a risk. Okay. We said you have to stay below 97 in a million. That's just a verbal communicae. You know, we can't put that in a permit anywhere because the NESHAP doesn't do that. The NESHAP takes over the Ohio air toxic policy. It states in that policy that if there is a NESHAP the toxics policy does not apply. Okay. In that policy there is a risk limit. Well, we can't address that risk limit anymore because of the NESHAP.

Does that answer your question?

MS. WARREN: I think so.

MR. CHITTUM: Okay.

MS. WARREN: Unless you can, you know, for your program for your whole state program.

MR. CHITTUM: Well, the whole state program, I mean, the risk allowed there is 10 in a million for any of the 189 HAPS. Okay. But because the NESHAP is out that does not apply.

MS. WARREN: Okay. Thank you.

MR. PORTER: The study you mentioned, you said you had sent some to RTP?

MR. CHITTUM: Julian Dressen I think has it.

MR. PORTER: Could you leave that?

MR. CHITTUM: Sure.

MR. PORTER: Or send it to us? We don't seem to have it.

MR. CHITTUM: If you would like you can fax a request to 513-225-3486 and just say you would like a copy of the dry cleaner's study.

MR. SMITH: Bob Smith from Cleanrite again. In the year that they did about 26 tons per year, you say they were about 8 tons over their goal which was 17.5. How many tons of cleaning did they put through that plant?

MR. CHITTUM: I am going to guess 800,000. That's the number that put down in my head, 800,000, yes.

MR. SMITH: Okay. Thanks.

DR. SCHREIBER: Judy Schreiber from the State Health Department. I was wondering whether Ohio has done any work looking at co-located facilities?

MR. CHITTUM: No, not that I am aware of.

DR. SCHREIBER: I notice from your maps there that this Multi Service facility was, what would you say, how far a distance from the next closest neighbor?

MR. CHITTUM: The closest neighbor I would say would be less than 100 feet.

DR. SCHREIBER: Okay. You haven't done any investigations looking at buildings within the same as (interposing)

MR. CHITTUM: The strip mall and such, no, we haven't. This is the only dry cleaner we have investigated at our local level. As far as I know Ohio has not done any on that scale.

DR. SCHREIBER: Thank you.

MR. PHILLIPS: Alan Phillips, Air Quality Labs. One quick question. Did you keep any poundage records?

MR. CHITTUM: Poundage in terms of pounds of clothes cleaned?

MR. PHILLIPS: How many pounds of clothing per gallon of perc?

MR. CHITTUM: Yes, I think I have got that in here. Let me look real quickly. To answer this gentleman's question from Cleanrite, 880,000 pounds were cleaned that year. According to its records, Multi Service uses roughly 6.2 pounds of perc for every 100 pounds of articles cleaned.

MR. PHILLIPS: Okay. Thank you.

MR. PORTER: Are there any other questions, clarifying points of the speaker's testimony? That being the case, thank you very much. And like I say if you could leave that copy with us I would appreciate it.

I am going to now turn to Paul Dugard, is that the name?

MR. DUGARD: Well, I am impressed by everyone's stamina. My name is Paul Dugard. I am representing Halogenated Solvents Industry Alliance today. Despite my accent I am a thorough going

U.S. taxpayer, and therefore, I think I have a right to the place on the stand.

We heard a lot today about risk assessment and the numbers that come out of it. I think there are one or two things that we need to get straight about what those numbers actually are. I am going to stream line this talk. I am not going to take you through all of these factors that are displayed here, for example.

It's labelled conservative aspects. The approach to risk assessment is a mix of science and policy. And EPA's policy--probably every other risk assessor's policy--is to make sure that the risk is not underestimated. That means that there are conservative assumptions. When there are uncertainties, you make a conservative assumption. And here is a list of some of the ones that are routinely used.

The first one--the more we know about mechanisms of carcinogenesis, the less likely it seems that the relationship is going to be linear. That is, for a doubling of dose the risk is doubled at low doses. There are a number of people who would question whether or not the no-threshold assumption applies in all cases--that even one molecule would be enough to induce cancer in some particular circumstance.

You take up to 95% confidence limit on that line which is already a conservative treatment of the dose response relationship. EPA put in what is a safety factor, a thirteen fold increase when you are dealing with a mouse to man conversion. That should not be present when there is a knowledge of metabolism in the two species of interest.

The sort of calculations of 1 in a hundred, 1 in a thousand we have seen today assume an exposure at the measured level throughout a life time. That may be adjusted slightly for working day, but nevertheless it assumes that people are exposed at the high levels that have been measured throughout a lifetime. And that's unlikely.

The last one--number five--I am going to explore a little further. The assumption here is that man is as sensitive to a

metabolite of perchloroethylene in this case as a mouse. Now, EPA deserves credit for recognizing that it's a metabolite of perchloroethylene that is causing cancer in rodents. And that needs to be explored further and in terms of mechanism and I'll do that very quickly today.

The statement of the; should be attached to every single quotation of risk. The estimated risk is an upper limit on risk. The true risk lies somewhere between that calculated value and zero. Okay. So, for heaven sake, never imagine that the number represents what is actually happening to people. This is an estimate. This is a calculated value. It has use in decision making, but it's not what is actually happening to people.

Okay. We can move onto the next one. The carcinogenicity information that is used by EPA really has three rather shaky legs on the stool. This is the information which is perhaps the most robust--the incidents of liver tumors in mice exposed in inhalation study.

Here we have the incidence in terms of percent with rising dose from the control value which 33% of the males in that study without any exposure to perc got liver cancer; sorry, liver tumors which included either the pre-cancerous adenoma or carcinoma. And you can see that the incidence does rise with dose. Similarly in the females 8% rises quite rapidly with exposure to perchloroethylene throughout a lifetime.

Now, the control incidence there is quite high, which is suggested by some to be a confounding factor. We don't have to look at that in the case of perchloroethylene. We can assume that the response to perchloroethylene in the mice is real. Why should we be interested in pursuing this further by looking into mechanisms?

Well, rats show no response in the liver. The other evidence is that perchloroethylene is non genotoxic. And that's the shorthand way of saying that perchloroethylene or its immediate metabolites show no direct attack on DNA. In the case of a non genotoxic carcinogen then, you are looking for a specific mechanism which is usually directed towards a specific organ.

So, you have the liver response in the mouse, why no liver response in the rat? Can you explore that further to shed further light on what's actually happening in the animal model?

I mentioned that perchloroethylene metabolism is important. Here we see perchloroethylene going to postulated at--finally finishing up as trichloracetic acid. This metabolic pathway operates in mouse, rat and man. We'll talk a little bit about the relative rates when we come to it.

There was a mention of the possible genotoxic metabolite for perchloroethylene. That's the first metabolite along the chain, the epoxide. Now, if that material was actually being formed and released in the cells to do damage, then there would be some evidence. There are no chemical compounds of that material with DNA that have been found. In fact, if you put radio labelled perchloroethylene into biological system, you don't find any binding to DNA which would be the case if that epoxide was working. You would expect that epoxide to trigger a positive result in genotoxic test. And that doesn't happen.

So, we are interested in the properties of TCA, trichloracetic acid. We know that it causes mouse liver tumors. We know that it is non genotoxic. We also know that it induces these little things called peroxizones in the cells of rodent livers. Peroxizones are associated with liver cancer in rodents. That's known for a whole range of chemicals and drugs. And there seems to be a pretty good relationship there.

Okay. So, we are saying it caused peroxizones in rat liver. Why don't we get liver cancer in the rat? We look at the next slide. This for a given exposure to perchloroethylene, you can see that mouse generates considerably more of the metabolite TCA than does rat. And if you were putting man on this graph what we know about man, man would be below rat.

Okay. So, we can explore the peroxizone perforation. What we can look at in the laboratory, is the rat in vivo and the rat in vitro. Look at how those two relate to one another and there is a good type between those. You can look at the mouse in vitro and the mouse in vivo and find a good tie up between those. We

can also look at human in vitro which then presume means something for the human in vivo, because that's what we have seen for the other animals.

And if you look at the results, the kind of results you get here to trichloracetic acid here you can see the rising line for mouse and the rising line for rats shows the induction of these little beasts--the peroxizones--in the cells in vitro. Human, we have two of human liver samples here which have completely flat lines, which show no induction of peroxizones. Now, many more human liver samples have been looked at in relation to TCA now. There is also a lot more information from primates and on drugs. Man is generally not very responsive, or not responsive at all in generating peroxizones. Remember those are the ordinals that are linked to liver cancer.

So, what do we conclude from this series of logical steps? Perchloroethylene is metabolized to TCA. TCA is a mouse-liver carcinogen through the induction of peroxizones. There is tie up there in terms of dose response and so on. It's perfectly explicable.

Formation of TCA and peroxizones is sufficient to explain the liver tumors in the perchloroethylene mouse study. Man generates TCA from perchloroethylene, but TCA does not induce peroxizones in man. Therefore the mouse liver tumors in perchloroethylene study are not relevant to man. Okay. That's the conclusion on the biological data.

Because epidemiology has come up today in various guises. I wasn't planning to say anything about epidemiology, but I think there is some information which has been batted around here.

First thing to be said is that the general population studies that appear to show a tie up between exposure to anything with chlorine, it seems and cancer; basically people have only looked at the chlorinated materials. There are many, many confounding factors. Those studies are more or less uninterpretable and that's a problem with exposures of very low, poorly estimated levels of material in any case.

Probably the most robust information we have is the NIOSH study. Eric Frumin raised the possibility that there was an increase in esophageal cancer as a result of exposures to perchloroethylene. The report from NIOSH does not bear that out. I can't find anything that would support that information.

What it does show, there is a perchloroethylene-only exposure group. Their first exposure began in 1953. So, there is a long latency period now. Many of that cohort were exposed for a significant number of years to perchloroethylene at substantially higher levels than were reported in David Ozonoff's study. If people responded the way that the Ozonoff study suggested then we would see something pretty dramatic in this cohort of perchloroethylene-only exposed people.

Some of the details--we have 620 people on that study. There are now 222 deaths in that cohort of 620, which is exactly in line with the expected number. There is no elevation in deaths from cancer over all. And when you look down the list of sites for cancer deaths that have been proposed, there are no statistically significantly elevated incidence.

In any epidemiology study, you do see variations above and below the ratio of 1, between the exposed and control populations. There is a slight increase in the incidents of esophageal cancer, but that is quite within the normal wobbles that you see in epidemiology studies. As far as I am concerned, I would be pretty encouraged if I was a dry cleaner seeing this information and feel comfortable that I wasn't going to get cancer from the sort of exposures that we see in the work place today.

And also, if you extrapolate that further on downwards to people seeing, what are really very small levels despite people's opinion to the contrary today in ambient air and so on, then I think we should take comfort from this study. It would be nice if it was ten times bigger, but it's still the best information on humans that we have.

I am not going to get into any kind of details on non-cancer end points. Only to just say that unlike the conservative

approach to cancer, there is no suggestion that non-cancer end points do not have threshold in the dose response relationship. So, there is a dose below which no response will be seen.

The evidence that we have at the moment, I would suggest indicate that the threshold in most cases is in the solid whole number parts per million rather than down in the parts per billion that we have been talking about today.

Thank you.

MR. PORTER: Yes, just a couple of comments I would like to offer before we ask if there are any clarifying questions. The main objective of this meeting was not to review risk studies or health effects data or anything like that. But be that as it may, we have had one of the speakers Dr. Ozonoff who presented, you know, some very recent health data and we have a few, I think seven, maybe copies of his paper. We'll make some more for tomorrow. And if there is someone here who can't get back tomorrow that desperately needs a copy of his paper in order to formulate their written comments, see us at the back table. We'll try to get more copies tomorrow.

But by the same means, can I ask you if you have some sort of hard copy? I know you had your slides. Were you reading from some remarks?

MR. DUGARD: I can provide with you with an analysis on the carcinogenicity side which is a full detail of scientific analysis.

MR. PORTER: No, what I am just saying is were you reading from a prepared statement?

MR. DUGARD: No.

MR. PORTER: No, you weren't. Well, as a minimum then let me ask you. Can we borrow your slides? We will return them to you so that we can make a copy of them, and so that if there is anyone that would like to respond to those comments that go well beyond my technical capability or expertise they will have the same opportunity to do so.

But, having said that, let me ask, is there anyone on the panel here that has some clarifying questions? Is there anyone in the audience that would, yes, at the back?

MR. SMITH: Bob Smith, again, Cleanrite. You mentioned the people with throat cancer. Do you happen to know how many of those were smokers and how many were non smokers?

MR. DUGARD: Well, I haven't dissected out the detail of the study. I am not an epidemiologist anyway, although I have dealt with epidemiology studies over the years. There is a kind of internal control, because you might expect to see an increase in lung cancer as a result of smoking. But, there are other factors which lead to esophageal cancer such as drinking, which may not have been perfectly controlled for. It's a relatively low incidence and therefore given to a wobble up and down in terms of the numbers.

In that cohort there were only four cases of esophageal cancer. And you know, two getting their cancer earlier than expected could easily perturb a number of that sort. It's not statistically significant and that would be one of the important criteria.

MR. SMITH: What is the chemical reactant whenever you draw perc laden vapors through a burning cigarette?

MR. DUGARD: There are probably other people who can answer that better than I can. If you were suspecting that the break down products were going to be responsible then you might expect a change in lung cancer, but that's not appearing.

MR. FRUMIN: Paul, can I ask a question about one of your overheads? Is it possible to put it up there?

It was, I guess it's the last one where you go through the logic in which you conclude that because TCA is not generated in man it's not relevant. Let's see here. So, if I understand this correct what you are saying is that the absence of evidence regarding TCA induction of peroxizones in man renders the animal data irrelevant for the purposes of assessing risk to people.

MR. DUGARD: Yes. In other words, it's not a reasonable basis on which to calculate risk.

MR. FRUMIN: And okay. I just wanted to make sure I understood that correctly. Now, with regard to the, you can turn it off, that's fine. With regard to the NIOSH study, do I take it then that none of your colleagues from HSIA were at the NIOSH/NCI/NIEHS conference in Baltimore on Monday?

MR. DUGARD: That I would have to assume is correct, since no one has told me they were there or reported on any comments made there.

MR. FRUMIN: Okay. So, the information that you are relying upon in your comments just now about the NIOSH study is based upon which version of the NIOSH study? Is it the one which was provided by NIOSH to various parties dated September 24th?

MR. DUGARD: September 24th under a cover letter October 8th. Now, I mean (interposing)

MR. FRUMIN: Yes. We have all gotten the same report. Okay. And if I understood you correctly you said that the NIOSH study provided the best information on the relationship between, on the health effects or cancer risks to humans that we have?

MR. DUGARD: I am not saying it is ideal, but I am saying it is more robust than most that we have.

MR. FRUMIN: Well, I didn't ask you if it was ideal. I don't think anyone has done the ideal study on anything, but may I say more robust, but what I heard you say before was (interposing)

MR. DUGARD: It has (interposing)

MR. FRUMIN: It's the best information that we have.

MR. DUGARD: It has more scope for interpretation and understanding than the others that we have. Okay.

MR. FRUMIN: Do you know of any other study in humans which provides a better scope of interpretation?

MR. DUGARD: Not off hand, no.

MR. FRUMIN: And (interposing)

MR. DUGARD: Not for a group of people who were clearly exposed to perchloroethylene without too many confounding or too many obvious compounding factors.

MR. FRUMIN: Right. Okay. And if the standard mortality ratios for the sub cohort were to rise above, were to be elevated and were to be elevated such that we could have confidence in them statistically, would that cause you to not be as encouraged in your interpretation of the study regarding the health risk from exposure to perc as you are now encouraged by the absence of such elevations?

MR. DUGARD: Okay. I mean, they would require some significant attention. It would have to be down to an epidemiologist to determine whether there was full social significance to that number, or whether that could be a number that was produced through some compounding factor. As people will gather, epidemiology studies and their interpretation are more in the arts than the science in some case.

MR. FRUMIN: I see. And would you be in a position to provide, do you do epidemiologic analysis?

MR. DUGARD: I am not an epidemiologist, no.

MR. FRUMIN: I misunderstood. I am sorry. Okay. Thank you.

DR. SCHREIBER: You started off your presentation with some lists of various assumptions that are made for a risk assessment purposes for perc and other materials. Would you agree that the problems you mentioned are pretty much pervasive with any risk assessment not just the one for perc?

MR. DUGARD: That's correct. Those are the generic difficulties with risk assessments. There is no such thing as a perfect risk assessment.

DR. SCHREIBER: That's right. And I would agree with you. Based on the data that you have heard presented today including the New York State studies, would you agree that the exposures that are taking place within these buildings where we have made these measurements are higher than are normally associated with indoor air?

MR. DUGARD: That is probably the case, yes. I mean, my philosophy here I suppose is that the appropriate interpretation

of the science will allow rational approach to the reduction of exposures if those should be necessary.

DR. SCHREIBER: Right. And considering that the exposures that we have found in these dwellings are hundreds or thousands of times what are normally found in these locations would you agree that those people are then at increase risk whatever that risk might be?

MR. DUGARD: It depends. If you were to take a finding in animals that simply did not occur in man then there is no risk of that occurrence in man.

DR. SCHREIBER: But given the way, well, I would also preface my remarks that I didn't understand you (interposing)

MR. DUGARD: It is a truism to say that if there is any risk, then reducing levels will reduce that risk if you are making the no-threshold assumption. If you are below the threshold, then again reducing the levels of exposure have no effect on the risk. I think in terms of whether or not levels should be reduced, then, I don't want to get into that debate because others will be addressing it.

DR. SCHREIBER: Well, I didn't hear you actually address any of the questions the EPA had posed to us at this public meeting regarding indoor air exposures, ways to reduce these population exposures.

MR. DUGARD: No. That's right. I am not intending to address those specifics. The EPA raised the specter of risk by including risk numbers in the announcement of the public meeting and as we have heard other people have been discussing risk. And that's why I thought it was appropriate to go into this.

DR. SCHREIBER: Do you believe that there is any reason to think that people who are not healthy adults might be at greater risk from various exposures than those that are?

MR. DUGARD: I wouldn't like to say.

DR. SCHREIBER: You wouldn't like to say.

MR. DUGARD: I am not convinced there is any evidence one way or the other in that respect.

DR. SCHREIBER: Okay. Regarding some of the population exposures that we have seen in apartments. Some of those levels were actually in excess of occupational time weighted average exposures. Do you think that being exposed for 24 hours a day may have a more significant impact than being exposed for 8 hours a day?

MR. DUGARD: If there is any impact at that dose level then that might well be the case. But (interposing)

DR. SCHREIBER: Do you believe there is any non cancer health effects from perc exposure?

MR. DUGARD: As with any material and here I am not just saying chemicals, but you could say foods or anything else, there comes a level which exceeds the desirable level and there can be an adverse response.

DR. SCHREIBER: Thank you.

MR. HENRY: I am Michael Henry from the NRDC. I am not an epidemiologist or a toxicologist. I am just a humble lawyer and I am dealing with the battle of the experts. And I mean, we had Dr. Ozonoff present his study which is in the Archives of Environmental Health, is that a reputable journal?

MR. DUGARD: I am not sure if it was that journal, but one trusts that it is a reputable journal. There was a measure of peer review before that paper appeared. Although, we all know that isn't an absolute guarantee of a quality paper.

MR. HENRY: Do you have any reason to believe that Dr. Ozonoff or the other authors of this paper would have any particular ax to grind against perc?

MR. DUGARD: I really don't know.

MR. HENRY: Do you believe that Dr. Schreiber would have any particular ax to grind in her analysis of the risk of perc?

MR. DUGARD: I am not sure that I am aware of the, of all the scientific processes that Dr. Schreiber went through to arrive at her conclusions.

MR. HENRY: Would she be doing anything but using the best science she could use?

MR. DUGARD: HSIA (interposing)

MS. LEVY: I think maybe at this point we should redirect the questions to something that clarifies the specific facts on the table.

MR. HENRY: Okay. You mentioned that when you do cancer risk analysis that a lot of conservative assumptions are used. Do you believe there is a good reason to be doing that?

MR. DUGARD: I also have been a risk assessor in my time, and using the risk assessment in decision making then I have used conservative assumptions. Amongst those assumptions, remember the conservatism multiplies as you go through.

MR. HENRY: Right. Do you believe there is a reason to do that when we are dealing with potential cancer risks to human populations?

MR. DUGARD: I believe that one should naturally err on the safe side. One should also bear in mind that one is overestimating the risk. That the true risks are not coming out in the numbers. That you can use that risk assessment in decision making. Use it carefully.

MR. HENRY: Are you aware of any instances where human carcinogen was found not to have also cause cancer in laboratory animals?

MR. DUGARD: I am not aware of any such animal.

MR. HENRY: Okay.

MR. PORTER: Yes? Are there any other questions to clarify the remarks of the speaker? Okay. That being the case, as I mentioned we did get a copy of his slides, is that correct?

MR. DUGARD: Yes.

MR. PORTER: We are in the process of making a few copies of those for anyone that would like them in case they would like to be able to look them over prior to submitting any written comments.

We have two other speakers who have graciously sat and waited very patiently, I might add, and for that I thank them. One is Bill Fisher and his people with the International Fabricare Institute as well as Judy Schreiber. We are still waiting to get back to with questions.

Bill, you mentioned that you would like a few minutes today?

MR. FISHER: Frankly, given what's been transpiring I think it's going to take more than a couple of minutes. Mr. Blake is one of the other people. I spoke to Mr. Blake. We would be happy to defer until tomorrow given the lateness of the hour.

MR. PORTER: Okay. Judy, then, we left you kind of hanging in order to accommodate Dr. Ozonoff. Those of you who had questions, Judy, if you would please come up. I know there were several people that had some questions. I hope you might be able to remember them of Judy's statement. And Judy is here to answer questions you may have had. Is there anybody who can remember their questions?

MR. BLAKE: I am Peter Blake from the Northeast Fabricare Association. I just want to clarify one point. You mentioned that you had a problem with the NESHAP because it did, as far as New York State goes, exempt a good number of the dry cleaners in the state.

DR. SCHREIBER: Right.

MR. BLAKE: It is my belief that a dry cleaner with a transfer process using under 200 gallons and a dry-to-dry operator using under 140 gallons of product would be exempt. What was the numbers that you used again?

DR. SCHREIBER: Right. Under those volume cut offs would be considered small area sources. It doesn't exempt them from all the NESHAP requirements. But only from the vent emission controls.

MR. BLAKE: And you used the number to (interposing)

DR. SCHREIBER: Yes, I have the numbers for you. Now, what we did was again, based on our survey of results which as I mentioned are reported by the dry cleaners themselves as part of that survey questionnaire; we asked them for solvent volumes used during the year. So, we were able to go back through our data base then and see how that would apply to the NESHAP requirements.

And about 25% of existing transfer machine facilities or about 147 would be considered small area sources under the

NESHAP. And for dry-to-dry, about 55% of dry-to-dry machines would be considered small area sources.

MR. BLAKE: Of that 25% and of that 55% how many already have controls on them?

DR. SCHREIBER: Actually, we did not ask for what controls were on the machines in the survey.

MR. BLAKE: It's a very important point to point out.

DR. SCHREIBER: Yes, I agree. And we are going back through our data and getting some information from our sister agencies to see whether we can determine that.

MR. BLAKE: The number that is being used, the 25% and the 55% is artificially high. For a transfer unit to be operating using less than 200 gallons of product it would be very tough to do, to operate that facility without having a reclaimer on it already, without having a carbon adsorber, some vapor recoveries; as well with the dry-to-dry. If you are using a vented machine without that equipment control already in place that number would be much lower.

DR. SCHREIBER: Well, that's information I don't have at the moment. I would also offer that there is a possibility that the dry cleaners under reported the amount of solvent they actually used. And perhaps there is even a greater proportion of machines, of facilities that would actually be required to comply with the NESHAP, but that would be conjecture on my part. I don't know. As I say we have only used the data from the dry cleaner survey as reported. And I can not claiming to know for sure that that information is actually correct.

MR. BLAKE: Because the amount of people that are excluded under the NESHAP is a very small percentage.

DR. SCHREIBER: Well, again, not according to what I have. The information I have (interposing)

MR. BLAKE: Until you go back and take a look at the control devices already on the equipment.

DR. SCHREIBER: Right. And I am going to work in the next few weeks before the written comments are due to work with the New York City Health and the DEP and also with the New York State

Department of Environmental Conservation and probably phone some of the cleaners to get some additional information on what control technology they now do have in place.

MR. HENRY: Again, Michael Henry NRDC. I think Mike Barylski may have mentioned this just to clarify. The numbers, the raw numbers you are using for the number of dry cleaners and the break down those were the number of survey respondents, right?

DR. SCHREIBER: Yes.

MR. HENRY: And so the total number of dry cleaners in each category in New York State is somewhat higher?

DR. SCHREIBER: Oh, yes, it is almost certainly likely to be higher. We got about a 65% response rate from what we believe to be the universe of dry cleaners in New York State. And I believe in DEC's comments, in Mike Barylski's comments they used figures that were extrapolated from our raw data on the survey to the larger dry cleaner populations. So, his numbers don't exactly match mine, but they are based on the same data.

MR. HENRY: I think for example you were talking about there is about 1,800 dry cleaners co-located in the state and I think Mr. Barylski said something like there are 2,750.

DR. SCHREIBER: Right, because my (interposing)

MR. BARYLSKI: --how we derived that information is in the study. So, we made some judgements on the basis of the response and added an extra thousand dry cleaners, but the analysis is in there for one to take a look at.

DR. SCHREIBER: Right. And Mike and I were aware that our numbers didn't agree. But they are based on the same information.

DR. HWANG: Dong Hwang, Korean Cleaners Association of New York. I have a couple of questions. One is very minor. You used the unit of micro cubic meter for which I don't get any; I doubt anyone over here get any feeling when you say 2 out of a 1,000 micro cubic meter. Would you be consider using the ppm unit; all the cleaners are familiar with and most of us are familiar with.

DR. SCHREIBER: Well, I know we have discussed this before at the negotiated rule making that's now taking place at the state level. I think the problem if you want to call it a problem is that the industry typically thinks and terms their units in parts per million. Indoor air quality investigations are almost always reported in micrograms per cubic meter and that is how our studies are conducted. That was why the health department chose to use that unit in all it's work going through.

At the negotiated rule making process I distributed and maybe it would be helpful to distribute one here basically what we call a cheat sheet where we have all the unit conversions at various levels of importance. But roughly one part per million is about 7,000 micrograms per cubic meter. Actually 6,800, but 7,000 makes it a little easier to convert in your mind what the numbers are. And you can get very facile going back and forth.

But, I do apologize. It is confusing shifting between parts per million, parts per billion and micrograms per cubic meter for air quality. But it's just an unfortunate that that's the difference in how the industry, it terms their units and how indoor air quality investigations are conducted.

DR. HWANG: Another question is about the New York State Health Department study on the assessment. And you used the terms like high level of concentration, elevated level of concentration based on certain difference for which we are not familiar with. And you did some health risk assessment studies. And I understand that the New York State Health Department study did not go through the review process. Would you consider the public and the peer debate process of your health risk assessment?

DR. SCHREIBER: Well, certainly, the study, the New York study that we conducted on the exposure levels has been published in a peer review journal. And I don't think there is any doubt about it's veracity. You are referring to the guideline of 100 micrograms per cubic meter, I believe, which the health department has used as a way to evaluate facility impacts. As we have discussed in the negotiated rule making I am willing and

able to discuss the basis for that derivation with anyone that cares to discuss it.

I don't know what to tell you as far as whether the EPA in their forum wants to go into looking at risk assessment and what indoor air level they feel would be appropriate. But clearly, when I refer to elevated levels in these indoor air environments I am saying that there is a significant difference between what a normal background concentration would be, that being about 25 to 28 micrograms per cubic meter. And when we see levels in apartments of 20,000 micrograms per cubic meter, I think there is nobody that would argue that that is an elevated level.

DR. HWANG: Well, I don't think you are answering my question. My question is this. Publishing in a journal is one matter. But like you may see here today you will see EPA is going through the public meeting to hear from all the people, open mind, experts. New York State, the DEC is going through the same kind of process through the negotiated rule making process. But New York State Health Department is for some reason resisting having open discussion of your public health study. And I am asking you whether you would be consider publicly debating your study?

DR. SCHREIBER: I would consider it.

DR. HWANG: All right. Thank you.

MS. WARREN: Barbara Warren, Consumers Union. I note, Dr. Schreiber, you have indicated to me that you think that there may be other area sources that also contribute risk to people living in buildings with other businesses.

My question is basically, do you have any sense that EPA has done a lot of work in this area of looking at businesses located in buildings and the risks they contribute to apartment dwellers?

DR. SCHREIBER: From what I am aware of, I don't believe the EPA has been actively investigating indoor air impacts from facilities that use volatile solvents of various types, including the dry cleaners. I think a lot of the EPA's assessment has been based on the work that we have been doing here in New York State.

We are in New York State going to be looking at indoor air impacts of other facilities that use volatile solvents, aside from the dry cleaners who are located residentially and might have similar indoor air impacts, because of their proximity to residences. And I can't stress that enough. The difference between a large facility like Kodak or GE or any of these big industrial parks that may certainly use hundreds or thousands of times more volume of solvents. However, they are usually located in a site that is away from residences and other businesses. They have well controlled equipment and you know, may emit materials from a stack. That material is then dispersed through in the ambient air.

The difference with dry cleaners and possibly some of these other small businesses like printers, shoe repair shops, and there is a number of others that we are going to be evaluating; the difference is that they are located generally right in the midst of a residential area. Whatever fugitive and sometimes vented emissions they have travel, find a way to travel through the building and basically are stuck in the shell of the building after they have left the work place facility.

And due to that proximity, and the local proximity is very important, we find that there are heavy indoor air impacts in those buildings. In New York City, but not just in New York City, a lot of times these types of facilities are located residentially for convenience to the customer. That's probably why there are dry cleaners located in buildings.

I think if people were aware of the magnitude of the exposures that they are getting because of that proximity, I think they would be very willing to travel a little further to drop off their dry cleaning than to have the dry cleaner in the first floor of their apartment house.

MR. RISOTTO: Yes, Steve Risotto from the Center for Emissions Control. Judy, the data, the Montgomery County data that was presented a little while ago seems to contrast fairly sharply with at least some of the results that you all are finding. Now, you are kind of a pioneer in this area and I would

anticipate that other state's health departments might be contacting you. Do you have any sense of how typical or unique the data that you are finding, certainly in New York City but also in the Albany area, is versus the rest of the country? And I think California data would contrast quite a bit against.

DR. SCHREIBER: Well, actually, it is interesting to compare them. The Montgomery County data that was presented was looking at a facility which was a stand alone facility. That dry cleaner was not in a building with residences. The residence were located I think the gentleman said 30 feet away was the closest residence to the facility. And perhaps some of that exposure might even have come from emissions from the disposal through the sewer system or perhaps from contaminated soils around the area.

The reason why we conducted what is now referred to as the New York State study actually was to see whether a previous investigation we had where we measured 200,000 micrograms per cubic meter in an infant's bedroom. I mean, right in the prettiest little infant's bedroom you could picture. Just not some run down building, but basically a very nice apartment that happened to be located above a dry cleaner.

We conducted the Albany study, the New York study to determine whether that situation was unique or was this a sentinel event. Something that should say to us we have a problem with indoor air. It's not just occurring in that first facility we looked at in Mayopac, New York. But indeed, it was occurring in each of the six apartments that we looked at in the New York study which looked at the whole universe of residentially located cleaners in the capital district area.

And I am very confident of the data we have and that if other states were to look at indoor air impacts in similar situations with similar machine types and room ventilation and air handling systems, they would certainly find similar results as we have. Yes, I am very confident of that.

MR. SEITZ: Peter Votek from HSIA who attended one of our negotiated rule making meetings sent me a copy of a letter dated

October 15th where he is requesting a further meeting taking the Department of Health risk assessment as a starting point for discussion. I propose that we address the following items: the central nervous system effects--human studies, animal studies; liver effects on human case reports and animal studies; kidney effects--human case studies and animal studies, potential carcinogenicity in animal studies and other studies; and so on and so forth.

Have you planned to, and this was, as he says in the letter, and correctly so, that this was at the request of the committee that was headed by Peter Blake to meet directly with you and the toxicology work group.

Do you plan to respond to that?

DR. SCHREIBER: Yes, I really don't think this is relevant, but yes we are. No, there is one that was addressed to me. And yes, Bill, we are planning a meeting if that answers your question. Yes.

I just wanted to point out two things that relate back to what Carol Browner's representative said this morning that I think applies to this situation here. One is environmental equity. One question that we are going to be evaluating that we are attempting to evaluate is whether minorities are disproportionately exposed to perchloroethylene in their homes by virtue of a larger population density of minorities in urban areas, at least in the northeast. And that is something that we are going to try to get the data to look at that question.

And also, within the dry cleaner operators and owners, themselves, whether there is a disproportionate exposure of minority groups that the EPA should or might consider in ways of addressing how best to spend their resources. Should we be concerned about people who are exposed and are those people made up of a greater proportion of minority groups.

The other point that I don't think I mentioned earlier is the odor thresholds and whether or not odor is a good indicator of exposure and indicator of risks that people may be exposed to in these settings. As an analogy, in natural gas there is a

mercaptan added to natural gas so that because natural gas doesn't have an odor on its own you can smell it if there is a leak in your home. You can smell the odor of that mercaptan down to the low microgram per cubic meter level, so that it's a very good early warning indicator that you are being exposed. You can then shut off the gas or leave the apartment while this is going on until it's cleared out.

Quite the contrary is apparent with perc. The odor threshold, although they do vary considerably with individuals, are generally not noticed or detected by nose until about 30,000 micrograms per cubic meter. And I think we have heard some testimony earlier today from a resident who was exposed, in fact, to elevated levels in his apartment that there are days when he or his wife can smell the material, but there certainly are days when he can't.

My concern is that when I get a call, or our local health departments get a call from people and they say they can detect the odor in their apartment periodically or frequently, based on my field experience I am pretty sure that we are going to find elevated levels in that person's home.

Conversely, however, if a person does not detect an odor or smell anything it is no assurance that the levels in the apartment are low. And I think that is very key that it has a very poor warning quality in terms of odor and that the odor itself is not related to its toxicity. You can't necessarily smell things at greater or a lower level just because it may be more toxic. That really doesn't hold up.

And so I think one thing that the EPA should note is that these exposures can be quite elevated without people noticing them and therefore, they may not realize that a health problem they have could be related to their exposure. And I think that's something the EPA should take into account when they are developing further these rules.

MR. NASSAU: My name is Richard Nassau. I live at 250 West 88th Street here in New York City. I live directly above a dry

cleaner. And have been for I guess about five or six years or so.

Throughout that period of time there has been I would have to say for the dry cleaner's being a tremendous incumbrance on my life and my wife, and my child at this point I think is an understatement. Despite the efforts made by various organizations coming to my apartment, taking tests, asking the dry cleaner below me or forcing them to shut down for several periods at different times throughout the year, it's never solved the problem.

To come to the end of the problem and then I guess I'll back track. The dry cleaners below me claims that they have what is called state-of-the-art equipment which is dry-to-dry. However, the odors still emanate very, very strongly in my apartment. And whatever the dry cleaner has done, quite frankly, just simply is not enough.

The problem still exists. I really don't feel that the owner of that particular dry cleaners was trying to be helpful to me at any point in time. The only time he did something was when he was actually forced to do something. His machines were tagged. He was closed down for several months at a time. Groups came back, ran more tests. He continued to be closed down until finally at one point in time he was able to pass one of their tests.

However, the perc does emanate not only in my apartment, but in the lobby of our building. It's very strong. And it's something that shouldn't exist. It caused headaches, nauseousness, dizziness to the point where you can almost taste it that it's so strong. And when I bring this up to the owner of the dry cleaners down below me and have him come up to him he doesn't smell anything. That there is absolutely nothing there. And I just, I know I am not imagining it. I am not trying to cause him any problems. He has got a right to make a living. I respect it. I just think that he has to respect my right to live there and having to have to live with that problem.

It is a problem and I would just like it to be corrected, so I don't have to live with it and so he can go on and maintain his business and we can all live harmoniously.

If anyone has any questions I'll be happy to answer them.

MR. SEITZ: I don't have a question. What I would like to do is offer my assistance. Before you leave what I would like you to do is to give me the name and the address of the cleaner.

MR. NASSAU: I can tell you that.

MR. SEITZ: No, I don't want you to tell it to me, just me.

MR. NASSAU: Were you at my apartment?

MR. SEITZ: No, I wouldn't go to your apartment.

MR. NASSAU: Are you sure?

MR. SEITZ: My name is Bill Seitz. No, I wasn't to your apartment.

MR. NASSAU: Not with some people from Albany?

MR. SEITZ: No, no.

MR. NASSAU: Okay.

MR. SEITZ: If I were in your apartment I would have no hesitation to tell you.

MR. NASSAU: Okay.

MR. SEITZ: But I represent dry cleaners and there is absolutely no reason why that should be happening to you in my opinion. And I represent dry cleaners, so I am not arguing with you. There has got to be a solution to the problem and I would like to find, you know. What I am going to do is I want to know where he is. I am going to go there. Make some tests to check his equipment out and see whether it can be eliminated.

MR. NASSAU: All right. Now, so there aren't any unnecessary problems or hassles with you and him because he has been (interposing)

MR. SEITZ: No, there aren't going to be any problems.

MR. NASSAU: Not the most cooperative of people. If you go there does he have to let you in, or?

MR. SEITZ: No, but my relationship with the dry cleaner usually is that I represent them and so they are not going to turn me away, because I am trying to help them.

MR. NASSAU: Now, may I (interposing)

MR. SEITZ: I am not there to give them a hard time. I am there to solve a problem.

MR. NASSAU: All right. Now, to play devil's advocate.

MR. SEITZ: Go ahead.

MR. NASSAU: You come to my building.

MR. SEITZ: Yes.

MR. NASSAU: You come into my apartment.

MR. SEITZ: Right.

MR. NASSAU: The day you happen to come the odors are very, very strong.

MR. SEITZ: It doesn't make any difference. I believe what you say.

MR. NASSAU: All right. What next?

MR. SEITZ: I am going to operate his equipment, put his equipment on and run it and find out where the vapor is coming from, and how we can correct it.

MR. NASSAU: Okay. There should be absolutely no odors from what I have (interposing)

MR. SEITZ: I agree. There shouldn't be anything.

MR. NASSAU: Been told. Is that right?

MR. SEITZ: That's correct. I agree. I agree.

MR. NASSAU: And if the odors still persist?

MR. SEITZ: Well, first let's see if we can find the solution. If we can find the solution, if I can make you happy and your wife and your kid, that's certainly (interposing)

MR. NASSAU: Then I'll take you to dinner at the restaurant of your choice.

MR. SEITZ: You have got a deal. Okay. I am a very light eater, so it won't cost you very much. No, but seriously, seriously, you know this is a serious (interposing)

MR. NASSAU: And then the odors were there today.

MR. SEITZ: Okay. Despite the fact that I represent dry cleaners, I don't represent dry cleaners when there is a problem other than to try to help them. And so, I have no intention of questioning you. I believe what you say.

MR. NASSAU: That's the point that I am trying to get at is that you say you are trying to help them.

MR. SEITZ: Yes, and in helping him I will help you. And in helping you I will help him. Because the next thing that's going to happen down the road is you are going to have a situation where you are frustrated and you are going to call the health department and they are going to close him down again. Right? And I want to avoid that. And you know, we have done it in enough cases where we have taken cry cleaners that have been operating improperly or inefficiently where there has been a leak in the machine, or what have. We have equipment to test. We can find out where the leaks are. Maybe it's something procedurally. I don't know.

I don't know who the cleaner is. I don't know what kind of equipment he has.

MR. NASSAU: Well, he has what he says is state (interposing)

MR. SEITZ: I know, dry-to-dry. Okay. But even state-of-the-art, you know, you buy a cadillac and a day later you take it back to the factory because something didn't happen, it's not running right.

MS. WEBER: I would like to suggest that we really appreciate your willingness to help him and vice versus. I am not quite sure what this has to do with our gathering information on the (interposing)

MR. SEITZ: Okay. Well, no, I am just responding to his comments.

MS. WEBER: No, I appreciate that.

MR. SEITZ: And trying to find a solution.

MS. WEBER: But I think if it needs to be an extended discussion maybe you want to talk to each other privately.

MR. SEITZ: You and I can talk privately.

DR. SCHREIBER: Hi, I am Dr. Judy Schreiber with the State Health Department. I was just wondering whether you could elaborate on, is there any particular pattern of when you happen

to notice odors during the day. Is it usually the morning or the evening or any?

MR. NASSAU: It's very, very much at random which made it so difficult for the testing. I would call up. Someone would come within a week to ten days.

DR. SCHREIBER: The New York City Health Department?

MR. NASSAU: The Health Department was one. The EPA was another. I think it was the DEC, environmental conservation group was another, and the thing is it can happen at any time. It can be on a Tuesday morning. It can be on a Friday afternoon. There is no set pattern which makes it difficult to try to regulate.

DR. SCHREIBER: And in between the times when you smell it, is there any, well, do you have any particular health problems that you connect with the times you smell the odor or not?

MR. NASSAU: It gives me a headache that I can't stand. It bothers my wife's sinus tremendously. And when you are around it for awhile and it's strong it's nauseating, quite frankly.

DR. SCHREIBER: And has the New York City Health Department made measurements in your apartment, do you recall what the levels were that they found?

MR. NASSAU: I do, but I don't want to state them incorrectly, because they were thousands of, I don't know what measurement was.

DR. SCHREIBER: Micrograms per cubic meter.

MR. NASSAU: Whatever yes, way above the allowed by law.

DR. SCHREIBER: Okay. Thank you.

MR. NASSAU: Okay.

MR. FRUMIN: Eric Frumin, Amalgamated Clothing and Textile Workers Union. In your contacts with the cleaner did you ever receive from the cleaner any information about what the cleaner views as being the health problems from breathing perc?

MR. NASSAU: No.

MR. FRUMIN: I see. And did you ever ask him for this kind of information like what does this do to you or similar type questions?

MR. NASSAU: I couldn't get that far in my endeavors with him to try to correct the matter. That would have been two or three layers beyond where I was with my communication with him.

MR. FRUMIN: Lastly, do you have an impression as to how much the other residents in your building are aware of the health problems that people can develop from living in a building with a dry cleaner in it?

MR. NASSAU: We have made them aware of it.

MR. FRUMIN: We is who? You and your wife?

MR. NASSAU: Actually, I have made them aware of it. I am also on the board of directors in my building and at annual meetings and so on, and at quarterly meetings we have discussed it. The thing is that I work out of my home. I am there during the day. Ninety-eight percent of the rest of the people in my building are not there during the day. But we have made them aware, yes.

MR. FRUMIN: And do you know whether any of them have ever received information from either the cleaner or anybody else about what the dangers of perc are. In other words, if it were not for what you told them, would they have (interposing)

MR. NASSAU: They simply would not know. Our dry cleaners has never indicated to anyone in our building as to the problems of the perc, or what the causes and the damages could be, never.

MR. FRUMIN: I don't want to ask you to go to far out on a limb here, but do you think, do you have an impression as to whether any other of your neighbors have had the kinds of health problems that you have reported?

MR. NASSAU: The woman above me, I believe, has also smelled the perc and people smell it in and out of the lobby during various times during the day.

MR. FRUMIN: All right. So, did anyone ever talk about suffering the same kinds of health problems?

MR. NASSAU: Yes, absolutely, yes. We have discussed it back and forth. But then again, considering the fact that I am the one that's been home, and people have come to my apartment to do the testing. I guess I have sort of headed on with trying to

correct the problem, because a lot of these people just can't stay around to have people come into their home.

MR. FRUMIN: All right. So, you are not the only one in the building who has had health problems in other words?

MR. NASSAU: That's correct.

MR. FRUMIN: Fine, thank you.

MR. NASSAU: Okay.

DR. HWANG: My name is Dong Hwang, Korean Cleaners Association of New York. You mentioned that those problems and the; what did you do? Did you go to see a doctor or something?

MR. NASSAU: I am sorry. I don't understand.

DR. HWANG: Did you go see a doctor or anything? What did you do about those problems you had?

MR. NASSAU: Did I see a doctor, is that what you are asking me?

DR. HWANG: Right.

MR. NASSAU: No, I didn't go see a doctor.

DR. HWANG: Is there any record of your sickness to prove that, I am not asking you there any question of integrity, but just a matter of a principle. Is there any verification of your being sick other than your statement?

MR. NASSAU: Is there any other indication of my being sick?

DR. HWANG: Any proof? Any proof or evidence of your being sick?

MR. NASSAU: Just my word and my being here and by telling you so.

DR. HWANG: Okay. Thank you.

MR. NASSAU: Okay.

MR. HENRY: My name is Michael Henry with the Natural Resources Defence Council. You live on the second floor, is that right?

MR. NASSAU: Yes.

MR. HENRY: And is this a large dry cleaner, or I am thinking of West 88th Street which is a small side street. Is it (interposing)

MR. NASSAU: It runs the entire length of our building. I don't know how to compare it to large or small. It's a fairly good size. He has two floors. He has got his basement with all his equipment in it. And the second floor has his rack with his clothing going around. So, it's a fairly, from my opinion as a layman, it seems like a fairly good size operation.

MR. HENRY: And it sounds like you, the building is a co-op?

MR. NASSAU: A condo.

MR. HENRY: So, have you approached the managing agent or anything like that? I mean, do you hold the lease on the (interposing)

MR. NASSAU: I own my apartment. The managing agency in the building, the only time they have gotten involved with the dry cleaners is to keep asking him to not use our electricity and our water in the basement and to dump his garbage outside the building in a proper fashion, because he has been using our garbage.

MR. HENRY: Does the condo association own the (interposing)

MR. NASSAU: The retail space?

MR. HENRY: The retail space.

MR. NASSAU: No.

MR. HENRY: Okay. So (interposing)

MR. NASSAU: That's a separate entity.

MR. HENRY: So you have no control over the lease then?

MR. NASSAU: That's right.

MR. HENRY: Have you approached whatever entity owns the lease?

MR. NASSAU: He is in Chapter 11 reorganization. So, there is not much we can really do with him at this point.

MR. HENRY: Thank you.

MR. NASSAU: Okay.

MS. RICE: Bonnie Rice with Green Peace. Could you just, I might have missed this, but could you tell me what the status is as far as you know you have had inspections and they have taken some measures, but what the status is currently?

MR. NASSAU: The status is pretty much (interposing)

MS. RICE: Since the problem is reoccurring.

MR. NASSAU: It's pretty much status quo. As a matter of fact, we had more perc odors in the building today that were quite strong and in my apartment.

MS. RICE: But as far as any action being taken by the New York City Health Department or further investigations or?

MR. NASSAU: No. It seems as if the, well, the people that I have spoken to seem to be tremendously understaffed and have an awful lot of ground to cover. They cover all the five boroughs of the city. And I know that they are busy from morning to night five, or six days a week. And you pretty much have to just wait your turn for them to come around again. So, I haven't spoken to them in awhile. And the problem still does persist.

MS. RICE: So, the complaint is still registered and you are waiting for them to come out again?

MR. NASSAU: Well, I haven't called them in awhile. Not to say that I have given up, because I haven't given up.

MS. RICE: So, in your opinion there is just a real lack of resources in order to take care of the problem.

MR. NASSAU: I think there has to be a follow up on more of a regular basis. If it's once a month or once every four to six weeks or whatever. It's got to be done in a continuous pattern. And not to let six months or eight months go by. It has to be monitored in a proper fashion, I think.

MS. RICE: And it just seems that there is a lack of resources to be able to deal with this problem then in your opinion?

MR. NASSAU: Apparently that's what seems to be the case. That's been my experience.

MS. RICE: Okay. Thank you.

VOICE: I have quick question. I was in your apartment actually. I visited with the state people and the city people one time when I was here. And I actually I was with Jack Lauber, and I remember the city had shut down that dry cleaner below. That's why we were there. And we were taking measurements.

Now, the dry cleaner then since installed a room enclosure. I think the perconerator's equipment. Oh, not the perconerator? They also installed a Diversetron. Okay. And now he is still smelling the perc fumes after they reopened?

MR. NASSAU: I smell them today.

VOICE: So, possibly these controls are not working in his case. Has the city been back there since?

VOICE: I don't know.

VOICE: Okay.

MS. ELLIS: Nora Ellis, Diversetron Corporation. Since the City Department of Health reopened the dry cleaning plant downstairs and all the people were there for the test and what not, have you called them since that time and filed a complaint?

MR. NASSAU: I did call once.

MS. ELLIS: And they came back and reinspected?

MR. NASSAU: They didn't come back.

MS. ELLIS: You filed a complaint and when was that? Shortly after reopening, or?

MR. NASSAU: I think it was in June.

MS. ELLIS: Of this year?

MR. NASSAU: Yes.

MS. ELLIS: And five months later and they still haven't followed up on it?

MR. NASSAU: Right.

MS. ELLIS: Because this is, I was involved in the original, in the last shut down and reopening of that plant. And this is the first that anybody has said to me there was a problem that still existed there. Now, the department of health I know is usually, while they will not be there the next day, usually they will certainly try and respond (interposing)

MR. NASSAU: A couple of the people that I first tried to get hold of, I think their offices were moved and from New York to Brooklyn, or one office closed. But I did call and I did register a complaint with somebody. I just don't remember exactly who it was to be perfectly (interposing)

MS. ELLIS: With the Department of Health?

MR. NASSAU: I don't remember if it was specifically (interposing)

MS. ELLIS: With DEP?

MR. NASSAU: Yes, I think it was the DEP.

MS. ELLIS: There is somebody here from DEP, maybe Ray, are you aware of any complaint that was filed with DEP?

MR. HODGE: No, I am not aware of any.

My name is Ray Hodge. And I am the deputy director in the air division for DEP, New York City. And my division makes inspections for all New York City dry cleaners establishments. And I don't recall, I recall once of your problem, but I don't think that after we solved the problem we heard nothing else from you, no, not anyone.

MR. NASSAU: All right. Once again, I don't remember if it was you specifically that I called, but I did call.

There were half a dozen organizations that came up to my building and I just don't remember.

MR. PORTER: Well, I think one of the messages here may be that you may want to try to follow up again with a complaint to (interposing)

MR. NASSAU: Okay. To whom?

MR. PORTER: I am not sure. I guess it's to the New York City Department of Health, but let me ask. Are there any other questions? If you could move to the microphone, please. Keep in mind this is not suppose to be a discussion, but go ahead.

VOICE: I just have a question actually I guess for Nora or Ohad. Can you go into anymore detail about the equipment that was put on, on the control equipment that was put on in this dry cleaners?

MS. ELLIS: You are talking about third generation closed-loop equipment, loading door control, vapor barrier in place, room ventilation. Now, during the reopening test of this particular plant when Ohad was there, there was representatives from the New York State Department of Health, New York City Department of Health, New York City DEP, and New York State DEC. All agencies were well represented. During the course of the

test odors were--the gentleman said he smelled perc in the apartment--there were on site that were not picking it up in the apartment. There were air sample pumps being run. Judy I am sure could tell you whatever the results were from that particular air sample that was taken as he was smelling an odor.

There was nothing at that time in the apartment that could be detected by any of the equipment on hand. Now, the gentleman smelled something. I am not saying no. But there was nothing on the day of that test. No piece of equipment that was picking up any perc.

Now, what the air sample showed on analysis six weeks later--Judy could probably give you that information better than I can, because that's not something that necessarily comes back to us--but if there was problem post that reopening, it's news to anyone in the industry. As a matter of fact, on Monday the NCA took some of the people from the, who were sitting on the panel around to take a look at plants that had undergone changes, and that was one of the plants. Now, certainly, if somebody thought there was a problem there you know they wouldn't have been taking stupid pills and marched government people in there. You know.

I am sorry. You know, it doesn't make sense, you know. If there is a problem be it with equipment or operation or whatever it may be, you know, problems are made to be solved, you know. But none of us are mind readers. The DOH is certainly not in a position, everybody knows how short staffed they are to conduct on-going investigations. You know, would that they were, I am sure Dr. Munchey would be delighted if he had that kind of staff, but that's not the real world.

You must file a complaint. They will respond to the complaint. The problem is identified and it can be solved. But not without knowing about it.

VOICE: So, the equipment is third generation with a door fan, you said?

MS. ELLIS: Yes.

VOICE: And a room enclosure and a vapor barrier?

MS. ELLIS: Yes.

VOICE: And do you remember when it was reopened? Did you smell, remember smelling perc soon after or we had testimony from someone else another apartment resident this afternoon who said that after there is a shut down and reopening he had sort of a grace period of a few months before things kicked in again.

MR. NASSAU: It was a couple of months. It was sometime in the early to the mid part of June. And that's when I called again.

VOICE: So, after the new equipment was installed and they were reopened you didn't smell it for a couple of months?

MR. NASSAU: That's right.

VOICE: Okay.

MR. NASSAU: Incidently, I'm no technician, but that ventilation system, his vent comes right out underneath my bedroom window.

MS. ELLIS: If I am not mistaken that's the air intake, not the fan.

MR. NASSAU: Well.

MS. ELLIS: That's the air that's being sucked into the room, not the air that's being blown out. You can double check. You can go downstairs and take a look.

MR. NASSAU: So, where is the air being expelled from his (interposing)

MS. ELLIS: Through the fan mounted further down. There is another fan mounted. There are two ports. One is an air intake and the other is an exhaust.

MR. PORTER: Okay.

MS. ELLIS: You know, and I am not disputing the fact that you may have, that there may be a problem there.

MR. NASSAU: You can rest assured if I wasn't having any problems believe me I have got better things to do with my time.

MS. ELLIS: I am not saying no. But until somebody knows about it they can't help.

MR. NASSAU: Well, I think we have got a lot of people here tonight that know about it. I don't know what else to say. Anybody is welcome to come and check. Just give me a phone call.

If I am not there I will make sure you have access to my apartment.

MS. ELLIS: Okay.

MR. NASSAU: You know, whatever you want to do.

MR. FRUMIN: Yes, thank you. We had three people to speak the first is an apartment resident, Ms. Kathy Sussel. She will identify herself and speak for herself.

MS. SUSSEL: My name is Kathy Sussel. I live on the top floor of a five story building and there is a dry cleaner on the ground floor. I live in a loft with my husband and two children age 6 and 3.

I have a lot better things to do with my time, too. The reason I came here tonight is because I have bone marrow cancer. I do not know what caused my cancer. I do know that it's no fun to have cancer. Chemotherapy is a big drag.

So, if there are people that I could help avoid the problems that I am going through I would like to help them. If this chemical perc has contributed to my illness or is causing a potential illness in my children ten years from now I am going to fight it and I am going to fight hard.

The cleaner in my building originally had a plant in another location. He has recently installed what he assures us is state-of-the-art equipment. However, a few weeks after the installation there was an overwhelming--to the point of making me dizzy--odor in the building that wafted all the way up to the fifth floor. My husband went out to the hallway and said there must be a leak, a spill, something. I went out there and got very dizzy. We had to open up the roof door, the elevator shaft and try to air the building out.

The odor continued for at least 24 hours very strong, and maybe partially the next day. That's really been the only incident so far. But what I would like to see as a resident in this building are periodic tests monthly. I don't think that's asking a lot. Let's check the equipment. Let's find out if it's going to hurt me. Because once you have cancer you are at risk for more cancer. It doesn't go away. It doesn't get better.

And I don't think perc is going to work too well with my chemotherapy at this point. I don't know what this stuff is. I don't know what it's doing to me. And I don't think there is anybody in this room who can say to me it can't hurt you. Is there? Or it didn't hurt you. Or it won't hurt your children. Take a bath in it. Love it. No thank you. I don't want to. I didn't chose dry cleaning as a profession and it's not an occupational hazard for me. And it shouldn't be for my children or my neighbors.

Some of the other people in my building and next door to me, we have noticed that our children are more prone to infection than other children. They are getting a lot more colds, ear infections, red noses inside like a sinusitis type thing. My kids get strep very, very often. Maybe this is just childhood illnesses. Maybe it's not. Who here can tell me that it's not?

I would like to see; I don't dislike the dry cleaner. I wish him well. I am a small business person, too. He has a right to his business. But, I have a right to my life whatever is left of it.

Now, what I would like to see done is have his equipment monitored on a monthly basis. Come in take a measurement and say this is okay. This is within the standards. But this doesn't seem to be anything that's even been thought about. Is this a procedure that the EPA or any other government agency is willing to install? To protect my rights and the rights of the children in the building. This doesn't seem to be an issue.

But, you know, it's an issue for me. And it's an issue for my family. I run a computer business out of my loft. So, I have all this radiation from these computers and I try to hide from them to protect myself from that. But they don't go beyond my place of business. No one else is at risk, and I can protect myself by staying away from the video screens as much as I can.

And I feel I should be protected from other people's livelihood, too. And that's all I have to say.

MR. FRUMIN: Kathy, I want to ask you the same, ask you some questions about the same issue that I asked Richard Nassau

about which is did the cleaner ever give you any information about what the health problems from perc might be?

MS. SUSSEL: No, he didn't. He assured me it was state-of-the-art equipment.

MR. FRUMIN: All right. So, he talked about the technology, but discussion of issues like illnesses or levels of exposure?

MS. SUSSEL: He said there is no health risk at all.

MR. FRUMIN: Oh, so he did talk to you about the health risk in these terms.

MS. SUSSEL: When he was installing the equipment, we were concerned about it. And we asked him what kind of equipment it was. And it was a brief conversation and he said it's state-of-the-art equipment and it has no risk from the chemical used. I really didn't know anything about the perc at that time. I had been alarmed about the dry cleaning chemicals when there was some newspaper articles about being at risk living in a building with a dry cleaning operation in the building. And a lot of my friends called me and said, oh, you know, you live in this building with the cleaner. But there was limited information and I didn't really follow up on it.

And at the time I felt that he didn't have the plant in the building and it probably wasn't a health risk. Well, I mean now that I have cancer, you kind of wonder, well, what was it? I mean, I am not saying it was perc, but I don't know. I mean, there is not a doctor in New York City, not at Memorial, not at Mt. Sinai, not at St. Vincent's who will tell me why exactly.

MR. FRUMIN: All right.

MS. SUSSEL: It can't be done.

MR. FRUMIN: And how about the other people in your building? Do you have an impression as to how much they know about the health problems that people could suffer from being around perc or having to smell it?

MS. SUSSEL: I think we are all concerned. I don't think any of us know that much. I was hoping to come here and leave with a preponderance of information from these agencies that are

holding this meeting. I would like to learn as much about perc as I can. I like information. I would be willing to receive information from the dry cleaning community on what they feel the hazards are. But, I mean, I know that I didn't imagine this chemical odor. And I don't smell it every day. And I don't, but I don't think you even have to smell it to be affected by it.

MR. FRUMIN: Right.

MS. SUSSEL: If second hand smoke is a carcinogenic, what is perc? Not a carcinogenic? If it's in the building and if it's being used. Would anyone like to answer? I have questions. I would like that answered.

MR. FRUMIN: And other than reading, getting these newspaper reports, do you know of any other sources of information that the people in the building have had to develop this concern that they have other than the newspaper reports that you mentioned?

MS. SUSSEL: No.

MR. FRUMIN: Okay. Thank you very much.

MR. RISOTTO: Steve Risotto from the Center for Emissions Control. Did you say how long that you have been in the building? I wasn't sure if I heard that, missed that.

MS. SUSSEL: I have lived in the building since 1984 and the cleaner moved into the building in 1989.

MR. RISOTTO: And then the other question and George, Fred can correct me if I am wrong. As I understand the federal standard, it would require all but small dry cleaners to monitor their equipment weekly to keeps records of that, that would then be subject to inspection by what would ultimately be the state environmental department.

MR. PORTER: That is correct.

MR. RISOTTO: Is that, you had talked about kind of monthly monitoring. With a system like this that allows for some fiscal constraints on state and federal government, is that, would that be something that you would feel to be constructive?

MS. SUSSEL: How would that information be made available to me? Would there be a source, a data bank that I could access?

MR. RISOTTO: I don't think there is any requirement that that be made public.

MR. PORTER: Oh, yes, that is public information. Probably the best way to get, the regulations are just now taking effect and it will be some time before they are truly implemented. I mean, sometime being a matter of months. But that being the case, you could certainly ask the dry cleaner. That would be the most direct. But, if not then at this point, let's see, in New York, the EPA region is still implementing these regulations for the first few months. And I think that's Region II in New York City.

At some point probably spring of next year it's my anticipation and merely that--speculation on my part--that New York State will probably be seeking to implement our rules, or may even have their own rules in place. I am not sure of what their time frame is. Eventually I would expect if we were meeting here at this time next year, New York State would have the information on this weekly check that the dry cleaner does.

Does that answer your question?

MS. SUSSEL: No, not really. How within like next month okay, how would I find out the level of perc in the building for the month of December and then also for the month of January? I mean, on a monthly, is there anything in place that is monitoring this chemical in my air space?

MR. PORTER: Well, I do not want to speak for the state or the city environmental agencies or health agencies. All I can say is that at the federal level the answer to your question is there is nothing in place at this instant. But in a matter of months, as opposed to years or weeks. In a matter of months the regulations that we adopted in September will begin to take effect so that I suspect sometime in the spring, February, something like that, that sort of information will be beginning to be generated.

MS. SUSSEL: And where will this be generated? Will it be through a data base that I could access on line?

MR. PORTER: No, that information must be maintained on site in a log, by the dry cleaner. And that, I say, the most direct way for you to get that sort of information would be merely to approach the dry cleaner. I mean, he may share it with you. If he doesn't, then you could certainly approach the Environmental Protection Agency in Region II who I suspect still by February of next year will still be responsible for implementing these regulations and you could ask them for that sort of information.

MR. JEHASSI: There is also some information developed at the agency on perchloroethylene dry cleaning which you can order and it's free. And you can call EPA's pollution prevention hot line and that number is 202-260-1023. In addition, EPA also has the indoor air quality clearing house. I don't know if you know that number off hand, Pauline. But you can get the indoor air quality clearing house number by calling 202-260-2090 and we have some information on perc dry cleaning and some facts about perc.

DR. SCHREIBER: Dr. Judy Schreiber with the New York State Health Department. I would strongly encourage you to contact the city health department again if you have already and not, they are responsive. We find they are overloaded with cases to investigate particularly with dry cleaners. We have recently been evaluating a passive monitoring device which should make it easier for the health department to look at indoor air levels with a lot less staff time which we hope will assist them to reach a lot more apartments like yours.

Certainly if you smell a heavy odor of perc in the apartment on a particular day you should call them and let them know, because that indicates that something is not working right in the dry cleaning facility that may just be a simple remedy. It may not. But there may be something that the dry cleaner could do to alleviate that and the Health Department can come and do some air sampling.

MS. SUSSEL: Can I ask you a question?

DR. SCHREIBER: Sure.

MS. SUSSEL: Is there a test that's available to the general public to test it? You said there is a passive monitoring device?

DR. SCHREIBER: Yes.

MS. SUSSEL: Is that available commercially that I could buy and do my own testing?

DR. SCHREIBER: Well, the passive monitoring devices actually are nothing particularly new. They have been used in occupational studies for quite awhile. Our laboratories have worked on the badges to enable them to reach more sensitive detections levels. And so we are now in the process of doing the final field test to make sure that they give reliable results as sensitive as the ones that we used previously.

Unfortunately I don't believe there is any commercial laboratory that would be able to analyze those badges at the low levels that we would like to see down to in order to look at indoor air quality.

There are private laboratories, I am sure, in New York City that you could hire to do an indoor air evaluation in your apartment. It would likely cost a minimum several hundred dollars to do it. So, if you can call the New York City Health Department and come see me after you are done and I'll let you know who you can contact to try to get that done.

MS. SUSSEL: I have had experience with the New York City Health Department. Both my kids had lead poisoning. And I was told to contact New York City Health Department. Well, by the time they showed up, I had already found the source, had my water tested privately, found the source of lead and removed it myself.

DR. SCHREIBER: I sympathize. Yes.

MS. SUSSEL: And my kids were at risk and I couldn't let that go on waiting for this free test from the health department. And when they came, they only came with a water test and that was the first thing I had tested. So, my faith in the New York City Health Department is, I guess I am a jaded New Yorker.

DR. SCHREIBER: Well, I think the New York City Health Department is doing very good work with the limited staff that they have and I would be the first on the list to suggest that we try to make more resources available to them so that they can respond more effectively to both lead problems and dry cleaner related problems.

MS. SUSSEL: Well, with the lead what I found that there were a lot of very good easy to use commercial lead tests. So, that after the lead was removed to make sure it was gone I ordered just about every lead test you could order to make sure there was no more trace of it. And I found that they worked quite well, because I substantiated the tests with the private lab.

DR. SCHREIBER: We are hoping that actually once these passive monitors are approved by our laboratory, there is a laboratory approval system in New York, that some of the commercial labs might pick up and use those as well. And they would be a less expensive way to conduct an air analysis in an apartment.

MS. SUSSEL: And what does that do? Do you just hang it on the wall?

DR. SCHREIBER: It is basically a clip on device. You either clip it onto your lapel or you could hang it from a particular location in the apartments. And it's passive in the sense that you don't need to plug in and have a pump source pulling the air through a filter. But it's just the air that is around the device is collected on a charcoal filter medium and then (interposing)

MS. SUSSEL: Over what period of time?

DR. SCHREIBER: Anywhere from four hours to twenty four hours.

MS. SUSSEL: Have you thought of making that available to people in apartments like us?

DR. SCHREIBER: Yes, we are working on it. This is, as I mentioned, the last stages of our field test and we hope that it will be in more wide use. But it would still need to be, it

doesn't give you an instant picture by having the, you know, you have to then send it to a laboratory for analysis. So, it's not (interposing)

MS. SUSSEL: I would be happy to do that.

DR. SCHREIBER: Yes.

MS. SUSSEL: I am sure, would you be happy to do that?

MR. NASSAU: That could be a pretty quick remedy to at least get things moving. The problem that I have had is that, oh. I think that would be a very quick solve remedy to get to the heart of the problem. You have experienced the same thing I have had. When we call the city agency they are tremendously understaffed and they take a week to ten days until they finally get there and the perc may or may not be there.

By having something in the apartment constantly on a monthly basis it can always be monitored. There doesn't have to be a person coming to spend their time and it would probably end up saving the city money by having that there. And someone can pick it up or I can bring it to wherever it's suppose to be brought and it can be evaluated from that point.

But I would more than welcome having that in my apartment anytime.

MR. SEITZ: Yes, again, not so much a question but hopefully an attempt to find a solution. Bill Seitz, Neighborhood Cleaners Association. Two things. Number one, as I suggested in the case of Mr. Nassau, if you would give me your cleaner's name and address I would be very, very happy to check out his operation. And you raise an interesting point and obviously no one has thought about it.

But, we make perc badges available to our members so that they can test their premises. And I don't see any reason why we couldn't make the same thing available to you. And I would be very happy to work with you on that situation.

What you do is as you have been told, you hang the badge or you could wear it. You then send it to us or you send it to the laboratory, we'll give you the address. And it takes about a week to get the results, and it will give you a print out, you

know, a read out of what the levels of perc are and we'll help you understand it.

In addition to that I will, if you, once I have your name and address I'll be happy to send you information on perc and the characteristics of perc, problems, what to look out for and so forth and so on. Okay.

MS. SUSSEL: Okay.

MR. SEITZ: Thank you.

DR. HWANG: My name is Dr. Dong Soo Hwang, Korean Cleaners Association. I have several questions. How many people are there in that apartment?

MS. SUSSEL: In the building?

DR. HWANG: Yes.

MS. SUSSEL: It's a loft building. There are eight people living in the building.

DR. HWANG: Eight people in the building that apartment.

MS. SUSSEL: It's a building. It's a five- story building.

DR. HWANG: Right. How many people living there?

MS. SUSSEL: There are four of us live on the fifth floor. One person lives on the fourth floor. And a family of three lives on the third floor. The second floor is currently vacant. The cleaner is on the ground floor.

DR. HWANG: So, it's sort of a small building.

MS. SUSSEL: It's a small building.

DR. HWANG: Okay. By the way, just for your information I don't speak with New York State DEC, but they are in the process of developing new regulation that will require weekly monitoring of perc concentration. And that may be helpful. And I would like to show my sympathy for your having cancer. By the way, when was the first time you learned of your cancer?

MS. SUSSEL: A year ago.

DR. HWANG: About a year ago. And a year ago you learned of your cancer. When was the, when your cancer was started, though?

MS. SUSSEL: When was it suspected?

DR. HWANG: Yes.

MS. SUSSEL: About a year and a half ago.

DR. HWANG: A year and a half ago. And the dry cleaner moved in there in 1989 you mentioned?

MS. SUSSEL: Yes.

DR. HWANG: So, the dry cleaner has been there for about four years?

MS. SUSSEL: Yes.

DR. HWANG: Okay. I thank you.

MR. FRUMIN: Eric Frumin. I just want to return for a moment to the question of the monitoring, the record keeping and reporting requirements of the current, of the new EPA national air standards. The standard requires the dry cleaner to keep records on site of the test that the cleaner does himself or herself for leaks around the equipment. But the standard does not require the reporting by the cleaner to EPA of these tests results. The standard only requires the test to be kept on site. Is that correct?

MR. PORTER: Yes, that's correct.

MR. FRUMIN: Right. And so for apartment residents in Ms. Sussel's position, in the event that the cleaner is reluctant to provide this information the remedy is for that apartment residents to have to contact the, either federal or state agency which then will have to obtain the information from the cleaner and then provide it to the resident who is requesting it, is that correct?

MR. PORTER: That's correct.

MR. FRUMIN: And is there any requirement in the standard for the cleaner to provide the information directly to a resident, or to anyone else in the community?

MR. PORTER: No, there is not and that's why I had suggested that because of the situation of having to talk to the agency and then the agency having to obtain it. She might want to first contact the dry cleaner. Now, if the dry cleaner does not want to provide that information then the agency could obtain it for her.

MR. FRUMIN: All right. And is, okay. So, Ms. Sussel, just now that we are very clear about exactly what the situation is, what's your feeling about the adequacy of that kind of arrangement in terms of the needs of people in your situation? Do you think it's an adequate arrangement to?

MS. SUSSEL: That doesn't protect me at all.

MR. FRUMIN: Sorry?

MS. SUSSEL: That doesn't protect me. It's grossly inadequate.

MR. FRUMIN: In what way?

MS. SUSSEL: It leaves me at the mercy of whether or not the cleaner feels like sharing this information or not. And then it puts me in the position of trying to locate this information by dealing with government agencies. Now, we have all dealt with government agencies. It's almost as much fun as having cancer. It's not easy. It's time consuming. They put you on hold. Maybe you will get the information. Maybe you will talk to the right person. Maybe you won't.

So, I would like to see this information entered into a data base and then be able to access it on line through a national data base, or clearing house. I happen to be in the on line profession. But it should be able to be searched as a matter of record.

Also, who is standing there when the cleaner is making these measurements? Who is looking over his shoulder? He is measuring, so when he measures, does he say well, this looks okay and so I'll put in these numbers? I don't get it. Is there somebody there with him at the time to say oh, that's a little high, and then he can't really say that that's under it. Or it's just him. Him and his machine. Oh, come on now.

Then this isn't protecting me. I feel at risk here. I feel my children are at risk here. Who is in charge here?

MR. FRUMIN: In the absence of some intervention, some information that's provided to community residents, in your situation, do you think that people will have the ability to know that there is the opportunity to call a government agency to get

a specific piece of information? In other words, if people, the situation being what it is now there is a cleaner who is taking tests and keeping the records on site, for some reason you or a resident asks them is it safe, you know, and he doesn't want to give you an answer. Or, he says I do the tests and you say well, what are the results, and he says you know, it's safe.

MS. SUSSEL: Then (interposing)

MR. FRUMIN: What is someone in your situation likely to know about the opportunity to call some specific government agency to follow the procedure that's been laid out here. Is that a realistic opportunity?

MS. SUSSEL: The likelihood of knowing that?

MR. FRUMIN: Yes.

MS. SUSSEL: Without (interposing)

MR. FRUMIN: Yes, the likelihood.

MS. SUSSEL: Slim to none.

MR. FRUMIN: Thank you.

MR. PORTER: Yes. Let me just say one thing and then we'll get back. We have ten speakers this evening. It is 8:00. And I think if we, we will be here as long as people want to stay. I mean, I could be here until the wee hours of the morning. But you know, in the spirit of trying to be considerate of speakers who may be patiently waiting to make their statements I would just like to suggest that maybe everyone could try to limit their comments and their statements to the minimum.

Having said that, there was this gentleman right here that would like to ask a question?

MR. RAPPARPORT: My name is Alan Rapparport. I am with the Dry Cleaning Association. I have one question to try and lay this whole thing to rest for this evening with you. I know you have very little faith in the government agencies, but as Mr. Bill Seitz had pointed out before would you feel comfortable if you were supplied either free or at a very nominal cost these badges to do your own testing to have these test devices sent to an independent lab who would give the results directly to you so there is no intervention by any cleaners or cleaning association,

or any government agency. Would you feel comfortable with that kind of a situation where you are in direct contact with the laboratory? Would that help the situation in your mind?

MS. SUSSEL: If the badges are state-of-the-art?

MR. RAPPARPORT: Yes.

MS. SUSSEL: And yes, that would make me much more comfortable.

MR. RAPPARPORT: All right. Thank you.

MS. SUSSEL: If that would be made available to me.

MR. RAPPARPORT: Thank you.

MS. SUSSEL: And the other people in my building as well.

MR. RAPPARPORT: Okay.

MR. PORTER: You might want to talk then with Alan if you want to follow up on that, or with Bill Seitz. Yes?

DR. HWANG: I forgot to ask another question. According to the agenda; of the textile workers union was registered as a speaker. And then he introduced you to speak. How did; from the textile workers union?

MS. SUSSEL: He contacted me and he told me about this meeting.

DR. HWANG: How did he know you?

MS. SUSSEL: He didn't know me.

DR. HWANG: How did he contact you, why?

MS. SUSSEL: He came to my building and he left a notice about this meeting, which I personally would have liked to see all these government agencies do. It's a matter of record where dry cleaners operate in small buildings and where they are putting their equipment, or it should be. How come none of you called me and asked me how I am feeling?

DR. HWANG: They didn't call anyone; there are 200,000 million people in this country. They didn't call anyone.

MS. SUSSEL: But not everyone has a dry cleaning plant in their (interposing)

DR. HWANG: That's correct. And (interposing)

MS. SUSSEL: Building.

DR. HWANG: When was it Eric Frumin of the Textile Workers Union called you?

MS. SUSSEL: A few days before the meeting.

DR. HWANG: A few days from today. Do you have any feeling how Eric Frumin with Textile Workers Union picked up your name; sick, having cancer (interposing)

MS. SUSSEL: He had no idea that I was sick.

DR. HWANG: He had no idea.

MS. SUSSEL: No.

DR. HWANG: Oh, okay. Thank you.

MR. HODGE: Ray Hodge, NYCDP. I would just like to make a comment. During our investigation of many complaints that one of the problems that we found was odor from spotting, and this is something that has not been brought up. And it's not perc. Sometimes they have a smell and they said they smell something, but we go and it's not perc. And it's odor from spotting.

And what we would like to do is we would like to address this problem with the dry cleaners association or the dry cleaners establishment to use spotting fluid that is free from odor. And this would cut down on a number of complaints that we will not have to investigate, because sometime I think if I can ask her the question if she knows what the, how does perc smell. Or if I take any other fluid and give it to her she wouldn't be able to tell the difference. She knows that there is an odor.

But this is something that we can cut down on a lot of investigation and field inspection if we would have the dry cleaners establishment use a different type of spotting fluid which are available in the market. That's the comment I have.

MS. RICE: Bonnie Rice again with Green Peace. I just like to make a couple quick comments and I think it gets to the heart of the matter of something of which you were saying. And that is talking about badges and how that would help. I think the real issue here is that most people don't even know that, know the source of the problem or the risks, or you know, or a lot of the information that they should be aware of and so as far as

addressing the issue with badges, I don't think that really addresses the real problem.

The second thing is, I appreciate the fact very much that there has been some offers to help people tonight, both yourself and Richard Nassau. And I hope that that does occur. But I would like to remind everyone here that each of these residents speaks for about 85,000 people in the State of New York alone. And I wonder what would happen if all these people, not all of which, but I am sure a percentage of which are experiencing these problems would all put in calls to either the industry associations or the city or state or federal agencies today. What kind of resources there would be to deal with these problems.

Thank you.

MR. FRUMIN: Our last participant is Mr. Rafael Vargas who is a member of our union.

MR. VARGAS: I am the member from the ACTWU Local 239 for New York. And I have worked in the dry cleaning industry for seven years. And I have been a presser for five years already.

Before I went to Los Angeles, I attended the University of Guadalajara for three semesters studying civil engineering. I have also special training for construction technology.

I started working in the industry in Los Angeles, and the equipment was much better. The machine was dry-to-dry and unvented. When I came to New York I saw the transfer machine for the first time and it smelled really terrible. And it made you dizzy sometimes.

Other people who worked there also had the same problems--headaches, dizziness and it made you nervous sometimes. One of the workers asked in the spot where I was working for a mask because he couldn't take the odor, the smell. And the answer to this problem he made sure that the cleaners use; it has to be safest machine as possible, not just better machine. This means no transfer machine at all.

I never knew about these problems with the perc until the union told me about them. The other workers also do not know

about these problems. The government should make sure the workers get written information warning them about the dangers of perc.

We know that the OSHA already has the rules requiring the owners to give the workers warnings about the hazards of perc, but the rules are not enough. OSHA must enforce these rules to make sure that owners really give the workers the information.

Even with the dry-to-dry nonvented machines the owners do not follow the rules, because I am working there in the industry. They just want to deliver the clothes right away, so they just take the clothes out of the machine and then it smells worse, I mean. It make all the shop sometimes. We have to press it before the clothes are already delivery.

Even if the government sets the rules required in dry-to-dry nonvented machines, you must enforce the rules to make sure the owners follow them. When they take the clothes before they are already dry the customer is also complain about the smell in their clothes, sometimes.

They also use other chemicals in the spotting which he was mentioning. I don't really know what that and the combinations then it give you also a bad smell. Sometimes it is so bad then we have to walk outside the door and stay for a little while.

Well, thank you.

MR. RAPPARPORT: Alan Rapparport again. One question. In New York how many stores have you worked for? Just this one, or have you worked in many different stores, dry cleaning stores I am talking about?

MR. VARGAS: Well, I have been working at like two or three stores.

MR. RAPPARPORT: Two or three and all of them were the same. They all had transfer units.

MR. VARGAS: Well, in some cleaners they have safe machines like dry-to-dry not vented, but they have sometimes cleaners, they have like the wash machine, the dry cleaner and they have to transfer it to the dry.

MR. RAPPARPORT: Right.

MR. VARGAS: And they have the chemical, the perc, well exposed. And it's really bad. It gives you headaches, because I am working in the spot.

MR. RAPPARPORT: Absolutely, but what I am saying is you have had experience in three or four different stores and they are not run the same way.

MR. VARGAS: They are not the same.

MR. RAPPARPORT: So, some of them are okay and some of them weren't.

MR. VARGAS: Sure, and in fact, I was working with you once in a; and it's safe. I mean.

MR. RAPPARPORT: Thank god. Okay.

MR. VARGAS: Yes, I remember you.

MR. RAPPARPORT: Yes, I remember you, too. Okay. Thank you.

MS. WEBER: Could I just ask a point of clarification on the MSDS, on the OSHA labels. Did you say that in the three or four shops where you worked there is not the warning information, the material safety data sheet?

MR. VARGAS: I never read it.

MS. WEBER: You never saw any of them?

MR. VARGAS: Even the owner never show me and then there; I just find out when I walk into my union and they let me know about the dangers.

MS. WEBER: It wasn't on any of the machines?

MR. VARGAS: No. I don't remember I read it, honestly.

MS. WEBER: Amazing.

MR. SEITZ: Bill Seitz, Neighborhood Cleaners Association. Under the law are you aware of the fact that a dry cleaner has to post a poster telling you about your rights as an employee. Is that posted in this plant?

MR. VARGAS: No.

MR. SEITZ: Okay. Did you report that to the union?

MR. VARGAS: Well, when I came to work in the cleaners he use to use the transfer machine which is dangerous. I know it right now. But right now we have a safe machine which is not

vented and also he follow the rule. I think he is following the rules.

MR. SEITZ: What I am saying is that when you had the complaint about the odor, did you report that to your union?

MR. VARGAS: Well, I was complaining to him.

MR. SEITZ: How about, did you report it to the union?

MR. VARGAS: To my boss.

MR. SEITZ: Yes, how about to the union?

MR. VARGAS: And about the; I never did, no. In fact, I don't have long time in the; I have in the; like couple of years.

MR. SEITZ: So, the last couple of years you haven't had this problem?

MR. VARGAS: No.

MR. SEITZ: Just going back into the past of at least two years ago?

MR. VARGAS: Yes.

MR. SEITZ: Okay. All right. Thank you.

MR. HENRY: I am Michael Henry, NRDC. Mr. Vargas, how often have you seen spills of perc in the stores that you have worked in?

MR. VARGAS: Many times. Yes, many times.

MR. HENRY: Can you describe how some of the spills take place? Are these when you are filling the machine with the perc it might spill, or when would you get a spill of perc?

MR. VARGAS: It occurs, you know, accidents sometimes. They spill it. They have, clean it and put it inside the machine to let it dry inside. But maybe not really numerous times, not many times, but they take care of it.

MR. HENRY: And the way you usually take care of it is you wipe it up with a rag and throw the rag in the (interposing)

MR. VARGAS: Yes.

MR. HENRY: In the machine?

MR. VARGAS: Yes.

MR. HENRY: Okay. Thank you.

MR. VARGAS: You are welcome.

MS. PAVIS: Okay. My name is Patti Pavis. I am a Staten Island resident. I have been very involved with the Freshkills landfill on Staten Island, and issues of pollution and health problems surrounding that. My connection with the dry cleaning industry is the fact that one of the chemicals is vinyl chloride which is associated with the dry cleaning industry, the solvents. And it's also found in abundance at the Freshkills landfill along with other toxins.

We have identified all of the neighborhood surrounding the landfill as having higher rates of birth defects and premature births in babies. Also one neighborhood directly adjacent to it has 50 children within a one mile radius with leukemia, Hodgekins disease, lymphoma and so on.

So, my point is, I consider Staten Island the canary in the coal mine. We are living in an intensely polluted area. And any kind of an operation using chemicals such perchloroethylene only contributes to the overall demise of our water and air quality. And these chemicals should quickly be phased out and the process switched over to something that's available in the city now, in fact, they are called green cleaners using water and soap based solvents.

There are three that exist in this city. I have addresses for two of them: 140 West 72nd Street and 129 East 90th Street. They are called Ecomats. But existing cleaners can, from what I understand, be switched over to this green technology and avoid using the chemical solvents. I don't have a lot of knowledge about this. I am just learning myself within the past few weeks, but from what I am told the purchase of a dryer at approximately a cost of $700 and retraining existing staff is what is necessary to switch over. And it's actually more cost effective, better for the environment and better for our health overall.

So, that's it. I just wanted to make that point. Thank you.

MR. RAPPARPORT: My name is Alan Rapparport. I am a dry cleaner in New York City. I am a second generation dry cleaner.

My family has been in the business for the last 35 years. I, myself have been in the business for 20 years.

If anyone is interested in the effects of perchloroethylene it's going to be me. Believe me, whether I care about everyone or not, I certainly care about myself and my family. I have a wife and two children. And I am very interested in what everyone has to say here, and I am also very interested in complying with everything that's going on in the world and in the dry cleaning industry.

We have invested--my family and myself--have invested hundreds of thousands of dollars in changing technology over the years to try and keep the environment safe and clean. I am not a unique individual in the dry cleaning community.

Now, in any community in any business there are going to be people who just disregard certain factors. And there are going to be a great many people who are very interested in running a proper operation. I think through sensationalism sometimes things get a little bit out of proportion.

We have had testimony here from certain individuals who I will not dispute whatsoever, because they do, it appears as if they do truly have problems in their own situations. I, myself, have built a couple of plants and in one location the Board of Health was called down five times. Five times, after the fifth time they realized that the odors that people were getting in an apartment in an adjacent apartment had nothing to do with my operation. They were coming from a sculpture manufacturing supply house where he was staining wooden bases without any ventilation whatsoever. And then he was shut down. But, it took me to find that out. Not the Board of Health.

We have met with government agencies before. There is a lot of technology and changes that have occurred within our industry over the last several years. The Dry Cleaners Association has committed itself to trying to not regulate, but work with the cleaners to maintain a safe environment for the last fifteen years. And long before government intervention.

Through Bill Seitz and other members of the association we have been continuing an on going communication program with government agencies to try and arrive at reasonable problem solving solutions to control what's been going on.

Some of the things that have been said here tonight unfortunately I haven't been here for all the testimony, but some of the things here tonight, especially from the people who have no technical background, are just speculations which may or may not be true. There should be certain investigations going on as to the validity of certain accusations.

There are other points that are being brought up in my mind and others as to the motivation of certain individuals who have called certain people for testimony here, but the politics of that I really don't think this is the forum for.

One of my locations--I am a working owner; I am not an individual who sits in an office at a different location and just counts his money and throw it in a safe, and laughs on his way home to greet his kids and you know, tell them that their college educations are secure. I work a 14-hour day, six days a week. I am involved hands on with my business and its operation as most dry cleaners do.

I have been inspected by the health department on several occasions. The union visits my shop on several occasions. And I have gotten a clean bill of health. I say, thank god, you know, the gentleman who here worked for me and he says that I was fine. Again, I am not a unique individual. And I am not tooting my horn.

I would say that there is a great portion of this industry that is truly concerned with doing the job right. And I think that it's important to say that here because if only the people who are testifying are showing everyone that we are a terrible industry and we are trying to kill the world, that's not the case.

In terms of reference to spotting agents that do not have odors. I would love to find them. Some of them do not have odors, but some of them do. In reference to the Ecoclean system.

The Ecoclean system itself the people who developed that system state that there are certain garments which still have to be dry cleaned and they send it to another location for dry cleaning. There is no alternative at this present time.

Chemical companies have been working on alternative dry cleaning solutions and they have not yet come up with something that is acceptable.

At this point in time I am open to any questions that you might have for me. I just came to plead my case as a dry cleaner who invested 90% of my life in the business and want to go on doing business as most other people, not to destroy the environment.

I was a teacher originally and as a teacher we were involved in the ecological programs. When I was in the army we developed an ecology program for recycling 20 years ago. So, I am all for it. I am willing to help. I want to help. I want to do the job right. But if technology isn't available to comply with certain requirements, I would like to know what the solution is.

To do away with an industry that there is a need for by just saying all right, that's it. Cut it out. The end. There are hundreds of thousands of people employed and I am not talking about just the owners, but there are pressers, spotters, delivery people, truck drivers. You name it all the way down the line. Who the financial ramifications could be catastrophic.

I have said my piece. Any questions?

MR. REINER: My name is Seymour Reiner. I am a past president of the Neighborhood Cleaners Association and I am a dry cleaner. I have been a dry cleaner and I am talking to the board now, not to the people outside, I have been a dry cleaner now for 45 years. My wife worked with for 18 years, and my son is with me for the last 8 years.

Perc is toxic. We know that and we try in our own way to take care of it. Many things that have come out about perc today we have known for years. But there was no regulations that said this is what you have to do. I was a spotter for 25 years on a transfer unit that the young man talked about. If headaches

would have been the case and the thing I would have had the headaches. And if nausea would have been the things I would have the nausea. And as Alan pointed out there are lousy operators in every business.

We get trucks that spew out carbon monoxide all over the city. You get cars and cabs that black smoke come out. These are the poor. These are not the general people who take care of what they have to take care of. We have 1,600 members in the City of New York, and if you have ten percent that have broken the law, go after this ten percent.

I am member of the union. My organization has been a member of the union for 30 years. Has the union ever come to me and said we have a record of people who worked for you and they have ended up because they have a plan. They have health plans. Have they ever come to you and said to me, that we have people who are getting the stuff, whatever that is in the throat, they are getting cancer of throat. Have they said that you had people come in and report that they fainted in your store? Yes, we have had spills. And we have barriers that we take the spills up with, and we throw them into the machine and we do whatever has to be done.

This is 95% of the cleaners in the City of New York. Yes, we have to have rules and regulations for that extra 5%, but make regulations and rules that we can live with. I have invested over $60,000 in the last five years to upgrade my equipment. And every time I have upgraded it, six months later they come out with something new. I computerized eight years ago and I have had four upgrades on the computer.

Let's come up with something that we can live with. Let's come up with numbers that can be worked with, with the industry, with people who really know what's going on. I have grandchildren. I don't want any water pollution with those grandchildren. And my own children the same thing. Water pollution to me is as important as anybody else. Give us something we can work with. The industry will develop the equipment to improve on these things.

I understand in Germany there is equipment today that takes care of most of the problems. We will cooperate. The cleaners who will cooperate will remain in business. The ones who don't want to cooperate throw them out.

MR. FRUMIN: Eric Frumin, ACTWU. Mr. Reiner, you were present, I think, earlier in the day when there was discussion about a study on dry cleaning workers. Did you hear any of that discussion?

MR. REINER: No.

MR. FRUMIN: Oh. Well, okay, then I shouldn't try to ask you about it. Thank you, anyway.

MR. LEE: My name is Mu Lim Lee, President of Korean Dry Cleaners Association of New York. Also I am a dry cleaner in New York City for the past ten years. My wife and me are healthy. Korean Dry Cleaner Association of New York was found in 1978. And currently there are approximately 1,800 members in New York metro area.

Speaking people, this public of the U.S. EPA I have mixed feeling in presenting Korean Dry Cleaner appeal; under; regulatory issues. Korean Dry Cleaner Association of New York has been always supporting of sound environmental regulation. Our member have been voluntarily replacing transfer machine with the state of art technology of refrigerated heat pump machine.

There are a lot of other regulation that dry cleaners have to comply with. Sometimes it is not even easy to know all the governmental regulations that we have to comply with. When we think of governmental regulation we are scared of and; by some over reacting government officer. New York Health Department officer locked up approximately 50 dry cleaning plants last year in the name of public health without any notice or warning.

This overaction has killed all of the dry cleaning industry in the name of public health in this country. I have been participating in the negotiated rule making process of New York State during the past six months. It is my experience we strongly oppose the concert of the negotiated rule making. Of

the twenty members of the negotiated rule making committee I am the only dry cleaner.

First of all, dry cleaners can not afford such luxury of time consuming process. Some members are professional negotiator. They do not care whether the process is productive or not. They are only concerned about creating work for themselves.

Some of the committee members do not have educate knowledge in dry cleaning. So, we had to educate them to negotiate with the process is very unproductive and expensive. As you may know, this country now is experiencing economic recession. Every business is not easy to survive. Almost all dry cleaner are small store owner of mom and pop. Governmental regulation should not destroy all of us.

Please don't forget that economic concern should be the central issue of environmental regulation. Thank you.

MS. WEBER: Just a clarification. I am sorry, but I wasn't sure whether I understood you to say did you say you oppose the idea of negotiated rule making or that you supported it? I understood the points you made about it being very time consuming and very burdensome and difficult to participate in. But, if there is to be a regulation would you prefer that they be negotiated rule makings as you are doing in New York or regulations done via occasional public meetings?

MR. YONG: Let me clarify for him. I am also from the same association. My name is Kim Si Yong. I was a former president of Korean Dry Cleaner Association and I happen to stay in this country much longer than him. By several times attended this negotiated meeting.

But as we discussed this, I understand, I know he is for it. But what he meant as I said is, as an individual member sometimes you have these inspections, but sometimes we have this inspection. Most of them have a language problem, culture barriers. As an individual they have a little problem representing themselves. But this rule making process, of course, he is not opposed to it.

We are very thankful for the opportunity, for our opinion we could express on our own. So, I myself want to tell you just one or two point on this particular thing. So, dry cleaning I worked in this dry cleaning business myself for about fifteen years. And of course, this we are going to inherit to our kids and grandchildren. So, we all know the importance of this environmental thing.

But at the same time dry cleaners we have the mom and pop and we don't have in-house engineers, nothing like that. So, all we ask for is we ask for something the regulation we could live with as this former president said. So, of course, in this country is a fully society, so the most important is try to enforce this sort of thing by education and enlightenment.

And all this in this, whenever we see it, we also talk among ourselves that we try to comply in the best we could in spite of a lot of times, sometimes I call my friend 8:30 they are asleep, because they are so tired of working at the store.

I would just like to add, just not a propaganda, but add one point is that during the last eight, nine years we collected around the Thanksgiving time uncollected clothing and we give it to the City of New York and the New York State and we were cited by the mayor and by the governor. So, we also try to do something for the community. It's not particularly that we are not against this community or nothing like that. We also try to do something for the community in which we live.

But, at the same time, this is my personal experience. A friend of mine in the Broadway he has like inspection by so many different agencies. Thank god by the dry cleaners standard he is well off. He has two stores. He could clean other place. Then we all scared. A lot of them, I have several friends who could not pay the rent for about three or four months and whatever happened if this thing happened to my friend who could not pay the rent. This thing happened to a friend who has two cleaner.

So, what we are saying is like instead of a lot of this inspections by several agencies, so many with different standard, we want a little more standardized and something out of

consideration for mom and pop who don't have enormous financial resources to comply with this. Bear in mind also consider the fact that we have very small resources. We try the best we could, but we go to the bank and they don't even let us, you know, loan the money to us.

So, all this consider the fact that we are in financial very tight situation right now, economy very bad. We all know this thing. So, what we ask for is we do the best we could, but we want to a law we could live with a very tight financial resources which is available to us.

Thank you very much.

MR. YONG: Excuse me. In answering your question, he oppose the negotiated rule making process.

MS. WEBER: He does oppose it?

MR. YONG: Oppose it, yes.

DR. SCHREIBER: Judy Schreiber from the New York State Department of Health. I would just like to make several points in response. One is that, you know, we do believe that dry cleaners can be good neighbors, but merely being a small business or a mom and pop facility with limited finances does not, should not, I don't believe, give you the right to contaminate the buildings where you operate. And certainly, I think that environmental regulations first and foremost is not to look out for the economic well being of the industry it's regulating, but to look out for the environmental and public health protection aspects of the law.

And that is what the EPA's charge is under the Clean Air Act is to provide a regulation which will control the emissions as they impact health and the environment, not as they impact the economic well being of the dry cleaning industry. And perhaps the EPA or other agencies can look to provide incentives or some money, or some sort of program to assist the dry cleaner to become a better neighbor. But I do not believe, I very strongly don't believe that merely being a small business should allow that business to pollute the environment where they operate and

certainly from a public health standpoint public health protection is where we should be looking.

MR. LEE: So far I understand that all regulation I read, I study. I attend the six months New York State committee. But, anything special financial program for dry cleaner, nothing financial program. We need the money now to comply with the regulation, you know. So, every regulation we read we have to adopt some option, some, you know, lot of option now. Many $10,000, about $20,000 we need money. But, so far nobody tell us special financial program.

If we go to bank very hard to get the money. That's what I am telling you.

MS. WEBER: Excuse me, if I could just make a couple of comments. We are now working with the small business administration and the banks they work with to change the lending criteria for small businesses in particular, because traditionally as many of you have noted pollution prevention investments are not qualifiers. If you have to buy a control, piece of control technology sometimes you can get a loan for that. But if you are trying to prevent pollution, trying to do something that is not explicitly required by law it has not been easy. In fact, it's been impossible to get loans normally.

We do have commitments from the new administration of the small business administration to work with us on doing that. We are also trying to work with the insurance industry and with the accounting profession to try to help in that way.

The other thing that is perhaps going to happen, there is an environmental technology initiative that has been funded by the current, in the current fiscal year, in the 1994 fiscal year. We do have limited funds available we hope. I did yesterday, and unfortunately sometimes when you get home, and the government they have taken your money.

But as of now, we expect that there will be opportunities for us to work with the dry cleaning industry as one of five industries that we expect to be working with to try to finance some of the performance testing and some of the validation of

various technologies through the national institute for standards in technology, manufacturing technology centers. And a number of other things in that area.

So, there is hope. It is not perhaps as much as you would need as fast as you would need, but we actually do have programs now that are being initiated that will provide some financial support for pollution prevention that was not available ever before to my knowledge.

DR. HWANG: My name is Dr. Dong Soo Hwang, technical advisor of Korean Cleaner Association of New York. And president of High Tech Engineering Corporate, New Jersey.

I am a licensed professional engineer in several states on the east coast. High Tech Engineering is a young but dynamic company specializing in environmental and engineering consulting for dry cleaners among other things.

I feel so much strange this evening speaking before; seeing some sort of a show but I am glad some people didn't bring people in from somewhere that out of malfunction and accuse perc for their malfunctioning. I understand that the purpose of this public meeting today is to get information on indoor air quality and under water quality related to dry cleaning operations.

However, first of all, I would like to suggest the federal Environmental Protection Agency to take a balanced approach in developing national emission standards for hazardous air pollutant. There are 190 HAPs, so there should be 190 NESHAPs not just for the perc, or just a few chemicals. However, I admire Fred Porter's attitude of, I will be listening as the people will be speaking to.

Your notice of this public meeting summarized the New York State Department of Health study on indoor air pollution. We have a lot of problem with this study. First of all, it should be noted that there are 102 dry cleaners in Albany, New York area but there only 6 dry cleaners with residences over that dry cleaning store. Of the six, some of them have same level of perc concentration as control; located at least a 100 meters away from each dry cleaning stores. But they say that dry cleaning stores

creates indoor air quality in the residence above the dry cleaning store.

It also should be noted that to discuss estimate of perc done by New York State Department of Health was not publicly debated. A couple of; New York State Health Department study do not; they are taking. However, for some reason New York State Department of Health has been refusing having public discussion of their study.

Therefore, I do not believe the study did not show evidence that; public health from dry cleaners, particularly in New York City is unique situation. It is so in the city. This type of local situation can be applied with the western or eastern countries. In the eastern state of the country the situation is quite different.

Therefore, more effective efforts should be devoted to get information on indoor air quality. In case of California where investigation program it should be noted, emphasized that ground water was the source of drinking water supply. When ground water is not a source of drinking supply there may not be any benefit of ground water quality to a few parts per billion range.

Some regulatory agencies require; small quantity of spills of hazardous chemicals. For example, New York City requires of over 1 pounds of PCE; this kind of; to determine the cause and effect of the spill before any attempt to; spill controls.

From the above remarks it is apparent there is a need to get information on PCE pollution from dry clean operations. The level of and the information is also evidenced in EPA's notice of this public meeting. Therefore, I would like to suggest a federally funded program for data collection; pollution and a; control measures. Because of the very nature of there being small business of dry cleaning such a federally funded program would be an excellent example of encouraging small business and small, and minority businesses.

I have been participating in New York State negotiated rule making process for the past six months. Based on this experience I do not support the concept of negotiated rule making. It is

simply too unproductive and too expensive. I would rather support the conventional rule making process of a public hearing, or the approach taken by California area. When they developed their control measures for PCE dry cleaning operations.

I heard that three out of four people that die from the cancer in their life time. For some reason they used a 100, used a few million and so if we use million figure 750,000 people would die from the cancer. And today we heard that one or two cancer deaths out of a million. So, 750,000 plus 1 would not make any difference as far as the cancer is concerned.

Thank you.

MS. WEBER: I apologize for asking the same question again. But you said that you do prefer the regular rule making?

DR. HWANG: Right.

MS. WEBER: With (interposing)

DR. HWANG: The conventional rule making with public (interposing)

MS. WEBER: Thank you.

DR. HWANG: Hearing, as opposed to negotiated rule making, because simply because this morning you heard that I don't intend to be personal but one lady came up here and explained the 1990 Clean Air Act Amendments which should be known. And in that type of approach it just end up wasting a lot of time.

DR. SCHREIBER: This is Judy Schreiber from the Health Department. I will just limit my remarks to the few mentions of the health department studies and the like. As we have discussed before I fully stand behind the results of our apartment study in the capital district referred to as the New York study as far as the methods that were used to come by the figures that we presented there.

And as you are very well aware, the health department is available to discuss its guideline in the neg/reg committee and in fact, the work group is going to be doing that. And we have been well aware of that. So, I think it doesn't prove any point to rehash that when we are in the process of the neg/reg where these topics will be taken up and discussed.

DR. HWANG: I am glad to hear that, but so far you haven't, resisting having public open discussion. That was my impression.

Is there a John Groveman? Yes.

MR. BENNETT: I am John Bennett and I'll be speaking on behalf of DEP tonight. I am Counsel for Federal Affairs for the New York City Department of Environmental Protection. And I am pleased to be here tonight to address the important issue of perchloroethylene emissions from dry cleaning facilities.

DEP plans to submit some more detailed comments for the record, so I'll keep my remarks pretty brief tonight and I just want to focus on two issues: indoor air pollution, and the disposal of waste water generated by the dry cleaning process.

In New York City, most dry cleaning facilities are located in mixed use buildings; buildings in which dry cleaning facilities are in reasonably close proximity to residential units. So far this year DEP has received approximately 70 complaints from residential tenants about odors emanated from nearby dry cleaning facilities. When these complaints were investigated by DEP and when PCE odors were detected by our investigators our enforcement agents issued notices of violation of the New York City air codes odor provision. And they then called the New York City Department of Health so that precise PCE measurements could be taken.

And it's our understanding from the Department of Health, the New York City Department of Health, that in a number of these instances PCE levels were found in the complainant's apartments in excess of the occupational safety and health administrations 25 part per million standard for worker safety in dry cleaning facilities.

Our experience here in New York City parallels data that's been collected by the state and referred to tonight. The 1991 joint study conducted by the State's Departments of Health, excuse me, well, Department of Health and Environmental Conservation. As has been noted already tonight found a correlation between the presence of dry cleaners in mix use

buildings and the presence of PCE emissions in neighboring apartments.

This study prompted DEC to convene the negotiated rule making that's been referred to already tonight and DEP is a member of the negotiating committee.

The state has proposed more stringent standards for facilities in mix use buildings than for stand alone facilities or facilities that are separate and apart from residential housing. Under the state's proposal, facilities in mix use buildings may be required to install equipment that is newer and more protective than the maximum available control technology EPA has proposed be installed in all new dry cleaning facilities.

We believe the state's proposal has merit and we recommend that EPA revisit this issue and ensure that any new regulatory scheme adequately protects those who are residing near dry cleaning facilities in mix use buildings. In order to help dry cleaners meet standards protective of public health, we strongly urge EPA to continue its search for financial assistance and also to be sure to provide adequate technical assistance to dry cleaners.

We believe that with the proper amount of guidance and economic assistance, the regulation of PCE will benefit both the public and the regulated community in the long run.

Finally, I would like to note that detections of PCE in New York City storm water has raised concerns that some dry cleaners are illegally discharging waste water containing PCE into the sewer system. Such discharges impair water quality, obviously, and impede the city's ability to meet state waste water treatment standards.

So, we urge EPA to consider this issue as well as it develops its regulatory program for PCE. And in closing I would just say that we applaud EPA for taking an important first step toward regulating PCE emissions, and we are optimistic that a fair and effective approach to the control of PCE can be achieved.

Thank you.

Mr. PORTER: You are submitting written comments?

MR. BENNETT: Yes.

MR. PORTER: You made the statement, I think, just before you concluded that dumping of PCE contaminated waste water in the sewers imperilled the city in meeting state water quality standards, or something of that nature.

When you prepare your written comments could you elaborate on that, expand on that, explain.

MR. BENNETT: Sure. Would be pleased to.

MR. SEITZ: A comment. Kind of a catch 22, but for a number of years now the question of waste water has been one of where in many cases the departments have suggested that that's the way you get rid of the water. Okay. And so, once again, you can't blame somebody who has gotten the advice of government for doing something for doing it. All right?

Now, the association, the Neighborhood Cleaners Association twelve years ago developed a system for removing or eliminating the dumping of water, of contact water that's been in use now as I say for twelve years. Okay. And so, here again is another instance of where the industry has attempted in good faith to find solutions. And to blame the industry for something that was done legally kind of misses the point.

Now, the problem of waste water has become serious. There has been a number of cases and I don't want, you know, the IFI had a case in Silver Springs where the water department was brought in as one of the guilty parties because of the way that was done. Okay.

In California, what's happened is they found that sewer pipes leak. Not only do they leak but they are meant to leak. Despite the fact that they were told to dispose of water in that way. And so, you know, let's get together and find solutions, but let's not beat the dry cleaner over the head for doing something that you recommended that they do.

MR. PORTER: I think they have started the party without us, Bill. In any event, no, don't get me wrong. I was only seeking and at this late hour was not asking the speaker to

amplify on his remarks, but if the speaker would explain in his written comments fully what he meant by that.

And tomorrow we are going to hear an awful lot about ground water. So, please don't infer anything at all from my question to the speaker.

Is there anyone else? Yes?

MS. PAVIS: From what I have learned, the New York State Department of Health has conducted studies of apartments above dry cleaners and every single one of those apartments has shown to be above the state guideline for 100 micrograms per cubic meter of perchloroethylene.

What I would like to know is given the fact that they also have state guidelines, the state has guidelines for toxic air contaminants which are supposed to be adhered to by the city at the very least. The city is free to, you know, enforce more stringent guidelines, but they have to abide by the state if I am understanding this correctly.

I would like to know why the New York City DEP with their what appears to be adequate staffing, much more adequate staffing than the New York City Health Department is not going in and inspecting every single dry cleaner in the city on a routine basis without having to rely on an archaic smell test, or a smell complaint from a person living above a dry cleaner. I mean, it's outrageous that people have to go through bureaucratic entanglements just to have their apartment inspected.

The cleaners themselves should be routinely inspected just as a matter of course and the apartments located above, if that's the case. And I don't know why that couldn't be carried out immediately.

MR. BENNETT: I don't necessarily, well, I just was going to say I don't necessarily disagree with the need for dry cleaners to be inspected routinely. But I think to suggest that that could somehow extend into people's private homes automatically without receiving some sort of complaint from private citizens would get us into an area where we are not traditionally (interposing)

MS. PAVIS: Well, I think if people were aware of the potential dangers they would be more than happy to open up their homes for inspection to eliminate the cause.

MR. BENNETT: And every time we get a complaint we respond promptly.

MS. PAVIS: But what I am saying is that you shouldn't have to receive a complaint. Because many people won't take the time to complain, or they are not aware of what the problem is. In fact, also from what I understand you can't always smell perchloroethylene even though it's damaging your health. It's not something that you can always smell. Only at certain levels above the state guideline can it be smelled at all.

MR. BENNETT: Thanks for your comment.

MS. PAVIS: Thank you.

MR. HODGE: Ray Hodge, NYCDEP. I just wanted to make the difference between the regulations for the state. We do our inspections through the regulations of the state. And they are only concerned with outdoor, not indoor. And that's the difference. And we do our inspections triennial, every three years we are, we go back to the same facility. And the state has every five years.

And right now the negotiating rule committee there are not any regulations yet on the maximum amount of perc that can be emitted and they are negotiating according to the state guidelines by the City Health Department, and the State Health Department. But we do frequently go back every three years and we are dealing with something with approximately 2,000 dry cleaner establishments every three years. But we do not go into the indoor. It's a State Health Department or the City Health Department do the indoor inspections.

(Whereupon the meeting was adjourned.)