



# LOVE CAN ALL

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## **Fact Pack P001**

**Cover photo: Lois Gibbs and daughter Melissa 1979**

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## A HISTORY OF LOVE CANAL

The history of Love Canal began in 1892 when William T. Love proposed connecting the upper and lower Niagara River by digging a canal six to seven miles long. By doing this, Love hoped to harness the water of the upper Niagara River into a navigable channel, which would create a man-made waterfall with a 280-foot drop into the lower Niagara River, providing cheap power.

However, the country fell into an economic depression and financial backing for the project slipped away. Love then abandoned the project, leaving behind a partially dug section of the canal, sixty feet wide and three thousand feet long. In 1920, the land was sold at public auction and became a municipal and chemical disposal site until 1953. The principal company that dumped waste in the canal was Hooker Chemical Corporation, a subsidiary of Occidental Petroleum. The City of Niagara and the United States Army used the site as well, with the city dumping garbage and the Army possibly dumping parts of the Manhattan Project and other chemical warfare material.

In 1953, after filling the canal and covering it with dirt, Hooker sold the land to the Board of Education for one dollar. Hooker included in the deed transfer a “warning” of the chemical wastes buried on the property and a disclaimer absolving Hooker of any future liability.

Perhaps because they didn’t understand the potential risks associated with Hooker’s chemical wastes, the Board of Education began in 1954 to construct an elementary school on the canal property. The 99th Street School was completed by 1955, opening its doors to about 400 students each year.

Homebuilding around the old canal also began in the 1950’s. However, homeowners were never given any warning or information that would indicate that the property was located near a chemical waste dump. Most families who moved into the area were unaware of the old landfill and its poisons. The one-time canal looked very innocent, like any field anywhere. It certainly did not appear to be a chemical dump with 20,000 tons of toxic wastes buried beneath it.

In 1978, there were approximately 800 private single-family homes and 240 low-income apartments built around the canal. The elementary school was located near the center of the landfill. The Niagara River, to the south and a creek to the north of the landfill formed natural boundaries for the area affected by the migrating chemicals.

From the late 1950’s through the 1970’s, people repeatedly complained of odors and substances surfacing near or in their yards and on the school playground. The city, responding to these complaints, visited the area and covered the “substances” with dirt or clay.

After years of complaints, the city and county hired a consultant to investigate. In 1976, the Calspan Corporation completed a study of the canal area and found toxic chemical residues in the air and sump pumps of a high percentage of homes at the southern end of the canal. They also found drums just beneath or on the surface, and high levels of PCB’s in the storm sewer system. Calspan recommended that the canal be covered with clay, home sump pumps be sealed off and a tile drainage system be installed to control the migration of wastes.

However, nothing was done by the city with the exception of placing window fans in a few homes found to contain high levels of chemical residues.

In March of 1978, the New York State Department of Health (NYSDOH) began collecting air and soil tests in basements and conducting a health study of the 239 families that immediately encircled the canal. The Health Department found an increase in reproductive problems among women and high levels of chemical contaminants in soil and air.

### **Love Canal Homeowners Association**

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Love Canal Homeowners Association (LCHA) was established in August of 1978 to give the community a voice in the decisions made during the Love Canal environmental crisis. LCHA membership consisted of approximately 500 families living within a 10-block area surrounding the Love Canal landfill. The community consisted of blue-collar workers with an average annual income of \$10,000-\$25,000. The majority of people worked in local industries which were largely chemical.

The Love Canal Homeowners Association grew out of another group established in June 1978, the Love Canal Parents Movement. The Parents Movement was started by Lois Gibbs, who lived in the neighborhood and whose children attended the 99th Street School. Ms. Gibbs, unaware of the dump, was alerted first by newspaper articles describing the landfill, its wastes, and proximity to the 99th Street School. Having a small sickly child

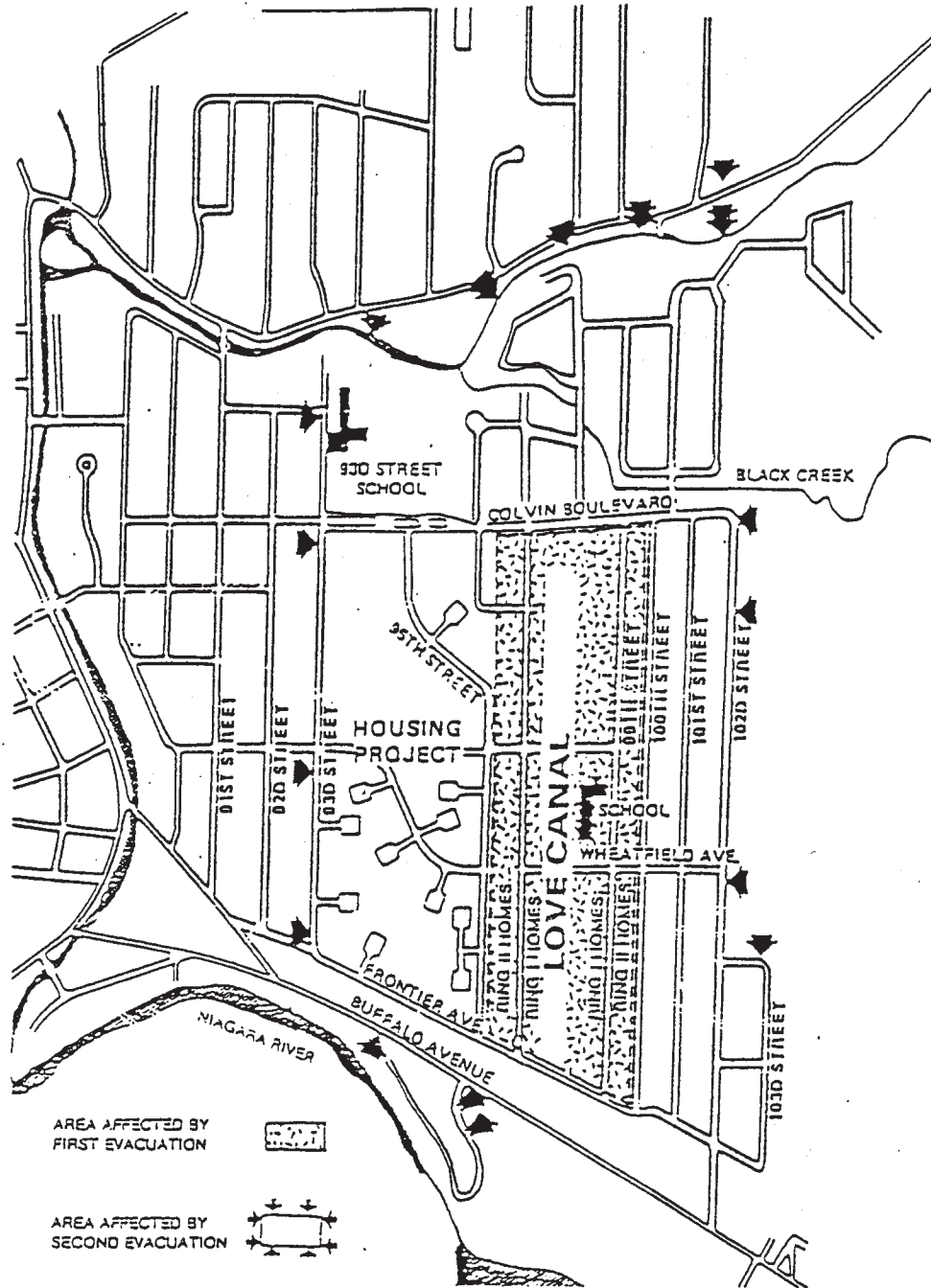
attending the school, Gibbs became very concerned about the danger the landfill posed to the school. She also realized that the school being built so close to the landfill might have something to do with her son's poor health.

Gibbs first approached the School Board armed with notes from two physicians recommending the transfer of her child to another public school. But the Board refused to transfer her child stating that if it was unsafe for her son, then it would be unsafe for all children and they were not going to close the school because of one concerned mother with a sickly child. Gibbs was angered and began talking with other parents in the neighborhood to see if they were having problems with their children's health. After speaking with hundreds of people, she realized that the entire community was affected.

On August 2, 1978, the New York State Department of Health (NYSDOH) issued a health order. The health order recommended that the 99th Street School be closed (a victory), that pregnant women and children under the age of two be evacuated, that residents not eat out of their home gardens and that they spend limited time in their basements. A few days later, the state agreed to purchase all 239 homes in the first two rings of homes closest to the canal.

These unprecedented actions served to bring the residents together to form a strong united citizens organization, and served as the stepping stone to the establishment of the Love Canal Homeowners Association. Within a week of the health order, the residents held a public meeting, elected officers and set goals for the newly formed organization. All goals set at that time were ultimately reached.

**The Love Canal and the Surrounding Neighborhood**

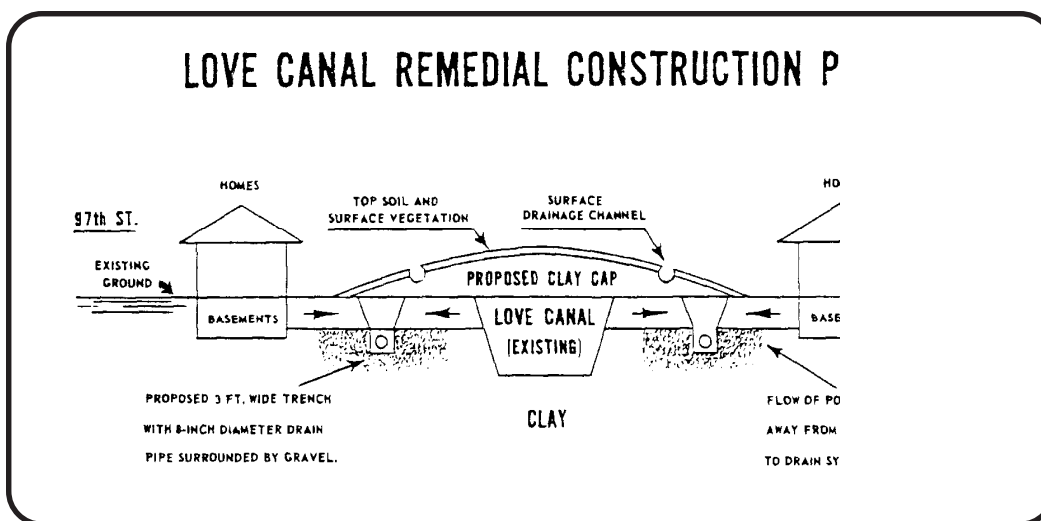


## A Summary of Events

At the time of the first evacuation order in August of 1978, the state established the Love Canal Interagency Task Force to coordinate the many activities undertaken at the canal. The task force had three major responsibilities: the relocation of evacuated families, the continuation of health and environmental studies and the construction of a drainage system to prevent further migration of toxic chemicals.

that crossed the canal and underground sand layers that carried this overflow into the basements of adjacent homes and throughout the community.

The cleanup plan consisted of a tile drain collection system designed to “contain” the waste and prevent any outward migration of chemical leachate. A graded trench system was dug around the canal to intercept migrating leachate and create a barrier drain system. The containment system is shown below.



## Remedial Construction

A cross-sectional diagram of the Love Canal landfill is shown below. Because of the close proximity to the Niagara River, the water table in the canal would rise and fall substantially. As this occurred, water would mix with chemicals in the landfill and move out into the community as “leachate.” As the water table rose, so did the leachate which moved out through the topsoil to homes built nearby. There was also an old stream bed

The leachate collected from the drain system is pumped to an on-site treatment plant that uses a series of filters, most importantly, activated charcoal, to remove chemicals from the waste stream. The remaining “clean” water is then flushed down the sanitary sewer system. Chemicals such as mercury and other heavy metals are not removed by this treatment system.

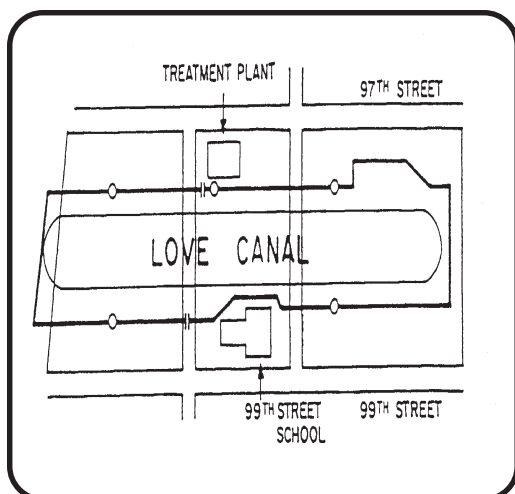
A clay cap was placed over the canal as a cover to minimize rainwater entering the



canal surface, to prevent chemicals from vaporizing into the air and to prevent direct contact with contaminated soil. The 20,000 tons of wastes are still buried in the center of this community.

Although this system cost the state millions of dollars, a monitoring system to determine its effectiveness was not established until 5 years had passed.

Thus, there was no baseline data on contaminant levels in the groundwater. Once the state began to monitor the wells, they did find chemicals leaking into the river. This was not surprising since there was no bottom to the “containment” system. Other data indicated that some contaminants were increasing in the monitoring wells outside the canal. The state ignored these data and pointed to other data that indicated that the system was working.



### Outside the Fence

Once the state had evacuated 239 families and began the cleanup, they arbitrarily defined the affected area and erected a 10-foot fence around the evacuated area. This decision was arbitrary because at the time nobody knew how far the chemicals had gone or how many people were affected. At this same time, the state began to make public statements that there was no evidence of abnormal health problems outside the fenced area. Consequently, the families in the outer community became angry and began to look at the fence as though it fenced them in. The residents knew there were health problems outside the first 239 homes because of a health survey that LCHA had conducted.

The community quickly began to express their anger and concerns. Even quiet and retiring residents suddenly found themselves raising their voices in public protest. The protests included mothers and fathers with their babies and seniors who were ready for retirement. They marched into the streets on Mother's Day, carried symbolic coffins to the state capitol, and held prayer vigils.

The residents also picketed at the canal every day for weeks in the dead of winter, hoping someone would hear them and someone would help. Their children were sick, their homes were worthless and they were innocent victims.

Because of the pressure created by the protests and the persistence of the community, the state was forced to address the community's concerns. They gave the residents “concessions” such as an extensive safety plan, a scientist-consultant of their

choosing whose salary was paid by the state, and a \$200,000 Human Services Fund to pay some of the residents' medical expenses. But, residents did not want concessions. They wanted and needed to be evacuated as the first 239 families were.

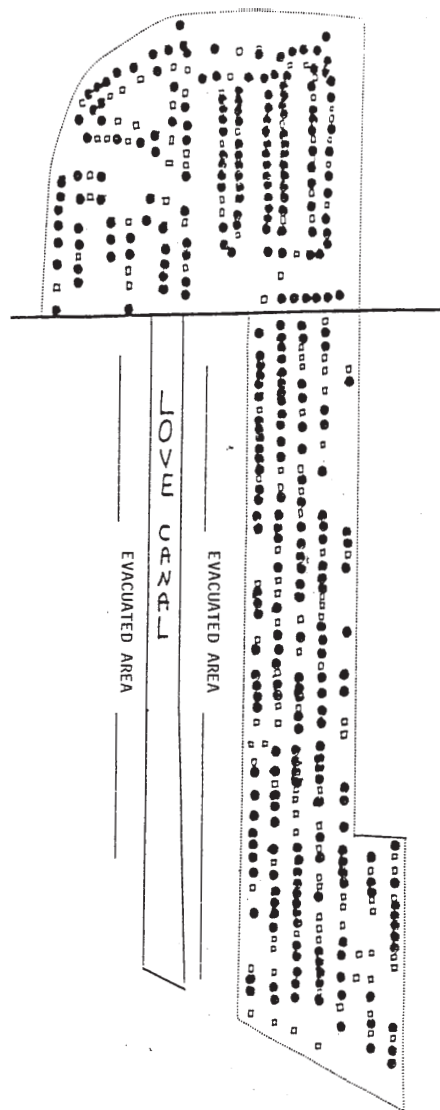
Thus, the results were an underestimate of the total health damages in the community. The study was completed in February, 1979.

### Community Health Studies

With the help of a dedicated volunteer scientist, LCHA began to interview families. Once the data was collected, they plotted the results on a map and immediately noticed a clustering of diseases in certain areas of the neighborhood. Elderly residents suggested that the clusters seemed to follow the path of old stream beds that had crossed the canal many years ago. LCHA looked at old aerial photographs, geological survey maps and personal photographs that residents brought forth. One of these photographs showed an old stream bed which appeared to be 10-feet deep and more than 20-feet wide. These stream beds crossed the canal carrying water to and from the Niagara River. When the area was developed, the stream beds were filled with dirt and building rubble through which water flowed easily. Even though there was no surface evidence of these stream beds, they provided an easy pathway for chemicals to flow out of the canal.

The scientist who helped the residents with their health study was Dr. Beverly Paigen, a cancer research scientist at Roswell Memorial Institute in Buffalo, New York. The data was collected by interviewing each family using a questionnaire. More than 75% of the homes outside the fenced area were included in the study. The 239 families who lived closest to the canal were not included because they were already evacuated.

### Study Area



## Findings

The LCHA's study found increases in miscarriages, still births, crib deaths, nervous breakdowns, hyperactivity, epilepsy, and urinary tract disorders. Each of these disorders were plotted on a map using dots to represent each case. Many of the dots clustered around the old stream beds or "historically wet" areas. On the following maps, homes and streets have been removed so that no family would be identified. The "wiggly" lines are the underground streambeds and the closed shapes are the ponds or wet areas.

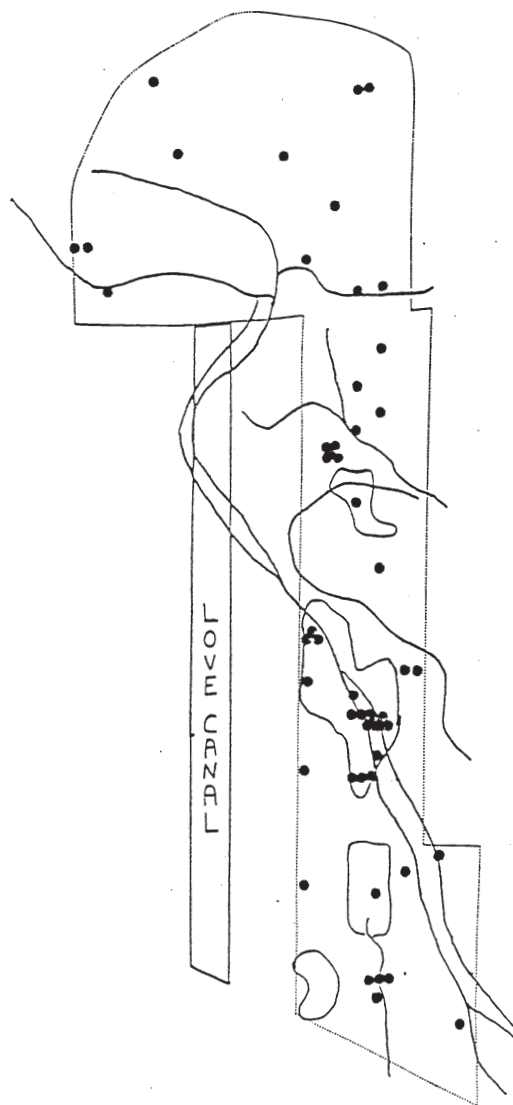
### Miscarriages & Crib Deaths

The first map (Map 1) shows the miscarriages that occurred at Love Canal. Each black dot represents one miscarriage. As can be seen, the families located in the ponded area had multiple miscarriages. Also, the majority of these miscarriages occurred on or near a "wet" area.

When the observed miscarriages were compared to the number of miscarriages that occurred in the same women before they moved to the Love Canal, miscarriages were found to have increased 300%. Most of these miscarriages occurred in women who lived in the historically wet areas.

LCHA also examined the pregnancies that occurred between January 1979 and February 1980, the construction period. This study found that out of 22 pregnancies occurring among Love Canal women, only four normal babies were born. The rest of the pregnancies ended in a miscarriage, stillbirth or a birth-defected child.

**Map 1**



**MISCARRIAGES AND CRIB DEATHS**

	Pregnancies	Miscarriages	Percentage
Before moving to Love Canal	714	61	8.5%
After moving to Love Canal	155	39	25.2%

**Relative Risk = 3.0**

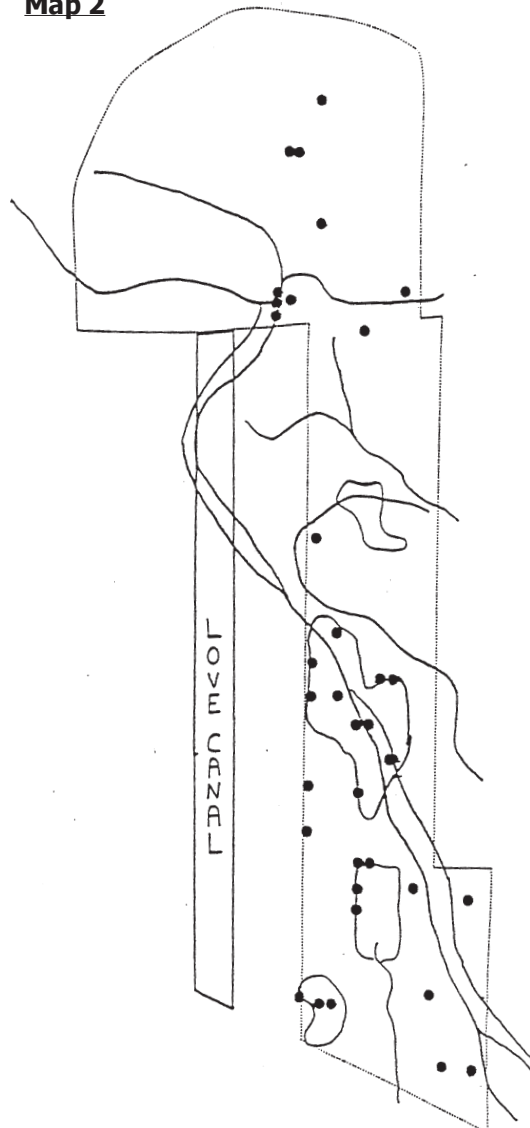
**Birth Defects**

The LCHA also investigated the number of birth defects in the Love Canal community. Map 2 shows the homes where birth defects were found.

When comparing the number of birth defects in historically wet areas with homes outside these areas, there were almost three times as many birth defects.

Importantly, no birth defects were found in homes located on the stream bed that did not cross the canal. The study also showed that during the 5-year period from 1974 to 1978, 56% of the children in the Love Canal neighborhood were born with a birth defect (9 birth defects among 16 children born) that included three ears, double row of teeth, and mental retardation.

**Map 2**



**Birth Defects in Children Born During 1974-1978 in Wet Areas**

Children born	16
No. of Birth Defects	9
<b>Percentage</b>	<b>56%</b>

**Nervous Breakdowns**

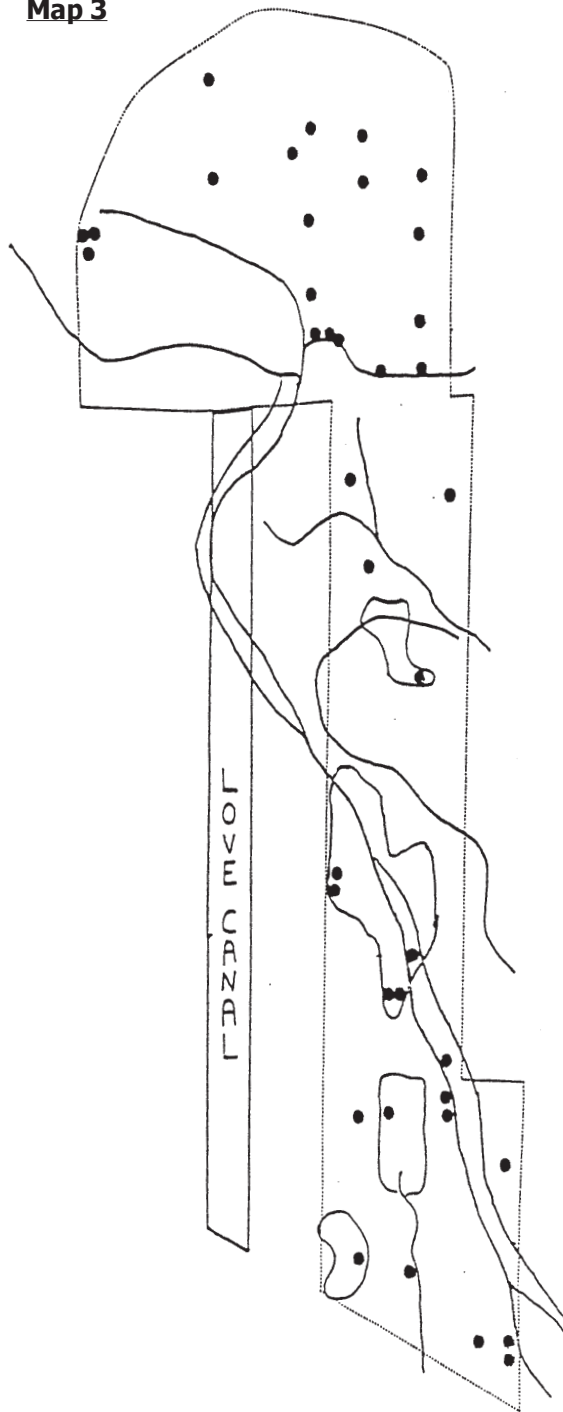
Another condition that was increased in Love Canal residents was nervous breakdowns including suicide attempts and admissions to a mental hospital. The table below shows that people living in historically wet areas were six times more likely to have nervous breakdowns as those living in dry areas.

The black dots shown on Map 3 represent either a nervous breakdown, suicide attempt, or an admission to a mental hospital. No one was included that reported only a 'nervous condition'.

<b>NERVOUS BREAKDOWNS</b>			
<b>Living in</b>	<b>Adults</b>	<b>Break-downs</b>	<b>%</b>
Wet Areas	149	13	8.7
Dry Areas (south section)	226	5	2.2
Dry Areas (north section)	286	2	0.7

**Relative Risk = 6.3 wet vs. all dry areas**

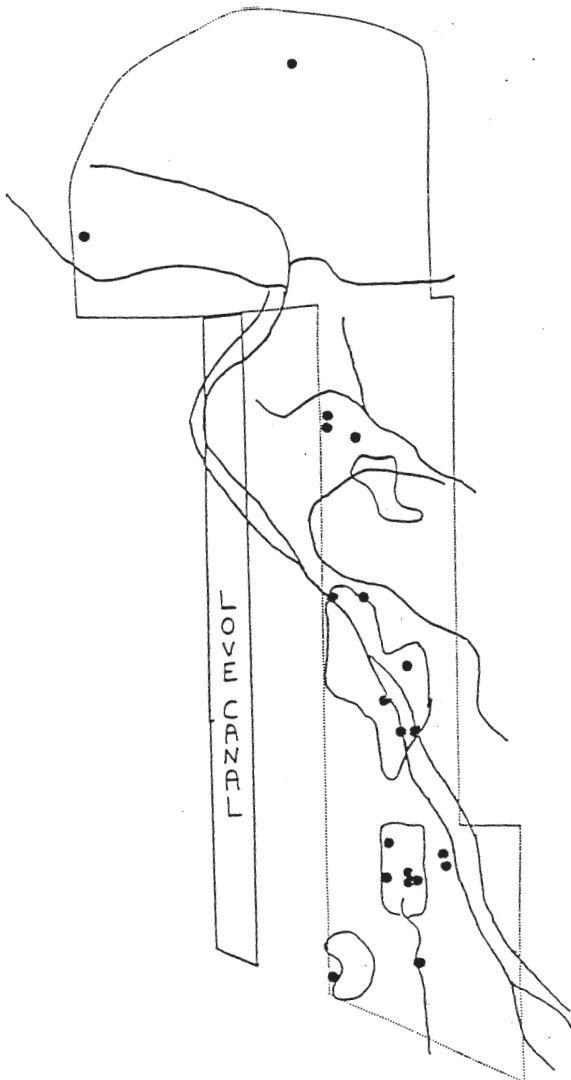
**Map 3**



**Kidney and Urinary Systems**

Many of the chemicals in Love Canal are also known to affect the kidneys and the urinary system. Map 4 and the table show an increase of almost 300% in urinary tract disorders. LCHA found a great number of the canal children to have urinary tract disorders. The study showed more disease on the streambeds that intercepted the canal when compared to the streambed that did not cross the canal.

**Map 4**



<b>URINARY TRACT DISORDERS</b>			
	<b>People</b>	<b>Urinary Tract Disorders</b>	<b>%</b>
Living in Wet Areas	314	22	7.0
Living in Dry Areas	826	21	2.5
<b>Relative Risk = 2.8</b>			

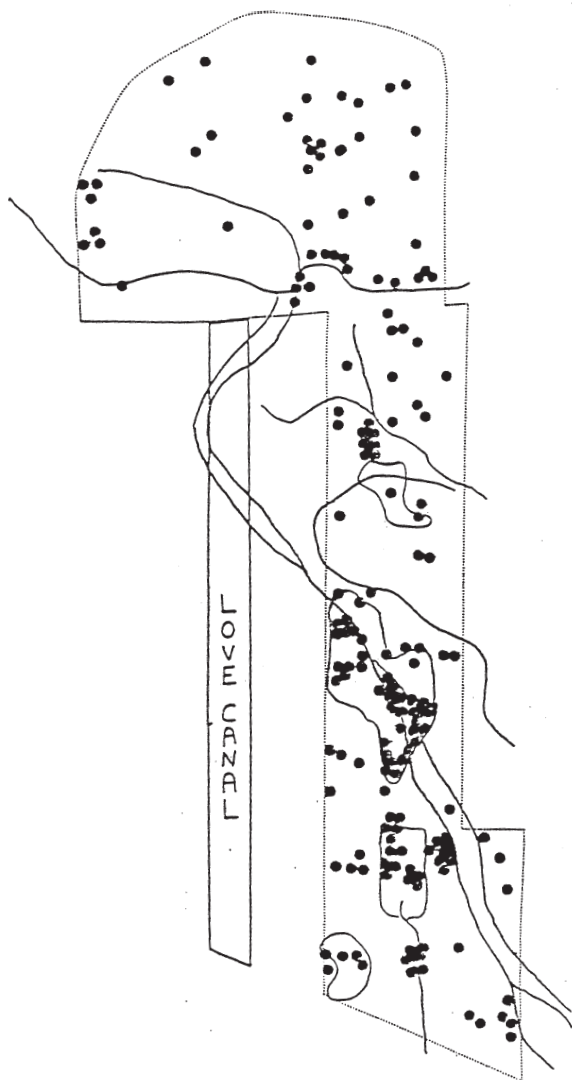
**Combined Health Disorders**

Map 5 shows all the diseases combined. Remember that this data represents an underestimate of the health damages at Love Canal, since it does not include the 239 families who received the highest exposures and who were evacuated.

LCHA presented these findings to the state health authorities who quickly dismissed the study calling it “useless housewife data,” saying residents’ illnesses were all in their heads, the birth defects were genetic, and the urinary disease the result of sexual activity (in a five-year-old boy??).

So, the community went back to the streets and explained their problems to the public in order to gain the public support needed. Thousands of people soon began to write letters and send telegrams to the Governor, to legislators and to the President of our country. Residents created so much pressure and public outcry that the health authorities were forced to investigate their claims.

**Map 5**



On February 8, 1979, after the health department looked at the reproductive problems in the outer community, they confirmed the homeowners' findings and issued a second evacuation order for pregnant women and children under the age of two. This evacuation was a step in the right direction, but it was still not enough. It was not until October of 1980 that a total evacuation of the community was ordered by President Jimmy Carter. Everyone who lived at the Love Canal had the option of moving away, with the government purchasing their homes at fair market value.

It is unfortunate that everything done at Love Canal, from the health studies to evacuation, was done for political reasons. None of the decisions were based on scientific evidence. LCHA truly believes that if it had not been for the large, strong citizen organization, families would still be living at Love Canal with the health authorities saying there were no health problems.

For these same reasons, in September, 1988, portions of the Love Canal area were declared "habitable," by the NY State Department of Health. But the state never declared that these areas were "safe." The 239 homes closest to the canal have been demolished and the remaining homes may be sold to new families. The homes that will be reinhabited are still contaminated, still unsafe. There have been no cleanup measures taken around the homes, which were found to have several toxic chemicals in their yards. Only the creek and sewer systems were cleaned.

## Center for Health, Environment and Justice

In the case of Love Canal, history will most likely repeat itself. The deeds contain a clause stating that if the new owners become sick, harmed, or die due to the Love Canal wastes, the city, state or federal governments will not be responsible. This clause is similar to the “Hooker Clause” in the earlier land transfer in 1950.

In conclusion, it is important to add that canal families didn't know that they were being exposed to poisonous chemicals, nor were they aware that chemical wastes were being dumped in our rivers, soil, and air. Love Canal awoke a community to the unpleasant and unfortunate realization of how toxic wastes affect our lives, and destroy our environment. Residents at Love Canal always believed that the government would automatically protect them. They were wrong; in some cases dead wrong!

Residents learned at Love Canal that even low levels of chemical exposure have an effect on the human body, and that the government will protect you from this only when you force them to. If you think you're safe, think again. We can count only on ourselves to safeguard our families' health through vigilance, knowledge and collective action.



## Key Dates and Events at Love Canal

**April, 1978** - Niagara Gazette Newspaper reporter Michael Brown writes a series on hazardous waste problems in Niagara Falls, NY including the Love Canal dumpsite.

**April, 1978** - Residents of area, become concerned about health risks from Love Canal after reading Brown's articles and called local and state health authorities for answers.

**April 25, 1978** - New York State Health Commissioner, confirms that a public health hazard exists in the Love Canal community. Commissioner orders the Niagara County Health Department to remove exposed chemicals from the site and install a fence around the area.

**April, 1978** - Lois Gibbs, resident and mother of two children, begins to canvass the neighborhood with a petition to close the 99th Street School located near the center of the dumpsite. Gibbs' five year old son attended kindergarten in that school.

**May 19, 1978** - New York State Health Department meets with residents for the first time to explain potential hazards of exposure to toxic chemicals in and around homes.

**August 2, 1978** - A small group of residents drives to Albany, NY to present their petition to close the 99th Street School to the NYS Health Department.

**August 2, 1978** - The New York State Commissioner of Health declares a State of Emergency at Love Canal and orders the 99th Street School closed and a clean up plan to be undertaken immediately. He also recommends that pregnant women and children under two who live in the area immediately surrounding the Love Canal landfill should move.

**August 7, 1978** - The President of the United States declares the Love Canal neighborhood an emergency and provides funds to permanently relocate the 239 families who live in the first two rows of homes that encircled the landfill site. Families that lived in the remaining 10-block area, including Lois Gibbs' family, were told they were not at risk.

**February 8, 1979** - A second evacuation order was issued by the New York State Department of Health. This order recommended that pregnant women and children under the age of two who lived in the 10 block area outside the first evacuation zone of 239 homes should leave. In this case, once the child turned two years of age or the pregnancy terminated, the family was to move back into the contaminated neighborhood.

**September 8, 1979** - 300 additional families who lived within the 10 block neighborhood were temporarily relocated as a result of health problems caused by chemical exposures from the clean up activities.

**May 17, 1980** - Environmental Protection Agency (EPA) announces the result of blood tests that showed chromosome damage in Love Canal residents. Residents were told that this meant they were at increased risk of cancer, reproductive problems and genetic damage.

## Center for Health, Environment and Justice

**May 19, 1980** - Love Canal residents, frightened by the news of chromosome damage and angered by the lack of government action to relocate their families from the serious public health risks of living near Love Canal, “detained” (held hostage) two Environmental Protection Agency representatives. Love Canal families challenged the White House to relocate all families by Wednesday (May 21<sup>st</sup>) at noon or “What we’ve done here today, will look like a Sesame Street picnic compared to what we’ll do then,” said Lois Gibbs, President of the Love Canal Homeowners Association.

**May 21, 1980** - White House agrees to evacuate all Love Canal families temporarily until permanent relocation funds could be secured.

**October 1, 1980** - President Carter visits Niagara Falls signs the appropriation bill that provided the funding for permanent relocation for all 900 families who wished to leave.

**December 20, 1983** - Lawsuit filed by 1328 Love Canal residents was settled for just under \$20 million dollars with Occidental Chemical Corporation, a subsidiary of Occidental Petroleum. One million dollars was set aside for a Medical Trust Fund.

**September 1988** - New York State Department of Health (NYSDOH) completes a five year Habitability Study and concludes that portions of the Love Canal neighborhood were “as habitable as other areas of Niagara Falls.” NYSDOH refused to declare these areas safe.

**September 15, 1989** - People from across the country joins former Love Canal residents in Albany, New York at the capitol, to protest the decision to move new families back into the Canal.

**January 19, 1990** - Lois Gibbs and others meet with E.P.A. Administrator William Reilly in an attempt to block the resettlement of the northern portion of Love Canal.

**April 1, 1990** - Community leaders from across the state and nation came together with the one-time residents of Love Canal and held a major rally in Niagara Falls to protest the resettlement.

**August 15, 1990** - Love Canal Revitalization Agency renames a portion of Love Canal, Black Creek Village, and announces that 9 homes were available for sale to the general public.

**November 28, 1990** - The first new family moves into Love Canal, but further efforts to sell homes moved slowly. Regional banks were unwilling to accept mortgages for Love Canal homes.

**April, 1992** - Federal Housing Administration agrees to provide mortgage insurance to families who wished to purchase Love Canal homes.

**September, 1992** - the 93rd Street School building was demolished.

**June 22, 1994** - Occidental Petroleum agrees to pay \$98 million to cover New York State's cleanup costs.

**January 5, 1995** - Occidental Chemical, a subsidiary of Occidental Petroleum, takes over full operations and maintenance of the chemical waste treatment plant at Love Canal.

**December 22, 1995** - Occidental Petroleum agrees to pay \$129 million to cover the federal government's cleanup costs at Love Canal.

**August, 1997** - The New York State Department of Health, was awarded a \$3 million federal grant to conduct a follow-up health study of the families who lived near Love Canal before 1979.

**July 24, 1998--** Congressman John J. LaFalce (D-Tn. of Tonawanda) announces that the Environmental Protection Agency (EPA) has agreed to request the City of Niagara Falls that the agency demolish the 63 remaining homes in the portion of the Love Canal Emergency Declaration Area (EDA) deemed unsuitable for residential use.

**August, 1998** - A playground was built on the southern section (not habitable) section area of the neighborhood.



## LOIS MARIE GIBBS



In the spring of 1978, a 27 year-old housewife named Lois Gibbs discovered that her child was attending an elementary school built on top of a 20,000 ton

toxic-chemical dump in Niagara Falls, New York. Out of desperation, she organized her neighbors into the Love Canal Homeowners Association and struggled more than 2 years for relocation. Opposing the group's efforts, though, were the chemical manufacturer, Occidental Petroleum, local, state and federal government officials who insisted that the leaking toxic chemicals, including dioxin, the most toxic chemical known to man, was not the cause of high rates of birth defects, miscarriages, cancers and other health problems. Finally, in October 1980, President Jimmy Carter delivered an Emergency Declaration, which moved 900 families from this hazardous area and signified the major victory for the grassroots environmental movement.

Once families were relocated from Love Canal, Lois's life was changed forever. During the crisis, she received numerous calls from people across the country who were experiencing similar problems. This revealed to her that the problem of toxic waste went far beyond her own backyard. She became determined to support these grassroots efforts.

In 1981, now a single parent, with two children and \$10,000, Lois left Niagara Falls for the Washington, DC area to establish a national organization to help families living near other Love Canal-like sites. Many doubted her ambitious goal to guild a movement – even her mother told her as she drove away “you’re forgetting you’re just a house wife with a high school education”. Lois knew she was no longer the innocent housewife of the past – but had become a sophisticated advocate of human rights and justice.

In 1981, Lois created the Center for Health, Environment and Justice, (CHEJ) (formerly Citizens Clearinghouse For Hazardous Wastes), an organization that has assisted over 8,000 grassroots groups with organizing, technical, and general information nationwide.

Today, Lois serves as Executive Director of CHEJ and speaks with communities nationwide and internationally about dioxin and hazardous waste pollution. As the author of [Love Canal The Story Continues](#), published in 1998, Lois brings the Love Canal story up to date and discusses the issues society faces today with chemical exposures. Lois along with a network of grassroots groups have initiated the Stop Dioxin Exposure Campaign and published [Dying from Dioxin](#) in 1995, to support local groups with the goal of eliminating the sources of dioxin exposure, a chemical she feared most at Love Canal.

## Center for Health, Environment and Justice

Lois has been recognized extensively for her critical role in the grassroots environmental justice movement. She has spoken at numerous conferences and has been featured in hundreds of newspaper articles, magazine, and textbooks. Lois has appeared on many television and radio shows including 60 Minutes, 20/20, Oprah Winfrey, Good Morning America, The Morning Show and the Today Show. CBS produced a 2 hour prime-time movie about Lois's life entitled "*Lois Gibbs: The Love Canal Story*" starring Marsha Mason.

Among the many awards she has received include the 1990 Goldman Environmental Prize, Outside Magazine's "Top Ten Who Made A Difference Honor Roll," in 1991, the 1998 Heinz Award, and the 1999 John Gardner Leadership Award from the Independent Sector. She has received an honorary Ph.D. from the State University of New York (SUNY), Cortland College. She also sits on numerous Boards and Advisory Committees. She lives in Virginia with her husband and 4 children.

## **Formation of Center For Health, Environment and Justice**

Since Love Canal, Ms. Gibbs founded the Center for Health, Environment and Justice (CHEJ) (formerly the Citizens Clearinghouse for Hazardous Waste - CCHW) in 1981 to empower local groups to protect their communities from public health threats posed by environmental contamination. She started CHEJ because she was contacted by hundreds of people seeking help with their hazardous waste problems. As Director, she has traveled extensively across the country working with citizens and she quickly found that, although Love Canal is the most famous, it is not the only serious problem. In fact, chemical wastes and emissions continue to this day, to threaten thousands of communities across the country.

Over the past twenty years, CHEJ has assisted more than ten thousand community-based groups by providing them with technical information about the problems confronting them and helping them to strengthen their organizing and leadership skills. We are particularly committed to empowering groups faced with environmental injustice, who do not have the political, financial or social power to protect their communities.

CHEJ also coordinates nationwide, issue-focused campaigns around eliminating dioxin exposure and environmental health threats to children. These campaigns derive their influence at the national level from the local victories achieved by our grassroots partners. As our network becomes broader and stronger, it is winning the power to hold industry and government accountable for protecting public health.

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## The Risks of Birth Defects: Living Near Toxic Waste Sites

After fourteen years, the New York State Department of Health (DOH) has come around to the high level thinking of the residents of Love Canal. A new study published in the American Journal of Epidemiology confirms what Lois Gibbs and others fighting the dangers of the Love Canal and other dump sites were saying long ago: It's dangerous to live near toxic waste sites!

This study, conducted by DOH and researchers at Yale University, found that the closer you live to a contaminated site, the greater the risk is of having a child with a birth defect. This is not just gut instinct or observation of the obvious, this is a rigorous, hard, scientific conclusion that shows a "statistically significant" difference between the rate of birth defects in a control group compared to those living near dump sites.

The researchers found that mothers living less than one mile from a contaminated site had a 12 percent higher risk of giving birth to a child with a birth defect when compared to mothers who lived more than one mile from a site. Rates were highest for defects of the central nervous system (CNS), the musculoskeletal system and the skin. If you look at those sites "with the greatest potential for exposure," the rate of birth defects was 63 percent higher than for nonexposed controls. For CNS defects, the rate was 48 percent higher; for the musculoskeletal system, the rate was 75 percent higher and for the integument system (skin), the rate was 163 percent higher.

The authors looked at the records of more than 27,000 births throughout New York state for the years 1983 and 1984. They categorized the births according to address and the type of birth defect. The data came from the New York State Department of Health Congenital Malformation Registry.

There were 9,313 infants studied with birth defects such as cleft lip and palate, chromosomal anomalies and digestive, muscular and nervous system abnormalities. A comparison group of 18,802 normal births was selected from the same registry and matched with the "exposed" group.

The authors then looked at 590 inactive hazardous waste sites in 20 upstate New York counties. These sites were ranked by the state DOH according to their "potential for human exposure to toxic substances" using EPA's hazard ranking system. This system focuses mostly on existing evidence of contamination. The communities were further broken into three groups—those with high, medium or low exposure. The high exposure communities were those within one mile of a site where there was documented evidence of contamination.

What's remarkable about this study is that the authors did everything they could to look at the data in ways that would *reduce* the likelihood that they would find anything. They bent over backwards trying to dismiss the results and trying to show that there was no problem. They eliminated certain types of birth defects; they looked only at defects that were "likely to be associated with wastes sites;" and they did not include data on spontaneous abortions and fetal deaths.

The researchers concluded that the study "does suggest a small positive association between proximity to hazardous waste sites and birth defects" but they qualify their conclusion by stating that the study has certain limitations. Their biggest concern was that no one can be sure that the mothers were actually exposed to chemicals from the waste sites and therefore that the birth defects were the result of exposure to chemicals leaking from these sites.



Does this sound familiar? Once again government is trying to excuse what they found and protect industry by carefully wording what they say. Why is the health department for the state of New York more worried about whether they say anything that would hurt private business than they are in protecting the public's health? I think the answer lies in the influence big business has not only on government but also on the politicians who dictate the priorities of government.

Despite these cautions and efforts to minimize the results, the study still found a 12 percent increase in all birth defects for those who lived less than one mile from *any* dump site and a 63 percent increase for those who lived less than one mile from the *worst* sites. Had the authors been more lenient in choosing data to include, had they included information on miscarriages and stillbirths and had they not categorized data in ways that leaned towards dismissing the results, the effects would be even more striking.

The positive side of this approach is that the results are stronger, more convincing, and less subject to challenge. No one can say that the authors were biased or that they used inappropriate methods to get a positive finding. But, this also means that the true effects might be even higher.

This study was published in late July of this year and we expect that industry will soon mount its challenges of this study. They have too much invested in the argument that there is no evidence of health damage to people living near dump sites to let this go.

But no matter what industry or other critics say, they cannot take away the fact that every time a good, solid, study is done to evaluate health problems in a community affected by toxic chemicals, researchers do

find health effects. The evidence is growing each day. The heart defects in children born to mothers exposed to trichloroethylene (TCE) in drinking water in Tucson, Arizona; the increased miscarriages and birth defects in San Jose, California; and the leukemic children born in Woburn, Massachusetts, are just a few of the health problems found in communities near contaminated sites.

These problems are real. Exposure to toxic chemicals does cause adverse health effects. We have to stop listening to industry and government who tell us these problems are not real and who negate the evidence that chemicals cause health effects. Their agenda is to stall for time and to avoid accountability for their actions.

The truth is the more we look, the more we find. If we wait until we are absolutely sure that chemical X caused health problem Y, then it surely will be too late. We cannot afford to wait until the bodies are in the street. We need to act now, to hold industry accountable for the pollution they create and to make government more responsive to the needs of the people.

#### References

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