

March 21, 1979

Testimony Presented to the House Sub-committee on Oversight & Investigations

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My name is Lois Gibbs and I am president of the Love Canal Homeowners Association (L.C.H.A.). The L.C.H.A. is a citizens group consisting of over 1,000 families representing more than 90% of the residents in the area. L.C.H.A. was formed to deal with the problem of living near the Love Canal chemical dumpsite. I became involved in this situation after discovering that toxic chemicals were buried two blocks from my home and that these chemicals could be aggravating my children's health problems, one of whom attended the 99th Street School located in the center of the dump. I started by canvassing the neighborhood to find if other residents had similar problems. I discovered that the majority of residents had what seemed to me an unusually high amount of illnesses. I then worked with residents to form an organization to identify their problems and to help them find solutions.

The L.C.H.A. was formed to voice the opinion of residents on the decisions made by State authorities which would affect our lives. We wanted to work with the Health Department in identifying problems and suggesting solutions to improve the neighborhood. This organization wanted to work with the different agencies by openly communicating and sharing information with them.

At the start I would like to say that upon learning of the situation at Love Canal, the State moved very quickly to begin health and environmental studies. They also put into effect a remedial construction plan which would attempt to reduce chemical migration from the canal.

Although there are many problems which I could discuss, I will limit my testimony to the experiences I have had dealing with the different State agencies involved at Love Canal. First I will discuss generally problems that have arisen. Then I will provide specific examples demonstrating the responsiveness of the State and finally, I will make several recommendations and suggestions which may help others who find themselves in similar circumstances.

As President and spokesperson for the L.C.H.A., I sit on the Love Canal Task Force and serve as a direct liaison between the members of the Task Force and the residents. Since June, 1978, I have taken an active concern in the chemical contamination problems in the neighborhood. I was responsible for the formation of the L.C.H.A. on August 4, 1978. On August 9, at the request of William Wilcox, Administrator, F.D.A.A., I attended a meeting in Washington, D. C. during which possible financial aid for Love Canal was discussed. Upon returning to Niagara Falls, I requested office space in the school building used as a coordinating center for all the government agencies involved in the remedial construction plan. By the 15th of August the association had set up an office to meet the needs of the residents. Since that time I have spent part of every day working with the various government agency representatives. I have had first-hand experience of the daily workings of the different state departments which include the Department of Health, Department of Environmental Conservation, Department of Transportation, the Red Cross, the Love Canal Task Force, the Niagara County Mental Crisis Center, the Office of Disaster Preparedness, Department of Social Services, and the Federal Disaster Assistance Administration.

I have met with local elected officials to discuss different measures which may be taken to provide assistance to the residents on the local, State, and Federal level. Several times I met with Governor Hugh Carey to discuss possible relocation of families, the proposed construction plan and, in general, the needs of the residents.

General Problems

(1) Problems of being a precedent

Probably the most difficult obstacle to relieving the problems at Love Canal has been "being the first". Neither the State nor the Federal agencies who could help were responsible for the situation. And neither wanted to take financial responsibility for cleaning it up. Arguing between State and Federal authorities over who should pay for what expenses has continued since the first discovery of contamination. In fact, the remedial work for the middle section of the canal which was supposed to start in mid-March has just been postponed until mid-summer. The reasons given are that the construction contract is going from emergency status to an open-bidding process and that the EPA, who was partially funding the work, refuses to review the construction plans until they know who is paying for what proportions. This is especially alarming since on Friday, March 9th, thick, black, oily leachate was found running off the north section of the canal onto the street and into the storm sewers. Remedial work on this section of the canal, which has not begun at all, must now await the decisions of the bureaucrats while residents remain in a contaminated area which is not being remedied.

(2) Lack of objectivity of the scientific studies underway

The State is conducting major studies to define the health problems and the chemical contamination in the area. The outcome of these studies will be the basis of any decision to relocate families because of chemical contamination resulting in health effects. Twice, it has been necessary to relocate people living in different areas around the canal. In each instance, the State had to absorb most of the cost to buy homes or temporarily relocate these families. However, many people with health problems remain, and many questions about the extent of contamination are still being resolved. Meanwhile, the State is conducting a scientific study, the results of which may end up costing the State many millions of dollars if the results indicate further contamination. This is especially alarming since continued announcements by State officials have been made that they do not intend to relocate any more families because of the lack of a cause and effect linkage between contamination from Love Canal and health effects found in the area. The political and bureaucratic pressures to be "absolutely certain" of the results place great constraints on the objectivity of the scientists working on these studies. The very nature of the uncertainties of determining or establishing the significance of low-level contamination to many chemicals preclude obvious conclusions of cause and effect. Therefore, the Health Department, in an obvious conflict of interest, must make subjective recommendations to the politicians who will decide what must be done. I want to stress that the objectivity necessary for good science would be near impossible in these circumstances.

(3) Lack of resources that the State and local authorities had at their disposal for handling an emergency situation of the magnitude of the Love Canal crisis.

The means and capabilities of the State and local resources were - and still are - simply not sufficient to protect the public health and welfare of the residents during such an emergency situation. In fact, the ability of a governmental body to react to public needs is limited by both the laws defining its responsibilities and the appropriations limiting its ability to function. For example, it was necessary to pass special legislation to give the Commissioner of Health authority and financing to investigate the problems and determine actions to solve them. \$500,000 was provided but it has been estimated that total costs will be at least \$22 million. The following comments provide examples of necessary actions taken by the State which are very much out of the ordinary:

1. Thousands of blood samples were taken from residents within a matter of a few weeks. The Department of Health does not as a general matter perform laboratory tests on people except for communicable diseases or reference work.

2. The large scale environmental sampling which was undertaken is not a matter of normal operating conditions especially testing for soil and sump contamination. The identification of unknown chemicals complicate this limitation even more. When dioxin, one of the most toxic chemicals known, was found in the canal, the State was not able to determine with any degree of certainty just what areas are contaminated with dioxin. This is because of the expense and difficulty in measuring this chemical.

3. Very little is known about low level contamination of many chemicals. The Health Department made its best estimate of what the levels found in the homes may suggest. However, the best minds in the country should have been called in to evaluate what these levels of contamination mean.

4. A large scale epidemiological effort was implemented to describe the nature of the health problems of the residents. This has only been duplicated in similar major disasters and is not part of the prior experience of the Health Department.

Although the State reacted to the circumstances as best they could, they were not able to provide the kinds of assistance needed in an emergency situation to protect the health of its residents.

(5) The lack of a single scientific director in charge of coordinating and organizing the epidemiological and environmental studies.

Because of the nature of the problems at Love Canal, it was necessary to bring together different professionals to determine how best to solve the problems. Appropriate State professionals were placed in charge of the individual studies; however, a scientific director was not selected to over-see the entire program. Such a director would ensure that similar goals were followed and that each study group received the advantage of the efforts of the other groups.

A political appointee is presently in charge. This is not surprising, since the State selected people from within their different departments. This has created a great many uncertainties as to who is in charge of what studies, who is doing what work, and who is responsible for planning and follow-up. This has made our communication with

the State especially difficult. The major problem that resulted was that no coordinated plan of action which could systematically define the problems and then select the best available solutions, was established. I certainly understand the constraints of urgency the authorities were under, but this offers little comfort.

(6) Insensitivity of State authorities.

In the situation where people are exposed to a threat, the magnitude of which no one understands, there are going to be many anxious moments. The residents have been very scared and emotional. And at first, the Health Department was unsure of how great a problem they were facing. Because they had never dealt with such an emergency crisis before, they had no easy method through which to communicate with the residents. Because of the fear of panic, the State did not know how far to involve the residents in the decisions and findings that were made. And officials often did not inspire confidence in the residents, which made matters worse. For example, prior to starting the remedial construction work on the south portion of the canal, I received a draft safety plan for the construction/. (see Exhibit 1A) Although it included precautions for the workers, no considerations were provided to protect residents from possible dangers as a result of the construction. I was told at the time that "a good on-site plan was a good off-site plan". Many of the chemicals in the canal were unknown as was the boundary of the canal. As a result, it was unclear if during construction the workers would disrupt barrels of chemicals. These uncertainties frightened the residents and we demanded a safety plan and an on-site monitor to help provide protection for the residents in the event of an accident. What resulted

was a meeting held by the Office of Disaster Preparedness during which a "total" safety plan was prepared and later presented to the residents at a public meeting. However, the confidence in this plan was greatly shaken by a statement made by a State spokesman who, when asked to comment on what he would do if toxic vapors were released through the neighborhood, replied: "I wouldn't wait for the bus, I'd run like hell".

Another problem was the flow of information to the residents. A lot of data and information was given to residents without any explanation of what the data meant. Air values of chemicals found in each home were given to the resident without any interpretation of what the values represented (Exhibit 1). A need to understand the significance of these values was a major concern of the people. Many residents were also given results of blood tests and liver function tests without any idea of the meaning of the results. In some instances, residents were asked to go for repeated tests without any explanation of why. With so many people afraid that their health was at risk, it would have greatly alleviated the fear of the unknown to have someone accessible to the residents who could answer their many questions. All that was really available was a "hot-line" to Albany.

There were also many instances where neither the residents nor our representatives were invited to meetings held by State officials during which decisions that were affecting the future of the residents were being decided. We were often told that we were not "professionals" and that we would disrupt the ability of people to speak freely. These closed-door meetings fostered mistrust, confusion and gossip about the concern of the Health Department for the residents. These feelings were

further perpetuated when information on the health and environmental studies was held back from the homeowners and our representatives. This situation has improved; although the homeowners association does not receive any routine communications from the State regarding the status of ongoing health and environmental studies. In fact, the only communications that I receive are to announce public meetings or in direct response to a memo or request that I have made. This general insensitivity has greatly polarized the homeowners from the State. It is unfortunate that this situation has developed because it could have been mostly avoided by better communication and the involvement of people who have had some experience working with people during difficult times.

B. SPECIFIC EXAMPLES

I would now like to provide several examples in detail which demonstrate the nature of the problems just described.

The "swale theory"

Upon describing the nature of the contamination in the area, State officials concerned themselves mostly with lateral migration directly into homes adjacent to the canal. This was perfectly appropriate as a first measure. However, after reviewing old photographs and consulting materials made available by the State (see Exhibit 2), it became apparent that the nature of the contamination might be greatly influenced by the presence of old stream beds or "swales" which existed during the period when the canal was still filled with water. Over the years these stream beds were filled with "fill material" such as garbage, stones, refuse, dirt, or just plain anything that people could find. I went to the

University of Buffalo and consulted with/a ^{Dr. Charles V. Ebert,} soils specialist who proved to be most helpful in describing and defining the location and characteristics of these stream beds. In mid-September I mentioned what I was finding to State authorities and they referred to my efforts as "useless housewife data". Working with Dr. Beverly Paigen, a cancer research scientist from Roswell Park Memorial Institute, I looked at the nature of the health effects found along the stream beds. The association between the health effects and the locations of the old streams was quite high, so I then looked at the available evidence on chemical contamination along the stream beds. This was not as convincing but a positive trend was evident. On November 1, 1978, Dr. Paigen and Steven Lester, a toxicologist who was hired by New York State to be our on-site monitor and scientific consultant, presented these findings to the Department of Health in Albany. The State representatives listened, then released a statement which read in part "that information presented by the homeowners' consultants was not gathered in a scientific fashion" and commented that they were not persuaded to draw any of the same conclusions.

This position was reaffirmed in statements made during a public meeting on November 22. However, on December 20 at a Task Force meeting, the State admitted that contamination was evident outside the first two rows of houses and that the stream beds may indeed represent an avenue of escape for chemicals from the canal. At a later Task Force meeting on February 6, 1979, Commissioner of Health Dr. David Axelrod praised the work of Dr. Paigen commenting that she was responsible for the finding of unusual health effects along the stream beds. Dr.

Axelrod then proceeded to recommend the temporary relocation of all pregnant women and children under two years of age who lived in a six block area because of the finding of "a small but significant increase in the risk of miscarriages and birth defects" (see Exhibit 3). It is striking that it was the homeowners with our limited resources and personnel - not the Health Department - who initiated these efforts to further define the extent of the health effects and chemical contamination resulting from Love Canal.

Miscarriage data

The evaluation of the miscarriage data was similarly handled by the State. Since many of the chemicals identified in the canal are toxic to the very young, miscarriages, birth defects, and crib deaths were one of the first indicators to be looked at. The State reviewed the data from their health survey and examined the number of miscarriages on a street by street basis. For the homes immediately adjacent to the canal, they found that the number of miscarriages in ring I was one and a half times what was expected from national averages. This was sufficient to warrant relocating the families in these homes. They then looked at each row of homes going away from the canal. On October 25, 1978 (see Exhibit 4), the Health Department made, in part, the following comments: "there is no evidence to date indicating that miscarriage rates among women in the reproductive age group who live between 93rd and 103rd Streets exceed expected levels" (also see Exhibit 5). Using an analysis prepared by our scientific consultants, a memo was given to the State Health Department on December 20, 1978, describing their analysis of the miscarriage rate which showed better than a two-fold increase in remaining homes. At this time the "swale theory" was no

longer a theory and it was becoming apparent that the extent of contamination was beyond the first few rows of houses. Again it was at the Task Force Meeting of February 8th that the State announced that the "incidence of miscarriage among women living in the former 'wet areas' between 97th and 103rd Streets and Colvin Boulevard and Frontier Avenue was about twice as high as that of residents of 'dry' areas in the same neighborhood and that of a control group in a similar study of miscarriage frequency in Toronto". (See Exhibit 3).

From the initial decision to relocate families in early August until early February, the State continuously denied that any evidence of health problems existed outside the first two rows of houses. Again, it was the homeowners with our limited resources and personnel who initiated these efforts to define the extent of the health effects in the area. With our consultants we analyzed the data and pointed out apparent patterns of disease to the Health Department.

Lack of sampling plans

As described earlier, no organized plan of action was apparent. Who was in charge, how plans were to be carried out, and what the justification was was not clear to us. For example, the soil sampling plan to define the extent of migration of chemicals was not defined until just recently. A memorandum dated September 25, 1978, (Exhibit 6) described the soil sampling plan to determine the extent of migration. No one authors this memo and no useful plan is suggested. On October 4, 1978, (Exhibit 7), another draft was released. In neither memo is there any description of where to sample or how many samples should be taken, yet 138 samples have been taken so far. Recently, however, a systematic sampling of all the houses in which air samples have been taken is being conducted.

Another example is the sampling of the air for chemicals. Because of the demand, air samples were at first taken only upon request. Later locations for air samples were recommended based on health effects.

The distribution of the health questionnaire and blood sampling was a somewhat different situation. For the first two rings of houses, two people went door to door handing out the questionnaire, answering any questions residents might have. They also took blood samples. However, when it became necessary to give out further questionnaires and take additional blood samples from other area residents, the situation changed. A general public announcement was made to come to the 99th Street School to have a blood sample taken (Exhibit 8). Hundreds of people showed up at the same time. The four technicians who were present were totally overwhelmed by the situation. No effort was made to separate the people waiting to have their blood drawn from those having it done. Screaming children coupled with high summer temperatures and overcrowding conditions resulted in an unnecessarily unbearable situation. To make matters worse, as people left they were given a health questionnaire and asked to fill it out. Few people cared at all about this questionnaire. A little planning and organization could have avoided this situation and provided better response to the questionnaire which many people just did not take the time to properly fill out.

All of these examples describe in part the difficulties I have experienced. I have tried to limit my comments because the stories could go on forever as even today is part of still another story. I will now finish my testimony by making several suggestions and recommendations. First of all it is apparent that a means for responding to environmental incidents such as Love Canal must be provided by the

Federal government. A group analogous to the infectious disease response unit of the Center for Disease Control should be set up to respond to environmental emergencies that require immediate action and special expertise. Specialists in the effects of chemicals on skin disease, kidney disorders, urinary infections, and so on could be alerted and called in as needed. This did not happen at Love Canal. We are the first but we are not likely to be the last. Something must be done.

Such an agency would provide an agency responsible to pick up the costs of the studies needed and possibly for the remedial construction. It would also provide a mechanism for ensuring that a State agency with limited resources would not be faced with the difficult task of responding to such an emergency. It would also ensure that an "outside" group of experts who would not be involved in the situation and who would have no real or vested interest in any outcome of the studies, would be involved. This outside group could thus conduct an objective scientific study of existing health problems.

If necessary a special "Blue Ribbon Panel" of experts could be collected and asked to further review the data. However, the identify of such an advisory group should be publicly announced and its findings and recommendations made available immediately if urgency is required. At Love Canal such a Blue Ribbon Panel has been involved but its members and recommendations have been kept secret. If urgency is not needed, then interim reports should be available as should minutes of the meetings. In either case, sufficient time should be provided for such a committee to properly complete its task.

We have made many requests for such an outside group to come to Love Canal and review the existing data or even conduct a new study

which would include a control population. No Federal agency has responded to our requests claiming they have no authority to do so.

Finally, I would like to say that we have faced many problems at Love Canal, some of which have been solved. Yet many others remain. I hope the Congressman and women who are here today have grasped a sense of the awfulness of our situation. Not only has our neighborhood become a test site for scientists but no authorities or agencies are willing to take a stand and help us. I ask that you do what you can for us and do what you must to prevent what has happened at Love Canal from ever happening again.