

# Love Canal FactPack

## FactPack – P001



Center for Health, Environment & Justice  
P.O. Box 6806, Falls Church, VA 22040-6806  
703-237-2249 [chej@chej.org](mailto:chej@chej.org) [www.chej.org](http://www.chej.org)



# Love Canal

## FactPack

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## Center for Health, Environment & Justice

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**Mentoring a Movement**

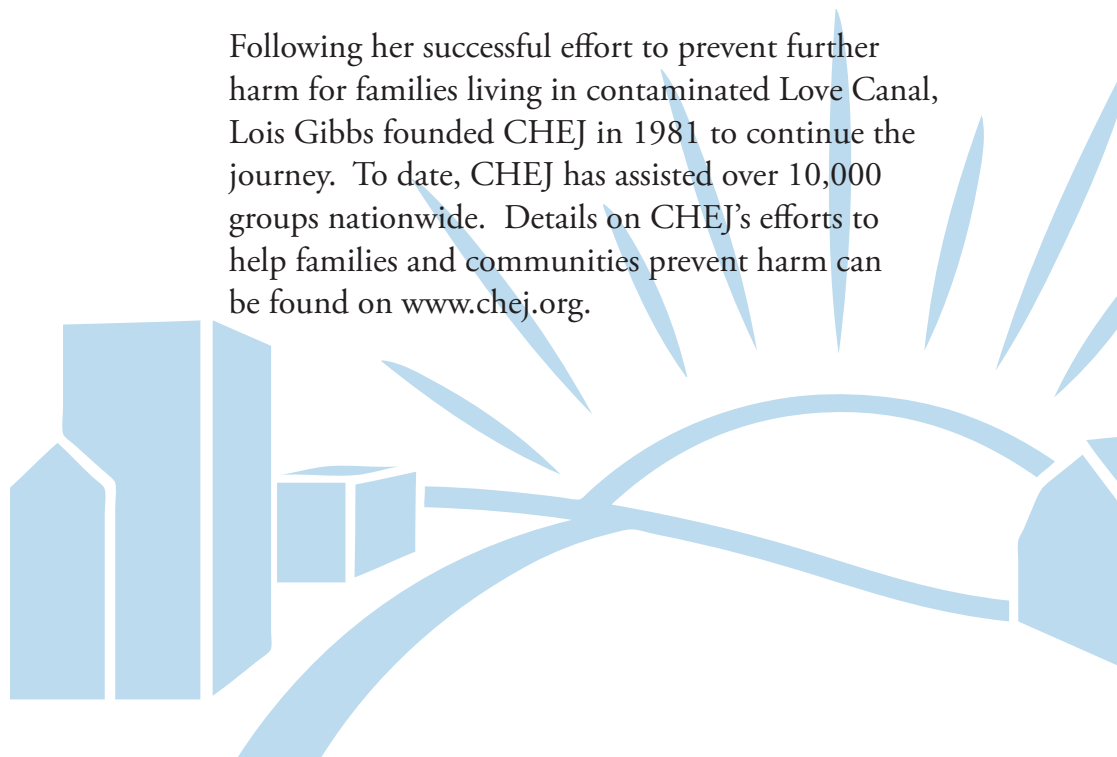
**Empowering People**

**Preventing Harm**

### **About the Center for Health, Environment & Justice**

CHEJ mentors the movement to build healthier communities by empowering people to prevent the harm caused by chemical and toxic threats. We accomplish our work by connecting local community groups to national initiatives and corporate campaigns. CHEJ works with communities to empower groups by providing the tools, strategic vision, and encouragement they need to advocate for human health and the prevention of harm.

Following her successful effort to prevent further harm for families living in contaminated Love Canal, Lois Gibbs founded CHEJ in 1981 to continue the journey. To date, CHEJ has assisted over 10,000 groups nationwide. Details on CHEJ's efforts to help families and communities prevent harm can be found on [www.chej.org](http://www.chej.org).





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## Chapter 1

# 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.



## Chapter 2

# Love Canal Homeowners Association

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 bluecollar 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.

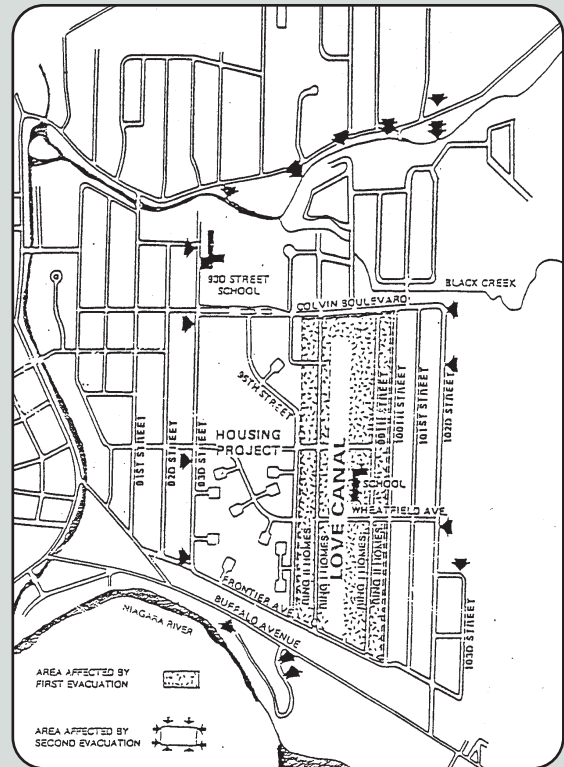
Gibbs first approached the School Board armed with notes from two physicians recommending the transfer of her child to another public school. But the Board refused to transfer her child stating that if it was unsafe for her son, then it would be unsafe for all children and they were not going to close 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*





## Chapter 3

# 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.

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

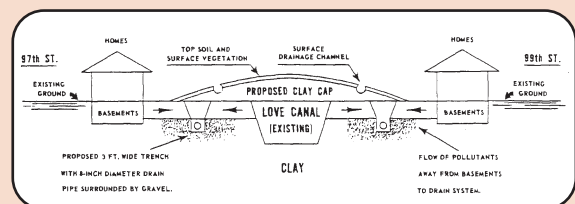
The cleanup plan consisted of a tile drain collection

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.

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

**Love Canal Remedial Construction Plan**



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

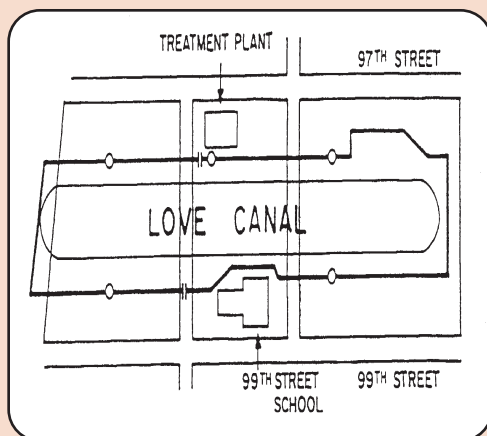
Once the state had evacuated 239 families and began the cleanup, they arbitrarily defined the affected area and erected a 10- foot fence around the evacuated area. This decision was arbitrary because at the time nobody knew how far the chemicals had gone or how many people were affected. At this same 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.



## Chapter 4

# Community Health Studies

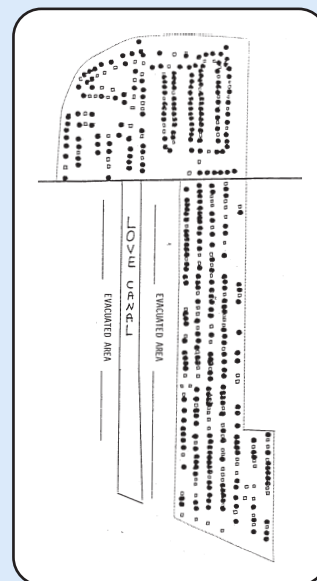
With the help of a dedicated volunteer scientist, LCHA began to interview families. Once the data was collected, they plotted the results on a map and immediately noticed a clustering of diseases in certain areas of the neighborhood. Elderly residents suggested that the clusters seemed to follow the 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.

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

**Study Area**



## Findings

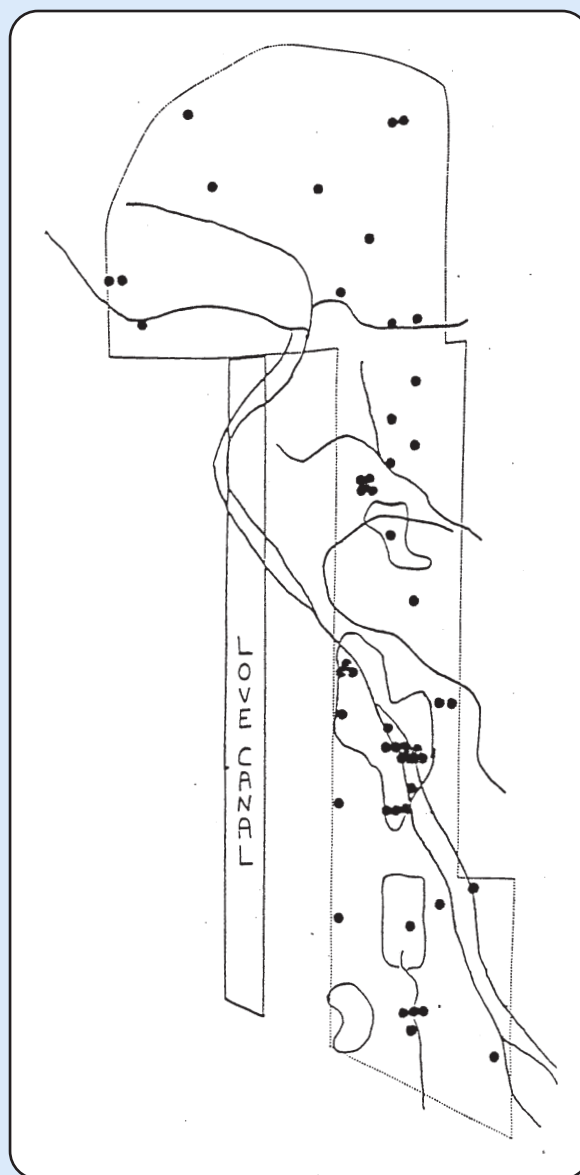
The LCHA's study found increases in miscarriages, still births, crib deaths, nervous breakdowns, hyperactivity, epilepsy, and urinary tract disorders. Each of these disorders were plotted on a map using dots to represent each case. Many of the dots clustered around the old stream beds or "historically 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 birthdefected 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.

### 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.'

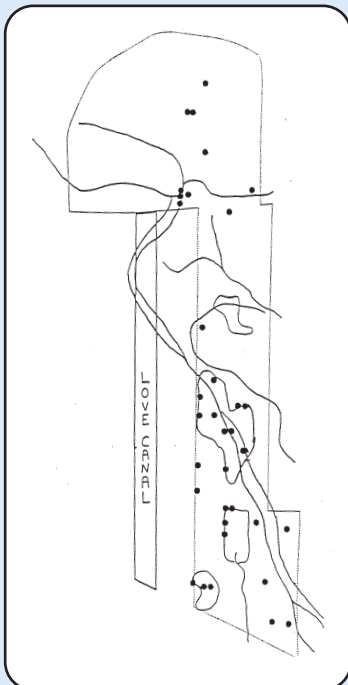
#### ***Birth Defects in Children Born During 1974-1978 in Wet Areas***

Children born	16
No. of Birth Defects	9
Percentage 56%	

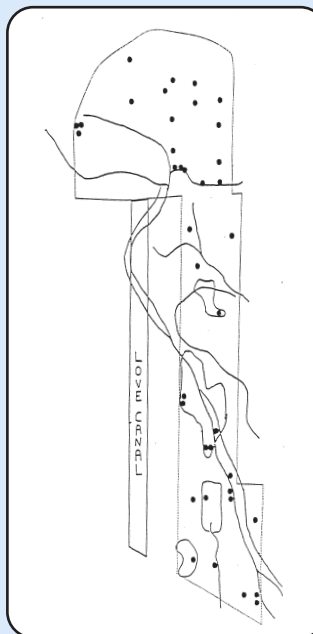
#### ***Nervous Breakdowns***

Living in	Adults	Breakdowns	%
Wet Areas	149	13	8.7
Dry Areas (South)	226	5	2.2
Dry Areas (North)	286	2	0.7

Relative Risk = 6.3 wet vs. all dry areast



Map 2



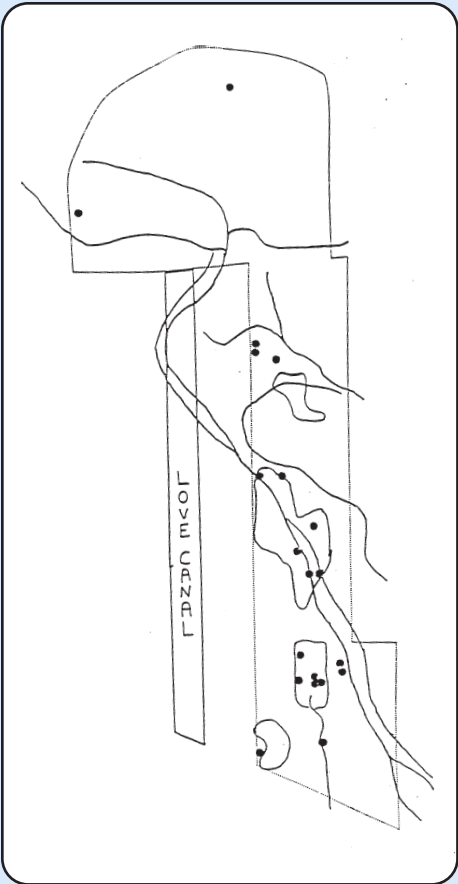
Map 3



**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.

Urinary Tract Disorders			
Living in	Adults	Disorders	%
Wet Areas	314	22	7.0
Dry Areas	826	21	2.5
Relative Risk = 2.8			



Map 4

**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 recieved 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.

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.

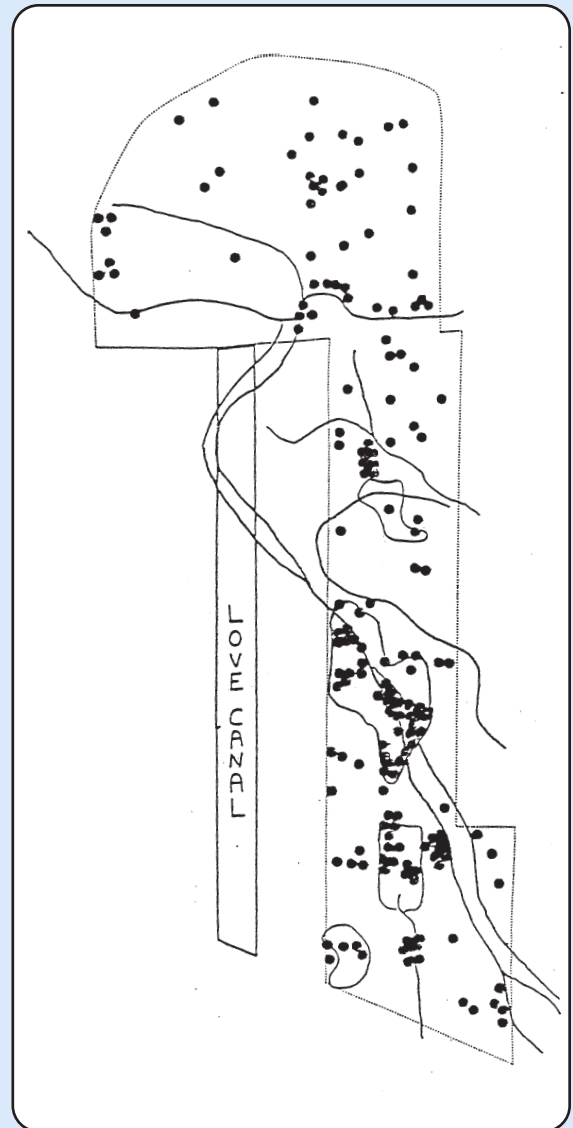
For these same reasons, in September, 1988, portions of the Love Canal area were declared “habitable,” by

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.

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.



*Map 5*



## Chapter 5

# 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.

**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 21st) 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.





# Appendix

## **Love Canal News Collection**



## **Love Canal: A Symbol That Must Not Be Forgotten**

By Lois Marie Gibbs, 1989

Love Canal stands as a marker for human suffering and the stupidity of mankind. What happened at Love Canal is a monument to human arrogance based on the belief that poisons can be dumped in the ground with no repercussions to human health and the environment. The American people are now wise to the perils of pollution. They will no longer tolerate an environmentally irresponsible attitude that gambles with the future of our very existence. Not money, greed, or political power can force the men, women, and children in our society to accept this destruction. We have united. We are standing together to fight for environmental justice. Love Canal is a symbol of this struggle and cannot be covered up and dismissed as a "safe" non-event or non-hazard. The state of New York wants to move people back into Love Canal and call it the Sunrise City. The sun is rising over Love Canal, but it is shining on the people who are working for environmental justice.

There are ethical and moral issues behind Love Canal that need to be addressed. Where are the morals of our elected leaders all of a sudden? President George H.W. Bush wants a "kinder gentler nation;" yet is it an act of kindness to allow people to move back into Love Canal? Why is the Bush administration gentle with polluters but cold and hard on the innocent victims of

pollution? Bush pardoned Armand Hammer (who was responsible for Love Canal) for his crimes while, at the same time, he knowingly condemns innocent families to become future victims of Love Canal.

Governor Coumo speaks against the death penalty in New York based on his morals and values. However, Governor Coumo is willing to put those values aside and allow innocent people to move into Love Canal and be exposed to environmental hazards and possibly die.

Congressman La Falce opposes the right of women to have abortions. And yet, he is willing to wash his hands of the future children of Love Canal. Love Canal was initially evacuated because of the increased incidents of miscarriages and stillborn babies. These women had no choice about their babies. Where is La Falce's concern for the sanctity of life where Love Canal is concerned? It's sad how the morals, ethics and values of our elected representatives only apply in certain circumstances and on specific issues.

Let us not forget the millions of dollars already spent or misspent making the decisions on resettlement at Love Canal. The last fiasco, costing 14 million dollars, was to determine if the 200 broken-down and abandoned homes still standing could be lived in



## Center for Health, Environment & Justice

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again. Spending that amount of money to study the habitability of the area is not the only bad fiscal management but unethical. People in Forest Glen, New York, Kellogg Idaho, Jacksonville, Arkansas, and hundreds of other sites around the country are repeatedly told that there is no money for their clean up or evacuation. How is it that the Environmental Protection Agency (EPA) or the state of New York lack the funds to help people currently at great risk, but can waste millions of dollars on studies and maintenance of abandoned Love Canal homes? The taxpayers of New York and the United States should be outraged.

What is going on at Love Canal? Is there something bigger behind Love Canal? I think the answer is yes. Maybe it's as simple as the EPA and the state of New York working for the chemical industry instead of the people who put them in office. It's clear that the chemical industry wants the stigma of Love Canal behind them. Furthermore, they would like nothing better than to use the levels at Love Canal as legal safety limits. Based on the recent decision on resettlement, it is clear that our elected officials are not working for the people. They have disregarded their own previous moral and ethical stands to assist the chemical industry's attempt to dismiss the problems of toxic poisons.

We, the people of the Grassroots Movement for Environmental and Economic Justice, know what must be done. The respect for health and safety must come before political and

economic interests. We stand firmly behind our morals and principles. The morally right thing to do at Love Canal would be to stop the resettlement and stop the spending of funds that benefit corporate interests at the expense of people's health and well-being.

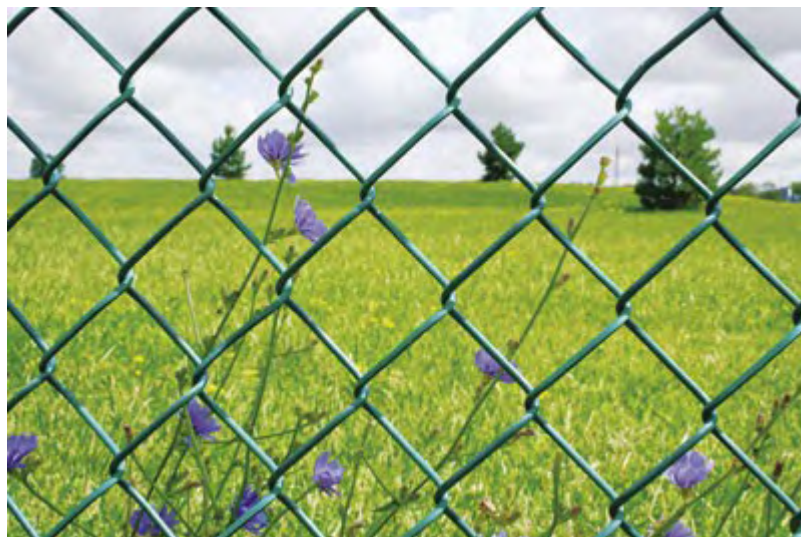
Our movement is growing stronger everyday and we are bringing about change. Today we join the chorus of so many social justice movements of the past in chanting, "We shall overcome." Our lives, the lives of our children, and the future of our society is at stake. We will win; the stakes are too high to lose.

## Happy Birthday, Love Canal

### It's been 30 years since the neighborhood surrounding America's most famous toxic waste dump was evacuated, yet its legacy is still unfolding

**Erika Engelhaupt, Environmental Science & Technology**

#### Love Canal



ERIKA ENGELHAUPT/ES&T

**FORBIDDEN** Love Canal remains behind a chain-link fence today.

were built on the site. A working-class neighborhood sprang up around them.

"The neighborhood looked very pleasant," says Levine, who was a sociology professor at the State University of New York, Buffalo, in 1978. "There were very nice little homes, nicely kept, with gardens and flowers and fences and kids' toys, and then there were young people who were rushing out of their homes with bundles and packing up their cars and moving vans."

Love Canal was in the midst of an all-out panic when Levine arrived; just nine days earlier, the state health commissioner had declared an emergency and recommended that pregnant women and children under the age of two evacuate the neighborhood. A week after that, the state and federal governments agreed to buy out homes next to the canal.

Levine spent all day interviewing people and was soon obsessed with their plight. Residents spoke of miscarriages, cancers, and children born with birth defects. She spent her vacation in New York City the next month knocking on doors and getting turned down for grants by foundations that couldn't imagine why a sociologist would want to study an environmental problem. By that time, the entire country was watching the drama of the Love Canal neighborhood play out on their TV screens.

I was four years old at the time, and I don't remember a thing. But later, as a teenager in the late 1980s, I lived about 2 miles from Love Canal as the crow flies, on Grand Island, a literal suburban island in the Niagara River. My father remembered Love Canal, and before he took an engineering job in the area, he asked how far away it was. He wasn't too happy to learn that he would be living nearly within sight of it across the river. Even a decade after the neighborhood's plight hit the news, the words "Love Canal" seemed to be stamped on our brains in shrieking orange capital letters—just as Bhopal, Chernobyl, and Three Mile Island would later be.

After the summer of 1978 came the buyout of some 900 homes; years of legal battles and disputed health studies; the formation of the **Superfund** cleanup program, which for the first time called on businesses to pay for pollution cleanups; and a new awareness of

NIAGARA FALLS, N.Y.—In the middle of an abandoned suburban neighborhood, a long grassy mound pokes up a few feet higher than the cracked streets surrounding it. A green chain-link fence surrounds the small hill, which is covered with wildflowers in summer—lavender chicory and small yellow daisies. The fence has no warning sign—not anymore—but this is Love Canal, the toxic waste dump that became synonymous with environmental disaster 30 years ago.

Adeline Levine, a sociologist who wrote a book about Love Canal, described to me the scene she had witnessed exactly 30 years earlier, on Aug. 11, 1978. "It was like a Hitchcock movie," she said, "where everything looks peaceful and pleasant, but something is slumbering under the ground."

That "something" was more than 21,000 tons of chemical waste. The mixed brew contained more than 200 different chemicals, many of them toxic. They were dumped into the canal—which was really more of a half-mile-long pond—in the 1940s and 1950s by the Hooker Electrochemical Co. In 1953, the canal was covered with soil and sold to the local school board, and an elementary school and playground

#### Editor's Note

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the dangers of living with chemical waste. Levine's book about Love Canal became a seminal work in a new field, environmental sociology.

But in the beginning there was just a neighborhood that didn't even think of itself as Love Canal. The dump only came to define the LaSalle neighborhood after 1978, when the world learned about the toxic waste buried there.

**A CANAL CALLED LOVE.** Love Canal got its name from William T. Love, an entrepreneur and developer in Niagara Falls in the late 1800s. The electrochemical industry was drawn to the waterfall because it generated cheap hydroelectric power to feed its electricity-hungry manufacturing processes. And Love had a deal for them. He would build an industrial city, called "Model City" in the optimism of the day, centered on a canal connected to the Niagara River. He started digging in the 1890s.

Love's dream collapsed after the inventor Nikola Tesla came up with alternating-current electricity, which could travel farther by wire than direct current and obviated the need for factories to locate near the falls. The canal Love left behind became a half-mile-long swimming hole. But later, Elon Hooker decided to locate his electrochemical company near the canal, and the business eventually became the largest industrial enterprise in town, making chemicals and plastics.

In 1941, Hooker Chemical (which underwent various name changes and was later bought by Occidental Chemical Corp.) decided to use Love's canal for waste disposal. The canal was nearby in what was then a sparsely populated area, and the soil was largely composed of impermeable clay that Hooker's engineers thought would contain the chemicals well. From about 1942 to 1953, Hooker disposed of thousands of tons of chemical waste there, some of it loose and some in metal drums.

No one knows exactly what Hooker dumped, but perhaps one-quarter of the waste was benzene hexachloride, the main component of the pesticide **lindane**, a neurotoxin. There were chlorobenzenes (used in the synthesis of DDT) and dozens of other organic chemicals, many of which were known to be toxic. The waste also contained an estimated 120 lb of 2,3,7,8-tetrachlorodibenzo-p-dioxin, commonly called dioxin, which is a by-product of trichlorophenol manufacture. At the time dioxin was buried at Love Canal, it was not thought to cause disease, but it is now known as one of the most carcinogenic chemicals in the world. In those days, Hooker's landfill methods were legal and quite common; companies were allowed to dump waste in almost any manner, as long as they owned the land on which they dumped.



USED WITH PERMISSION OF NYSDOH

**FROM ABOVE** An infrared aerial view of Love Canal in 1978 shows the 99th Street School (center left) and white patches of barren soil where plants would not grow, presumably a result of chemical contamination.



COURTESY OF ADELINE LEVINE AND  
UNIVERSITY ARCHIVES, THE UNIVERSITY AT  
BUFFALO, SUNY

**BLACK GOO** Bubbles of chemicals would appear in the ground when chemical drums burst; shown is a sinkhole in 1978.

**TOXIC BUBBLES.** Sylvia Jean Gondek grew up next to the canal while Hooker was dumping. Her family moved into the Griffon Manor housing project around the beginning of 1946, joining the flood of returning GIs and their families after World War II. Their neat white row house was located at 2604 Frontier Ave., adjacent to the southern end of the canal, where Hooker had concentrated its dumping.

She remembers Love Canal as basically a playground for the neighborhood kids. "What you saw from the projects was a big mound of dirt," Gondek says. "We would play cowboys and Indians there, and in the winter we would slide down the sides in our sleds. The back side [of the mound] was an open water area, which was supposed to be taboo, but the older boys would swim in the canal and play on the drums, which my sister and I never did do."

In 1953, Hooker sold the canal to the Niagara Falls school board for a token dollar, with a warning that the site contained chemicals that should not be disturbed by digging. However, it was agreed that a school (with no basement) and a playground would be acceptable. The site was supposed to be covered with several feet of clay to contain the chemicals, but later testing found only a few inches of soil covering metal drums in some areas.

Chemicals soon started rising to the soil's surface, Gondek recalls. "We kids would go over [by the canal], and you would see a bubble form—oh, I would say about 9 to 12 inches in diameter," she says. Kids would quickly gather up stones to throw into the chemical-filled hole. They didn't know it, but the bubbles formed when a metal drum of chemicals rusted through and broke underground. The soil above it would collapse into the drum and force chemicals to the surface; then the sides of the hole would close back up after a minute



or two. "It would open up sort of in slow motion, and then it would break, like a bubble would, and then you would throw the stones in. It was a game we played." The kids didn't think about whether it was dangerous. "As a child, you shouldn't have to."



COURTESY OF SYLVIA JEAN GONDEK

**GOING TO SCHOOL** Sylvia Jean Gondek (right) and other neighborhood kids are ready for their first day of school in the late 1940s. They used Love Canal as a playground.

paper. She lived three blocks from the canal, which she figured was too far away for the chemicals to affect her, but out of curiosity she took one of the articles to her brother-in-law, who was a biology professor. When he told her that some of the chemicals listed can affect the nervous system, Gibbs thought about her 5-year-old son Michael's epilepsy and about his growing list of other health issues, including asthma, liver problems, and a urinary disorder, all of which developed after moving to Love Canal. Michael was in kindergarten at the 99th Street School—the school that had been built directly on top of the dump. Gibbs tried unsuccessfully to convince the school superintendent to transfer Michael to another school.

Meanwhile, unusually heavy snow and rain in 1976 and 1977 had raised the water table and flushed more chemicals out of the canal. "The plastic liner of Mrs. Schroeder's swimming pool popped right out of the ground [because of water pressure]," Gibbs says, referring to Karen Schroeder, who lived on 99th Street right next to the canal. In some homes, multicolored chemicals were seeping through the concrete walls of basements.

At the time, scientists were just beginning to seriously study the effects of living in contaminated areas for long periods of time—chronic low-dose exposure. Most previous studies had focused instead on workplace exposure, where people were breathing or handling concentrated doses. As a result, the first health officials to begin talking to Love Canal residents had little specific information about health risks. Their advice to families who were seeing and smelling chemicals in their basements was to stay out of the basement, just in case.



COURTESY OF FRED & BARBARA JARZAB

**PLAY CATCH** The Jarzab family home, next to the canal and school, had high benzene levels in the basement.

Gondek moved away from Love Canal at age 12 in 1955. Years later, her third son was born with what her doctor described as a birth defect in both eyes; his vision cannot be fully corrected with glasses, which kept him out of military service. She wonders whether her chemical exposure could have caused it. "I'll never know," she says.

A lot of people who moved away from Love Canal in the '50s and '60s felt guilty about the possibility that they might have harmed their children inadvertently, says Levine, the sociologist. "When I interviewed them, they would say, 'I know it doesn't make sense because I didn't know about the chemicals, but I feel like it was my fault somehow,'" she tells me.

A number of studies, including both peer-reviewed research and informal surveys, have found unusually high rates of congenital malformations, or birth defects, in children born to mothers who lived at Love Canal. However, it's impossible to say whether any one instance was tied to chemicals. And Gondek never had any medical tests for chemical exposure until 1978, when the situation in Love Canal gained national attention. At that time, tests could not detect very low levels of chemicals remaining in blood so long after exposure, so Gondek's blood was tested in the same way as that of many other Love Canal residents: for liver enzymes that would indicate possible damage by chemicals to the liver. Her doctor told her she was fine.

**THE SUMMER OF 1978.** Michael Brown, a reporter at the Niagara Falls Gazette, wrote a couple of stories in May of 1978 about the wastes buried at Love Canal. A young housewife named **Lois Gibbs** noticed them in the

So residents at Love Canal started tallying illnesses for themselves, Gibbs says, and they found alarming numbers of miscarriages, birth defects, and illnesses in the neighborhood. Amid growing complaints, the U.S. EPA and the New York Department of Environmental Conservation stepped in to test the air in basements of homes bordering the canal. They found benzene levels up to six times higher than federal limits in some cases.

Fred and Barbara Jarzab's home on 97th Street was one of those tested. The Jarzabs lived near the north end of the canal, where fewer chemicals had been dumped, and they had never noticed any chemicals in the basement. So Fred wasn't too worried when EPA installed an analyzer in the basement. Then, while he was out of town on a business trip, Barb called him and said they had told her the basement had dangerous levels of benzene and toluene. She wasn't sure what it all meant, but they had told her not to let the kids go into the basement. When I asked if she kept going to the basement, Barb said she had to; the washer and dryer were down there. "She held her breath," Fred added.

On May 19, about a hundred residents attended an emotional public meeting at the 99th Street School. State and local health officials openly disagreed about the severity of the health risks posed by the chemicals, and the meeting devolved into chaos. Frightened residents couldn't sell their homes and couldn't afford to abandon them. "The banks wouldn't give loans on those houses," Gibbs says. "You were literally stuck there." Meanwhile, the health and contamination studies continued.

The state health department released its preliminary findings in July, confirming residents' fears that women living near the southern end of the canal were experiencing greater than normal rates of miscarriage and birth defects. Karen Schroeder, whose swimming pool had emerged from the ground, told the Niagara Gazette that her knees shook when she heard the results. After living near the canal for years, she had given birth to a daughter who was mentally retarded, deaf, and had a cleft palate and a double row of bottom teeth.

On Aug. 2, 1978, state health commissioner Robert Whalen announced a state of emergency at Love Canal and recommended that pregnant women and children under the age of two temporarily move, as soon as possible, but did not offer any financial help. The neighborhood nearly rioted. A public meeting the next night became a shouting match between residents and officials. One man reportedly fell to the ground weeping after pleading with officials to move his children.

Within days, the governor announced that the state would buy the 239 homes closest to the canal, those on the two so-called inner rings, including the Jarzabs' house. The Jarzabs spoke to me over coffee in the house they moved to from Love Canal nearly 30 years ago. The quiet cul-de-sac on Grand Island feels very far from the chain-link fence, although it's only a few miles away. The state gave them a fair price for their house, they say, and they got plenty of help with moving. "We told the realtor we didn't want to be anywhere near a chemical dump, so she had a map showing where they were, and there was nothing on Grand Island," Barbara says. The island, with its favorable winds carrying away the smell of Niagara Falls industries, became a refuge for many Love Canal evacuees.

THE SECOND STORM. Gibbs, the homeowner activist, was left behind in the 1978 evacuation and became president of the Love Canal Homeowners Association. She continued fighting to convince the state and federal government to buy outer-ring homes as well. The health department and EPA argued that they had no evidence that chemicals were affecting homes beyond the first two rings; environmental testing in the outer rings found levels 1,000-fold lower than occupational safety limits. But those limits were not intended as residential standards, and it was unclear whether the levels were hazardous. "It was really scary," Gibbs says. "We needed the health department to say what the health risks were."

Gibbs, working with cancer researcher Beverly Paigen of Roswell Memorial Institute, developed a hypothesis that chemicals were migrating farther from the canal along swales, natural depressions created by old streambeds and ponds that had been filled in. Gibbs and Paigen mapped out higher illness rates among people living along swales. But the "swale theory," as it became known, was controversial, and environmental testing along swales could not initially confirm it.

The final decision to purchase the remaining homes at Love Canal came in May of 1980, after sources leaked the results of an EPA pilot study on genetic damage that found that chromosomes were abnormally ring-shaped or **acrocentric** (meaning one part of the chromosome was shortened) in 11 of 36 people tested. Media coverage of Love Canal peaked, and the homeowners detained two visiting EPA officials (the press called them "hostages") in an effort to draw more attention to their situation. The chromosome study had used no control group, and many scientists disputed the medical significance of the abnormalities, but the specter of genetic damage pushed the state to speed its buyout of approximately 700 more homes. Finally, President Jimmy Carter agreed to evacuate the residents, and Gibbs and her neighbors were able to move out. The abandoned homes in the inner rings were bulldozed in 1982, and in 1988 the New York state health commissioner, David Axelrod, **declared** the area north of the canal to be safe for habitation based on an interagency review overseen by EPA. The **Love Canal Area Revitalization Agency** refurbished the empty homes north of the canal in the 1990s and sold them for 20% below market value, with waivers of liability for contamination.

At the same time, the state deemed the area east of the canal and south of Colvin Boulevard to be "uninhabitable" because of higher contaminant levels. This meant the area would not be redeveloped, but commissioner Axelrod said that the contamination was not an immediate health threat to the few residents still living in the area.

The 20,000-plus tons of chemicals buried at Love Canal are there to this day; EPA deemed it too dangerous to try to remove them. The New York Department of Environmental Conservation installed a leachate collection system to capture any rainwater that filtered through the canal. The canal area, including the land where houses on the two inner rings had been razed, was capped and fenced, and a leachate treatment plant was built. EPA added a synthetic barrier layer to the site in 1982 and improved and expanded the treatment system.

Occidental Petroleum (Hooker's parent company) was found liable for the Superfund cleanup and settled a lawsuit with residents for \$20 million. Of that, \$3 million went to a **follow-up health study**, \$1 million to a medical trust fund, and what remained after the lawyers' take was divided among residents based on judgments of individual health damages.



ERIKA ENGELHAUPT/ES&T

**SUPERFUN** A playground that was built for the newly refurbished neighborhood sits just outside the Love Canal fence.



**HEALTH EFFECTS.** Gibbs and many of the residents of the outer rings came to deeply resent what they saw as a runaround by the state health department. Gibbs says she was told that the information she collected on neighborhood illness amounted to "useless housewife data." Her idea about swales carrying chemicals was refuted publicly, only to be partly vindicated in later comparisons by the department that found higher illness rates in "wet" versus "dry" locations. The health department, in turn, maintained that they were doing their best with the scientific tools they had.



NOAA (BOTH)

The residents' basic question—How did Love Canal affect their health?—is still in some dispute today. The New York State Department of Health (NYSDOH) has been working on a follow-up health study for nearly 10 years. A public draft of the report was posted on the agency website in October 2006, but the work was then split into four studies, which the agency is submitting to peer-reviewed journals. One paper, which outlines mortality in Love Canal residents, has been submitted for publication, but none have yet been published.

I spoke with Nancy Kim, acting director of the health department's environmental health center, and Edward Fitzgerald, the principal investigator of the follow-up study. They were reluctant to discuss their results because the peer-review

## **HOMELESS** Love Canal in 1980 (left) and 2002, after homes were razed.

process is not complete, and they noted that the main issues being addressed surround the interpretation and discussion of the data.

The study compared the health of Love Canal residents to that of people living in New York state and Niagara County. The study used state registry data for more than 6,000 people who lived near Love Canal between 1942 and 1978, but included only people who were located and interviewed in 1978. The registries generally provide reliable data but lack data on many kinds of illnesses and on birth defects before 1983, cancers before 1979, and illnesses after residents moved out of state.

The study has been criticized, particularly by Gibbs's organization, for relying on the limited registry data instead of reinterviewing residents to get a more complete health picture. Kim and Fitzgerald say that the department considered interviews but was afraid that residents wouldn't participate. **Stephen Lester**, a scientist who has acted as a community liaison at Love Canal since 1978, represented community interests on an advisory panel at the beginning of the follow-up study. Lester is now the science director for the Center for Health, Environment & Justice (CHEJ), an advocacy group directed by Gibbs. He agrees that participation was an issue, because an attempt in the 1980s had garnered little but hostility from residents. "The community had lost all faith and trust in the state health department and wanted nothing to do with them," he says. "I said it wouldn't be easy, but if they could engage the community first and let them do the outreach instead of the health department, you could do something meaningful."

Despite the conservative approach used, which the health department acknowledges is biased toward underestimating health effects, some striking results emerged in the draft report. Children born at Love Canal were twice as likely as other children in other parts of the county to be born with a birth defect, a statistically significant finding. Children conceived at Love Canal were more than twice as likely to be female compared with children conceived after the mother left the neighborhood. This is consistent with findings in Seveso, Italy, where more girls were born to fathers (but not mothers in that case) who were exposed to a dioxin cloud released in a pesticide plant accident in 1976.

The draft also reported elevated rates of kidney, bladder, and lung cancers at Love Canal, though few of the comparisons were statistically significant. The language of the report tends to be conservative in describing the severity or strength of effects, emphasizing the relatively small number of data points.

The final studies will include some new statistical analyses of the levels of chemicals in residents' blood, based on blood samples collected in 1978 and stored by the health department. The study used methods that were not available in 1978 to detect part-per-billion concentrations of chemicals (gas chromatography with microelectron capture detection and mass spectrometry).

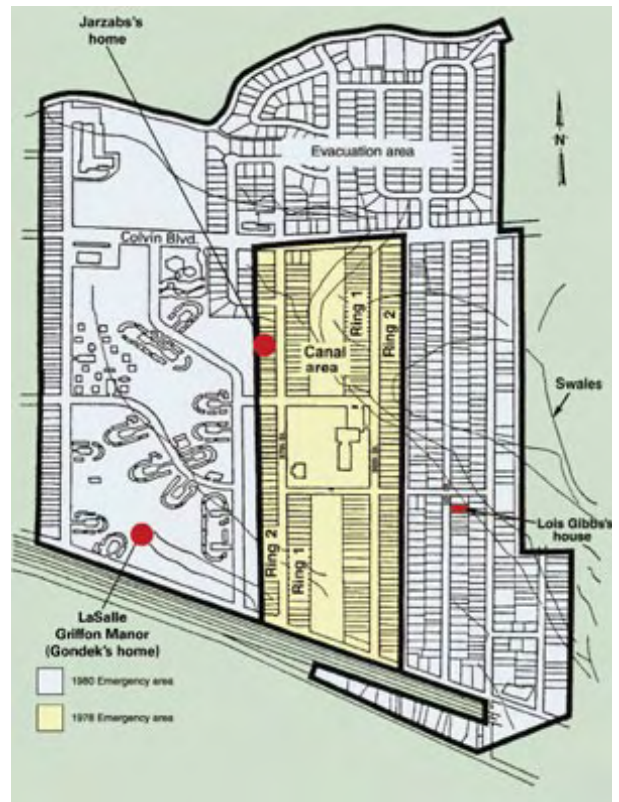
LESSONS LEARNED, AND NOT LEARNED. Stephen Lester arrived at Love Canal on Oct. 10, 1978, the day the state's cleanup work was set to begin, as an environmental consultant assigned to represent community interests during construction of the leachate containment system. He saw buses idling on street corners throughout the neighborhood, ready to sweep people away if a bulldozer ruptured a tank and sent toxic fumes into the air. Residents were horrified and scared. Signs were posted on homes around the community reading "Give me liberty—I've already got death" and "Evacuate us now!"

Love Canal serves today as a case study of the pitfalls confronting agencies working with the public. The health department's relationship with residents soured early, when officials either could not or would not provide straight answers and came across to residents as condescending. Particularly for homeowners in the outer rings—stuck in unsellable homes and afraid of the health consequences of staying—there was a widespread feeling that the public-health system, including the scientists, was failing them.

"At Love Canal, people were given slips of paper listing levels of six or seven chemicals found in their basements," Lester says. "People wanted to know, 'What does this mean? Does this mean I'm going to get cancer, or will my kids get sick?' I remember one woman in particular—I told her, 'I can't say what this means for you as an individual, I can only tell you in general what the risks are.' She said to me, 'We can put a man on the moon, and you're telling me that we don't know what these chemicals are going to do to us?'"

"Here we are 30 years later, and we still don't have a government agency capable of taking on health problems in communities and answering people's questions about their health," Lester says. Part of the problem is that the basic toolbox for environmental health studies has barely changed in 30 years, he notes. Although analytical methods for detecting low levels of chemicals have improved, the general approaches for studying community health—surveys, registry data, and epidemiological analyses—have remained much the same. How much better could the methods really be? "The tools are limited. But a lack of political will has prevented anyone from really thinking out of the box and applying different approaches."

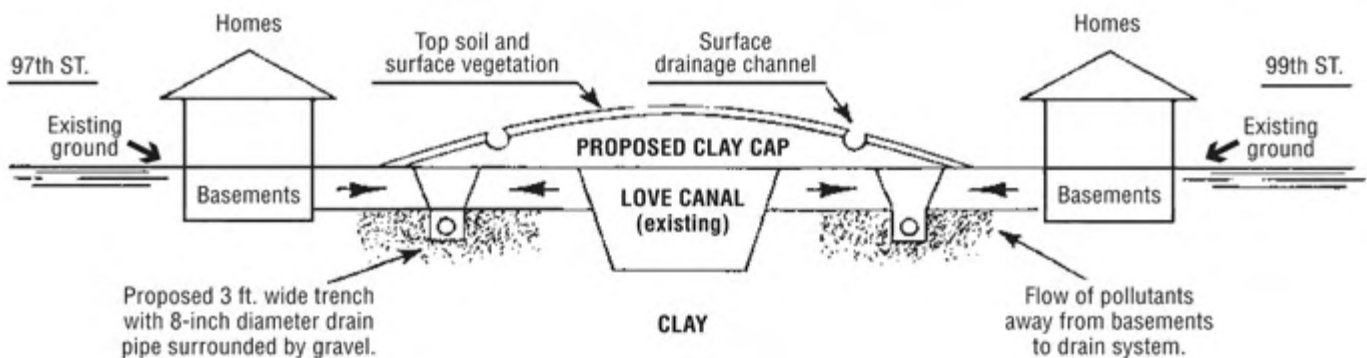
In contrast, public participation, when done well, has improved federal agencies' decision-making, according to a [report](#) released in August by the National Research Council. Since Love Canal, and largely spurred by it, citizens' groups have demanded more inclusion in decisions that affect their communities, such as the cleanup of Superfund sites. Some form of public participation is often required by law now, though it often takes the limited role of public information-gathering meetings.



RHONDA SAUNDERS/MODIFIED  
FROM *ENVIRON. SCI. TECHNOL.* 16 (9), 500A-501A

[View Enlarged Image](#)

**EVERYBODY OUT** More than 900 homes were evacuated in 1978 and 1980.



NYSDOH

**CLEANUP** The 1978 proposal for collection and treatment of contaminated leachate leaving the canal.

LOVE CANAL'S LEGACY. The crisis at Love Canal spurred some immediate change. In New York, the state health system was prompted to create a registry of birth defects.

Love Canal also spawned the Superfund law. In 1980, President Carter signed the Comprehensive Environmental Response, Compensation & Liability Act, creating a fund paid into by waste generators for cleanup of the nation's most toxic sites. The program is nearly out of money now and has a huge [backlog](#) of sites needing cleanup, but it established the "polluter pays" concept.

Today, nearly half of the U.S. population lives within 10 miles of one of the EPA's 1,304 active and proposed Superfund sites, according to the Center for Public Integrity, a nonprofit group dedicated to investigative journalism.



And environmental scientists continue to uncover the long-term health effects of chemical exposure. Endocrine-disrupting chemicals (including dioxin), which were virtually unknown in 1978, are currently one of the hottest topics in environmental health science. Researchers have found that, in some cases, these chemicals can cause reproductive effects that carry forward for multiple generations. The follow-up health study of Love Canal finds a disturbing trend that echoes that pattern: Children born to mothers who lived on the canal during pregnancy have increased risk of adverse pregnancy outcomes themselves later in life, including low birth weight, preterm birth, and babies born small for their gestational age.

Perhaps most importantly, Love Canal inspired a generation of activists like Erin Brokovich to take on environmental problems in their communities. "It took the environmental movement back to the grass roots," says Levine, after a decade when environmental battles were waged increasingly in court and out of the public forum.



**LOVE CANAL TODAY.** George Kreutz and his three young boys live on 101st Street, in a part of the Love Canal neighborhood that had the highest contamination levels. The area was deemed uninhabitable by the state health commissioner in 1988; new houses cannot be built there, but people can continue living in the ones left standing by homeowners who chose not to evacuate. When Kreutz and his girlfriend rented the small blue house in December 2007, he says he had no idea Love Canal was in his backyard. The chain-link fence is visible just across the street.

ERIKA ENGELHAUPT/ES&T (BOTH)

**AMERICAN DREAM?** George Kreutz (far left) and his family have a view of Love Canal from their backyard; (left) illegal dumping in his backyard.

Kreutz says he didn't think much about all the open space in the neighborhood when he moved in. "It just looked like a field," he says. He adds that he's happy with the house,

which he calls immaculate except for the weeds sprouting from the gutters. It's quiet, the rent is cheap, and the only real problem he noticed was a lot of illegal dumping among the tall weeds (an entire pallet of phone books rests a few steps beyond his neatly mowed yard).

Kreutz, 33, grew up in Florida and had never heard of Love Canal until he moved in. When people mentioned it, he did an Internet search. "When I put Love Canal in the computer, it just blew up on my computer screen." At that point, Kreutz got nervous about living there with his sons, aged five, two, and 10 months.

While George and I talk in his driveway in front of the disassembled car he was working on, his towheaded older boy comes outside. He bounces a ball and walks slowly around the small front yard. "Do you worry about letting the kids play outside?" I ask. "They're not allowed outside the mowed area," he says. "I would never have put my children in that situation if I had known about it," he adds. He plans to move as soon as he can afford to.

The rest of Niagara Falls has not fared much better. Today, my drive through the area is a tour of industrial smells—rubber, sewage treatment, and various shades of acrid and sour odors near the chemical plants. And then I start noticing the landfills—they seem to rise up everywhere. The region is home to more landfills than just about anywhere else in the nation, including some of the largest toxic waste landfills. Residents of nearby Lewiston and Porter are currently fighting for cleanup of the former Lake Ontario Ordnance Works, a landfill and hazardous waste storage site containing about 8 million metric tons of hazardous waste, including PCBs and radioactive waste dating back to the Manhattan Project.



KATIE SCHNEIDER (LEFT), ERIKA ENGELHAUPT/ES&T (RIGHT)

**THEN AND NOW** Lois Gibbs, a homeowner and activist, shows a tree that marks the site of her former home; left, she holds her daughter in 1978.

**LOIS GIBBS TODAY.** Large framed black-and-white prints hang on the back wall of Gibbs's office at CHEJ, showing kids at Love Canal and kids in other towns with their own tragedies. Gibbs was there for all of them. She is petite, with lively green eyes that add to the impression she is much younger than she is. She has a way of drawing people in and making them feel like part of something, and it is easy to see how her magnetic charm, combined with what she describes as an Irish no-nonsense practicality, helped make her into a leader.

But this is only in retrospect. In 1978, Gibbs was a quiet housewife with a high-school education. "You know," she says, "I was from Grand Island. There, either you're really out there [waving her arms above her head to paint a picture of the kind of wackiness that passes for renegade in small towns] or you're really shy. I was shy." When she decided to reach out to neighbors, she didn't know how to act or what to say. So she wrote up a

petition calling for closing the 99th Street School and decided to imitate what she had seen other petitioners do: She started knocking on doors.

So many people called her after Love Canal looking for advice about hazards in their neighborhoods that Gibbs decided to make it a full-time job. She moved to the Washington, D.C., area and established CHEJ to help communities organize against environmental threats.

Despite the lessons that should have been learned from Love Canal, Gibbs says toxic waste continues to threaten schoolchildren. A 2005 study by CHEJ found half a million children attending schools within half a mile of toxic waste dumps in just four states—New York, New Jersey, Massachusetts, and Michigan. Only seven states have laws prohibiting the construction of schools on or near hazardous waste sites.

She says she's sad when she sees her old neighborhood at Love Canal so quiet now; in her memories, Love Canal is a thriving neighborhood chock-full of kids barreling along on Big Wheel tricycles and walking home from school for lunch, giggling and yelling. "The thing about Love Canal is, I loved that community," she says.

Gibbs's house on 101st Street was reduced to rubble long ago, but a huge evergreen tree stands in what used to be her front yard. Touring her old neighborhood this summer, she points the tree out proudly to a small flock of reporters. She and her son Michael planted the tree when they moved in, planning to decorate it each Christmas. "It withstood all of this," she says, adding that now it reminds her where she lived. It's clear this place remains part of her; it made her who she has become.

Back in Washington, D.C., I mention to her that many of my friends who are my age have never heard of Love Canal. "Keep telling the story," she says, "we need to remember it."

Erika Engelhaupt is an associate editor of ES&T.

## WKBW - TV Buffalo, New York

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# 30 year anniversary of Love Canal: Missed opportunities

*Originally printed at <http://www.wkbw.com/news/local/26223299.html>*

Tonight marks the 30th anniversary of the toxic nightmare known as Love Canal. The controversial cleanup cost millions of dollars, displaced families and gave birth to an environmental justice movement.

On August 2, 1978 the New York State Commissioner of Health declared a State of Emergency at Love Canal and ordered a cleanup of the leaking contamination site. That moment in history only came after years of fighting by one woman, who organized her neighbors into action. While some battles were won, Lois Gibbs maintains there were still many missed opportunities to make things right with Love Canal.

In 1978, Love canal residents were angry and demanding action from their elected leaders. Twenty thousand tons of chemical waste that had been buried underground by Hooker Chemical Company was bubbling to the surface into people's backyards and homes.

Thousands of families were evacuated, federal dollars purchased their homes and then paid for the structures to be bulldozed. Then a full cleanup was ordered which consisted of containing the 200 kinds of chemical waste under a thick clay cap and liner, and placing a treatment monitoring facility atop the fenced off site. But one housewife turned activist was worried about what couldn't be known then, which was the long-term effects of the toxic chemical brew.

"I don't feel very pleased because they've admitted that there's a lot of chemicals that could do a whole lot of things and nobody's defining the perimeter. They're taking guesses from 1938-area photos," Lois Gibbs told Channel 7 News back in 1978.



Yesterday, Lois Gibbs was touring the site of her former home and she reflected on what went on. "Nobody really did the studies that needed to be done, not just for Love Canal people but so we can increase our understanding of what happens around these sites," said Gibbs.

While the site was cleaned up, with the best available technology at that time, Gibbs says there was a huge lost learning opportunity. "Because Love Canal was abandoned, they could do tons of studies on field mice, on birds, on vegetation, on movement of chemicals through the soil," said Gibbs.

Gibbs worries about the impact on Love Canal's children, and their children. Her questions today echo those of the past, and with no studies of that kind done, she says no extra knowledge could be gleaned over these last 30 years.

Four years ago, the federal government declared the cleanup completed and removed the Love Canal from the Superfund List. Some areas have been deemed safe to live in again. About 200 families live in resettled areas known as Black Creek Village.

# Scars linger in Love Canal - and former residents

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**By Carolyn Thompson, Associated Press Writer**

NIAGARA FALLS, N.Y. Several former residents reminisced about their naive youth as they revisited the deserted streets of the Love Canal neighborhood Friday, 30 years after a poison sludge devastated families with miscarriages and cancers and gave rise to the federal Superfund program.

The state-formed Love Canal Revitalization Agency, armed with the task of revitalizing the toxic neighborhood, met for a final time Friday, the anniversary of when New York state declared an emergency there. The agency was officially dissolved five years ago by the Legislature, but the crisis has never really ended for those who lived through it.

"Don't make me cry," said Debbie Curry, who did just that as she stood before a stretch of field where a relative's home once stood. "My niece lived here. She died of cancer at 32."

Later this year, the state Department of Health is expected to close the book on another lingering project, a long-term study meant to evaluate the birth defects, cancer rates and deaths among residents exposed to the 21,800 tons of chemical waste dumped by Hooker Chemical Co. at Love Canal from about 1942 to 1953 and discovered seeping into basements and yards in the 1970s.

The study's authors, in preliminary findings, have reported high rates of birth defects and bladder and kidney cancers among former residents, while cautioning that the findings were based on small numbers that could have skewed results.

Activist Lois Gibbs, who spearheaded the Love Canal Homeowners Association, which sounded the public alarm in 1978, issued her own report Friday, calling the Health Department's upcoming report the "final whitewash."

Gibbs said the department evaluated only a small number of health problems -- those tracked by state databases -- while excluding many others. The "passive data collection" from cancer, mortality and birth defects registries required no direct participation from the roughly 6,000 former residents included in the study.

"The people who lived through Love Canal need to know what their risks are and what they might expect for their children," said Gibbs, who went on to establish the Center for Health, Environment and Justice, a citizens' activist organization.

The disaster led to Superfund, a federal program that aids cleanup of toxic sites that could endanger the public.

Love Canal today is really two areas. There is the capped dump site behind a chain-link fence, where vacant land once held entire streets of houses that had to be razed. Just across the street to the north is a reborn neighborhood called Black Creek Village, full of homes that were rehabilitated and sold.

State health officials said the agency's findings are undergoing an extensive review by outside experts before being released.

"The state Health Department is proud of the work we have done on Love Canal over the years," a statement by the department said.

"We have included experts on the study's advisory committee and community consultants who were former Love Canal residents. We have issued newsletters on our progress, met numerous times in open meetings and have strived to be straightforward and open," the statement said.

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**March 22, 2004**

# Delisting Love Canal

Last week, the Environmental Protection Agency announced that it was proposing to remove Love Canal from its Superfund list, the federal roster of the most contaminated toxic waste sites in the country. This is in many senses a historic moment because Love Canal is the most historic of those sites. It is synonymous with many things besides toxic waste, including corporate negligence, governmental neglect and community activism. It is above all synonymous with the establishment of the Superfund itself, which was designed to make sure that corporations were made to pay to clean up sites that they had contaminated.

There is now a landfill -- a green mound perforated by pipes -- over the canal itself, and New York began selling houses more than a decade ago in the then-vacant neighborhood north of the site, a place now called Black Creek Village. Delisting Love Canal is a way of saying that the area is clean, the event over, history done, though the agency has promised to monitor the site and intervene with additional cleanup if necessary.

The irony of delisting Love Canal is that it comes at a time when the Superfund has been seriously weakened. Polluters continue to pay for a majority of the cleanups, but only when the polluter can be clearly identified. Congress has allowed to lapse the special corporate taxes that once underwrote the "orphan fund" used to clean sites whose pedigrees were historically and legally obscure. That, plus the Bush administration's lack of aggressiveness, has dramatically slowed the rate at which sites are being cleaned up.

Removing Love Canal from a federal list should not mean removing it from our historical memory. It should be made a kind of national historic toxic waste site, a reminder of just what can go wrong -- and what can go right -- when corporate, governmental and community interests collide. Love Canal represents one of those moments when ordinary Americans discovered that they would have to fight for their own welfare against corporate interests and against the governmental echo of those interests. The

law that established the Superfund is a monument to that moment, and a reminder of a time when the federal government was still willing to side with ordinary citizens.

March 18, 2004

# Love Canal Declared Clean, Ending Toxic Horror

By ANTHONY DePALMA; David Staba, in Niagara Falls, contributed reporting for this article.

Two decades after Love Canal became the first polluted site on the newly created Superfund list, federal officials announced yesterday that the neighborhood that epitomized environmental horror in the late 1970's was clean enough to be taken off the list.

Hundreds of families were evacuated from the working-class Love Canal section of Niagara Falls, N.Y., after deadly chemicals started oozing through the ground into basements and a school, burning children and pets and, according to experts, causing birth defects and miscarriages. The neighborhood had been built on a 19th-century canal where a toxic mix of more than 80 industrial chemicals had been buried.

The removal of Love Canal from the Superfund list will be mostly symbolic. The cleanup at the toxic waste site, the nation's most notorious, took 21 years and cost close to \$400 million, but most of the work was completed a few years ago.

Still, the proposal by the federal Environmental Protection Agency to take the area off the list of the worst environmental disasters represented a significant milestone for the agency, which was in its infancy when the cleanup began.

And for E.P.A. officials, who have been criticized for their handling of the World Trade Center cleanup and have had to battle for funds to maintain programs that have run into opposition from Republicans and corporate interests, the formal end to the Love Canal cleanup was welcome news.

"This is a historic time," said Jane M. Kenny, the federal agency's regional administrator, who said that she called the site's supervisors yesterday morning to congratulate them.

"The good news here that needs to be told is that we now have a vibrant area that's been revitalized, people living in a place where they feel happy, and it's once again a nice neighborhood."

Industrial chemicals dumped into the partly completed canal by the Hooker Chemical Company from 1947 to 1952 have been removed or contained in one area that was lined with impermeable materials and capped by clay. A drainage system collects water runoff and treats it.

About 260 homes north of the canal have been renovated and sold to new owners, and about 150 acres east of the canal have been sold to commercial developers for light industrial uses.

Ms. Kenny said that even when Love Canal is removed from the cleanup list, the agency would not walk away from the neighborhood or the tons of toxic material that still lie buried in a fenced-off area there.

"There comes a time when you say that now, yeah, the work is done," she said, "but we're going to continue to monitor what goes on there."

But for some of those whose lives have been shaped by the long, unpleasant history of Love Canal, the government's decision seems more like political opportunism than good science.

"Nothing is different from what it was five years ago except that the E.P.A. needs to look good," said Lois Marie Gibbs, a former resident of Love Canal who originally organized her neighbors to demand a cleanup.

She is now executive director of the Center for Health, Environment and Justice, an organization that works with communities facing environmental problems.

Senator Hillary Rodham Clinton, who has criticized the federal environmental agency for the way it reacted to concerns about air pollution at the trade center site, said that she welcomed the announcement that parts of the neighborhood had been restored but that declaring victory was premature.

"While Love Canal marked the beginning of the Superfund, its successful cleanup should, by no means, mark its demise," she said in a statement. "We still have a long way to go."



The federal agency will take public comments for 30 days on its proposal to remove Love Canal and two other sites in western New York from the list, but there is little doubt they will be removed.

The tremendous size and awful scope of the problem at Love Canal led President Jimmy Carter to declare environmental emergencies in 1978 and 1980.

The image of toxic wastes bubbling up from the ground shocked people across the country, and in 1980 directly spurred Congress to pass the Comprehensive Environmental Response, Compensation and Liability Act, which came to be known as Superfund.

The law provided for the establishment of a priority list of dirty sites, and created a mechanism for the cleanups to be paid for by the companies that created them. A "polluter pays" tax was also set up to pay for cleanups at abandoned hazardous waste sites.

That tax expired in 1995, and Democrats in the Senate have tried to reinstate it. The most recent effort was last week, when the bill, opposed by the Bush administration, was defeated, 53-43.

Since the Superfund was started in 1983, 300 sites have been delisted, said Ms. Kenny of the E.P.A., and work is progressing on many others. "When you think about the fact that there are 1,200 sites on the current national priorities list, and work is going on at a majority of sites, with 900 substantially completed, that shows real progress," she said.

The E.P.A. also plans to remove two other sites in western New York from the Superfund list: the 22-acre former landfill on 102nd Street in Niagara Falls owned by the Occidental Chemical Corporation and the Olin Chemical Corporation, and a 65-acre former county dump in Wheatfield, just north of the Niagara River.

Work on Love Canal was overseen by the federal agency, while New York State established the Love Canal Area Revitalization Agency, which refurbished some of the homes and sold them to new owners willing to move back into the area north of Love Canal, now renamed Black Creek Village. When that agency formally went out of business in August, the neighborhood held a street party.

Craig Rice, 49, grew up in the Love Canal neighborhood and watched his father die there from a rare brain cancer. He lives near the site of one of the schools that had to be demolished because chemicals were seeping into the buildings, giving off hazardous

fumes.

He questioned whether it was a good idea to keep so many chemicals buried on 70 acres in the neighborhood, even if they are capped by a thick layer of clay and surrounded by an eight-foot fence. But he said he felt secure knowing that monitors would pick up any problems.

"I definitely feel like it's under control," Mr. Craig said.

Five years ago, Eric Bluff, 31, bought one of the houses near Love Canal that had been restored. He was well aware of area's toxic history, having grown up just a few blocks away. He remembers how desolated it looked after 950 families had to be evacuated from a 10-block area surrounding the canal.

"I remember going through here with my parents and all the houses being vacant -- it looked like a ghost town," Mr. Bluff said as he was blowing the snow from the sidewalk outside his ranch house. He and his wife, Christina, were happy to hear that the government considers the area to be clean.

"It's a real nice neighborhood," he said. "I have no worries."

Photos: A lot where a home once stood in the Love Canal area of Niagara Falls, N.Y., after yesterday's snowfall. Some homes were refurbished and resold. (Photo by Joe Traver); (Photo by Dan Cappellazzo for The New York Times)(pg. B7) Map of New York State highlighting Love Canal: Signs, left, in 1978 warned of the pollution danger from chemical fumes and seepage in the Love Canal area. It was the nation's first Superfund site. (pg. B7)

## ENVIRONMENT

# Love Canal story will never be forgotten

Like the battery rabbit, Love Canal goes on and on.

There are more than 20,000 tons of poisonous wastes that remain entombed at the site, aside the "new" Love Canal village and the "old" community with its scattering of hold out residents and derelict buildings, some in the area that never had surface contaminants removed.

Then there are Occidental Chemical Corp.'s attorneys still piously protesting innocence of any wrongdoing. And U.S. Attorney General Janet Reno's ludicrous statement that the \$129 million federal settlement marks the "final chapter of the environmental disaster." Seems almost a collusion by government and industry to bury it under the rug.

Do little things like the long term health and psychological impacts on some 10,000 residents at Love Canal seem that trivial to these officials?

Government agencies, including the University at Buffalo's medical establishment and Roswell Park Memorial Institute, along with the state and federal health establishments, stonewalled these people for years and only now, as part of the settlement, will go back — perhaps too late — to look at the health and stress impacts of living next to a cesspool of poison.

And what about some 80 residents who got a \$75,000 health settlement but whose attorneys left the money sitting in a bank with no method of getting funds to pay



PAUL  
MACCLENAN

doctor's bills? Only intervention by the Citizens Clearing House for Hazardous Wastes prevented the money from reverting to the state coffers as an inactive account. A trustee has been named by the court to sort it out years after the fact.

And what of some 900 residents still seeking a settlement for potential health problems.

One finds less sympathy for the City of Niagara Falls, whose officials consistently turned their backs on the canal issue, viewing it callously as a liability to their dream of tourism. Now they have their hands out.

Then there is the fate of hundreds of residents who had their dream for Griffon Manor, a unique garden setting public housing project, tossed out and forgotten by housing officials. Their homes were demolished and the land sold to the highest bidder for development of private housing. And what of the Revitalization Agency that turned a broad mandate for change into a narrow focus on resettlement?

There are lawsuits that will go into the next century, including one by Occidental to get back some of its money from insurance companies quick to sell policies and slow to settle claims in the emerging toxic

liability mess.

Occidental years later did turn a corner and now is acting to contain the toxic dumps it scattered here and elsewhere. It might be better to let that record speak than those self-serving statements by expensive legal talent. As it is, the company got off cheap, having been forgiven the payment of 75 percent of the interest and all or part of the huge internal costs that taxpayers will have to foot.

For the U.S. Environmental Protection Agency, Love Canal was the beginning of an epic program to restore our soils and waterways from the taint of toxic chemicals. It was a lofty goal for a fledgling agency and one that sadly it has by and large failed to carry out in an expeditious way.

The lawyers took it away. Industry, despite pious pronouncements, stonewalled. And the Newt Gingrich crew hopes to finish off the job. Another vision ground into the muck.

But Love Canal is not going away. It is imbedded in the lore and history of the land, a lesson for all who would violate nature. For not allowing this very tragic lesson to enter its "final chapter" we must thank Lois Gibbs and a group of like-minded dedicated activists who keep alive the ideal of environmental justice.

□ □ □

## NIAGARA NEWS

### NIAGARA FALLS

# EPA urges agency to hasten Love Canal cleanup plan

By LEN DELMAR

*News Niagara County Bureau*

NIAGARA FALLS — Funding for the cleanup of the contaminated Love Canal area is scheduled to end May 31, 1999, but could "dry up" sooner than that.

Officials of the Environmental Protection Agency met with members of the Love Canal Area Revitalization Agency to emphasize the importance of a plan to completely renovate the area. Douglas Garbarini, eastern New York section chief for the EPA, urged the agency to expedite cleanup plans so funding for the work still would be available.

Garbarini said the EPA establishes its funding grants in one-year cycles and currently is determining funding for its next fiscal year, which begins Oct. 1. He said the EPA is con-

cerned about the funding for the cleanup of two areas of Love Canal because the agency has not made much progress.

Areas 2 and 3 are east of Love Canal itself and south of Colvin Boulevard. The master plan calls for them to be developed for commercial and light-industrial purposes.

Damian Duda, regional Love Canal project manager for the EPA, said there should not be a problem funding the revitalization agency this year because cleaning up the Love Canal area always has been a priority with the EPA. Garbarini said the EPA has seen substantial progress in the habitable areas, but would like to know exactly what the agency's goals are for the other areas.

Susan L. Bloss, executive director of the Love Canal agency, told EPA officials that, in the past, the agency has not been able to obtain funding for demolition in those areas un-

less a house was proved to be structurally unsound or unsafe. She said the agency believes the remaining houses in Areas 2 and 3 must be demolished to make the property attractive for sale.

Duda said the EPA cannot provide funding for demolition of homes simply as a maintenance move.

Frank Cornell, the accountant for the revitalization agency, said the EPA wants the area marketable, but that in order to do this, the houses have to be demolished. He said the agency is having trouble devising a marketing plan without knowing what houses can be demolished.

Ms. Bloss said that 17 of the 19 houses earmarked for demolition are contaminated with asbestos. She said that about 75 more homes need to be surveyed for asbestos.



WASHINGTON EDITION / LOS ANGELES TIMES

## Milestone in the Love Canal Case

*Huge settlement underlines the problems in nationwide toxic waste cleanup*

Twenty years after residents of Love Canal, N.Y., first became aware there were hazardous chemicals in their yards and homes—contamination that they linked to a number of physical ailments—Occidental Chemical Corp. has announced that it will pay the State of New York \$98 million to settle one of the major civil lawsuits resulting from Love Canal's pollution.

In doing so, Occidental has taken a big step toward closing the remaining suits and countersuits in a case that has raised national consciousness about the dangers of chemical waste. However, even this partial resolution underscores the dilemmas in cleaning up toxic dump sites. Among the more than 1,200 sites on the national Superfund list are such Southern California problems as the McColl dump in Fullerton, the El Toro Marine Corps Air Station and an abandoned DDT factory in Torrance.

Love Canal's problems began in the 1940s when Hooker Chemicals and Plastics Corp.

dumped 22,000 tons of chemical waste in the area, near Niagara Falls. By 1978, concern that the toxic substances were linked to birth defects and illnesses had caused nearly 500 families in the neighborhood to flee their homes.

Over the years there were many lawsuits, and in 1988 a federal court held Occidental, which acquired Hooker Chemicals in 1968, liable for costs under the Superfund Act, the federal program to clean up the nation's most polluted places.

Cleanup of Superfund sites like Love Canal has been too slow and far too costly. That's why the Clinton Administration earlier this year proposed an overhaul of the 14-year-old Superfund program. But reaching consensus on just how to restructure Superfund has not been easy.

One key issue is how clean is "clean." The Administration argues that different standards of cleanliness should apply depending on the next likely use of the property. The idea has much to recommend it: Argu-

ably, a waste site destined to become an airport, for example, need not be as clean as one reserved for new homes and schools.

But Love Canal indicates how troublesome these standards may be in practice. In 1894 excavation for a hydro-power canal began at the site; 50 years later Hooker dumped chemicals, and 10 years after that homes and schools were built. Existing Superfund sites may also change hands and be put to uses not envisioned in current cleanup plans. For example, local residents may one day wish to establish a residential tract at the site of a commercial airfield that earlier was converted from a military facility.

Standards that permit a lesser standard of cleanliness for one use as opposed to another will constrain the public's choices and perhaps impose higher public costs. Until that dilemma can be resolved, the Love Canal settlement can only stand as an example of how costly the process could be.

## *Don't kid yourself: The horror of Love Canal has not diminished*

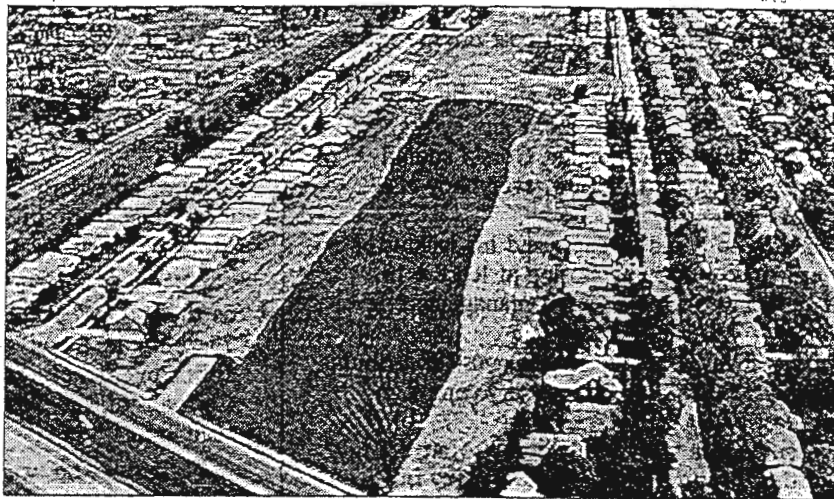
Attorney General Janet Reno and Carol Browner of the Environmental Protection Agency recently announced the settlement of the federal government's lawsuit against Occidental Chemical Company for the cleanup at Love Canal, accepting \$129 million.

In their statement, Reno and Browner both commented that this was the "final chapter" of the Love Canal story. How naive, shortsighted and foolish this statement is.

For those of us poisoned by Love Canal's leaking chemicals, we live with the effects each and every day. We worry about our children developing cancer, which takes 20 to 30 years to manifest. We worry about our children's ability to have healthy babies. Some former residents are still unable to sleep at night.

This settlement only ends one chapter of an on-going tragedy. New families are being moved into the northern end of the neighborhood.

History has now begun to repeat itself. Yes, the sequence of repetition has already begun. There are still more than 20,000 tons of toxic chemicals in the center of the community, which will eventually leak into the community, once more poisoning innocent people, poisoning innocent children.



Love Canal: As it looked in 1980. Has the last chapter been written?

The state and federal authorities are now allowing the sale of property to private families, just as Hooker Chemical, now Occidental Chemical, once deeded the land to the City of Niagara Falls for \$1.

A weak warning about the chemical pollution is placed in these new land transfer papers, just as there was a weak warning given by Hooker to Niagara Falls about their wastes buried beneath the surface.

There is no doubt the Love Canal story will come full circle in the

years ahead. Browner and Reno may wish that the settlement was the last chapter, but the reality is that this settlement is only one small contribution to an on-going horror story.

I can only hope that someday decision-makers will refer to our history before making decisions and learn from the mistakes made in the past and not continue to repeat them.

**LOIS MARIE GIBBS**

Executive Director, Citizens Clearinghouse  
for Hazardous Waste  
Falls Church, Va.



Reno, left, and Browner announce settlement with Occidental Chemical Corp. on toxic dump cleanup cost payment.

## Firm to Pay \$129 Million for Love Canal

Associated Press

The Occidental Chemical Corp. yesterday agreed to pay \$129 million to cover the federal government's cleanup costs at Love Canal, closing another chapter in the nation's most notorious toxic dumping case.

Carol M. Browner, head of the Environmental Protection Agency, and Attorney General Janet Reno said a settlement would be entered in federal court in Buffalo.

"Today we celebrate a transformation of an environmental disaster called Love Canal into a success story," Reno said. "It stands for the principle that when people make a mess, they should pay to clean it up."

Under the settlement, the EPA Superfund will receive \$102 million

and the Federal Emergency Management Agency, which handled the relocation of Love Canal residents and initial cleanup, will receive \$27 million.

The federal government agreed to contribute \$8 million toward cleanup costs to put to rest Occidental's claims that the government shared responsibility for contaminating the site.

Dug in the 1890s for an abandoned hydropower project in upstate New York, Love Canal became a dump site during World War II. Occidental's corporate predecessor, Hooker Chemicals & Plastics Corp., buried 22,000 tons of chemical waste there from 1942 to 1953. Later, a housing development was built on the site.

Love Canal attracted national attention in the late 1970s and early 1980s when hundreds of families from the Niagara Falls neighborhood were forced to leave their houses.

Last year, Occidental agreed to pay New York \$98 million toward the cleanup of the site. The state originally sought \$630 million in damages.

Litigation is pending between the company and the city of Niagara Falls, as are suits brought by former residents of the area.

Assistant Attorney General Lois J. Schiffer said the government's agreement to pay \$8 million was not an admission of wrongdoing.

Schiffer said the payment "seemed to us justified to get a settlement to put this long case to bed."



# Occidental will pay \$98 million to conclude Love Canal lawsuit

BUFFALO, N.Y. (AP) — A 14-year court fight drew to a close Tuesday as Occidental Chemical Corp. agreed to pay \$98 million to settle a lawsuit brought by the state over the toxic mess at Love Canal.

The settlement was reached last week by attorneys for Occidental and New York, which had sued for nearly \$630 million in cleanup costs and other damages at the Niagara Falls neighborhood.

U.S. District Judge John Curtin said he would probably approve the agreement.

"I've been living with this lawsuit for a long time," Curtin said. "I don't believe either side could do any better."

Occidental's corporate predecessor, Hooker Chemicals & Plastics Corp., buried 22,000 tons of toxic waste at Love Canal from 1942 to 1953. The canal, which was dug in the 1890s for an abandoned hydro-power project, became a dump site

during World War II.

In the 1950s, a housing development sprang up around Love Canal. During the 1970s and '80s, the neighborhood was evacuated and hundreds of homes were razed after chemicals began leaking into yards and basements.

Lois Gibbs, a Love Canal housewife who led a campaign to have families moved from the neighborhood, said Occidental got off easy.

"I wanted their balance sheet hurt so the stockholders would know the company can't do this anymore, they can't just dump waste," Gibbs said. "I don't think this settlement will affect Occidental's balance sheet."

Under the agreement, Occidental will also take over monitoring and maintenance of the dump, which has been capped and fenced off. Attorney General G. Oliver Koppell said that would save New York about \$25 million in the coming decades.

The state decided to settle the case because it would have dragged on for several more years, Koppell said.

Under federal Superfund law, Occidental already had been held liable for at least part of the cleanup costs.

"Occidental never believed it was going to walk away from the case without paying its fair share," said company attorney Thomas Truitt.

The federal government still has a roughly \$150 million claim against Occidental. Also pending are lawsuits by 900 former Love Canal residents for health problems they blame on toxic contamination.

The state and federal governments paid for the cleanup, which included the costs of moving out families and razing homes.

Under the settlement, New York agreed to drop a claim for \$250 million in damages to the environment around Love Canal.

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# News from

Department of Law  
120 Broadway  
New York, NY 10271

Department of Law  
The State Capitol  
Albany, NY 12224

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## Attorney General

### G. Oliver Koppell

For Further Information Contact  
JEFF MACLIN  
212/418-8000-518/473-3525

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Contact: Timothy Gilles  
212-416-8040

FOR IMMEDIATE RELEASE: Tuesday, June 21, 1994

#### KOPPELL ANNOUNCES \$120 MILLION LOVE CANAL SETTLEMENT

Attorney General G. Oliver Koppell announced today (Tuesday) that his office has reached a settlement concerning the Love Canal toxic waste site valued at \$120 million, the largest recovery in an environmental case in State history. Mr. Koppell said the Occidental Chemical Corporation has agreed to pay \$98 million in cash and to relieve the State of approximately \$25 million in future costs at the Love Canal site.

The settlement amount is far larger than the State's out-of-pocket expenditures for Love Canal, which total \$74 million, including \$59 million in costs of cleanup and relocation of residents plus \$15 million in legal costs, the Attorney General said. Other lawsuits concerning the Love Canal site remain outstanding, including cases filed by the Federal government, the City of Niagara Falls, and numerous local residents, some of whom have reached settlements and some of whom have not.

The settlement was unveiled this morning at a hearing before U.S. District Court Judge John T. Curtin in Federal Court in Buffalo. The settlement will become final upon the approval of Judge Curtin, who has presided over the case since it was filed in 1980 by then-Attorney General Robert Abrams.

Mr. Koppell stated:

"Love Canal became a national symbol of how decades of careless disposal of toxic wastes caused damage to human health and environmental devastation at thousands of sites across the country. It led to passage of the landmark Superfund statute and an entirely new framework of governmental and corporate response to the problems posed by the generation and disposal of hazardous waste.

"Today's settlement entirely validates the wisdom of the extraordinary actions taken by the State and Federal governments in responding to Love Canal, and it emphatically reinforces the principle that 'the polluter must pay.'"

In his presentation to Judge Curtin this morning, Attorney General Koppell read from a letter from former Attorney General Abrams, in which Mr. Abrams stated:

"The environment and the public interest will be served by the proposed settlement. It vindicates the right of the State to recover the full cost of cleaning up chemical contamination and restoring the environment from those responsible for creating hazardous waste landfills. Moreover, the additional payments above and beyond the State's response costs are appropriate, in my judgment, in light of the fact that the Love Canal is perhaps the most notorious case of toxic chemical dumping in our nation's history.

"In light of all the circumstances, I strongly support the settlement."

Mr. Koppell explained that the settlement provides for Occidental to pay \$98 million over three years. Of that total, \$75.5 million will go to the State Treasury and the other \$22.5 million will be used for one or more environmental projects in Niagara County "with the purpose of educating or serving as a resource to the community on environmental issues or enhancing the environment," according to the settlement.

In addition, within 90 days, Occidental must take over the operation and maintenance of the treatment plant and remedial system that is now being operated by the State Department of Environmental Conservation. Operation of this plant is expected to save the State approximately \$25 million over the next 30 years.

Under another provision of the settlement, Occidental will drop all of its claims against the State, including its assertion that the State's construction of an expressway next to the site and a storm sewer through its southern end had exacerbated the problem of leaking chemicals. Those claims were under consideration by Judge Curtin.

The State's response costs included more than \$28 million to acquire homes and relocate residents and more than \$12 million to construct and operate remedial and cleanup systems.

Over the course of the litigation, nearly 100,000 documents were exchanged by the parties, and more than 300 days of depositions were taken. Two key developments in the case occurred in 1988

and 1989, when Judge Curtin granted motions by the State and Federal governments holding Occidental liable for the costs of cleaning up Love Canal. The judge held the company liable for dumping that took place decades earlier, and he rejected the company's defenses that its sale of the site in 1953 and the subsequent actions of other parties had relieved it of liability. Earlier this year, the judge denied the State's motion to hold Occidental liable for punitive damages.

Mr. Koppell said that the Attorney General's office has now successfully achieved cleanup orders involving Occidental at five large hazardous waste sites in the Niagara Falls area.

The Love Canal case was handled by Assistant Attorney General Eugene Martin-Leff, the lead counsel; and by Assistant Attorneys General Robert Emmet Hernan, H. Johannes Galley, Oymin Chin, Chevon Fuller and Janice Taylor; by Environmental Scientists Peter Skinner, Dr. Michael Sorgan, Jodi Feld and John Davis; and by Legal Assistant Barbara Bauer; as well as a number of former attorneys and other staff members at the Attorney General's office. The case was supervised by James A. Sevinsky, Chief of the Environmental Protection Bureau.

# State tackles cleanup of toxic sludge

JUL 08 1992

**DIRTY JOB:** *Oxy and DEC drain Love Canal sludge tanks. A-1*

By Corydon Ireland  
*Niagara Gazette*

The state Department of Environmental Conservation has lined up two projects this month for the Love Canal Inactive Hazardous Waste Site.

In one, which began Tuesday, 29,000 gallons of contaminated sludge will be removed and treated or stored. The sludge is currently stored in three 10,000-gallon steel tanks, which rest on concrete saddles within the fenced containment site. A fourth tank has never been used.

In another project, a permanent 50-yard drainpipe will connect an unused, uncontaminated containment cell to a storm sewer on 95th Street. The open-air cell periodically fills with rain-

water.

Both projects will be finished within three weeks.

"We're excited about the (sludge) project," DEC environmental engineer John R. Strang said from his Albany office Tuesday. He said it's the first time the sludge has been processed since it was first collected and stored at the Love Canal site nearly 13 years ago.

A filtering press will be used to separate the sludge into three "phases" — water, solids and filtrate. Each of these will be treated or stored separately.

The operation will take place on a concrete pad 45 feet wide and 65 feet long in the southwest part of the containment site.

During the clean-up, Strang said, workers near the "hot zone" — the tanks being emptied — will breathe-supplied air, like scuba divers, and wear protective clothing. The DEC will con-

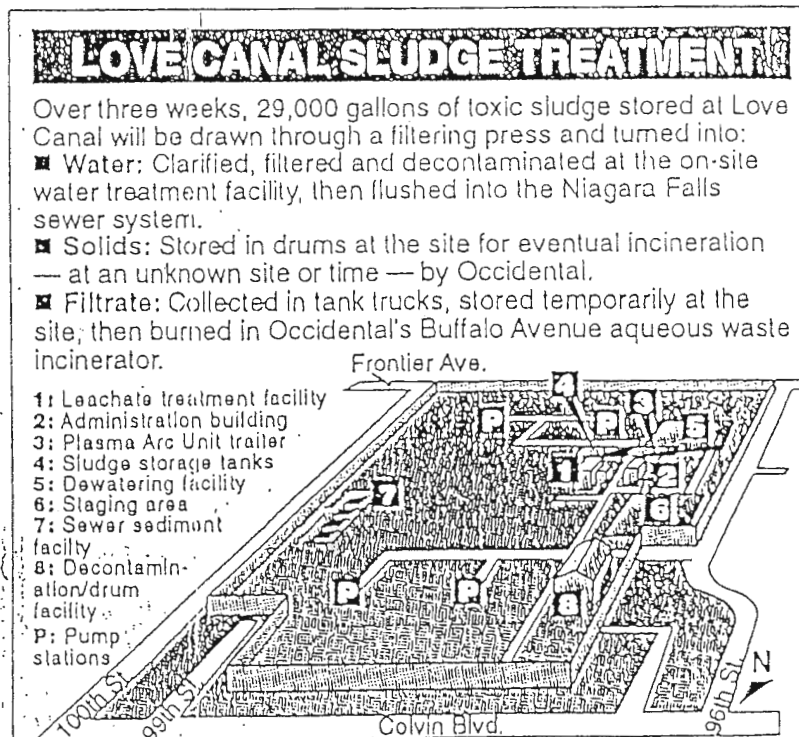
## TODAY'S TOPIC: ENVIRONMENT

tinuously monitor air quality at the site.

The stored sludge is a toxic by-product of the leachate routinely captured by a gravity-fed, computer-monitored system at the site. Strang said that in 72 days of operation in 1991 alone, 3,387,180 gallons of leachate was drained from the site.

The leachate is laced with up to 200 different chemical compounds, including toluene, benzene, chlorobenzene, and pesticides. When processed, it passes through a clarifier and a 10-micron bag filter, both of which capture the worst contaminants in the form of sludge.

The rest of the water, processed through carbon filters and decontaminated, is flushed into a Niagara Falls city sewer.



Source: NYS Dept. of Environmental Services. David Marra/Niagara Gazette

December 9, 1991

# Home to Some Is Still Love Canal to Others

By LINDSEY GRUSON,

Diane Alexis used to look out her window here and see black smoke belching from the nearby chemical plant. The bittersweet smell of pollutants seemed to cover her neighborhood like a wet blanket. She says she had trouble breathing; trees turned brown and died.

So six months ago she and her husband, Gary, sold their home and moved crosstown with their miniature poodle, Bo, into a ranchhouse in a neighborhood -- infamous as an internationally feared symbol of the toxic timebombs buried across the industrial landscape -- Love Canal.

"I love it," she said. "It's a dream. This is so nice. It's quiet. It's clean. It's not like the city at all. We feel so fortunate to have got this place. I have everything. It's close to the mall, close to the airport. We're never moving again. I plan on living here forever." Tons of Chemical Waste

One by one, about 25 families have joined the Alexises in the neighborhood, a middle- and upper-middle-class subdivision until it was abandoned a decade ago. At that time the Government declared a health emergency and bought out most of the homeowners after it found that chemicals from the Love Canal dump had contaminated much soil in the area. The dump was used for decades by companies to dispose of tons of chemical wastes.

After a \$100 million environmental study, state and Federal officials three years ago deemed other areas near the canal "habitable" -- although scientific constraints prevent them from declaring Love Canal, or any other neighborhood, safe to live in. Technically, the studies found that living here poses no greater health risk than residing in other parts of Niagara Falls, a famed honeymoon resort punctuated by more than 200 hazardous dumps left over from the heavy industries.



Love Canal's new homeowners are a disparate group. Many grew up in this industrial city. Several remember bicycling through the neighborhood as children dreaming about moving into what then seemed like a luxury area. But one of the new homeowners is coming from California. And to the surprise of the developers, who expected most of the buyers to be blue-collar workers because of publicity and the prices, the residents vary widely in age, income and background.

Their refurbished homes sparkle with new paint like oases in a sprawling desert of abandoned and decaying houses. Despite their efforts to rejuvenate the area, it still feels and looks like a ghost town, or perhaps more accurately, a ghost suburb. The streets are silent, devoid of children. To prevent vandalism, most of the 200 still abandoned houses have a single burning porch light, silent beacons of better times.

The school and neat rows of houses adjacent to the six-block-long canal, where the chemicals were dumped, were razed years ago. The wind whips off Lake Erie and whistles through the leafless maples that line Desolation Boulevard, as the street next to the dump is now called, in what could be the anthem of the toxic waste movement. All that now remains visible of the dump is a crested, closely cropped pasture, isolated by miles of gleaming cyclone fence emblazoned with dayglo yellow, diamond-shaped warnings signs: "Dangerous -- Hazardous Waste Area -- Keep Out." Stretching at exact intervals into the distance, like distance markers on a driving range, are brilliant orange pipes -- used to vent and monitor the 21,800 tons of buried toxic chemicals.

The homeowners all know each other, but rarely socialize together. Still outsiders' incomprehension, skepticism and even open hostility to their move has united them, creating a defiant, even belligerent, love for the neighborhood.

"Of course there's no guarantee that it's safe, but I feel there's danger riding the subway in New York City," said Charles Harvey, a 56-year-old retired customs broker who bought a house with his mother in the summer. "On a list of worries, it's not high. I'm more worried about what happens to the stock market."

Joanne Lewis moved into the neighborhood 18 months ago with her husband and their three children, Colton, 8, Vinson, 10, and Christian, 18. "If we thought anything was wrong, we'd never have done it," she said "Niagara Falls always has been an industrial city. You can go out and dig up any any yard and it's the same." Risks Are Everywhere

Shirley Stringaro, who in April moved into her one-story brick house with her husband, Luigi, and her son from a previous marriage, Marc Barone, added: "You take a risk

anywhere. There isn't a secure area anywhere, not for hundreds of miles around here."

Some of the dozen or so original owners did not move out, and while some who did move out seem to regret the decision, so far, they have not returned to their old neighborhood. James E. Carr, an urban planner and the former state director of the Sierra Club who is now the director of the Love Canal Revitalization Agency, said he would not hesitate to move into the area if developers removed a prohibition on employees buying the houses. "This is a typical average urban area," he said. "It's as healthy here as anywhere in the country and maybe more so."

In what was billed as a land rush, 200 people signed up to buy the abandoned houses, which sell from \$40,000 to \$80,000, about 25 percent less than similar homes in other neighborhoods because of the Love Canal stigma. But 18 months later, only 30 houses have been sold in the subdivision, which has been renamed Black Creek Village after a brook that meanders through the area. In large part, that is because banks, apparently fearing lawsuits, have declined to make mortgages available for the houses, Mr. Carr said.

"We're being redlined, clearly and boldly," he said. .

Some former residents and many environmental groups are appalled by the decision to resettle the area and have banded together in a series of suits to stop the resettlement. They fear that the revitalization could set a dangerous precedent for redeveloping less infamous dumps and contend that the studies failed to properly investigate questions about the long-term safety risk of living in the neighborhood.

"I just don't think that's what the American dream is about," said Lois Gibbs, who headed the citizens' lobby that insisted on the evacuation of many blocks around the canal and now runs the Citizens' Clearing House for Hazardous Wastes, an Arlington-based group that helps local organizations cope with hazardous-waste sites. "The real risk is unknown. The residents just want to believe -- that what the American dream was built on, believing government won't lie. It's sort of sad."

But the current residents reject that type of criticism and accuse their predecessors of opposing the resettlement because of pending lawsuits. They say the houses are terrific bargains and that the danger was overrated in the first place. Each one points to a friend who lived in the neighborhood for decades without suffering apparent ill effects and say the Government would not allow people to return unless the area was safe.

"It's been tested so much I know exactly what's in my ground," Mrs. Alexis said, noting

that her neighbor, who was born and raised in the subdivision and remained in her house after almost everyone else had evacuated, was 92 years old when she died earlier this month. "There was never anything wrong with her. Not a thing." 'The Best Indicator'

Mr. Harvey said: "Mother nature is the best indicator. Every year the ducks, the possums, the turtles, the fish, the birds multiply and multiply. If there was something wrong, they'd be the first to go."

The residents know the stories of what happened here, including the illnesses and deformities found among children living in homes nearest the dump. Mrs. Stringaro, one of the residents, recalled that a friend, Ann Marie Pack, who lived in the area that was razed, once returned several pairs of her twins' sneakers claiming they were defective. It turned out the shoes were being eaten away by solvents bubbling into their basement from the dump.

Still, the current homeowners are convinced the toxic chemicals were isolated around the dump, which is a couple of blocks from their neighborhood, and that their predecessors were panicked into leaving. "They just got scared," said Deborah Cunningham, who is selling the house she owns with her husband in Escalon, 70 miles north of San Francisco, to move into the neighborhood. "I know there's a lot of controversy over the dump, but it can't be worse than what we have in California. I have real bad allergies and when I wake up I can hardly breathe. But when I go there, they don't bother me at all."

Photo: "I love it," said Diane Alexis, holding her poodle, Bo, of her new home in the revitalized area of Love Canal in Niagara Falls, N.Y. Families are moving into the neighborhood, which was abandoned a decade ago when the Government declared a health emergency and bought out most of the homeowners. (Joe Traver for The New York Times) (pg. B6) Map of New York highlighting Love Canal (pg. B6)

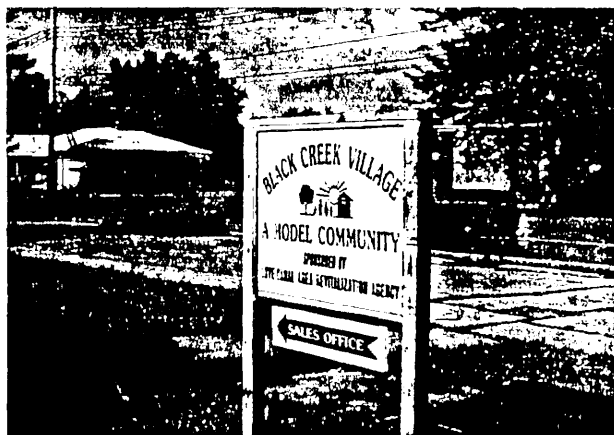
# BACK TO LOVE CANAL

Recycled homes, rebuilt dreams  
By Verlyn Klinkenborg

The day I came to Love Canal, the season was undecided. The postman wore walking shorts, but school had started and I could feel the Niagara Frontier tightening up for autumn, which is only a pause before winter here. I drove from Buffalo through Tonawanda and Wheatfield to the city of Niagara Falls, past the airport, past the few small farms still standing on Cayuga Drive. Around me lay suburbs and malls and, farther north, the beginnings of the fruit belt, the cherry and apple orchards that border Lake Ontario. I crossed the bridge over Bergholtz Creek and entered a quiet residential district, where children had just trailed off to school. The everyday hung over lawns and sidewalks like leaf smoke, creating a sense of protective closure, insulation against the unexpected.

A few blocks away, indiscernible, the Niagara River flowed—opaque, glacial, morbid, bound for its tumult a mile or two downstream. No one moves to Niagara Falls for the falls. It is not that kind of city and not that kind of attraction. Parts of the city

*Verlyn Klinkenborg is the author of The Last Fine Time, a work of nonfiction, published recently by Knopf. His essay "Come and Gone" appeared in the June 1990 issue of Harper's Magazine.*



sizzle and stink with industry, with refineries, power stations, chemical plants. The Power Vista, as they call it, and the hydroelectric reservoirs—clean arcs of concrete—seem to mock the casual shambles of rock that shape the falls. The city fathers still debate how plainly to mark the route to the precipice. Confusion is profitable. The falls should come as a surprise, they seem to feel.

I followed the map to Frontier Avenue in the easternmost section of the city and found a discrepancy. The map showed 97th and 99th streets running north from Frontier Avenue to Colvin Boulevard. In reality 97th and 99th streets and the houses on both sides of them, together with the cross streets of Read Avenue and Wheatfield Avenue, as well as the 99th Street School and its playground

and its parking lot, were demolished in 1982 and 1983 and lie buried under many tons of sod, clay, and high-density polyethylene in what is now called the "Canal Site Containment Area." The sod, a well-kept grass field that mounds attractively in the middle, is surrounded by an eight-foot chain-link fence and pierced by vertical fluorescent-orange pipes. Beneath the field lies the Love Canal, 3,000 feet long, 80 to 100 feet wide, and 15

to 40 feet deep, where between 1942 and 1953 the Hooker Electrochemical Company dumped nearly 22,000 tons of chemical waste, much of it toxic, including, as one of the reporters who broke the story of Love Canal wrote, as much dioxin as fell upon Vietnam in the form of Agent Orange.

"Love Canal," "Hooker Chemical," "Toxic Waste Dump"—these phrases return in a lump after so much time, so much intervening history. Many persons—perhaps most persons—now think that the drama of Love Canal lay in the negligent deposit of chemicals, the unwitting exposure to those chemicals of nearby residents, the ultimate relocation of hundreds of families. They forget that Love Canal became a national story, a byword, because it radicalized

apparently ordinary people. Love Canal severed the bond between citizens and their city, their state, and their country. The battle there was fought over that bond, and it was fought in public, through protest marches and press releases, because the public, not the state, was at risk.

I came upon Love Canal too suddenly. It was like stepping out of a lodgepole forest onto the site of an old burn. I wanted a transition. One minute I was savoring the taste of the ordinary, and it lulled me, as it is meant to do. Then, abruptly, almost in the instant I looked up from my map, the streets fell empty of cars, people, sound. The grass had grown long, and the hedges were untrimmed; fallen branches lay ungathered in yards, and at the curb piles of brush moldered here and there. I turned up 100th Street. Houses lined only its east side. The electric meter had been removed from every house. Sidewalks and driveways were turning to rubble. Nearly all the windows had been boarded up, and on most of the doors a number had been chalked in black, a number that was once an address but now seemed more like an inventory mark. At 723 a yellow lawn chair sat alone on a concrete porch, facing the chain-link fence and mounded field to the west. There were houses with rock-faced fronts and metal awnings, with brick and shingle facades, simple clapboard houses redone in aluminum siding, houses as plain as one ever finds in the suburbs. They were poignant only because they were deserted.

These were not the houses that lay across the street from Love Canal in the 1970s. These were the houses that lay across the street from the backyards of the houses that once lay across the street from the houses whose backyards once lined the canal. Everything west of 100th Street for a quarter mile was buried and fenced. When the buyout of homes at Love Canal was finally settled a decade ago, the state of New York found itself the owner of nearly all the property within what came to be called the EDA, the Emergency Declaration Area: a district one mile long and a half mile wide containing 789 single

houses. Now, in order to recoup some of its losses and to restore the neighborhood to life, the state is offering some of those houses for sale through the Love Canal Area Revitalization Agency. You can buy one of the houses LCARA has chosen to offer, or you can deposit one hundred dollars and LCARA will order an appraisal on a vacant house of your own choosing. But to settle at Love Canal, you'll have to forget how these houses came to be empty. You'll have to pretend that the past has little meaning.

Near Frontier Avenue, the houses are old and rural in character, barely salable. But a mile to the north, above Colvin Boulevard, near Bergholtz Creek, and a block or two away from the canal, the streets are in better condition and the houses are more likely to be modern in an early Sixties manner and built of brick. These are the houses LCARA has decided to sell. On 98th Street, which dead-ends at the canal, I stopped and inspected 1071, a small ranch, 1,026 square feet, with gray shingle siding and a pink door. The asking price was forty-eight thousand dollars. That included a long list of renovations yet to be done by LCARA: new driveway, new insulation, new external doors, new paint. I examined 1076, across the street—a gray ranch with a breezeway, two bedrooms, one bath, 1,144 square feet, corner lot, patio, barbecue pit, sixty thousand dollars. It had a clean, urbane fireplace notched into the end of a wall like a missing cornerstone. Behind it flows Black Creek, from whose bed dioxin-contaminated sediments were scraped a year ago as part of the Love Canal remediation plan.

On 98th Street, a telephone lineman was preparing to restore service. A block away, an LCARA maintenance man was working with a lan-guor that looked official. A man who had seen me inspecting houses walked over and began to talk. He wore a blue work shirt and a trim gray beard and was taking the day off from painting his house because of the threat of rain. He was a longtime resident, one of the few persons who had not accepted the federal buyout. I said he must be hap-

py to be getting neighbors again at last.

"Who needs neighbors?" he said. "I like it the way it is. Nice and quiet."

The lineman joined the conversation. They talked about a mysterious section of Love Canal buried under a golf course in another part of town. The reason it had never been dug up, they suggested, was best expressed by rubbing the thumb over the first two fingers in a lucrative motion. The conversation became a workshop in worldly wisdom, a lesson in lump-taking. They talked of people who had lived "inside the fence" and "outside the fence" as if the fence around Love Canal had always been there and as if having lived inside the fence conferred a special authority where suffering was concerned. The talk grew strong. Environmental activists were in it for themselves, the government was a patsy, the chemical industry had been good for the city, life was full of risks, you took your chances.

Are the houses safe? I asked.

"I never moved," said the resident.

"What's safe?" said the lineman.

To find out I drove to 9820 Colvin Boulevard, a ranch house typical of the kind LCARA is selling, perfect for a young family or a retired couple. Michael Podd, the New York State Department of Environmental Conservation's citizen-participation specialist, sat at his desk in someone's former living room. An assistant administrator sat not far away at a desk in someone's former dining room. Podd gave me a sheaf of official documents. He took me back into someone's former bedroom and showed me an elaborate three-dimensional model, complete with geological strata and transparent overlays depicting the lapse of time. He explained what happened at Love Canal in more informal language than that used in the official documents. It was a sad story, full of good intentions gone awry but with a great evil remedied in the end. "I don't tell people what's safe or not," Podd concluded. "My job is to give them enough information so that they can make up their own minds." From his desk, Podd could look directly across the street to the Canal Site Containment Area, or to what LCARA calls the "reservation," Love

Canal itself, capped and fenced and monitored through groundwater wells. It was like looking at the buffer zone of a minimum-security prison.

I visited the LCARA sales office. The realtor there was a good-humored, slender man named Leonard Rinallo, seventeen years in the real estate business. He wore a mustache and white pants and drove a Mercury Cougar, which he parked in the driveway of 1010 96th Street, another small ranch house. Someone's former living room, where in 1978, 1979, or 1980 someone might have watched the news coverage of the emotional protests occurring a block away at Love Canal, was now Leonard Rinallo's office. A brightly colored "Adopted Land Use Diagram" was pinned to the wall. Outlined in yellow was "Black Creek Village," the new name for the cluster of streets north of the Canal Site Containment Area. Future parkland was outlined in green, planned residential development in orange. In the red areas east of the canal—areas the present health commissioner has deemed uninhabitable (though several families live there)—plans are afoot for commercial and light industrial development. The empty houses on 100th, 101st, and 102nd streets will eventually be destroyed.

The interior of the LCARA sales office was resonantly empty. It had the midmorning feel I have always associated with the homes of neat, childless housewives, for whom the day's work is done quickly and a vacancy fashioned by ten o'clock. But there was no television, and there were no neighbors, and a realtor's desk stood where a sofa might once have been. By chance, I visited Rinallo on the day after the state supreme court threw out a plea brought by several environmental groups for an injunction against house sales at Love Canal. He expressed measured happiness with the decision, renewed satisfaction with his job. Rinallo would have been more cheerful had a source of mortgages been found as well. "The banks can't redline," he said, "but they can sit on an application forever." Sales were not brisk. (In the coming months, sales would improve. By early November, thir-

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*\*Publishers Weekly*

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teen houses were under contract though still awaiting financing. A coalition of environmental groups including the National Resources Defense Council would later sue to stop the sales.)

Rinallo treated me like a customer. He gave me a state-prepared packet of information and took me back into someone's former bedroom, where he played an LCARA sales video for me. It outlined the slow but inexorable process that led from the digging of the canal by William T. Love for a turn-of-the-century model industrial city to the moment when the first new homeowner in the revitalization plan turns the key in the lock of his newly refurbished house. The video was worth watching to see pictures of Love Canal in the Thirties, when it was just a long pond. It was worth watching to hear the cheerful music and the narrator's march-of-time voice and to sense the high pitch of official optimism. (The video is currently being revised. The state attorney general's office protested the video's description of Love Canal as a suitable dumpsite for its era, a problem that Rinallo described as "a play on words type thing." The state may merely be protecting its own litigation. Its case against Occidental Petroleum, Hooker's parent company, for its role at Love Canal has just come to trial in Buffalo after a decade of legal positioning.)

I drove back to the edge of the Canal Site Containment Area and parked. I watched the neatly groomed field that lay behind the chain-link fence. It was hard to imagine that it had once been a school and a playground and two streets full of houses. It was hard to imagine the 44 million pounds of chemical waste still lying beneath it. It was especially hard to imagine those chemicals lying on the surface of the earth, suppurating, as they had in the late Seventies, and to picture those streets filled with distraught homeowners protesting their fate and the corporate and governmental negligence that had brought it on.

Many of those homeowners—bedrock, blue-collar Americans—worked in the Niagara Falls chemical

industry or had friends or relatives who did. It did not surprise all of them to learn that Hooker had dumped 22,000 tons of toxic chemicals, covered the pit, and walked away, wiping its hands. They knew that a chemical plant "is not a chocolate factory," as a Hooker official in Michigan remarked in the late Seventies. What surprised them was the discovery that an attempt had been made to shift liability for those chemicals all down the line. With a warning in the final paragraph of its 1953 deed of sale—the inadequacy of which the attorney general is testing in court, though LCARA includes the same limitation of liability in its current sales contracts—Hooker sold the canal for the sum of one dollar to the Niagara Falls Board of Education, which erected a grammar school on the site. Sensing its own legal jeopardy, the Board of Education deeded part of the property in 1960, with another annulment of liability, to the city of Niagara Falls, where, if you possessed faith in government, you would suppose liability might safely rest. But the mayor of Niagara Falls, Michael O'Laughlin—still mayor in 1990 and chairman of LCARA since 1980—told protesting homeowners, "You are hurting Niagara Falls with your publicity. There is no problem here."

Prospective buyers would visit the LCARA sales office and the Department of Environmental Conservation's Public Information Office, as I had. They would collect pamphlets and brochures. Perhaps they would read them. If they did, they might get the impression that the city, state, and federal governments had willingly initiated the chemical analyses, the health studies, the temporary removal of residents, and the final buyout of homes in the Emergency Declaration Area. They might notice that in the fact sheet on "Love Canal EDA Habitability," the New York State Department of Health said, in effect, that it was up to prospective buyers to decide whether the houses there were safe, houses offered at 15 to 20 percent less than local market prices. With a bundle of encouraging official documents under one's arm and the sight in one's eye of a fenced "reservation" and a scientific-looking leach-

ate treatment plant, the plea of money would always prevail. A bargain is a bargain.

As I sat and stared at the vacancy that was once Love Canal, I found myself temporarily persuaded of, if not by, the state's rationality. But rationality is not always a virtue, and credulity is an old failing of mine, the residue of an upbringing in which deference meant a lot and reasonableness was more important than reason. No one ever called it tractability, that predisposition to reasonableness, but that is what it amounts to. At Love Canal, after visiting Michael Podd and Leonard Rinallo, I found myself eager again to believe what I was told because it was the least depressing choice. I wanted to feel again that the past had been a nice place, or, conversely, that the future would be. I knew better, though not half as well as the former inhabitants of the empty houses that surrounded me.

The question naturally arises: Who would move to Love Canal? The question is imprecise. It assumes that the answer is, No one in his right mind. (It also assumes a full awareness of what happened at Love Canal.) The state of New York, through LCARA, has gone out of its way to appeal to the right-minded. Its brochures and fact sheets bear the stamp of rationality, of solid, official information. Its realtor looks like other realtors, its houses like other houses. The streets where it does its business are as quiet as the streets in brand-new developments. The right-minded may well move to Love Canal, but they will need to believe that their predecessors were wrong when they formed a homeowners' association and insisted on a government buyout of all homes in the area. Either that, or the right-minded will need to believe that the state has fixed the problem. The past was a nice place. Or the future will be.

The potential buyers of homes at Love Canal are middle-aged. They are young. They are mostly blue-collar workers, squeezed, as everyone is, by the rise in housing costs. They resemble no one so much as they do

Continued on page 78



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*Continued from page 75*

the people who used to live there. And what do they say about the area?

"You can't beat the price. If the neighborhood does catch on, in five or six or ten years, I've got a great investment."

"I'd like a place where there's some sense of values, where you can take pride in where you live."

"They must have cleaned it up pretty well. It's probably one of the safest places to live in Niagara Falls by now. There are problems no matter where you live in the world."

"There are chemicals all over this town. My attitude is, if you find a place where they've at least paid attention to cleaning it up, you should go."

"I think it was all a lot of hooey. This street should never have been condemned to begin with. If it was contaminated, I don't think you'd be seeing so many green trees."

"Or all these squirrels."

Who would move to Love Canal?

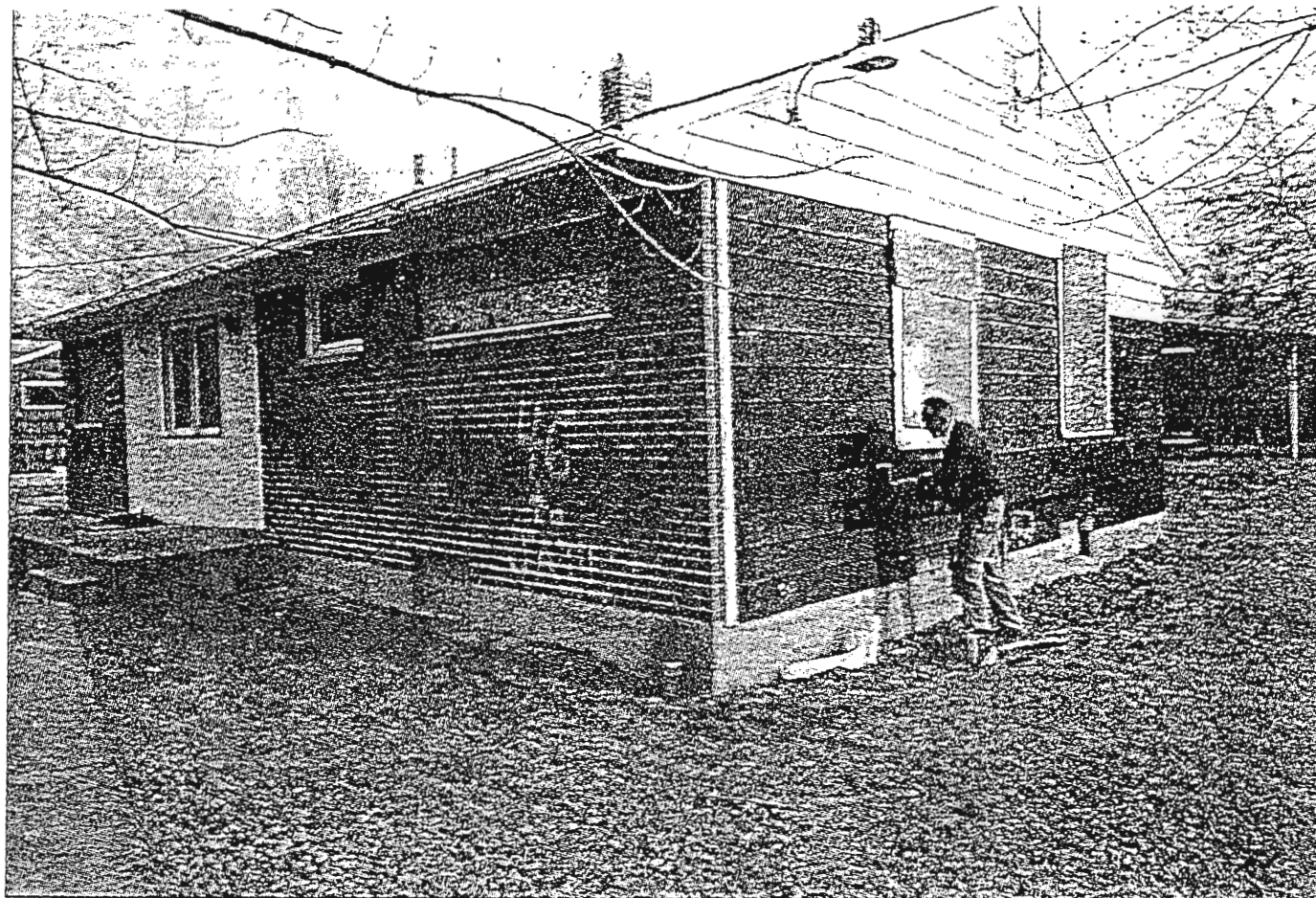
"Everyone's waiting for someone else," said Leonard Rinallo in September. "Most people are followers."

"Former residents are coming back," he added in November, "people from the Niagara Falls area. One man sold his home in California and bought the most expensive house we had. He's moving here in the spring. Another family with three children. They wouldn't be coming if they didn't think it was safe."

Is it safe? Beneath the "reservation," the toxins in the canal have been "contained," though no one will guarantee their perpetual containment. There is no problem here, the state implies, as it has all along. "I've got an hour-and-a-half commute to work," says Michael Podd, the citizen-participation specialist. "I'd buy a house here." Podd also told me a story about one longtime Love Canal resident who said to an interviewer, "I know what's in my backyard. Do you know what's in yours?" When the validity of the state's habitability studies is challenged, LCARA's executive director, William Broderick, says, "Just about every place is contaminated. If we shouldn't put people in here, then maybe the rest of the city should be evacuated."

Life at Love Canal halted a decade ago: Its streets are still; traffic, nonexistent. As I sat beside the fence around the canal, it seemed as if all the men were at work, all the wives shopping, all the children at school, all the grandparents still living in rural homes. The style of the houses dates back to the late Fifties and early Sixties, when America was a different country. The threat of toxic contamination around me was invisible, intangible, but the sense of nostalgia was extraordinarily pungent. These deserted streets evoked an era when, as one potential home-buyer remarked, Love Canal was the "kind of place where you had street parties all the time, where you really knew the people next door. It was the kind of place where if a father was taking his kids for ice cream, he'd take the whole block along."

That man, a former resident, was describing a time when no one expected to be surprised by the presence of chemical waste in the backyard, a time in the minds of its people when government was generous and watchful, not obdurate and evasive, as it was when the Love Canal Homeowners' Association began to press for chemical analyses, medical testing, and, ultimately, the buyout of homes. What many prospective buyers see when they look at Love Canal, and what its first residents saw too, is a suburban innocence that harks back a generation or more, a neighborhood where the everyday creates a sense of protective closure. They are eager to believe, paradoxically, that everything has changed and that the past can be recaptured. The state would like to foster that faith. It is selling the past, and it hopes to purchase forgetfulness. In the informational packets and video that LCARA shows prospective buyers, there is no allusion to the ardor of homeowners' protests at Love Canal, no trace whatever of the emotions that erupted there a decade ago. The state will replace furnaces and windows and driveways, repaint and reroof and replaster the houses it sells, but it will never be able to restore innocence. That will return, briefly, when the moving vans come, when lights burn again in those houses at night.



The Associated Press

A Love Canal Area Revitalization Agency worker prepares a house for sale as people start moving back into the New York neighborhood, recently renamed Black

Creek Village, that was plagued by toxic waste leaks 12 years ago. Home buyers are given no guarantees, however, that chemical leaks will not recur.

## Love Canal area revival under way

► People are slowly moving back into the Niagara Falls neighborhood that in 1978 felt the dire effects of toxic chemical leaks.

By Alan Filppen  
The Associated Press

NIAGARA FALLS, N.Y.

Television cameras rolled as brawny men lugged Richard Horn's and Sandra DeVantier's furniture, appliances and a set of golf clubs into their small brick ranch house.

Passers-by stopped to stare. The mayor proclaimed it the biggest day in the city's history.

Twelve years after chemicals leaking into the basements of a middle-class neighborhood made Love Canal a symbol of America's toxic waste problems, people were finally moving back to the area.

"It has been a long battle," says Mayor Michael O'Laughlin. "The fact that a person finally moved furniture in is an outstanding accomplishment in the envi-



ronmental world."

Indeed, much has changed at Love Canal since the summer of 1978 when the leaking chemicals dumped there three decades earlier by Hooker Chemicals & Plastics Corp. set off a nationwide scare about unseen poisons

lurking beneath the earth.

An elementary school and hundreds of houses built on and near the dump in the years after Hooker abandoned it have been bulldozed, literally plowed into the ground.

The 70-acre site where children played amid chemical volcanoes and explosive "fire rocks" is now a green, grassy mound, fenced off from the world. The 22,000 tons of chemicals that remain in the earth are contained by a system of underground drains that, the government says, should catch any leaks before they can threaten the rest of the neighborhood.

The neighborhood even has a new name

— Black Creek Village.

But one thing hasn't changed since those scary days. Scientists and environmental officials are still divided on whether Love Canal is, or ever will be, a safe place to live.

The debate has echoed through the halls of power in Washington and the halls of justice in Buffalo and Niagara Falls. It has even ripped apart one of New York's largest environmental groups.

The state Health Department reported in 1988 that a portion of the Love Canal neighborhood was no more polluted than comparable areas elsewhere in Niagara Falls. After months of delay and lobbying that reportedly reached into the White House, U.S. Environmental Protection Agency chief William Reilly upheld that study last spring.

With Reilly's approval in hand, the Love Canal Area Revitalization Agency put up for sale 10 houses a few blocks north of the dump site. The agency ultimately hopes to renovate and sell as many as 250 of the 1,100 houses that the state bought from fleeing residents in the early 1980s.

William Broderick, the agency's head,

Please see LOVE CANAL, A-7

# LOVE CANAL

*Continued from A-3*

declared Love Canal to be "probably the safest area in the city of Niagara Falls, because we know the most about it." But he concedes that the agency can't give home buyers a written guarantee that chemical leaks will not recur.

The agency boasted it had a list of more than 200 people who were interested in buying houses in the area. But by late November, only 12 buyers had signed contracts to purchase houses in the area, and only one house had been occupied — the one bought by DeVantier and her fiancé, Horn. They moved in Nov. 28.

Broderick said recently the wait-

ing list evaporated because many of the people on it were looking to buy homes at "fire-sale prices," lower than the \$40,000 to \$60,000 the agency was asking. Single-family homes in Niagara Falls sold for an average of \$49,700 this year, according to the Greater Buffalo Board of Realtors. DeVantier and Horn, who declined to speak to reporters, paid \$54,000 cash for their house.

Broderick also said the agency's sales efforts were hampered by the reluctance of many local banks to write mortgages on Love Canal property.

But the agency was also dogged

by lawsuits from environmental groups that said the state study hadn't proved the area was safe. The environmentalists said comparing Love Canal to other parts of Niagara Falls was meaningless because the entire city is permeated by the effluent of its massive chemical industry.

But the club found itself plunged into a divisive debate because one of its board members, James Carr, was the revitalization agency's planning director — a key spokesman for the resettlement effort.

Disgruntled members accused Carr, a past president of the state chapter, of using his position to try

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THE PRESS-ENTERPRISE • Sunday, January 6, 1991 • A-7

to frustrate the suit. After months of debate over whether Carr should be ousted, the national Sierra Club organization threw the chapter's entire board out of office.

While that dispute was playing out, Occidental Chemical Corp., which purchased Hooker in 1968, was trying to fight off the government's efforts to make it pay at least \$700 million in cleanup costs and damages.

The company lost an early round when U.S. District Judge John T. Curtin ruled it was liable for the cleanup costs under the federal Superfund law — a 1980 law that was inspired by the events

at Love Canal.

But Occidental launched a vigorous defense to the state's claim that the company should pay \$250 million in punitive damages for its allegedly reckless behavior at the dump.

Former residents, Hooker employees and state workers streamed into Curtin's courtroom in Buffalo, telling their recollections of how Hooker turned a pristine canal bed teeming with fish, plants and muskrat into a chemical wasteland.

The company countered with evidence that Hooker's procedures for waste disposal were the state of

the art in their day; that broken drums were always covered immediately with dirt; that the company dug pits deep into what it believed was impermeable clay so the leaking wastes would not escape into the groundwater.

Occidental also began trying to show, as the trial evolved into a battle of scientists, that the state caused unnecessary panic in 1978; that the hazards from the dump were overstated all along, and that many of the chemicals detected in air samples in neighborhood houses came from common household chemicals such as paint thinners.



## Why We Can't Allow People to Move Back Into Love Canal 1990

*No one will say that Love Canal is safe.* The biggest health problems at Love Canal are reproductive. Fifty-six percent of the children born at Love Canal were born with birth defects. Even the New York State Department of Health admits a high rate of miscarriages and stillborn or low birth-weight babies. There is also a high rate of cancer, respiratory, urinary, and heart problems within the community. It is irresponsible to not acknowledge these risks. A reproductive risk assessment must be done before people move in.

*Toxic poisons do not stop at fence lines.* It is just plain stupid to say one area is safe while another is not. Air travels beyond arbitrary lines, as do surface and groundwater. If a location is contaminated, the surrounding area should be considered unsafe as well.

*The containment system will not be secure forever.* The containment system at Love Canal has always been intended as a temporary fix. At some time in the future it will have to be redone. What will happen when that remedial work takes place? Last time, 300 families had to be temporarily evacuated. The clay cap is also only good, at best, for 25 years.

*It's too costly to resettle people.* Already 14 million dollars have been spent on Love Canal to determine resettlement. The taxpayers of New York as well as at the federal level should be outraged at spending that kind of money to sell 200 broken-down weather-beaten homes. That money could have been better spent on schools, roads, or

at other toxic waste sites. Furthermore, the first time a family who moves in to Love Canal has a health problem, they will sue the state, regardless of whether the canal was the cause. Then the state will spend even more resources trying to defend itself.

*Maybe there is something else going on at Love Canal.* Maybe the issue isn't reselling homes but rather covering up the problem. It could just be that the chemical industry wants to resettle Love Canal so they can say, "See, there is no hazard. "Love Canal has been cleaned up and is now safe." Maybe our political representatives are helping them achieve this corporate goal rather than helping the people they are suppose to be protecting.

*What should be done with the Love Canal Area?* The area should be used as a research and demonstration project. Advanced new clean-up and disposal technologies could be tried there to gather important information that could then be applied nationwide. Let's learn from Love Canal, not repeat the same mistakes of the past. Love Canal gives us the opportunity to close the gap in our scientific knowledge about toxic waste disposal and affects.







## Comments on the Proposal to Move Families Back to Love Canal

August, 1990

Our perception of the dangers to human health from the dumping of hazardous wastes came into focus at Love Canal in 1980 when the community was declared a “disaster area” and more than 900 families were evacuated. Now, 10 years later, the state of New York wants to move people back into two-thirds of Love Canal. This decision is based on a study conducted by the New York State Department of Health (DOH) that concluded that portions of the Love Canal community are as “habitable” as other areas of Niagara Falls. DOH has been very clear, however, to say that they are making no judgments about whether it is now “safe” to live at Love Canal.

The reason the state cannot address the issue of safety is because they didn’t evaluate the health risks of living at Love Canal. Usually, public health risks are determined by conducting either a quantitative or qualitative risk assessment that characterizes potential adverse health risks. Although this process is not an exact science, it is the established standard for assessing public health risks in this country.

Instead, the state of New York determined habitability by comparing levels of residual contamination in Love Canal with contaminant levels in other areas. This approach of comparing one set of environmental data to another without actually determining health risks

is not a sound scientific procedure for making public health decisions.

Furthermore, the two comparison areas located in Niagara Falls were known to be contaminated by the same company (Occidental Petroleum) who is responsible for Love Canal. For these reasons, this approach is seriously flawed and biased and has led to widespread criticism of the process and conclusions reached by the state.

More fundamentally, this comparative study is seriously flawed because the state of New York altered their elaborate study design mid-stream. Seven indicator chemicals were selected and measured in the air, water and soil in designated areas around the canal. The results were compared to two comparison areas chosen by a detailed selection process. Both of these comparison areas, Cheektowaga and Tonawanda, were located outside of Niagara Falls.

The state found the levels in Love Canal to be significantly *higher* than the two comparison areas. This meant that when an analysis was done, *none of Love Canal would be habitable according to the state’s criteria*. The DOH then decided, for reasons they never explained, that they needed additional comparison areas and selected two new areas. Both were located within the city of Niagara Falls. The selection of these two “new”



## Center for Health, Environment & Justice

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comparison areas did not go through the elaborate selection process used in determining the original comparison areas.

To compound matters, when the DOH made their decision on habitability, they only used the results from the two “new” comparison areas in Niagara Falls. The determination of habitability never took into consideration the originally selected controls, Cheektowaga and Tonawanda. There is only a short statement buried in the five-volume Habitability Report that acknowledges that the levels of contamination in the original controls were significantly lower than the levels found in Love Canal. More detailed comments on this process are available from CHEJ.

The importance of the Love Canal resettlement decisions is that it establishes a dangerous precedent for future decisions not only at other toxic waste sites that are being considered for resettlement, but whenever public health risks are being evaluated. The scientific policy implications could be far reaching.

Consider, for example, what might occur when evaluating health risks in the workplace or in a community affected by an incinerator or landfill or by emissions from a plant. Instead of using established regulatory consideration and evaluation, with this precedent it will be possible to simply compare one contaminated water supply to another, one contaminated workplace to another. It will be possible to justify potentially

unsafe levels of exposure or contamination not only because there are no differences between the study area and the comparison area, but because there is no understanding of the health risks posed by exposure to these contaminant levels.

Recognizing these problems with New York state’s approach, we met with the Environmental Protection Agency (EPA) Administrator William Reilly and asked him to evaluate what was done. The EPA supported the state’s decision. We still feel that the comparative approach is unscientific and biased and that the best scientific approach and methods must be used to establish the health risks of living at Love Canal. Not only do the people who might move into Love Canal deserve this, but so do the many others across the country who will be affected by this dangerous precedent.

# Love Canal Is "Habitable" But Not Safe

*By Stephen Lester, CCHW Science Director*

In September 1988, the New York State Department of Health (DOH) celebrated the 10th anniversary of Love Canal by announcing that two-thirds of the area was now "livable." DOH had failed in its earlier attempt to declare the area "safe," and it knew that there was still no way it could get away with declaring safe all of Love Canal. So, proving that even governments can learn from their mistakes, DOH now said some of Love Canal is "habitable"--admitting some of it is not. But "habitable" does not mean safe, and DOH has been very careful to correct anyone who uses the word "safe" when referring to Love Canal.

Careful examination of the basis for this decision shows the methods DOH used to arrive at this declaration were based more on politics than on good science. Five years of study, \$14 million in taxpayers money and many volumes of experts' reports were DOH's way of giving the appearance that an objective credible scientific approach had been used. But the years, dollars and reports cannot cancel out the political manipulation of the data that influenced all the other decisions and actions.

DOH's approach was simple: select seven "indicator" chemicals; measure them in air and soil in seven designated areas around the canal; and then compare the results to other communities in Niagara Falls and in nearby Cheektowaga and Tonawanda (both located outside of Niagara Falls). While taken at face value this seems a reasonable approach, unfortunately it's not what DOH actually did.

For each of the seven designated areas, DOH determined a statistical average exposure level, the median (The median is the number in the middle of a series of numbers--there are as many numbers above it as below it. If you have the

series 99,98,97,5,4,3,2, the median is 5). This median was then compared to the median contamination level in the four comparison areas. This means that "hot spots" --very high levels of contamination--within each of the designated areas could be well above this average (just as 99, 98 and 97 are well above 5 in the example above).

They selected four comparison locations that were each at least one-half mile from a toxic dump site. They started by looking for areas at least one mile from a dump but gave up because they could not find any such places in greater Niagara Falls. Again the median contamination level was determined for each of these four locations.

DOH made decisions about habitability by comparing the median exposure levels in the Love Canal areas to the comparison areas. When they did this, DOH found levels in one of the Love Canal areas to be significantly higher than in all four comparison areas. But for all the other Love Canal areas, levels were consistently higher than the two comparison areas located outside Niagara Falls but similar to the two locations in Niagara Falls. So what did DOH do? They decided to ignore the data from the two locations outside of Niagara Falls and only use data from the two areas in Niagara Falls.

By throwing out the data they did not like and keeping the data they did, DOH made sure that some of the Love Canal area would be determined to be "habitable." They also undermined most of the scientific work that it had painstakingly taken five years to achieve. By using only those comparison areas that met their needs, they completely dismissed the fact that levels in parts of Love Canal were statistically higher than two of the four comparison groups.

DOH violated their own criteria for determining



habitability set up by their highly visible "Technical Review Committee (TRC)." According to a five-volume report released by EPA (a member of the Love Canal TRC), an area is considered habitable only if indicator values "are not statistically different than the values from the comparison areas." The criteria do not state that a place is livable if there are no differences in two out of four comparison areas. DOH did what they wanted to do despite the criteria set by the TRC. So much for "credible" science.

**DOH's approach has several other limitations:**

House-by-house contamination levels were not considered. Individual locations may contain contaminant levels that exceed "acceptable" levels.

Use of indicator chemicals fails to provide a complete assessment of risks--because only a select number of chemicals are evaluated.

The Canal is "contained" and not cleaned up--and thus the potential for further contamination remains.

Areas of the Canal still require cleanup. EPA estimates that it will be 1993 before they complete their latest Superfund cleanup work at Love Canal. The areas surrounding this cleanup should stay as a "buffer zone" and not be made available for residential use.

The results of this study could affect community groups across the country, especially if and when

Love Canal is used as the standard that other sites are measured against. The levels considered "habitable" at Love Canal will become standards to evaluate other sites--a serious mistake, because the decisions at Love Canal were not based on a credible scientific approach, but rather on a politically twisted use of data. This report should be shot down for what it is--politics, not science-- and its results ignored.

For Lois Gibbs and the many residents who fought so hard to be relocated from Love Canal, the data from this study proves that they were right and that the "experts" were wrong. Housewives with little more than their gut instincts knew their homes were contaminated. The "experts" charged that they were hysterical and irresponsible, that they didn't know what they were talking about. Now the truth is known. Now it's quite clear who did and who did not know what they were talking about.

Many of the local residents of the area around Love Canal are refusing to accept DOH's decision at face value. They are calling for a special legislative hearing that would force political decision-makers such as David Axelrod, Commissioner of Health, to come before the public and explain the true basis for this decision. After ten years, the Health Department may have declared the area "habitable" but it will be many more years--if ever--before the former residents of the area allow the irresponsible resettlement of Love Canal.

This article is a reprint, with some modifications, which originally appeared in *Everyone's Backyard*, Vol. 6, No. 4-- Summer 1988

Further reading:

"Love Canal Emergency Declaration Area Proposed Habitability Criteria," CDC and DOH, December, 1986.

"Love Canal, Emergency Declaration Area: Decision on Habitability," September, 1988. "Love Canal EDA Habitability" "Fact Sheet" and "Questions and Answers," September, 1988.

Love Canal Emergency Declaration Area Habitability Study Final Report, Volumes 1-5, Technical Review Committee, USEPA, February - July, 1988.

"Supplement to the Love Canal Emergency Declaration Area Proposed Habitability Criteria," Appendix 6, NY State Department of Environmental Conservation, September, 1988.

All of these reports are available from NYS DOH, Empire State Plaza, Albany, NY 12237.

# Court asked to block Love Canal house sales

By Alan Flippen  
ASSOCIATED PRESS

BUFFALO— Five environmental and community groups went to court yesterday to block the resettlement of Love Canal one day before a state agency planned to start showing homes near the notorious chemical dump to buyers.

The groups said they wanted a judge to enforce his 1985 injunction that barred resettlement of the neighborhood in Niagara Falls until an environmental impact statement is completed. No hearing was set because the judge is on vacation.

"Resettlement may subject human beings to a serious health risk, such as mutagenic diseases and death," charged Joanne Hale of the Commission for Racial Justice.

On the other side of the issue, the Love Canal revitalization agency said it had asked the same judge, state Supreme Court Justice Joseph Mintz, to lift the 1985 injunction.

The revitalization agency planned to start showing 10 houses

north and northwest of the chemical-filled canal bed to prospective buyers today.

Residents fled from 1,100 houses in the late 1970s after dioxin, PCBs and other hazardous chemicals were found to be oozing from the abandoned, filled-in Love Canal, where Hooker Chemical Co. had dumped them 30 years earlier.

About 240 houses and an elementary school adjacent to the filled-in canal were demolished in the early 1980s and the area fenced off. The 10 houses scheduled for sale are among about 250 several blocks away.

More than 200 people, including several former residents of the area, have expressed interest in buying the small single-family houses. Many of them say they believe the danger from the 22,000 tons of chemicals still buried has been overstated.

A state Health Department study, finished in 1988, concluded that the resettlement area was no more contaminated than comparable areas in Niagara Falls.



# The Return To Love Canal

## Would You Move There?

By **Anne Underwood** | NEWSWEEK

From the magazine issue dated Jul 30, 1990

Would you live near a storage site that contains 22,000 tons of toxic wastes? That is the question prospective home buyers are asking, now that the government has approved the resettlement of Love Canal, the nation's most notorious toxic-waste dump. The first 10 of 236 houses will go on sale in Love Canal on Aug. 15--and the list of eager buyers already totals 204. "If it turns out to be reasonable and affordable, I'll be in there," says Gary Bowen, who is looking to move in with his wife and baby daughter. "It's a nice area with solid houses and big yards."

Bowen's sunny description is hard to square with the dire images of 1978, when President Jimmy Carter declared Love Canal an emergency area, and evacuations began. Residents nearest the dump lived practically on top of a deadly store of chemicals, including toluene and dioxin--and reports soon surfaced of higher-than-normal rates of miscarriages, birth defects and cancer among them. The scandal prodded the U.S. Congress in 1980 to create "Superfund" to pay for the cleanup of 1,218 toxic sites--50 of them now complete.

After a 12-year, \$250-million effort at Love Canal, the Environmental Protection Agency concluded this spring that four of its seven areas are "habitable." (The other three are slated to become industrial areas and parkland.) A state-of-the-art containment system has sealed off the 16-acre dump itself, with dense clay walls and two three-foot-thick caps--one spanning 22 acres and the other 40 acres. The 239 houses immediately surrounding the dump have been demolished, and the entire area is blocked off by a chain-link fence. Periodic testing of air, water and soil ensures that no telltale chemicals are leaking out. "A child runs far, far greater health risks if his parents smoke or drink than he does living in Love Canal," says James Carr, planning director of the Love Canal Area Revitalization Agency.

Environmental and citizens groups disagree. "Even the government admits that the containment system will not last forever," says Michael Vickerman, conservation chairman of the New York chapter of the Sierra Club. "With poisons this deadly, that leaves a huge question mark." Next week the Sierra Club, Natural Resources Defense Council and four other organizations intend to file suit in state and federal courts to block the immediate sale of homes and seek new risk assessments. "I'd like to see a lot more information on the health risks before making a major policy decision to move people back," says



NRDC attorney Rebecca Todd. "Love Canal is a ticking time bomb. "

Environmentalists fear that the discount prices of Love Canal properties--20 percent below market value--will attract young families looking for starter homes; pregnant women and children are at greatest risk from toxins. "Five or 10 thousand dollars is nothing compared with a human life," warns Luella Kenny. Her own 7-year-old son died at Love Canal in 1978, of a kidney disease that doctors later said was linked to dioxin contamination. "He died of playing in his own backyard," she says.

If the Revitalization Agency has its way, within three years the area will be populated. New parks will flourish; the 93rd Street school will reopen. Perhaps Love Canal will then resemble any other well-kept, middle-class neighborhood. More than 200 families seem ready to take the chance.

Find this article at

<http://www.newsweek.com/id/127902>

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July 26, 1990

# At Love Canal, Land Rush on a Burial Ground

By **SAM HOWE VERHOVEK**, Special to The New York Times

In Love Canal, the abandoned neighborhood built around 21,800 tons of buried toxic chemicals and sludge, lawns are being reseeded, roofs resingled and houses painted a gleaming white.

A decade after the Government declared a health emergency and bought out hundreds of homeowners, making Love Canal the most notorious hazardous-waste dump in the country, parts of the area are on the verge of being settled again.

More than 200 people, including at least five who grew up in the neighborhood, have responded to the Federal Government's declaration that some blocks are habitable by applying to move in. Dozens more stop by each day to look at a wall map of new listings in the office of the Love Canal Area Revitalization Agency, which owns the houses and will offer the first 10 for sale beginning Aug. 15.

"It has all the characteristics of a terrific neighborhood," said James E. Carr, the agency's director of planning. "The street pattern is very good, the vegetation is mature, there's a mall nearby, and the first people in will certainly be getting themselves a bargain, because they're pioneers of a sort."

Why do people want to buy homes around the nation's first waste dump to be declared a Federal disaster area?

Some say the health hazards were overstated to begin with; indeed, only after intense pressure from residents did the Federal Government reluctantly buy out hundreds of houses beyond the core area where the highest concentrations of chemicals were found.

Others say that regardless of what happened here, including the illnesses and deformities found among children living in houses built on or next to the filled-in toxic

dump, the Government would not allow people to return unless it was now safe.

And many people seem to have concluded that their only chance of owning a home is in Love Canal, or Black Creek Village, as the agency has renamed it. With prices reflecting what officials call a stigma factor, the houses will sell for \$30,000 to \$80,000, about 20 percent below what comparable ones cost in nearby suburbs.

"I'd like a place where there's some sense of values, where you can take pride in where you live," said Leon Morgan, a chef who lives with his wife and five children in a \$375-a-month apartment downtown. Crime and drugs are problems there, and the noise from a fast-food restaurant keeps them awake at night, he said. "People are living too close to each other."

Most of the toxic waste that prompted the emergency is still here. But now it is encased in layers of clay and plastic beneath a long grassy knoll fenced off with signs that warn: "Dangerous -Hazardous Waste Area - Keep Out."

### Officially Habitable

Tests by the state and Federal governments have deemed much of the neighborhood around the former canal "habitable," though scientific constraints prevent them from declaring Love Canal - or any other place - "safe" to live in. Technically the studies found that living here would pose no greater risk than living in other parts of Niagara Falls.

"Yes, it's possible Love Canal could leak again," Mr. Carr conceded during a recent tour of the neighborhood. "But the chances of this are absolutely remote. This is not some rusty oil barrel along the Monongahela River."

The revitalization agency, a local organization that bought the houses with state and Federal money, plans to sell up to 236 abandoned homes north and west of the canal. About 200 built on or nearest the canal were razed; 250 more are being studied.

The agency will sell the houses much as ordinary homeowners do: it will list a home's price and sell to the first qualified buyer who agrees to it. Officials have not yet decided whether they will accept offers below the asking prices.

Many environmental groups are appalled by the recent Environmental Protection Agency decision that cleared the way for resettlement. They contend that none of the studies adequately addressed questions about the long-term safety of living in the neighborhood. They also say the process could set a dangerous precedent for resettling



at lesser-known dumps.

Six groups are seeking an injunction on sales of Love Canal homes.

"The dump is still there, and so is the danger," said Lois Marie Gibbs, perhaps the best known of the former residents who fled Love Canal with her children. She moved to Washington and founded the Citizens' Clearinghouse for Hazardous Wastes, one of the groups seeking the injunction.

## Snapshot of Better Days

The cheery offices of the revitalization agency, in the offices of a former Head Start center for children, offer scant memory of the environmental disaster. A black and white photograph at the entrance shows some laughing boys swimming in the original canal in the early 1940's, just before the Hooker Chemicals and Plastics Corporation filled it in and began dumping chemicals, solvents, processed sludge and fly ash.

The Mayor of Niagara Falls, Michael O'Laughlin, suggested Sunrise Village as a new name for the neighborhood. But Mr. Carr and others favored Black Creek Village, after a creek that meanders through it.

One of the many families looking at houses is Delford and Banda Rowh, who live in a downtown duplex with their 4-year-old son, Clifford, not far from three chemical factories. "When the wind blows it's terrible," said Mr. Rowh, a taxi-meter repairman.

"We have been looking for the right place for a long, long time," Mrs. Rowh said. They have their eye on a cozy brick house with green trim and an awning at 1130 93d Street, with the creek running just along the back yard.

Mrs. Rowh said that with all the attention focused on Love Canal, "they must have cleaned it up pretty well."

"It's probably one of the safest places to live in Niagara Falls by now," she said. Anyway, she added with a shrug, "There are problems no matter where you live in the world."

## A Landscape of Former Dumps

Niagara Falls practically grew up around the chemical industry, but at a price. There are more than 200 former toxic-waste dumps within 50 miles of Love Canal, and leaking

chemicals have been detected at 22 sites along the Niagara River alone, according to state and Federal records.

Some people looking for houses in Love Canal seemed to justify their search in part by questioning whether they are any safer where they live now.

"There are chemicals all over this town," said Edmund H. Janiszewski, a Vietnam War veteran who wants to move with his mother to a house on Moschel Court in Love Canal. "Forest Glen, S-Area Dump, Bloody Creek Run," he added, rattling off the names of other places in the city where hazardous leaks have been found.

Mr. Janiszewski now rents a house on the East Side, above an old sewer line that carries the discharge from four chemical companies into the Niagara River.

'All a Lot of Hooey'

"My attitude," he said, "is if you find a place where they've at least paid attention to cleaning it up, you should go. If there is a potential danger, you're more likely to hear about it there than here."

When the problems at Love Canal were first made known, many people were skeptical, even though a New York study found levels of dioxin that the State Attorney General said were "among the highest ever found in the human environment." One such skeptic was Philip Palmisano.

"I think it was all a lot of hooey," said Mr. Palmisano, a retired used car dealer who wants to buy a brick ranch house at 41 Mason Court that Mr. Rowh said was "everyone's fantasy" but that Mr. Palmisano said is beyond his family's means.

"This street should never have been condemned to begin with," Mr. Palmisano said, gesturing down the empty block. "If it was contaminated, I don't think you'd be seeing so many green trees."

"Or all these squirrels," added his wife, Marianne.

The Palmisanos now rent an apartment above an abandoned tavern in the nearby town of Wheatfield. They feel confident that with their savings and Mrs. Palmisano's income as a substitute teacher they can afford to move to Love Canal.

Mr. Morgan, the chef, is less sure that he can afford a house in Love Canal but no less

eager to move there.

"I know the area," said Mr. Morgan, who had moved from the area before the contamination became public but had spent several years of his childhood with his parents on 93d Street in Love Canal.

"It wasn't like living around here, where you have to watch your back all the time," he said with faint smile. "It was the kind of place where you had street parties all the time, where you really knew the people next door. It was the kind of place where if a father was taking his kids for ice cream, he'd take the whole block along."

Photo: A decade after buried toxic waste led to evacuation of Love Canal, people like Marianne and Philip Palmisano hope to buy homes in the Niagara Falls, N.Y., neighborhood under a Government revitalization plan. (Joe Traver for The New York Times) (pg. A1); Delford and Banda Rowh with their son, Clifford, outside a house they would like to buy in the Black Creek Village section of Niagara Falls, N.Y., formerly called Love Canal. The Government, which declared a health emergency and bought out residents a decade ago after it was revealed that the neighborhood was built on a toxic waste dump, is now selling the houses for \$30,000 to \$80,000. (Joe Traver for The New York Times); Map: Niagra Falls, N.Y. (pg. B2)

May 29, 1990

# Our Towns; Home Bargains in Niagara: Just Forget the Toxic Image

By MICHAEL WINERIP

Within weeks, abandoned homes at Love Canal are expected to go on sale. Willie Mason, a janitor, and his wife, Esther, a census worker, can't wait for the chance to buy their Love Canal dream home. They've already set their sights on a handsome abandoned ranch at 37 Mason Court. "Any time we have nothing to do we drive out and look at it," said Mr. Mason.

"They don't let you inside, but we peek in," said Mrs. Mason. "Three bedrooms, two-car garage. Family room with a fireplace. Living room's decent size. That's about all I can see through the windows."

For the Masons and hundreds like them, a Love Canal home may be their only chance to own an affordable home, and for this opportunity they are willing to risk living near the most famous toxic dump in American history. As Leon Demers, a retiree, who has long eyed a home, said, "We told our children, if they didn't want to bring the grandchildren there, we'd understand - we'd visit them."

James Carr, a Love Canal Revitalization Agency planner, says homes will sell for 20 percent below area market prices. "Ten percent is knocked off because at first you'll probably live beside a vacant home. And there's a 10 percent reduction for Love Canal stigma."

Love Canal looks like an emptied Levittown. As sales day nears, up to 15 families a day inquire, driving the tree-lined streets and stopping to make notes at the prettiest abandoned houses. "It's been a madhouse," Heather Armstrong, the agency receptionist, said. "It's mostly the working class of people."

The Federal Government used to run subsidized home-ownership programs for blue-collar families, like the Section 236 grant, but these were killed during the Reagan years. "I've looked all around and we don't qualify for anything," said Randy Empson, a trucker, whose wife Shirley drives a school bus. Each time they save enough for a downpayment, prices rise. Mr. Empson worries that a chance like Love Canal won't come again and was angry when he heard Canadians were eligible. "Why do they let those Canadians come over and buy?" he said. "Americans should get first shot at Love Canal."

In the early 1980's, the government bought 238 homes nearest the toxic dump and demolished them. It bought 550 other houses farther away where the contamination severity was uncertain. In 1988, the state said hundreds of those homes were habitable. Two weeks ago, Federal officials affirmed that, and this summer the agency plans to sell its first 70.

Ads for homes will emphasize a new name, Black Creek Village. "I thought it should be renamed," said Mr. Carr, who came up with it. Asked if Love Canal would be mentioned, he said: "I think so. I'm sure we'll put it in some place."

Hopeful buyers have conflicting feelings. At first, Mrs. Empson said in an interview that "they wouldn't be selling them if it weren't all right." Later, she said: "We don't know. They can falsify reports and say anything." About 60 families never left the area, and Mr. Empson said, "They ain't died yet." But later he said, "The problem with Love Canal, you buy, you don't know in four years if you can sell or if something comes out of the ground again."

Niagara Falls is a big chemical production center, and prospective buyers seem to feel Love Canal is no worse, just more famous. "I've lived most of my life near two of the worst toxic dumps here," said Mr. Demers. The Masons can see huge smokestacks across a field from the front door of their apartment. "Only two are chemical companies," Mr. Mason said. Gail McClinsey, who has signed up for a home, works for Funk Lawn Care, which uses two dozen chemical spraying trucks.

Mr. Demers, 65, a disabled maintenance supervisor, has had a lifetime of trouble from chemicals. He was in the Navy in World War II and the Korean War, working in ship boiler rooms, and now suffers from asbestosis. For retirement, he and his wife bought a prefabricated home but wound up selling at a loss because of an allergic reaction he had to its building materials.

He believes government should do more to house working people. "Especially when you

see the last decade is the decade of opportunists," he said. "You see the savings-and-loan deal, the junk-bonds deal, the H.U.D. deal. What did they leave people trying to scratch out a living? Nothing." So Love Canal didn't intimidate Leon Demers. He was one of the first to sign up. He had his eye on a ranch on 100th Street. "It sat on a corner, nice landscaping. Very homey." But as time has passed, the projected price of Love Canal houses has risen. Last week he did some figuring and came to a sad conclusion. After eight years in the Navy and 30 years working for the same company, he could not even afford a house at Love Canal.



## EDITORIALS

MAY 28 1990

# Move in at your own risk

### Cheap housing prices at Love Canal put values of the buyer to the test

Would you buy a house near the nation's most notorious toxic waste dump? No? Well, suppose the owners knocked 20 percent off the price?

That's the dilemma facing prospective buyers now that the Environmental Protection Agency has certified parts of the Love Canal area fit for resettlement.

In 1978, after deadly chemicals leaked from a waste dump into homes, backyards and school grounds, President Jimmy Carter designated the neighborhood a federal emergency area. Some 2,500 people were evacuated.

Now, after a long, expensive clean-up, the city fathers and mothers of Niagara Falls expect to sell, in each of the next three years, 60 to 70 homes on the perimeter of the emergency area.

The first houses are to go on the block this summer. Already there is a waiting list of 200 potential owner-occupants from as far away as Australia.

**WHAT'S THE** attraction? Mostly the prices. At \$50,000 to \$60,000, they're 20 percent lower than for comparable housing elsewhere in Niagara Falls.

But is it right to put the homes up for sale? Is it right to move there?

Those are quite different questions.

Environmentalists, threatening legal action, say neither the state nor EPA conducted a valid study of the risks involved in resettlement.

A four-year, \$6 million habitability study found that the levels of chemicals at Love Canal are as low or lower than "normal" areas of Niagara Falls.

But the study didn't say that in the future the 21,800 tons of untreated hazardous wastes, now sealed in the canal, won't leak. No one knows when that might happen. Critics say it could be any time in the next 15 years.

Resettlement officials say only that they monitor the dump for leaks every day and will continue to do so. For the moment, reputable scientists conclude that it's safe to live there.

**THE OFFICIALS** say they will provide home buyers with full disclosure of the site's history, as state Attorney General Robert Abrams recommended.

That disclosure puts the burden on home buyers, which is where much of the burden should be. They must ask themselves these questions:

- What's the financial risk of living in an area that might, years down the road, have big problems again?

- What's the health risk, knowing that some medical threats take years to be fully identified?

- Is the 20 percent discount — maybe \$15,000 — worth these risks?

Government's role is to clean up, regulate, monitor, look for ways to make the dump site permanently safe.

But there are certain personal decisions government shouldn't make for us. Once there's no imminent danger, once we've been fully informed, it's up to us to weigh the risks against the benefits — and to beware.

# RACHEL'S HAZARDOUS WASTE NEWS #182

---May 23, 1990---

News and resources for environmental justice.

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Environmental Research Foundation  
P.O. Box 5036, Annapolis, MD 21403  
Fax (410) 263-8944; Internet: erf@igc.apc.org

## CHEMICAL DUMPS MAKE GOOD HOMES FOR POOR FAMILIES, EPA DECISION INDICATES.

William Reilly, chief of U.S. Environmental Protection Agency (EPA), last week declared homes bordering the Love Canal chemical dump in Niagara Falls, NY, safe for families to move back into. Some 200 families have already taken the bait and are standing in line to buy the dilapidated, boarded-up buildings abandoned 12 years ago by terrified residents. One of the houses soon to be reinhabited is the former home of Jon Kenny, a child who died in 1978 at age seven, despite a history of apparent good health, after he played in heavily-contaminated Black Creek, which bordered his back yard. Black Creek has since been dredged to remove the worst contamination, but the house itself stands as it did 12 years ago, its basement still embedded in the same contaminated ground, a boarded-up symbol of sickness, death and unregenerate corporate crime. The door of Jon Kenny's brick home will get a shiny coat of paint, and the community in which it stands will be given an upbeat new name, "Sunrise City." The 236 homes are being offered at 10% to 15% below market value, compared to homes not built near chemical dumps. Apparently, the nation's housing shortage is so urgent that young families desperate for a home will settle almost anywhere, even next to the notorious Love Canal, where the New York State Health Department found birth defects and miscarriages occurring at twice the national average 12 years ago. And equally apparently, the Bush administration is determined to send a message to the nation that chemical dumps will not be cleaned up, but nevertheless can still be packaged as useful property because dumps can be given new names by public relations slicksters, then can be successfully peddled to the poor and the poorly-educated. Welcome to environmental protection in the '90s.

The toxic chemical dump at Love Canal, which drove families out in 1978, has not been cleaned up. Twenty thousand tons of paint residues, dyes, epoxy byproducts, solvents, glop, crud, and black oily goo laced with dioxins, still lie buried in the ground. New York state environmental officials have covered the chemicals with a temporary clay cap to try to keep rain

out, and have installed drains and pumps in the ground to divert the flow of chemicals that would otherwise continue seeping into the basements of nearby homes. President Bush's EPA and the New York State Department of Environmental Conservation (DEC)--indeed, all scientists and engineers who understand the second law of thermodynamics--agree that these are temporary measures which will eventually fail, allowing chemicals to flow from the dump as they have flowed in the past, which is into the basements of the homes now being sold to families who are being bamboozled and misled by use of the words 'habitable' and 'safe.' But these government burrowcrats evidently judge it more important to send a message to America--"Chemical Dumps Make Good Homes for Poor People"--than to protect all Americans equally. It's a very '80s message, begun by the me-me Reagan regime and followed up with vigor by understudy George Bush, who says he wants to be remembered as "the environmental President." He will be remembered all right.

Would-be residents of Love Canal express two thoughts: an abiding faith in their government, and resignation that the earth has been totally contaminated anyway, so Love Canal is no worse than anywhere else. Philip Palmisano, a retired tavern owner in nearby North Tonawanda told the New York Times, "I'm no scientist or chemist, but you have to take someone's word on it. The government wouldn't let us move in there if it weren't safe, would they?" He ended with a verbal shrug of the shoulders: "We live in a contaminated world anyway."

What of this persistent notion that our government will protect us? How quickly we forget. There were actually three separate evacuations of people from homes at Love Canal. After each evacuation, the government declared the remaining homes "100% safe" and pigheadedly refused to study the health of the remaining residents. Residents, who knew they themselves, their children, and their neighbors were getting sick at unusual rates, had to find outside experts to do their own health assessments because government at all levels doggedly refused. When the residents came forward with maps showing clusters of birth defects, urinary tract disease, miscarriages and crib deaths, all suspiciously linked to the chemical dump, New York

State Health Department officials first said they would take the data seriously, but within hours announced to newspapers that the data were not worth studying because they were based on interviews with sick people and not on interviews with doctors treating the sick people. It was as cynical a manipulation of science and medicine as has ever been witnessed in America.

Fortunately, the story of Love Canal cannot be completely rewritten by William Reilly and his smiley-faced public relations counterfeiter because the true story has been recorded on an excellent video tape, available for commercial sale or rental. Bullfrog Films distributes *IN OUR OWN BACK YARD: LOVE CANAL*, produced and directed by Lynn Corcoran in 1981. It is the story of a three-year fight by residents to escape from their contaminated homes, some of which are about to be sold once again to gullible families, creating the next Love Canal disaster.

*IN OUR OWN BACK YARD* records government officials providing explanations--back in 1978--of why governments tried not to study the health of residents, and providing forward-looking explanations of why, a decade later, Love Canal must now be reinhabited by the poor. The video opens with New York's attorney general, Robert Abrams, saying, "Love Canal, tragically, has become a national symbol of corporate irresponsibility. Industrial producers and users of chemicals have too often disposed of highly toxic materials with utter disregard for the danger which these materials pose to the environment and to future generations." U.S. Representative Joseph Tyree explains why it was important for the federal government not to buy homes at Love Canal: "Once they set a precedent of giving the money to buy out these houses, then they've got the whole country [to consider buying out] because these wastes are all over." These are still the true meanings of Love Canal and these are the meanings that George Bush, William Reilly and their public relations muggers have set out to blur or, better yet, to erase. Anyone who remained awake through earth day knows that the smiley-faced new slogan from the Chemical Manufacturers' Association is "Responsible Care of the Earth" (with the implied assumption that the earth is theirs, and they get to 'care' for it as they see fit). Although the chemical industry continues to bury millions of tons of toxic chemicals in the ground each year with the fawning collaboration of William Reilly's EPA, their public relations mercenaries now call this not "poisoning the planet" but "responsible care." George Orwell is winking at us from his grave.

The Bush administration on May 8 issued a major landfill regulation that guarantees the creation of many more Love Canals throughout the '90s. The new

regulation cuts the heart out of a six-year effort, initiated by Congress in 1984, to stem the flow of raw toxics into underground burial sites. Congress had ordered EPA to require that wastes be treated with "best available technology" prior to landfill burial. The May 8 regulation simply abandons all pretense of complying with Congress's directive. "This proposal ensures that the waste management practices of today will become the Superfund sites of tomorrow," says a critique of the regulations issued jointly by Natural Resources Defense Council (NRDC) and the Hazardous Waste Treatment Council (HWTC), an incineration industry trade association. Richard Fortuna of HWTC termed the new Bush-Reilly regulations the "What--me worry?" approach to hazardous waste management, pointing out that the new rule--called the "third-third" rule--allows hazardous wastes to continue to be placed in unlined and leaking lagoons, and treatment residues (such as ash) can be placed in unlined, unmonitored, and leaking landfills. It represents the biggest step backward in 20 years or more.

For our part, we feel relieved that a Bush-Reilly pattern has finally and unmistakably emerged: poor people, middle-class people, and the natural environment had better watch out because the chemical industry and its public relations goons have taken control in Washington. It's gloves off time for advocates of environmental justice. And it's opportunity time for the Democrats, who, if they play their cards right, can sweep into office like crusaders against satan. (If NY Governor Mario Cuomo isn't careful, Republican PR bandits will hang Love Canal around his neck, a toxic mill-stone to drag him down into the ooze of oblivion. Remember Boston harbor.)

Get: A most valuable video about Love Canal *IN OUR OWN BACK YARD* from: Bullfrog Films, Oley, PA; phone (800) 543-3764. \$200 purchase, unless you're a citizen action group, in which case it's \$75 purchase or \$25 rental. We recommend you buy this video and show it everywhere you can until you just plain wear it out.

For a copy of the "third-third" rule (which has not yet appeared in the *FEDERAL REGISTER* though it became effective May 8, 1990), call the EPA's RCRA/Superfund hotline at (800) 424-9346. NRDC's and HWTC's critique is available from Jackie Warren (NRDC) at (212) 727-2700, or from Rich Fortuna (HWTC) at (202) 783-0870. Environmental Defense Fund (EDF) has also critiqued the rule; phone Karen Florini at (202) 387-3500.

--Peter Montague, Ph.D.

## LOVE CANAL — Environmentalists move to make site national memorial

Love Canal, the toxic waste dump that sparked the creation of Superfund, could become a national historical district, if environmentalists have their way. Activists say they are campaigning for the site's inclusion on the National Historic Register. They called the the 30-acre waste dump "an important part of American history," a label that would also prevent resettlement of the area — which they believe will never be safe for residents — and serve as a permanent reminder of the dangers of hazardous waste.

Efforts to get Love Canal on the Dept. of the Interior's National Historic Register (NHR) were launched six months ago by the Citizens' Clearinghouse, an environmental advocacy group, says a Clearinghouse source, who explains that environmentalists are not the only ones interested in the designation. "Academic circles in New York also want to designate it as a national park," says the source. More importantly, claims this source, the NHR official who evaluates applications from New York is "actively interested" in the campaign. That official could not be reached for comment.

But Carole Shaw, Chief of Registration for NHR, says it would be "highly unusual" to list anything that made history as recently as Love Canal. Events listed on the NHR are "usually at least 50 years old," says Shaw. A Clearinghouse source notes, however, that "there's a new view in history that if we don't preserve places now they won't be here 50 years later because we tear them down so quickly these days." This source lists Cape Canaveral as an example, and says the historic value of Love Canal is similar to the space program because the hazardous waste site "had a dramatic effect on American culture." Love Canal is "a dynamic symbol of the American awakening to the environment," says the source.

Under the Clearinghouse campaign, the area up to five blocks on either side of the canal — the entire Emergency Declaration Area evacuated in 1980 by President Carter — would be designated an historic district, with markers describing its history. The Clearinghouse, which maintains that the area will never be safe enough for resettlement, also advocates using the site as a research area to develop new hazardous waste

cleanup technologies.

But local government and business interests are opposed to such a move. The Love Canal Area Revitalization Agency (LCARA), a quasi-governmental development company, which claims that parts of the area are now safe for resettlement, hopes to sell real estate on the site within 100 yards of the canal. The area closest to the canal, which has been capped and fenced off "forever," is enough of a memorial, argues an LCARA source, who says "there's no point in extending it beyond that." This source says Mayor Michael O'Laughlin of Niagara Falls does not want to "over-memorialize" the area, which has been "a monkey on our back for twelve years now." The New York Attorney General has issued an injunction against selling homes in the area pending an Environmental Impact Study (EIS) which is nearly complete (see related story).

Once Love Canal is nominated for inclusion on the NHR, the New York Office of Parks, Recreation & Historic Preservation reviews the nomination and makes a recommendation to the federal government.

## LOVE CANAL HEALTH RISKS — Activists work to block resettlement plan

In a move to block resettlement of Love Canal, the nation's most notorious waste site, public activists are asking EPA head William Reilly to carry out a full-blown assessment of health risks, especially those that endanger pregnant women.

The effort is intended to overturn a 1988 decision that found two neighborhoods near the 40-acre hazardous waste site in Niagara Falls, NY habitable. The activists claim that the New York State Dept. of Health used a faulty approach in conducting the study that led to the decision.

A Reilly spokesman said the EPA Administrator fears that if resettlement is allowed go forward without a fresh look at the site, the agency would be blamed for establishing a precedent of endorsing cleanups that fail to meet the standard of health protection mandated by the Superfund law. Reilly said on becoming head of the agency that a cornerstone in administering the Superfund program would be to stamp out risks posed by hazardous waste sites.

A ban on resettlement ordered two years ago by New York State Attorney General Robert Abrams presently bars prospective home owners from purchasing homes in the resettlement zone near the canal. But the ban is likely to be lifted if Abrams approves of a draft environmental impact statement issued last week by the Love Canal Area Revitalization Agency (LCARA), the quasi-state authority responsible for selling the homes. Formerly off-limits to home buyers, the neighborhoods were deemed "habitable" by a 1988 study by New York State Health Commissioner Dr. David Axelrod. The first homes could be occupied as early as this spring, said LCARA.

Reilly told two leaders of the protest, Lois Gibbs of the Citizens Clearinghouse for Hazardous Waste and Jacqueline Warren of the Natural Resources Defense Council at a meeting with EPA January 19, he would respond to the demand in two weeks, said the Reilly spokesman. A coalition of local and state environmental organizations plans to petition Gov. Mario Cuomo April 1 and 2 to thwart the planned resettlement.

In a related development, the spokesman said the Clearinghouse wants the Dept. of the Interior to declare the site a National Historic District because of its symbolic significance. The site should also be preserved as a place for scientific study and research, the group claimed.

# Toxics found in Canal well DEC sees no threat

By CAROLYN McMEEKIN  
Niagara Gazette - 1/22/90

Contamination has been found in a monitoring well at Love Canal, but state environmental officials last week said they don't believe it is an indication the dump is leaking.

Low levels of contamination were found in one of the 50 wells sampled under the canal's long-term monitoring program, said Michael J. O'Toole Jr., director of hazardous waste remediation for the state Department of Environmental Conservation.

O'Toole and Gerald J. Rider, chief of DEC's special projects section for its Western New York remedial action bureau, said they were not sure what the chemical was. But they noted it was found in low parts per billion.

DEC said it believes the contamination occurred when its workers replaced a well inside the dump near a waste-holding facility called the De-watering Containment Facility. Workers purged the well last week, O'Toole said.

The well will be resampled when weather permits, most likely in the spring, O'Toole said.

Under the long-term monitoring program, monthly groundwater elevation measurements and yearly chemical sampling measurements are taken. The groundwater program was expanded recently to include wells installed as part of the recent cleanup of nearby Black and Berg-holz creeks.

The well where the contamination

was found was installed to replace another well eliminated by the creeks project.

"We want them to release the information of what they found, exactly where it is and what the difference is," said Patricia A. Brown, executive administrator of the Ecumenical Task Force environmental group.

If the well was drilled in a contaminated area, Mrs. Brown said it would be useless for monitoring purposes.

Word of the contamination has yet to reach members of the Love Canal Area Revitalization Agency, said Mayor Michael C. O'Laughlin, chairman.

"There's been no mention of this," O'Laughlin said Sunday. "I'm very much surprised. All the tests taken in the past have indicated that the system barrier at the dump was doing better than expected."

William D. Broderick, executive director of the agency, refused Sunday to comment on the contamination until he learns more about it.

Contamination of the monitoring well is one more indication to state officials that Love Canal should not be resettled, said former resident Joann M. Hale.

"Hopefully, they'll look further into the system to make sure it's working," said Mrs. Hale, who is secretary of the Ecumenical Task Force. "We've said all along that the contamination is there and will eventually leak."

# Gibbs presses case against resettlement

*Ex-Love Canal activist will meet with top U.S. environmental aide*

By PAUL MacCLENNAN  
*News Environmental Reporter*

NIAGARA FALLS — Environmental activist Lois Gibbs will take the case for not resettling the Love Canal neighborhood to the nation's top environmental official.

William K. Reilly, administrator of the U.S. Environmental Protection Agency, will meet with Ms. Gibbs at 11 a.m. Friday in Washington.

The founder of the Love Canal Homeowners Association is campaigning nationally to reverse the state's decision to let people move back into the area. In recent months she has contacted officials to head off the planned sale of homes there later this year.

In another development, federal and state officials disclosed Wednesday that cleanup of contaminated soils at the 93rd Street School alongside Love Canal will be put off until next year.

Lack of funding and the recent decision by the Niagara Falls

School Board to use the building as an educational site rather than for storage was cited for the delay during a meeting of the Love Canal Technical Review Committee.

William N. Stasiuk of the state Health Department, who is a member of the Technical Review Committee, said health officials "will have to re-examine the delay to determine if it will disrupt plans to sell homes in the area."

Under the habitability decision, the department would have to determine if the remedial work at the school would have any impact on those moving into homes.

But Stephen D. Luftig, head of the EPA's Superfund program, said the agency won't know until April whether it will have money for its share of the \$5 million cost of cleaning up the area.

"We have \$900 million in needs and only \$300 million to spend, so we are re-evaluating where the money will be spent," he said.

Michael J. O'Toole, the state director of hazardous waste reme-



Lois Gibbs seeks reversal of decision.

diation, said the Department of Environmental Conservation is finishing cleanup plans and prepared to do the work this year.

Another potential stumbling block to resettlement is a proposal for decontaminating soil in the area east of the canal.

The state health commissioner has said the area is not suitable for resettlement, but State Environmental Commissioner Thomas C. Jorling has pledged to clean up.

Stasiuk said soil-test results will be available in March and will be used to design a cleanup program that may include removing the top 12 inches of soil around homes and in vacant lots.





Luella Kenny stands in front of the Love Canal home where she and her family used to live.

AP PHOTOS

# Love Canal II

11 years after being designated a disaster area, infamous N.Y. tract is readied for new residents

By Lisa Benenson  
SPECIAL TO THE GLOBE

**N**IAGARA FALLS, N.Y. — There are few unbroken windows in the house where Luella Kenny's son spent the seven years of his life. Once-manicured bushes now grow wild under sagging rain gutters, graffiti cover cracked red bricks and a garage door hangs half open.

Luella Kenny's house is in Love Canal. Years of talking to reporters and politicians about what happened to her son Jon have long since dried her tears. But as she walks through the yard where he played and points out the creek that she says contained dioxin at levels 32 times higher than what the federal government called harmful, her outrage has not vanished.

By the spring, 12 years after Jon Kenny died of a rare kidney disease that his mother believes was caused by the chemicals in their back yard, another family could be living in what was once their house. At least, that is what will happen if the state of New York has its way.

Last week, state officials began the final push for the "revitalization" of the neighborhood, releasing a plan to market homes that were evacuated by frightened families and purchased by the state. The repopulation plan follows the state's declaration last year that Kenny's home, as well as 249 others in Love Canal, are again habitable.

But to those whose suburban dreams were shattered a decade ago at Love Canal, the idea of encouraging young families to move into the area is frightening and infuriating.

"The thought of little children playing around here again is terrible, terrible," Kenny said.

"They just want to remove Love Canal as a symbol of environmental pollution at all costs," she added. "I think they should just put a fence around it and call it dead."

William Broderick, executive director of the state's Love Canal Revitalization Agency, says Kenny's fears are unfounded. And he predicts that other problems — like the reluctance of banks to give mortgages on the dilapidated homes — will be easily overcome.

"This may well be the safest place in Niagara Falls; it's been so well-tested," Broderick said. He

noted that state and federal surveys have never found high levels of hazardous wastes in most of the area where homes will be sold and that "hot spots" have been cleaned up or contained.

The core of Love Canal, where 238 homes were leveled a decade ago, has been covered with a 40-acre clay and plastic cap to prevent the 20,000 gallons of hazardous chemicals underneath it from moving. But mistrust lingers.

"What they thought was state of the art 20 years ago didn't work," Kenny says. "What's going to happen 20 years from now?"

Love Canal was the first of its kind: the first place declared a federal disaster area because of toxic pollution and the first community to be evacuated because residents' homes had been built on hazardous wastes. It was this neighborhood that prompted creation of the federal Superfund program to clean up toxic waste sites.

In the decade since Love Canal entered the nation's consciousness, more than \$250 million has been spent by state and federal agencies for costs involved in the evacuation, study and cleanup of Love Canal.

Yet the question of whether Love Canal is now a safe place to live still rages. A year ago, New York Health Commissioner David Axelrod declared that much of the evacuated area was as habitable as anyplace else in Niagara Falls. State and federal officials say they use the word "habitable" because the limits of science prevent them from saying anyplace is "safe."

"You can go into your kitchen cabinet and find hazardous wastes," said Niagara Falls Mayor Michael O'Laughlin, who wants the area renamed "something optimistic — Sunrise Village, or something like that."

But as they move closer to the repopulation of the community, Love Canal has become even more important to those who see it as a symbol of corporate and government contempt.

"I used to have all this faith in the government, but it's always what's cost effective," says former resident Pat Brown, whose daughter became disabled from a childhood tumor. "They just have no respect for human life."

The crux of the dispute now is over the methods used by the state to determine whether people can live in evacuated areas. Analyses of soil, water and air from the area have found more than 200 chemicals.



JON KENNY  
Died of kidney disease

They include dioxin — which has been linked to cancer and is considered one of the most toxic of chemicals — as well as pollutants linked to leukemia, miscarriages, nervous-system disorders, liver disease, respiratory ailments, deafness and cardiac arrest.

Because the science of chemical waste is imprecise, and because there were so many chemicals in the area, a panel of independent advisers decided in the early 1980s that Love Canal's habitability would be determined by comparing its toxic levels with four nearby sites. Those studies led to Axelrod's September 1988 decision, which provided the green light for putting homes on the market.

"The habitability study was nothing but comparing a dump to a dump; Niagara Falls is so contaminated," said Ann Rabe, director of the New York Environmental Institute, an Albany-based research group.

"Chemicals are sort of a fact of life here," said Broderick, shrugging. "But people do choose to live here. . . . We think this area is as safe as anyplace else in Niagara Falls and want people to live here."

Since Love Canal was declared a disaster area in 1978, the Love Canal Revitalization Agency has bought about 500 homes in the area, 250 of them in areas that have been declared habitable. Some of those homes have fallen into such disrepair that they will be leveled instead of sold, according to Broderick.

More than 100 people have expressed interest in the other homes, which the agency expects to sell for between \$40,000 and \$60,000 — prices comparable with those in neighboring communities.

The draft environmental impact statement and master plan submitted by the agency last week must be opened for public comment and accepted by the New York Department of Health and the attorney general's office before any sales can proceed, a process Broderick hopes to complete by April 1.

Love Canal opponents have urged Gov. Mario Cuomo to block the sales, but Cuomo supports Axelrod's habitability study and is not expected to intervene.

A lingering question is who will be liable if the scientists and politicians are wrong. "That is the million-dollar question," said one state official who has been involved in the Love Canal issue and requested anonymity. "The first miscarriage that happens out there, all hell will break loose."

# Canal activists confront Cuomo

## Gazette wire services

ALBANY — Environmentalists and religious activists — about 40 of them from Western New York — demonstrated outside the State Capitol Friday evening with hopes of persuading Gov. Mario Cuomo to stop the planned resettlement of the Love Canal.

"Let us learn a lesson from Love Canal and not repeat our mistakes," said Lois Gibbs. She is the former Love Canal housewife who led the fight 11 years ago to get people moved from the neighborhood around the toxic dump.

About 200 demonstrators sang, prayed, chanted and listened to speeches from several former residents of Love Canal, including Gibbs and Luella Kenny, whose 7-year-old son died of kidney disease before her family was evacuated from the area.

"Next Tuesday ... there's a young man that should've turned 18 years old ... that should've started college this year," said Kenny. "He never had that opportunity because he lived in Love Canal. He played in his back yard with those chemicals..."

"Why anyone would ever put anyone back in Love Canal is extremely difficult for me to understand," she told the crowd.

"It makes no sense for people to move back into that neighborhood," said Roger Cook of the Ecumenical Task Force of the Niagara Frontier. "There are still 200,000 tons of chemicals there."

Joann Hale, who moved out of her 99th Street home in Love Canal 11 years ago and now lives on Grand Island, said her child, born shortly after she left the neighborhood, had birth defects that were corrected by surgery.

"If anything ever goes wrong with her child, she'll always feel it was the canal," Hale said of prospective Love Canal residents.

"Minimally, a reproductive health assessment should be done before

anyone is allowed to live there," Gibbs said.

Gibbs said Cuomo never responded to a letter she wrote three months ago asking him to block the resettlement plan. She said the protesters were marching to Cuomo's official residence because "our father the governor only listens when his children talk loudly."

Rally participants marched by candlelight to the Executive Mansion a few blocks away.

Under the watchful eye of several State Police and state Capitol Police officers, the protesters draped the mansion fence with red ribbon adorned with more than 5,000 letters

to Cuomo, urging him to stop the Love Canal resettlement.

Environmentalists nationwide are watching Cuomo to see how we deal with the nation's most famous toxic dump, said Penny Newman of California's Concerned Neighbors in Action.

"Love Canal is not a local New York issue," said Newman. "It will set a precedent for the rest of us who are living near these dump sites."

"If the government can get away with resettling Love Canal — one of the most notorious dump sites in the country — then what do the rest of us have to expect?" she said.

Occidental Chemical Corp., owner of the former Hooker Chemical and Plastic Co. which used Love Canal as a waste dump, acknowledges that 20,000 tons of chemicals were dumped there in the 1940s and 1950s.

The dump was eventually closed and a school and playground were built above it. Hundreds of homes were built in the surrounding area, which President Carter declared a federal disaster in 1978.

Today, about 70 homes in Love Canal are occupied by people who chose not to flee with most of their neighbors in 1978. Much of the chemical contamination remains in a giant fenced-in mound at the center of the neighborhood.



Lois Gibbs

Last fall, Dr. David Axelrod, the state health commissioner, ruled that two-thirds of the 10-block Love Canal neighborhood was suitable for resettlement after years of work to contain or treat the toxic contamination from the dump site.

Axelrod and state Environmental Conservation Commissioner Thomas Jorling defended that decision Friday.

"The state-federal study on the habitability of neighborhoods surrounding the Love Canal toxic waste site was the most complete investigation of any such site in the country," the Cuomo commissioners said in a joint statement.

"(A) legacy of Love Canal must be a commitment to apply the best science possible to the problems that beset us. If we ignore science when the answer may be unpopular with environmentalists, the polluters will demand the same concession," they said.

The settlement opponents doubt the studies showing that the site is no more contaminated than other parts of Niagara Falls.

July 1989

by Michael H. Brown

## A Toxic Ghost Town

More than ten years have passed since a leaky dump in Niagara Falls, a city in upstate New York, became infamous as Love Canal. The site became a matter for public concern during the summer and autumn of 1978, when Governor Hugh L. Carey and President Jimmy Carter declared an emergency there and arranged to evacuate helpless families who had watched industrial sludge invade their back yards. Overnight a blue-collar community six miles from the cataracts of Niagara Falls became America's first toxic ghost town.

Love Canal, [about which I reported](#) in the December, 1979, *Atlantic*, was the harbinger of America's toxic-waste crisis. The situation led to the identification of many similar problems nationwide and to the creation of a \$1.6 billion federal Superfund (now valued at \$10.1 billion) for their remediation. At last count, 1,030 families had evacuated the Love Canal area during two separate emergencies, one in 1978, for the 238 households closest to the dump, and a second just a few months after publication of the *Atlantic* article, for 792 households on the periphery of the original danger zone. Roughly \$150 million has been spent to sample the air, groundwater, and soil; survey health problems in the area; pay residents for their homes; move those residents to new homes; and halt and clean up the pollution. The costs were split between the state, which used emergency allocations as well as major shares of its health and environmental budgets, and the U.S. Environmental Protection Agency, which relied on Superfund money and funds administered by the Federal Emergency Management Agency.

Yet even after such expensive measures questions remain, not the least of which is precisely what happened at Love Canal? Though a decade has passed since it first made national headlines, the canal is still a hot topic locally (articles appear in the local newspapers nearly every day), and it is as it always has been the focus of bitter dispute. Were all those people really made sick by the chlorinated concoctions? Or was the health crisis they complained of a case of botched science and mass hysteria?

Today Love Canal is a forty-acre mound of clay ringed by warning signs, a high chain-link fence, and a drainage trench. The clay was heaped on the dump to stop rainfall from percolating through the wastes and carrying any more of them outward. The clay cap is reinforced by a high-density polyethylene membrane that is believed to be resistant not only to rainwater but also to the chemicals themselves. The drainage trench, ranging in depth from eight to twenty-one feet, intercepts chemical-laden groundwater and funnels it to a treatment plant, where the toxic substances are removed by carbon filters. The two streets closest to the chemicals, 99th and 97th streets, have ceased to exist; the homes that stood there were bulldozed under the clay. The more distant homes that were evacuated during the second emergency, in 1980, are boarded up and dilapidated.

At the root of the problem are 43.6 million pounds of process slurries, waste solvents, and pesticide residues

that the Hooker Chemical and Plastics Corporation dumped in an abandoned canal from 1942 to 1953. The company trucked much of the waste material from its nearby plant to Love Canal in metal drums that eventually rusted open. Melting snow and spring rains washed the wastes up and outward. The wastes pooled on the surface of the poorly covered canal, causing a stench to envelop the vicinity. In May of 1978, as a reporter for the local newspaper, the *Niagara Gazette*, I took an informal survey of people who lived on 99th Street and logged numerous complaints ranging from loss of fur among household pets to dizziness, respiratory problems, and breast cancer. Residents blamed the fumes. Responding to the growing public alarm over possible health repercussions, and having already obtained hard evidence that the carcinogen benzene was infiltrating household air, the state Department of Health (DOH) moved in with its own survey, finding four birth defects among thirty-nine babies born to families on 99th Street, where waste sludges were seeping through basement walls. That translates into a 10.3 percent rate of birth defects, compared with the 7.3 percent rate in a control group farther from the chemicals. The rate of miscarriages was 3.5 times the normal rate in one age group of the women living near the canal's southern end, and as the DOH began collecting what would eventually total 4,386 blood samples from 3,919 people, indications were also found of incipient liver damage.

The most dramatic study was conducted in 1980, by a private medical contractor for the EPA and the Department of Justice, which was building a legal case against Hooker as was State Attorney General Robert Abrams and thus was interested in proving that there had been a harmful effect. The Justice Department contractor, the Biogenics Corporation, of Houston, studied blood samples from thirty-six residents and concluded that eight of the people had a rare aberration it called "supernumerary acentric fragments," or extra pieces of genetic material. Dante J. Picciano, of Biogenics, claimed that such fragments should appear in only one out of a hundred people and might well forewarn of cancer and birth defects. An uproar ensued among the tested residents, who lived just beyond the 1978 evacuation zone and who now wanted to be evacuated. In May of 1980 their communities were promised government sponsored relocation.

In the years since, several follow-up studies have supported the initial findings of adverse health effects. In 1984 the DOH reported that 12.1 percent of infants born in a "swale" area (where contaminated water may have drained from the canal) experienced low birth weight, as compared with 6.9 percent in other parts of upstate New York. That was followed by a DOH report that found a statistically significant excess of congenital malformations in the swale neighborhoods, primarily from 1955 to 1964, just after the chemicals were dumped. This time 10.9 percent of 174 infants were found to have birth defects. Beverly Paigen, then a biologist at Roswell Park Memorial Institute, in Buffalo, who compared 239 children exposed to Love Canal during gestation with 707 children in an unexposed control group, found an even greater effect. In 1985 she reported that 17.9 percent of those who had lived in drainage areas were born at below-normal weights and that Love Canal children in general suffered a 12.1 percent rate of birth defects both figures about twice those for the control group. The same year she reported in another study that Love Canal children experienced 2.45 times as many seizures as a control group, 2.25 times as many skin rashes, and 2.95 times as much hyperactivity. In 1987 Paigen, who has served as an unpaid consultant to the residents, released yet another study, of 493 children who had once lived near the dump. The children not only weighed less but were shorter than the control children, she asserted.

While the more recent data have not yet been carefully examined, the early studies conducted by Picciano and Palgen have been pointedly criticized. In 1980 a special panel headed by Dr. Lewis Thomas, then the chancellor of Memorial Sloan-Kettering Cancer Center, in New York City, and a bestselling author,



described a report issued by Paigen in 1979, which claimed to have found a multitude of disorders among canal-area residents, as falling "far short of the mark as an exercise in epidemiology," inasmuch as it relied on "largely anecdotal information provided by questionnaires submitted to a narrowly selected group of residents." Meanwhile, a follow-up chromosome study conducted for the U.S. Department of Health and Human Services from December of 1981 to February of 1982 on forty-six neighborhood residents including seventeen whom Picciano had tested failed to confirm Picciano's claims of supernumerary aberrations.

"We should have known at the time what Picciano was talking about when he used the term 'supernumerary acentric fragments,'" says Michael A. Bender, a senior scientist in the medical department at Brookhaven National Laboratory. "Several papers from the 1970s had noted similar phenomena. We just never had seen it put in those terms and, unfortunately, failed to recognize what we were dealing with, partly because we never got to see Picciano's material. If we had, I think we would have immediately known. Such aberrations are a natural phenomenon, which is seen particularly in females and which increases with age. They appear in the form of extra X-chromosomes, which have no known association with exposure to anything nasty. It's just something that happens as an odd spontaneous event."

Other follow-up studies, by the DOH, have shown few effects on health that can be attributed to the chemicals, which included the notorious dioxin, an unwanted by-product of the manufacture of Agent Orange and other herbicides. In 1981, when the DOH checked data from its cancer registry for a census tract that includes the Love Canal area, it failed to find elevated rates of liver cancer, lymphoma, and leukemia. Lung cancer was higher than average (twenty-five incidents in males, versus the fifteen that an actuary would have expected), but the rate of respiratory disease was high throughout the region, where industry was once concentrated and air pollution was severe.

Most of Paigen's and Picciano's work involved residents who lived outside the 1978 evacuation zone, in an area where contaminated creeks flowed. While few officials doubt that the 1978 evacuation was necessary, the second evacuation sparked in large part by Picciano's findings is more questionable. Chemical levels were far lower in these homes, but the EPA began relocating their occupants after a group of activists, led by the housewife Lois Gibbs, held two EPA officials hostage at the activists' headquarters to protest what they saw as government inaction. Gibbs, who has since founded a national clearinghouse for citizen protests involving hazardous wastes, is an increasingly controversial figure, especially among people who lived near Love Canal and did not want to leave. They accuse her of exaggerating the health problems and seeking celebrity by playing to television cameras.

Former Governor Hugh Carey makes the same assertion about Gibbs, and the district's congressman, John LaFalce, has come to the conclusion, as have many others, that the second evacuation may have been too extensive. "You had a very, very serious problem," LaFalce says, "but then judgments were made on soft data or no data at all. The evacuation of 1978 clearly should have taken place, but the second crisis, in 1980, got out of hand."

he protests and emotional uproar have caused state and federal officials to think twice before declaring similar emergencies elsewhere. Caught between residents who accuse it of understating the health effects and scientists who believe the effects were overstated, the DOH has grown wary. Peter Slocum, a DOH spokesman, says, "I think a lot of our health people feel they went out on the front line and got burned."

What the chemicals at Love Canal did or didn't do is of consequence not only for those who lived there but also for the uncounted others nationwide who live near any of the 29,463 potentially hazardous waste sites identified by the EPA. If Love Canal one day proves to be less of a threat than originally thought, other problems might be taken less seriously in the future, and support for the Superfund, which was established during the Carter years (and, ironically, greatly expanded under President Reagan), could wane as a result. Some suggest that science is simply not up to the task of proving a toxic cause and effect. Because residents move in and out, because families suffer multiple ailments (not just the illness that serves as the subject of a given study), because the effects of chemicals when they interact with one another are all but unknown, and because the survey populations are quite limited, attempts to prove a statistically significant effect may be doomed to failure. "It's very hard in a small population of a few thousand or so to demonstrate a five or ten percent increase in miscarriages or birth defects," says Dr. Arthur Bloom, a geneticist who helped evaluate Picciano's study for the Department of Health and Human Services. "The best studies were done by the DOH, and those related to an increased incidence of spontaneous abortions [miscarriages]. Those studies were the most definitive, positive studies the only ones that stood the scientific tests."

The DOH, in an attempt to settle the matter of other health problems, last year began a comprehensive two-year health survey that will eventually include 5,000 to 10,000 people who lived at or near Love Canal between the 1940s (when dumping began) and 1978. But Beverly Paigen believes that the state is hoping not to find anything. Health studies already done by the DOH and the Centers for Disease Control, Paigen says, are riddled with misrepresentations and procedural holes that make the situation seem less serious than it is. Paigen, who now works in the research laboratory at Children's Hospital in Oakland, California, cites the follow-up chromosome tests and the state's cancer study as cases in point. The chromosome test that found no damage among Love Canal residents, she argues, was conducted after those residents had left the area; such tests use the short-lived white blood cells, so few of the chromosomes examined had been exposed to toxic chemicals. And the survey that failed to show elevated cancer rates in the entire census tract, Paigen says, included hundreds of unexposed people, who diluted the statistics.

Paigen claims that the state tried so hard to suppress panic at Love Canal that when she started reporting ailments there, her travel was restricted (Roswell is a division of the DOH) and she was prohibited from applying for grants. She also says that her office was rifled. That was when she moved to California, where she maintains a keen interest in Love Canal developments.

Another party deeply interested in health effects is Hooker Chemical, which, since all the bad publicity occurred, has changed its name to Occidental Chemical (it is a subsidiary of Occidental Petroleum Corporation). Occidental has steadfastly maintained that no adverse health effect can be proved to be a consequence of the wastes it disposed of in Love Canal and that government overreacted at just about every stage. It also maintains that, in any case, the problem wasn't its fault, because in 1953 it sold the Love Canal land for the token sum of one dollar to the Niagara Falls school board as the site for an elementary school, freeing the firm of legal responsibility. The corporation has never changed this stand. Once the Love Canal problems began to be heavily publicized, Occidental embarked on a nationwide campaign involving thousands of glossy pamphlets and a traveling two-man "truth squad" to convince the press that the problems at Love Canal were, not its fault.

In February of last year, however, John T. Curtin, a federal judge in Buffalo, found Occidental liable for

whatever is finally deemed to be the justifiable government costs at Love Canal. Curtin ruled, in a partial summary judgment, that the company handled its wastes in a way that would eventually result in chemical seepage. It was one in a series of legal blows to the firm. In 1984 Occidental had settled a suit filed against both the firm and the city by 1,328 residents, who collected \$20 million. The payments ranged from \$2,000 to \$400,000 per plaintiff, though Occidental continued to maintain that it could not be shown to be responsible for adverse health effects. Other suits over Love Canal remain unresolved. Attorney General Abrams calls Hooker's conduct in "foisting" the canal upon the school board "extreme selfishness" under the guise of munificent corporate citizenry. Occidental is expected to appeal Judge Curtin's decision.

he people? In addition to whatever they were awarded by Occidental, the victims received fair market value for their homes. At the time, the Niagara area was economically depressed and home values at Love Canal hovered around \$50,000. Most recipients spent the money buying or building new houses in the area. Lois Gibbs has moved to Virginia. Karen Schroeder, one of the first residents to demonstrate against the pollution, has moved to the center of Niagara Falls with her daughter, Sheri, who was born with a cleft palate, deformed ears, a hole in her heart, impaired learning ability, and deafness, and who later developed a double row of bottom teeth. Now twenty years old, Sheri is in a special-education program and is planning to attend college. She received the highest settlement from Occidental, and plastic surgery has repaired some of her problems.

Schroeder's mother, Aileen Voorhees, whose home, on 99th Street, was where the highest chemical reading was taken, now lives about six miles from Love Canal, in an impressive new brick home she had built. But she misses the old community: Voorhees says she longs for her children's first shoes and her cedar closet and other things she had to leave behind because of the contamination.

Others have sought solace in rural parts of Niagara County. Many complain that they were not given enough to buy comparable houses elsewhere, and some of them sixty households in all stayed behind in the boarded-up neighborhoods. Ironically, the depopulation has turned the area into a wildlife refuge of sorts. Those who still live there tell of seeing deer, rabbits, snowy owls, and even a bald eagle. Birds were scarce when I first tramped the canal in the 1970s, but now at least eighteen species can be spotted there, according to Florence Best, a bird watcher who has stayed in the area because, as she sees it, "the whole world's polluted, no matter where you go." Last year the DOH commissioner, Dr. David Axelrod, concluded after a \$14 million study funded by the EPA that once creeks and sewers are cleaned, homes to the north and west of the canal those abandoned during the second evacuation can be reinhabited if local authorities so desire. The study said that of 562 homes and churches sampled, only one showed the presence of chlorotoluene, a solvent found in the canal and used as an indicator that other chemicals may be present. The level was 18 micrograms per cubic meter a negligible amount compared with the 6,700 micrograms found in Aileen Voorhees's home in 1978. "The clay cap works, the leachate-collection system works," Stephen Luftig, of the EPA's regional office, says. "It seems like the mother lode has been contained."

Though dioxin is still detected in some spots, the levels are below the one-part-per-billion threshold that the CDC has set for emergency action. Contaminated creeks are being dredged and the tainted sediments stored for incineration, at a cost of \$20 million. The outlying homes evacuated during the second emergency may soon be sold to bargain-hunters. The mayor of Niagara Falls, Michael O'Laughlin, would like to forget the whole thing and rename the canal area Sunrise Park. Love Canal has no place in the image of a tourist town.



ut none of those who abandoned their homes can forget. "My daughter had rheumatoid arthritis that used to flare up, and a tumor on her knee so rare it was sent to clinics in Cleveland and the Soviet Union for analysis," says Patricia Brown, who lived on 99th Street and now works for a task force in Niagara Falls that helps the city locate and clean up local pollution. "Since we got out, she has improved. The arthritis has only flared up twice since we left; before, it was far more frequent."

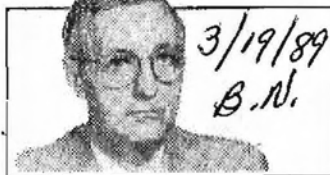
Luella Kenny, another former resident, administers a \$1 million medical fund set up for the beneficiaries of the Occidental settlement. One of her sons died from a mysterious kidney ailment after playing, according to Kenny, in one of the dioxin-laden creeks. A medical researcher by profession, Kenny saw strange rashes and warts on another son, headaches in the rest of the household, and immune problems in her husband. All the symptoms have diminished or disappeared since they moved away. "The improvement of rashes and allergies," she says, "has been seen by almost everyone."

While neither the DOH nor any other health agency has warned that the residents may one day fall victim to latent diseaseindeed, the DOH has said that no abnormal incidence of cancer is likelythese residents, deeply suspicious of government reassurances, worry about ailments that can take years or decades to show up. "There's not a night you put your head on a pillow and don't wonder, Who's next?" Patricia Brown says. "Will it be me? My husband? My child? I keep seeing repeated cases of cancer among those who lived there. This is the type of fear you'll live with the rest of your life."

The URL for this page is <http://www.theatlantic.com/doc/198907/brown>

# New hot spot renews old questions about Love Canal

To what end and at what cost will the drive to settle Love Canal continue? The time may have come to reexamine the entire issue, to have an open discussion among top policy-makers about the canal and the toll it has taken on human lives, on Niagara Falls, on the region, on the state and federal governments.



## Environment

By PAUL MacCLENNAN

Discovery of what appears to be a toxic hot spot in one of the supposedly waste-free zones used for comparison purposes has brought resettlement plans to a halt.

Should the state confirm dumping, health officials will be pressed to justify their methods that called for toxic-free comparison zones.

To suggest that the newly found church yard hot spot is an isolated incident would be to stretch the imagination.

Pity the middle-level official, caught between a hard core of residents who remain at Love Canal, convinced it poses no threat to their health, and others who see decisions at the canal as having a much broader significance.

Canal issues unfortunately have broken down in the public's mind to "insiders" vs. "outsiders." The break tends to confuse an already complex issue.

Insiders, such as Nunzio LoVerdi, president of the Love Canal Environmental Action group, resent that those who left or never lived at Love Canal continue to speak out at hearings and exercise their right to have their opinions considered. LoVerdi says they should leave those who remain in peace.

Outsiders argue the larger issue of the wisdom of moving back people when there have been no health studies, no risk

assessment of chemicals in the dump, no final cleanup and no assurances that Love Canal won't leak again. Groups such as Ecumenical Task Force say Love Canal resettlement would set unfortunate precedents for other toxic areas, such as Times Beach, Mo., and Stringfellow Acid Pits in California.

That debate has overshadowed all discussions over the last few years from deliberations of the federal-state Technical Review Committee to the Love Canal Land Use Advisory Committee that has been forced to suspend its work while state health officials sort out the latest discovery.

The drive to resettle Love Canal is fueled in part by the nature of the decision to evacuate the canal. It was a political decision to provide relief for stress-ridden residents. Many officials are not convinced it was necessary or wise. Some seem driven to try to prove their point. Key state environmental officials said that there's no point in spending all that money if you can't reuse the land.

Then there is the \$7.5 million federal loan the state hopes to repay out of resale of the homes and the thousands of dollars in taxes that the city hopes to recover.

Planner Harvey Albond has offered to gather the investors and rebuild single homes in the area occupied by the LaSalle Municipal Housing project and revitalization officials say there is a list of people waiting to buy remaining homes.

The Task Force, however, says the uncertainties of resettlement argue for a different approach. Leaders such as Roger Cook want the former Occidental Chemical Corp. dump converted to a living



Technicians sample hot spot.

officials are investing at the Center for Hazardous Waste Research at the State University at Buffalo. Another might be the fact that, given its international focus, Love Canal may set the tone for cleanups around the nation.

Government officials face the vexing dilemma that fully a third of the area is deemed unsuitable for resettlement and to restore it will cost additional millions. So even if they go ahead with selling off homes in the northern section of the canal, they face the problem of what to do with the 73-acre LaSalle area owned by the housing authority.

They also have a new group of angry residents on their doorstep as members of the Niagara Community Church and the people in the neighborhood are confronted with a dump that no one apparently knew about until a contractor excavated a parking lot for a new storm sewer.

The group has vowed to fight for immediate removal of the wastes found in their backyard, but state officials indicate that if it is a dump there is a long process, first to get it listed as a dump, then have it studied and finally cleaned up. That could take years.

Love Canal continues its reputation as a nightmare. Each time a corner is turned, new obstacles arise. Assemblyman Maurice D. Hinchey, head of the environmental conservation committee in the Assembly, is considering further hearings, but we hear not a whimper out of New York's delegation in Washington which was quick to provide oversight in the past.

There appears to be a need for reassessment, for again asking to what extent and at what cost will we as a nation attempt to resettle Love Canal? And whether it is worth the price in human terms.

laboratory, where research on projects for ultimate cleanup of the toxic cesspool could be carried out.

There is some logic in that point because ultimately government and industry are going to have to come up — by law — with permanent solutions to the dumps. The canal containment is at best a costly and interim solution.

One driving force for a research center may be the \$1 million a year that state

# New Toxic Find Near Love Canal Threatens Resettlement Study

By PAUL MacCLENNAN  
News Staff Reporter

The work of a committee investigating Love Canal land use may stop while state health officials decide if a newly discovered toxic hot spot affects the validity of the state's resettlement decision, officials said Monday.

Should the chemical discovery in a church parking lot uncover evidence of extensive toxic chemical dumping, officials say it might invalidate the four-year, \$6 million dollar habitability study and the decision that major portions of Love Canal are suitable for resettlement.

"The work of the committee hinges on the findings. ... Until this is cleared up, the committee may have to tread water," said Linus Ormsby, a spokesman for the Very Rev. Donald C. Harrington, chairman of the 11-member Love Canal Land Use Advisory Committee.

Estimates of the time necessary to unravel the latest problem range from a week or two to months, according to state health officials.

"One hopes it's a tiny little hot spot and that we can demonstrate in two or three weeks that its impact on the study is insignificant," said Health Department spokesman Peter Slocum.

If the contaminated area proves larger, Slocum said it could take weeks or months.

Meanwhile, Niagara Falls Mayor Michael C. O'Laughlin said Monday he will ask state officials to attend the March 15 meeting of the Love Canal Area Revitalization Agency to explain the problems.

"I'm not jumping aboard until I know what this means. ... It's just dreadful timing for the announcement at 5 o'clock Friday, when most government officials have left for the week and at a time when the land use panel is ready to make its decisions. I want to know more before we take any action," O'Laughlin said.

The decision on whether to put the land-use work on hold could come as early as Wednesday, when the panel is scheduled to hold a public hearing.

State environmental officials said they expect to start taking samples later this week at the site of the latest toxic find and said it could take two to three weeks before they have results.

half mile from any known dump.

The land-use study and an environmental impact assessment are required by the U.S. Environmental Protection Agency as a condition of any future use of the 10-square-block area around the former Occidental Chemical Corp. dump.

The panel became embroiled in controversy the past two weeks when faced with some internal discord over exactly what testimony it wants to hear on the question of health risks in resettling Love Canal. It also faces charges by some environmental groups that some committee members lack fairness and impartiality. Partly based on the charges, the panel agreed to hold an additional hearing this week.

The committee is scheduled to hold a third public hearing at 7:30 p.m. Wednesday in the Frontier Volunteer Fire Hall, Frontier Avenue at 102nd Street, Wheatfield. Then it was scheduled to hold an intensive series of meetings to draft its land-use proposals.

"The committee will be discussing its options at Wednesday's meeting," said Ormsby.

The state Health Department's disclosure Friday that a cache of chemicals has been discovered in one of four supposedly toxic-free comparison areas has disrupted the panel's schedule.

Father Harrington is already on a tight timetable because he is due to leave his post as president of Niagara University in June to assume a similar post at St. John's University in New York.

When the appointment was announced, he said he would remain here long enough to complete the land-use panel work, but that was before the announcement late Fri-

*Buffalo News - 2/7/89*

day that there could be a further delay.

"We plan to discuss the problem and the ramifications with the committee following the hearing Wednesday," said Slocum. "We are hoping that if it's only a minor chemical hot spot that their work can continue."

LAURA RANKIN/News Graphic



# Toxic find may ruin Canal study

## Comparison area also contaminated

By CAROLYN KUMA McMEEKIN  
Niagara Gazette

Chemical contamination has been discovered in a Niagara Falls church parking lot, and the find could jeopardize the decision that most of the Love Canal is OK to live in, state Health Department officials said Friday.

The Niagara Community Church, on Cayuga Drive and 104th Street, is situated in one of the Niagara Falls areas that was compared with the Love Canal during a habitability study in the neighborhood.

And the discovery of toxic organic chemicals there violates one of the criteria of the habitability study: that a comparison area be at least one-half mile away from any known hazardous waste dump.

"We don't know whether it's a shovelful, a bucketful or a truckful (of chemicals)," said Peter Slocum, chief Health Department spokesman

in Albany. "Our concern is that if it's a large amount, it could throw into doubt the use of this census tract as a comparison area."

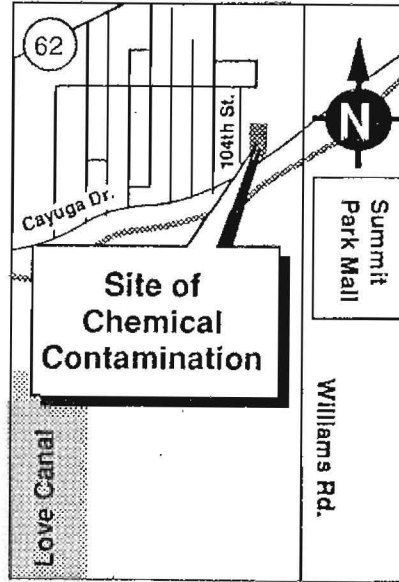
If that happens, the worst-case scenario is that the habitability study and decision would be thrown out, Slocum said.

The chemicals were discovered by construction workers last November, when the church was working on a new storm sewer in preparation for a new community building.

A worker smelled chemicals and took a sample, which was later analyzed. The analysis revealed high levels of toxic PCBs, toluene and derivatives of benzene, Slocum said.

Because the chemicals are in a parking lot, the health department said there is no immediate health threat present.

But because the extent of contamination is not known, the state Department of Environmental Conservation



DONALD YOUNG — Niagara Gazette

will take more soil samples beginning next week, said R.W. Groneman, DEC spokesman in Albany.

Some of the chemicals found are also in the canal, a former toxic waste dump. But the issue is not whether the canal leaked, but how the find will affect the habitability decision.

See FIND, 2A

## Church lot not on list of inactive N.Y. dumps

The Niagara Falls church parking lot where contamination was found is not on the state's list of inactive dumps, state environmental officials said Friday.

That list exists to identify where known or suspected contamination has been found.

The state Department of Environmental Conservation will begin taking soil samples next week to learn what chemicals are present and the extent of contamination.

DEC officials said they want to move quickly on the site, since the discovery could affect the habitability decision in the nearby Love Canal. The neighborhood housing the church was a comparison area in the habitability study.

Meanwhile, the Land Use Advisory Committee will hold its third public hearing at 7:30 p.m. Wednesday in the Frontier Volunteer Fire Hall. The committee will

then discuss with the state Health Department what implications the finding may have, department spokesman Peter Slocum said.

Health Commissioner Dr. David Axelrod set up that committee to advise him and the Love Canal Area Revitalization Agency on future uses for canal land. The revitalization agency has the final decision.

The habitability study took five years and \$14 million to complete. It ended with Axelrod's September pronouncement that 75 percent of the canal was OK to live in.

The study was conducted after an earlier 1982 study was thrown out for being biased, because it was prepared only by the U.S. Environmental Protection Agency. The latest study was overseen by EPA, DEC, the state and federal health departments and conducted by independent contractors.



# Cuomo warned on resettling Love Canal

*Governor's reputation  
on the line, activists say*

By PAUL MacCLENNAN  
News Environmental Reporter

ALBANY — Gov. Cuomo is putting his presidential aspirations and national reputation on the line if he lets people move back into Love Canal, Lois Gibbs and other opponents of resettlement warned the governor Friday.

"It's morally wrong, there is no scientific evidence that it's safe, and he's putting women of reproductive age at risk," said Ms. Gibbs, the former Niagara Falls housewife who led the revolt 11 years ago that resulted in the evacuation of the area.

She spoke to about 200 people who rallied at a park near the State Capitol and later marched five blocks to the Executive Mansion, where they held candles, shouted slogans, sang and called for the governor to come out but left after a half-hour without seeing him.

"We want Mario," they shouted through the iron fence they had draped with red ribbons holding hundreds of letters asking Cuomo to overturn Health Commissioner Dr. David Axelrod's decision to let people resettle part of the canal area.

They carried banners proclaiming, "Love Canal was the first, Forest Glen won't be the last," and "No more indecent exposure to toxic chemicals."

Forest Glen is a mobile home community in the Town of Niagara where chemical contamination was found recently.

Ms. Gibbs and other participants said environmentalists "are watching Cuomo" and a miscue could cost him the support of a significant segment of the voting population.

"We are watching what Gov. Cuomo does because if he allows Love Canal to be resettled, there will be a precedent, and we will all suffer," said Peggy Newman of Riverside, Calif., who lives near the federal Superfund site at the Stringfellow Acid Pits.

"We're here to let the governor know westerners are watching and if he has any intentions of higher office, he better do the right thing," she said.

The governor's office did not respond, and the press office said Cuomo had no plans to meet with Ms. Gibbs despite her request for a meeting.

In a joint statement, Axelrod and



Lois Gibbs, right, a former resident of Love Canal, lights candles in front of the State Capitol before marching to the Executive Mansion.

State Environmental Commissioner Thomas Jorling defended the study.

"The state-federal study on the habitability of neighborhoods surrounding the Love Canal toxic waste site was the most complete investigation of any such site in the country," they said.

"We would not ask families to live in an area where they are subject to greater involuntary risk than their neighbors face elsewhere in the community," they added. "If we ignore science when the answers may be unpopular with some environmentalists, the

polluters will ask the same consideration."

Warning that there are still 20,000 tons of toxic chemicals at Love Canal, Roger Cook, who heads the Ecumenical Task Force of the Niagara Frontier, said, "It should be used for research, as a test center and demonstration project so we can learn about exposure and how to clean up, not just contain it."

Cook said church groups find resettlement morally wrong and an unacceptable risk and have conveyed that message to the governor.

## Make canal area a demonstration cleanup project

The recent Office of Technology Assessment's review of the Love Canal habitability study confirmed what scientific experts from the Ecumenical Task Force, the Environmental Defense Fund and the Love Canal Homeowners Association have contended all along: Sufficient evidence does not exist to conclude that the "Declaration Area" is habitable.

Before anyone is allowed to move into the area, OTA recommended four things occur: the sewers be cleaned and workable plans for long-term maintenance and containment of toxic wastes be devised; implementation of technologies that will assure that the chemicals which remain toxic for hundreds of years do not escape; further studies and monitoring for chemicals in the Declaration Area; and the development of a long-range effort to permanently deal with the large amounts of wastes still in the canal.

Hopefully, the Love Canal Area Revitalization Agency will heed the advice of the OTA, but one can't be encouraged. Until the OTA report, the politicians of LCARA accepted the study by the embattled and discredited EPA as definitive. In their effort to improve the image of the city, of themselves, and of Occidental Petroleum, and to turn this legal liability into a financial asset by getting the Declaration Area back on the tax rolls, LCARA members were willing to appear foolish. The executive director moved his family into the neighborhood. And though 93 horses died from dioxin exposure in Missouri and an entire town was evacuated in that state due to the presence of dioxin, the chairman of LCARA as recently as one month ago reiterated his position on the matter — he was probably exposed to more dioxin while sitting around the Boy Scout campfire than were the residents of Love Canal.

It is unfortunate that Sen. Daly could not support Assemblyman Pillittere's effort to remove Declaration Area reoccupation policy from LCARA. That legislation, as the Gazette noted editorially, would have created a "certification board" that might have been

cumbersome but would have allowed for discussion among experts as to when, and if, the Declaration Area was fit for human habitation.

What was Sen. Daly's response to the certification board concept? He opposed it and supported legislation that would have made Health Commissioner Axelrod responsible for when and if reoccupancy would occur. This proposal was disingenuous. Axelrod refused to act during the 1979-80 crisis. He seemed inclined to accept the EPA's position on the reoccupancy issue. He refused to respond to queries from Assemblymen Hinchey and Pillittere and others on the reoccupancy question that were made two months ago. Yet the senator remained firm in his position that this was a decision to be made by the commissioner.

In light of the fact that three of the four OTA conditions for reoccupancy involved engineering judgments, one wonders why only Commissioner Axelrod is qualified to determine when the area is safe for human habitation.

Because the certification board legislation failed, LCARA retains ultimate authority to decide the rehabilitation question. What an opportunity the agency has to turn Love Canal into a positive symbol, if only it could slow its enthusiasm to sell real estate and join that portion of humanity which wants to know the human impact that toxic chemicals pose and how those chemicals can be contained and detoxified.

Niagara Falls is rightfully proud of its pioneering chemical industry. If LCARA could exercise the foresight to turn Love Canal into a demonstration project — it is a veritable scientific laboratory for biologists, chemists, geologists and engineers — Niagara Falls could become a pioneer in the development of toxic-waste-cleanup strategies, a legacy worthy of this great city.

Roger Cook  
Grand Island

## Love Canal Collection

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Niagara Gazette - May 30, 1981

# Canal residents fuming over delays of EPA tests

The long-awaited results of environmental tests done at the Love Canal are apparently still weeks off, and while the agency that performed them fiddles, a lot of the people who still live there are burning.

Loretta Gambino of the Concerned Area Residents' group said Thursday that her organization will continue to press for an extension of the three-year period which homeowners have to consider selling their homes, an extension of tax relief on remaining home and property owners, and any other redress that will help them.

Even Richard Morris, executive director of the Love Canal Revitalization Agency is becoming more concerned about the EPA tests.

"I'm hearing nothing, but that which I read in the newspapers and I don't even pester them (EPA). And it doesn't affect the day-to-day operation of the purchasing program. But I think that this long delay in announcing the results of the study may be influencing decisions on whether or not to sell. I think if we had those results it would help them to make up their minds," Morris said.

The agency so far has bought 286 homes.

There have been 362 contracts for purchase signed leaving 76 agreements to be closed, Morris said.

"We probably lost some people (who may have remained in the area) but they ran out of patience," Morris said.

Mrs. Gambino said she has been told that residents will be briefed prior to the official release of the EPA test results. The tests were performed on air, water, and soil samples in the canal area but the agency has maintained it will not make any conclusions on habitability.

Agency officials said earlier this year that they would not be making a "hard" statement on whether it was safe to live in the canal area, a complete turnaround from pronouncements last year that assurances would be given to residents on habitability of the area.

If there is no guarantee, the revitalization agency could be up against a wall in its effort to get more money to do just that — rebuild that neighborhood.

The agency's \$20 million federal-state grant and loan program is eaten up almost entirely for purchasing the homes and moving renters, leaving practically nothing left for revitalization. Dr. John Deegan, coordinator of the EPA Love Canal testing program, according to Mrs. Gambino, is scheduled to meet with residents to review the test results.

One of the holdups in announcing the testing results apparently stems from the delay in appointing a new head of the EPA by the administration of President Ronald Reagan.

The actual testing was completed last October and residents were told that an announcement on the findings would be made in December 1980 or January 1981.

But that has stretched into the present.

"Because of this I think we should be granted an extension on the time we have to decide to move, and tax relief should be extended as well," Mrs. Gambino said.

It appears that until the findings of the EPA tests are announced, the future of the Love Canal neighborhood will continue to remain in limbo.



## Love Canal Collection

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Niagara Gazette - May 3, 1981

### Canal tragedy not yet over

**UNSIGNED** letters to the editor are generally disregarded since this newspaper's policy is that all letters considered for publication must be signed. But one arrived the other day from a Love Canal resident who asked that it be printed since it "could be from any Love Canal resident."

Since many outside that neighborhood have forgotten the anguish experienced by residents there over the last three years, and since hard decisions remain for those still living there, the following letter from a 101st Street resident is printed as a reminder that the Love Canal tragedy is not yet over.

"As I spend the last few weeks in my house in Love Canal, I would like to thank the City of Niagara Falls, Hooker Chemical, and all the other unfeeling, uncaring people who brought my family and hundreds of other families to leave the homes they loved.

"It's hard for me to express the feelings that I have about the house I've lived in 15 of my 21 years. The memories, good and bad, will be remembered too well, hurting all the while. The hard work put into these homes won't soon be forgotten either.

"The Love Canal has caused a lot of problems these past three years: broken marriages, broken homes, and, most of all, broken hearts. I hope after we move the Love Canal will be part of our past to be forgotten.

"I hope the people responsible for Love Canal someday feel the heartache and pain we feel as we leave and lock the door of our house for the last time."

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# EPA won't judge Love Canal safety

By RAE TYSON  
Gazette Staff Writer

WASHINGTON — The U.S. Environmental Protection Agency will renege on earlier promises that it would judge the safety of the troubled Love Canal neighborhood, the Niagara Gazette has learned.

Beginning last June, EPA officials, including Project Coordinator John Deegan, issued assurances to area residents that a "clear-cut" statement on the "habitability" of the neighborhood would be issued at the end of an extensive \$5.4 million environmental testing program.

Speaking to a group of community leaders on June 17, Deegan offered assurances that a statement "as to whether or not those homes, in the opinion of the agency, are habitable or not habitable" would be issued as soon as the analytical work was completed.

Tests of the air, water and soil in the Love Canal

neighborhood were completed in October and EPA officials said then the statement would be made in December or January.

But Tuesday, Deegan's assistant Helen Burnett said, "We are not going to be making a strict recommendation on habitability."

When told of the EPA decision not to issue any recommendations, Love Canal Homeowners Association President Lois Gibbs said she was baffled.

"I thought that was the whole purpose of the tests to begin with," she said.

Ms. Burnett said EPA has been hampered by a lack of data from "human health effects studies." Without those test results the agency has found it difficult to judge the long-term effects of "low-level chemical exposure" on Love Canal residents, she added.

The Center for Disease Control in Atlanta was supposed to conduct health studies of the Love Canal residents, but funding for the \$3.8 million study was not approved before Congress adjourned in December.

"We had expected CDC to come up with those health effects," Ms. Burnett said.

As an alternative to any EPA recommendation, Ms. Burnett said Love Canal residents whose homes were involved in the program would receive individual test results, along with comparative results from another "control" neighborhood in the city.

Each resident will also receive copies of the federal Occupational Safety and Health Administration's chemical exposure guidelines that families can use for comparison to their own results, Ms. Burnett added.

"There will be lots of information so people can make their own judgement," she said.

EPA's environmental testing program, called one of the most extensive ever performed by the agency, began after President Carter declared the neighborhood a federal emergency in May.

Since then, state and federal funding has enabled a number of the remaining Love Canal residents to move from the area, but many families have been waiting for the EPA recommendation before deciding to leave the neighborhood.

# LOVE CANAL AND THE POISONING OF AMERICA

*"Industry has shown laxity, not infrequently to the point of criminal negligence, in soiling the land and adulterating the waters with its toxins." So says a recent report from a House investigative subcommittee. The report adds that as deposits of dangerous industrial wastes proliferate, the authority charged with eliminating the hazards, the Environmental Protection Agency, has done little to search out such sites and compel offending companies to clean them up. Meanwhile, as much as 35 million tons of toxic waste continues to be improperly disposed of every year; and, charges one environmental watchdog group, another year and a half may pass before the EPA puts proper regulations into force. There may be as many as 34,000 seriously hazardous waste dumps spotted about the country. The article that follows documents the miseries and losses induced by only one such man-made horror, the infamous Love Canal dump in Niagara Falls, New York.*

by Michael H. Brown

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Niagara Falls is a city of unmatched natural beauty; it is also a tired industrial work-horse, beaten often and with a hard hand. A magnificent river—a strait, really—connecting Lake Erie to Lake Ontario flows hurriedly north, at a pace of a half-million tons a minute, widening into a smooth expanse near the city before breaking into whitecaps and taking its famous 186-foot plunge. Then it cascades through a gorge of overhung shale and limestone to rapids higher and swifter than anywhere else on the continent.

The falls attract long lines of newlyweds and other tourists. At the same time, the river provides cheap electricity for industry; a good stretch of its shore is now filled with the spiraled pipes of distilleries, and the odors of chlorine and sulfides hang in the air.

Many who live in the city of Niagara Falls work in chemical plants, the largest of which is owned by the Hooker Chemical Company, a subsidiary of Occidental Petroleum since the 1960s. Timothy Schroeder did not. He was a cement technician by trade, dealing with the factories only if they needed a pathway poured, or a small foundation set. Tim and his wife, Karen, lived in a ranch-style home with a brick and wood exterior at 460 99th Street. They saved all the money they could to redecorate the inside and to make such additions as a cement patio, covered with an extended roof. One of the Schroeders' most cherished purchases was a Fiberglas pool, built into the ground and enclosed by a redwood fence.

Karen looked from a back window one morning in October 1974, noting with distress that the pool had suddenly risen two feet above the ground. She called Tim to tell him about it. Karen then had no way of knowing that this was the first sign of what would prove to be a punishing family and economic tragedy.

Mrs. Schroeder believed that the cause of the uplift was the unusual groundwater flow of the area. Twenty-one years before, an abandoned hydroelectric canal directly behind their house had been backfilled with industrial rubble. The underground breaches created by this disturbance, aided by the marshland nature of the region's surficial layer, collected large volumes of rainfall and undermined the back yard. The Schroeders allowed the pool to remain in its precarious position until the following summer and then pulled it from the ground, intending to pour a new pool, cast in cement. This they were unable to do, for the gaping excavation immediately filled with what Karen called "chemical water," rancid liquids of yellow and orchid and blue. These same chemicals had mixed with the groundwater and flooded the entire yard, attacking the redwood posts with such a caustic bite that one day the fence simply collapsed. When the chemicals receded in the dry weather, they left the gardens and shrubs withered and scorched, as if by a brush fire.

How the chemicals got there was no mystery. In the late 1930s, or perhaps early 1940s, the Hooker Company, whose many processes included the manufacture of pesticides, plasticizers, and caustic soda, began using the abandoned canal as

a dump for at least 20,000 tons of waste residues—"still-bottoms," in the language of the trade.

Karen Schroeder's parents had been the first to experience problems with the canal's seepage. In 1959, her mother, Aileen Voorhees, encountered a strange black sludge bleeding through the basement walls. For the next twenty years, she and her husband, Edwin, tried various methods of halting the irritating intrusion, pasting the cinder-block wall with sealants and even constructing a gutter along the walls to intercept the inflow. Nothing could stop the chemical smell from permeating the entire household, and neighborhood calls to the city for help were fruitless. One day, when Edwin punched a hole in the wall to see what was happening, quantities of black liquid poured from the block. The cinder blocks were full of the stuff.

Although they later learned they were in imminent danger, Aileen and Edwin Voorhees had treated the problem as a mere nuisance. That it involved chemicals, industrial chemicals, was not particularly significant to them. All their lives, all of everyone's life in the city, malodorous fumes had been a normal ingredient of the ambient air.

More ominous than the Voorhees basement was an event that occurred at 11:12 P.M. on November 21, 1968, when Karen Schroeder gave birth to her third child, a seven-pound girl named Sheri. No sense of elation filled the delivery room. The child was born with a heart that beat irregularly and had a hole in it, bone blockages of the nose, partial deafness, deformed ear exteriors, and a cleft palate. Within two years, the Schroeders realized Sheri was also mentally retarded. When her teeth came in, a double row of them appeared on her lower jaw. And she developed an enlarged liver.

The Schroeders considered these health problems as well as illnesses among their other children, as acts of capricious genes—a vicious quirk of nature. Like Mrs. Schroeder's parents, they were concerned that the chemicals were devaluing their property. The crab apple tree and evergreens in the back were dead, and even the oak in front of the home was sick; one year, the leaves had fallen off on Father's Day.

**T**he canal had been dug with much fanfare in the late nineteenth century by a flamboyant entrepreneur named William T. Love, who wanted to construct an industrial city with ready access to water power and major markets. The setting for Love's dream was to be a navigable power channel that would extend seven miles from the Upper Niagara before falling two hundred feet, circumventing the treacherous falls and at the same time providing cheap power. A city would be constructed near the point where the canal fed back into the river, and he promised it would accommodate half a million people.

So taken with his imagination were the state's leaders that they gave Love a free hand to condemn as much property as he liked, and to divert whatever amounts of water. Love's dream, however, proved grander than his resources, and he was eventually forced to abandon the project after a mile-long trench, ten to forty feet deep and generally twenty yards wide, had been scoured perpendicular to the Niagara River. Eventually, the trench was purchased by Hooker.

Few of those who, in 1977, lived in the numerous houses that had sprung up by the site were aware that the large and barren field behind them was a burial ground for toxic waste. That year, while working as a reporter for a local newspaper, the Niagara Gazette, I began to inquire regularly about the strange conditions reported by the Schroeders and other families in the Love Canal area. Both the Niagara County Health Department and the city said it was a nuisance condition, but no serious danger to the people. Officials of Hooker Company refused comment, claiming only that they had no records of the chemical burials and that the problem was not their responsibility. Indeed, Hooker had deeded the land to the Niagara Falls Board of Education in 1953, for a token \$1. With it the company issued no detailed warnings of the chemicals, only a brief paragraph in the quitclaim document that disclaimed company liability for any injuries or deaths which might occur at the site.

The board's attorney, Ralph Boniello, says he received no phone calls or letters specifically relating the exact nature of the refuse and what it could do, nor did the board, as the company was later to claim, threaten condemnation of the property in order to secure the land. "We had no idea what was in there," Boniello said.

Though Hooker was undoubtedly relieved to rid itself of the contaminated land, the company was so vague about the hazards involved that one might have thought the wastes would cause harm only if touched, because they irritated the skin; otherwise, they were not of great concern. In reality, as the company must have known, the dangers of these wastes

far exceeded those of acids or alkalines or inert salts. We now know that the drums Hooker had dumped in the canal contained a veritable witch's brew—compounds of truly remarkable toxicity. There were solvents that attacked the heart and liver, and residues from pesticides so dangerous that their commercial sale was shortly thereafter restricted outright by the government; some of them were already suspected of causing cancer.

Yet Hooker gave no hint of that. When the board of education, which wanted the parcel for a new school, approached Hooker, B. Klaussen, at the time Hooker's executive vice president, said in a letter to the board, "Our officers have carefully considered your request. We are very conscious of the need for new elementary schools and realize that the sites must be carefully selected so that they will best serve the area involved. We feel that the board of education has done a fine job in meeting the expanding demand for additional facilities and we are anxious to cooperate in any proper way. We have, therefore, come to the conclusion that since this location is the most desirable one for this purpose, we will be willing to donate the entire strip of property which we own between Colvin Boulevard and Frontier Avenue to be used for the erection of a school at a location to be determined ... "

The board built the school and playground at the canal's midsection. Construction progressed despite the contractor's hitting a drainage trench that gave off a strong chemical odor and the discovery of a waste pit nearby. Instead of halting the work, the authorities simply moved the school eighty feet away. Young families began to settle in increasing numbers alongside the dump, many of them having been told that the field was to be a park and recreation area for their children.

Children found the "playground" interesting, but at times painful. They sneezed, and their eyes teared. In the days when the dumping was still in progress, they swam at the opposite end of the canal, occasionally arriving home with hard pimples all over their bodies. Hooker knew children were playing on its spoils. In 1958, three children were burned by exposed residues on the canal's surface, much of which, according to residents, had been covered with nothing more than fly ash and loose dirt. Because it wished to avoid legal repercussions, the company chose not to issue a public warning of the dangers it knew were there, nor to have its chemists explain to the people that their homes would have been better placed elsewhere.

The Love Canal was simply unfit as a container for hazardous substances, poor even by the standards of the day, and now, in 1977, local authorities were belatedly finding that out. Several years of heavy snowfall and rain had filled the sparingly covered channel like a bathtub. The contents were overflowing at a frightening rate, sopping readily into the clay, silt, and sandy loam and finding their exit through old creekbeds and swales and into the neighborhood.

The city of Niagara Falls, I was assured, was planning a remedial drainage program to halt in some measure the chemical migration off the site. But no sense of urgency had been attached to the plan, and it was stalled in red tape. No one could agree on who should pay the bill—the city, Hooker, or the board of education—and engineers seemed confused over what exactly needed to be done.

Niagara Falls City Manager Donald O'Hara persisted in his view that, however displeasing to the eyes and nose, the Love Canal was not a crisis matter, mainly a question of aesthetics. O'Hara reminded me that Dr. Francis Clifford, county health commissioner, supported that opinion. With the city, the board, and Hooker unwilling to commit themselves to a remedy, conditions degenerated in the area between 97th and 99th streets, until, by early 1978, the land was a quagmire of sludge that oozed from the canal's every pore. Melting snow drained the surface soot onto the private yards, while on the dump itself the ground had softened to the point of collapse, exposing the crushed tops of barrels. Beneath the surface, masses of sludge were finding their way out at a quickening rate, constantly forming springs of contaminated liquid. The Schroeder back yard, once featured in a local newspaper for its beauty, had reached the point where it was unfit even to walk upon. Of course, the Schroeders could not leave. No one would think of buying the property. They still owed on their mortgage and, with Tim's salary, could not afford to maintain the house while they moved into a safer setting. They and their four children were stuck.

Apprehension about large costs was not the only reason the city was reluctant to help the Schroeders and the one hundred or so other families whose properties abutted the covered trench. The city may also have feared distressing Hooker. To an economically depressed area, the company provided desperately needed employment—as many as 3000 blue-collar jobs in the general vicinity, at certain periods—and a substantial number of tax dollars. Perhaps more to the point, Hooker was speaking of building a \$17 million headquarters in downtown Niagara Falls. So anxious were city officials to receive the

new building that they and the state granted the company highly lucrative tax and loan incentives, and made available to the firm a prime parcel of property near the most popular tourist park on the American side, forcing a hotel owner to vacate the premises in the process.

City Manager O'Hara and other authorities were aware of the nature of Hooker's chemicals. In fact, in the privacy of his office, O'Hara, after receiving a report on the chemical tests at the canal, had informed the people at Hooker that it was an extremely serious problem. Even earlier, in 1976, the New York State Department of Environmental Conservation had been made aware that dangerous compounds were present in the basement sump pump of at least one 97th Street home, and soon after, its own testing had revealed that highly injurious halogenated hydrocarbons were flowing from the canal into adjoining sewers. Among them were the notorious PCBs; quantities as low as one part PCBs to a million parts normal water were enough to create serious environmental concerns; in the sewers of Niagara Falls, the quantities of halogenated compounds were thousands of times higher. The other materials tracked, in sump pumps or sewers, were just as toxic as PCBs, or more so. Prime among the more hazardous ones was residue from hexachlorocyclopentadiene, or C-56, which was deployed as an intermediate in the manufacture of several pesticides. In certain dosages, the chemical could damage every organ in the body.

While the mere presence of C-56 should have been cause for alarm, government remained inactive. Not until early 1978—a full eighteen months after C-56 was first detected—was testing conducted in basements along 97th and 99th streets to see if the chemicals had vaporized off the sump pumps and walls and were present in the household air. The U.S. Environmental Protection Agency conducted these tests at the urging of local Congressman John LaFalce, the only politician willing to approach the problem with the seriousness it deserved.

While the basement tests were in progress, the rain of spring arrived at the canal, further worsening the situation. Heavier fumes rose above the barrels. More than before, the residents were suffering from headaches, respiratory discomforts, and skin ailments. Many of them felt constantly fatigued and irritable and the children had reddened eyes. In the Schroeder home, Tim developed a rash along the backs of his legs. Karen could not rid herself of throbbing pains in her head. Their daughter, Laurie, seemed to be losing some of her hair.

Three month's passed before I was able to learn what the EPA testing had shown. When I did, the gravity of the situation became clear: benzene, a known cause of cancer in humans, had been readily detected in the household air up and down the streets. A widely used solvent, benzene was known in chronic-exposure cases to cause headaches, fatigue, loss of weight, and dizziness followed by pallor, nose-bleeds, and damage to the bone marrow.

No public announcement was made of the benzene hazard. Instead, officials appeared to shield the finding until they could agree among themselves on how to present it. Indeed, as early as October 18, 1977, Lawrence R. Moriarty, an EPA regional official in Rochester, had sent to the agency's toxic substances coordinator a lengthy memorandum stating that "serious thought should be given to the purchase of some or all the homes affected ... This would minimize complaints and prevent further exposure to people." Concern was raised, he said, "for the safety of some 40 or 50 homeowners and their families ... "

Dr. Clifford, the county health commissioner, seemed unconcerned by the detection of benzene in air. "We have no reason to believe the people are imperiled," he said. "For all we know, the federal limitations could be six times too high ... I look at EPA's track record and notice they have to err on the right-side." O'Hara, who spoke to me in his office about the situation, told me I was overreacting to the various findings. The chemicals in the air, he said, posed no more risk than smoking a couple of cigarettes a day.

Dr. Clifford's health department refused to conduct a formal study of the people's health, despite the air-monitoring results. A worker from the department made a perfunctory call to the school, 99th Street Elementary, and when it was discovered that classroom attendance was normal, apparently the department ceased to worry about the situation. For this reason, and because of the resistance growing among the local authorities, I went to the southern end of 99th Street to take an informal health survey of my own. I arranged a meeting with six neighbors, all of them instructed beforehand to list the illnesses they were aware of on their block, with names and ages specified for presentation at the session.

The residents' list was startling. Though unafflicted before they moved there, many people were now plagued with ear



infections, nervous disorders, rashes, and headaches. One young man, James Gizzarelli, said he had missed four months of work owing to breathing troubles. His wife was suffering epileptic-like seizures which her doctor was unable to explain. Meanwhile, freshly applied paint was inexplicably peeling from the exterior of their house. Pets too were suffering, most seriously if they had been penned in the back yards nearest to the canal, constantly breathing air that smelled like mothballs and weedkiller. They lost their fur, exhibited skin lesions, and, while still quite young, developed internal tumors. A great many cases of cancer were reported among the women, along with much deafness. On both 97th and 99th streets, traffic signs warned passing motorists to watch for deaf children playing near the road.

Evidence continued to mount that a large group of people, perhaps all of the one hundred families immediately by the canal, perhaps many more, were in imminent danger. While watching television, while gardening or doing a wash, in their sleeping hours, they were inhaling a mixture of damaging chemicals. Their hours of exposure were far longer than those of a chemical factory worker, and they wore no respirators or goggles. Nor could they simply open a door and escape. Helplessness and despair were the main responses to the blackened craters and scattered cinders behind their back yards.

But public officials often characterized the residents as hypochondriacs. Timothy Schroeder would wander to his back land and shake his head. "They're not going to help us one damn bit," he said, throwing a rock into a puddle coated with a film of oily blue. "No way." His wife's calls to the city remained unanswered while his shrubs continued to die. Sheri needed expensive medical care and he was afraid the time would come when he could no longer afford to provide it. A heavy man with a round stomach and gentle voice, he had struck me as easygoing and calm, ready with a joke and a smile. That was disappearing now. His face—in the staring eyes, in the tightness of the lips and cheeks—candidly revealed his utter disgust. Every agent of government had been called on the phone or sent pleas for help, but none offered aid.

Commissioner Clifford expressed irritation at my printed reports of illness, and disagreement began to surface in the newsroom on how the stories should be printed. "There's a high rate of cancer among my friends," Dr. Clifford argued. "It doesn't mean anything." Mrs. Schroeder said that Dr. Clifford had not visited the homes at the canal, nor had he seen the black liquids collecting in the basements. Nor had the County Health Commissioner properly followed an order from the state commissioner to cover exposed chemicals, erect a fence around the site, and ventilate the contaminated basements. Instead, Dr. Clifford arranged for the installation of two \$15 window fans in the two most polluted basements and a thin wood snow fence that was broken within days of its erection and did not cover the entire canal.

Partly as a result of the county's inadequate response, the state finally announced in May 1978 that it intended to conduct a health study at the dump site's southern end. Blood samples would be drawn to test for unusual enzyme levels showing liver destruction, and extensive medical questionnaires were to be answered by each of the families.

As interest in the small community increased, further revelations shook the neighborhood. In addition to the benzene, eighty or more other compounds were found in the makeshift dump, ten of them potential carcinogens. The physiological effects they could cause were profound and diverse. At least fourteen of them could impact on the brain and central nervous system. Two of them, carbon tetrachloride and chlorobenzene, could readily cause narcotic or anesthetic consequences. Many others were known to cause headaches, seizures, loss of hair, anemia, or skin rashes. Together, the compounds were capable of inflicting innumerable illnesses, and no one knew what new concoctions were being formulated by their mixture underground.

Edwin and Aileen Voorhees had the most to be concerned about. When a state biophysicist analyzed the air content of their basement, he determined that the safe exposure time there was less than 2.4 minutes—the toxicity in the basement was thousands of times the acceptable limit for twenty-four-hour breathing. This did not mean they would necessarily become permanently ill, but their chances of contracting cancer, for example, had been measurably increased. In July, I visited Mrs. Voorhees for further discussion of her problems, and as we sat in the kitchen, drinking coffee, the industrial odors were apparent. Aileen, usually chipper and feisty, was visibly anxious. She stared down at the table, talking only in a lowered voice. Everything now looked different to her. The home she and Edwin had built had become their jail cell. Their yard was but a pathway through which toxicants entered the cellar walls. The field out back, that prosed "park," seemed destined to be the ruin of their lives. I reached for her phone and called Robert Mathews, a city engineer who had been given the job of overseeing the situation. Was the remedial program, now in the talking stage for more than a year, ready to begin soon? No. Could he report any progress in deciding who would pay for it? No. Could Mr. and Mrs.

Voorhees be evacuated? Probably not, he said—that would open up a can of worms, create a panic.

On July 14 I received a call from the state health department with some shocking news. The preliminary review of the health questionnaires was complete. And it showed that women living at the southern end had suffered a high rate of miscarriages and had given birth to an abnormally high number of children with birth defects. In one age group, 35.3 percent had records of spontaneous abortions. That was far in excess of the norm. The odds against it happening by chance were 250 to one. These tallies, it was stressed, were "conservative" figures. Four children in one small section of the neighborhood had documentable birth defects, club feet, retardation, and deafness. Those who lived there the longest suffered the highest rates.

The data on miscarriages and birth defects, coupled with the other accounts of illness, finally pushed the state's bureaucracy into motion. A meeting was scheduled for August 2, at which time the state health commissioner, Dr. Robert Whalen, would formally address the issue. The day before the meeting, Dr. Nicholas Vianna, a state epidemiologist, told me that residents were also incurring some degree of liver damage. Blood analyses had shown hepatitis-like symptoms in enzyme levels. Dozens if not hundreds of people, apparently, had been adversely affected.

In Albany, on August 2, Dr. Whalen read a lengthy statement in which he urged that pregnant women and children under two years of age leave the southern end of the dump site immediately. He declared the Love Canal an official emergency, citing it as a "great and imminent peril to the health of the general public."

When Commissioner Whalen's words hit 97th and 99th streets, by way of one of the largest banner headlines in the *Niagara Gazette's* 125-year history, dozens of people massed on the streets, shouting into bullhorns and microphones to voice frustrations that had been accumulating for months. Many of them vowed a tax strike because their homes were rendered unmarketable and unsafe. They attacked their government for ignoring their welfare. A man of high authority, a physician with a title, had confirmed that their lives were in danger. Most wanted to leave the neighborhood immediately.

Terror and anger roiled together, exacerbated by Dr. Whalen's failure to provide a government-funded evacuation plan. His words were only a recommendation: individual families had to choose whether to risk their health and remain, or abandon their houses and, in so doing, write off a lifetime of work and savings.

On August 3, Dr. Whalen decided he should speak to the people. He arrived with Dr. David Axelrod, a deputy who had directed the state's investigation, and Thomas Frey, a key aide to Governor Hugh Carey.

At a public meeting, held in the 99th Street School auditorium, Frey was given the grueling task of controlling the crowd of 500 angry and frightened people. In an attempt to calm them, he announced that a meeting between the state and the White House had been scheduled for the following week. The state would propose that the Love Canal be classified a national disaster, thereby freeing federal funds. For now, however, he could promise no more. Neither could Dr. Whalen and his staff of experts. All they could say was what was already known: twenty-five organic compounds, some of them capable of causing cancer, were in their homes, and because young children were especially prone to toxic effects, they should be moved to another area.

Dr. Whalen's order had applied only to those living at the canal's southern end, on its immediate periphery. But families living across the street from the dump site, or at the northern portion, where the chemicals were not so visible at the surface, reported afflictions remarkably similar to those suffered by families whose yards abutted the southern end. Serious respiratory problems, nervous disorders, and rectal bleeding were reported by many who were not covered by the order.

Throughout the following day, residents posted signs of protest on their front fences or porch posts. "Love Canal Kills," they said, or "Give Me Liberty, I've Got Death." Emotionally exhausted and uncertain about their future, men stayed home from work, congregating on the streets or comforting their wives. By this time the board of education had announced it was closing the 99th Street School for the following year, because of its proximity to the exposed toxicants. Still, no public relief was provided for the residents.

Another meeting was held that evening, at a firehall on 102nd Street. It was unruly, but the people, who had called the

session in an effort to organize themselves, managed to form an alliance, the Love Canal Homeowners Association, and to elect as president Lois Gibbs, a pretty, twenty-seven-year-old woman with jetblack hair who proved remarkably adept at dealing with experienced politicians and at keeping the matter in the news. After Mrs. Gibbs's election, Congressman John LaFalce entered the hall and announced, to wild applause, that the Federal Disaster Assistance Administration would be represented the next morning, and that the state's two senators, Daniel Patrick Moynihan and Jacob Javits, were working with him in an attempt to get funds from Congress.

More disturbing facts continued to accumulate. From the slopes of the terrain, and the low points where creekbeds and swales had been filled, investigators found indication that chemicals had long ago traveled outside of the channel's banks, farther even than the first two "rings" of homes alongside the dump. Nearly a mile from the Schroeder home, to the north, I noticed one such downgrade of land near a small, neat house with a nameplate saying "Moshers" hung on a post in the front yard. I knocked on the door and a thin, pale man reluctantly received me. We went into the kitchen to meet his wife, Velma, a fifty-four-year-old woman confined to a wheelchair and barely able to speak. She too was pale and fragile. "I'm just so tired all the time," she explained. "I'm just so tired, and I don't think they know what's really wrong with me." She said her great fatigue had set in more than a dozen years before, when she was operating a beauty shop in her basement. "It didn't smell right down there," she added. "Not at all. I'd get headaches all the time. I would go out back at night, to play croquet, and my legs would give way, just collapse." She closed the salon when she could no longer navigate the stairs.

Mr. Mosher was not as candid as his wife. He stepped back from me when I asked about his health, as if I had spoken a blasphemy. The reaction, I soon learned, was out of fear that any publicity would affect his standing at a local carbon plant, where he held a managerial position.

I walked toward the back door leading to the basement. "Do you have a flashlight?" I asked.

Mr. Mosher nodded his head and returned with one promptly. As we descended the stairs, he explained that no one had checked his home for contamination, so he had not worried about it. I stirred the sump pump sediment with a piece of wood and switched on the flashlight; there it was, a red, rubbery substance like that described by another person I had interviewed and which, upon testing, had been found to contain cancer-producing chemicals.

I grew impatient with Mr. Mosher's reticence about his health, warning him that he could be endangered. Having seen, in the sludge of the sump pump, that chemicals might have found a path into his cellar, he said, "Well, I've got some heart problems. And I had an enlarged spleen removed. It was twelve and a half pounds."

Velma heard the conversation and began to speak of the summer nights when strong fumes from the canal rendered their bedroom a trap for pungent air in which they could not properly breathe. As she recounted those many unpleasant nights, the woman weakly cocked her head to one side and stared up at her husband. "Tell him about your problem," she insisted.

Mr. Mosher stood where the hallway met the kitchen and stared at the floor. After a minute's silence, he looked up at me. In a low tone he said, "I've got cancer, in the bone marrow. They're treating me for it now."

Upon returning to the office, I searched through a book on toxicology, *Dangerous Properties of Industrial Materials*, for the symptoms of benzene poisoning. The lengthy list included fatigue, edema, narcosis, anemia, and hypoplastic or hyperplastic damage to the bone marrow. It was nearly midnight and a Sunday, but I felt compelled to call Dr. Axelrod of the state health department to inform him of the Moshers' condition. Dr. Axelrod was concerned and told me that, not far from the Moshers' home, researchers from his unit had detected benzene in the air.

With the Love Canal story now attracting attention from the national media, the Governor's office announced that Hugh Carey would be at the 99th Street School on August 7 to address the people. Decisions were being made in Albany and Washington. Hours before the Governor's arrival, a sudden burst of "urgent" reports from Washington came across the newswires. President Jimmy Carter had officially declared the Hooker dump site a national emergency.

Hugh Carey was applauded on his arrival. The Governor announced that the state, through its Urban Development Corporation, planned to purchase, at fair market value, those homes rendered uninhabitable by the marauding chemicals. He spared no promises. "You will not have to make mortgage payments on homes you don't want or cannot occupy. Don't worry about the banks. The state will take care of them." By the standards of Niagara Falls, where the real estate market was depressed, the houses were in the middle-class range, worth from \$20,000 to \$40,000 apiece. The state would assess each house and purchase it, and also pay the costs of moving, temporary housing during the transition period, and special items not covered by the usual real estate assessment, such as installation of telephones.

Soon the state, coordinating management of the crisis through its health and transportation departments, began the awesome task of mass evacuation. Ironically, their offices were put into the endangered 99th Street School while the students transferred to classrooms elsewhere in the city. Houses were appraised individually and, one by one, the homeowners were brought in by appointment to negotiate a settlement. Some residents, more worried about their bank accounts than their health, refused to leave, causing an endless cycle of renegotiations until compromises were reached.

First in a trickle and then, by September, in droves, the families gathered their belongings and carted them away. Moving vans crowded 97th and 99th streets. Linesmen went from house to house disconnecting the telephones and electrical wires, while carpenters pounded plywood over the windows to keep vandals away. By the following spring, 237 families were gone; 170 of them had moved into new houses. In time the state erected around a six-block residential area a green chain-link fence, eight feet in height, clearly demarcating the contamination zone.

In October 1978, the long-awaited remedial drainage program began at the south end. Trees were uprooted, fences and garages torn down, and swimming pools removed from the area. So great were residents' apprehensions that dangerous fumes would be released over the surrounding area that the state, at a cost of \$500,000, placed seventy-five buses at emergency evacuation pickup spots during the months of work, in the event that outlying homes had to be vacated quickly because of an explosion. The plan was to construct drain tiles around the channel's periphery, where the back yards had been located, in order to divert leakage to seventeen-foot-deep wet wells from which contaminated groundwater could be drawn and treated by filtration through activated carbon. (Removing the chemicals themselves would have been financially prohibitive, perhaps costing as much as \$100 million—and even then the materials would have to be buried elsewhere.) After the trenching was complete, and the sewers installed, the canal was to be covered by a sloping mound of clay and planted with grass. One day, city officials hoped, the wasteland would become a park.

In spite of the corrective measures and the enormous effort by the state health department, which took thousands of blood samples from past and current residents and made uncounted analyses of soil, water, and air, the full range of the effects remained unknown. In neighborhoods immediately outside the official "zone of contamination," more than 500 families were left near the desolate setting, their health still in jeopardy. The state announced it would buy no more homes.

The first public indication that chemical contamination had probably reached streets to the east and west of 97th and 99th streets, and to the north and south as well, came on August 11, 1978, when sump-pump samples I had taken from 100th and 101st streets, analyzed in a laboratory, showed the trace presence of a number of chemicals found in the canal itself, including lindane, a restricted pesticide that had been suspected of causing cancer in laboratory animals. While probing 100th Street, I had knocked on the door of Patricia Pino, thirty-four, a blond divorcee with a young son and daughter. I had noticed that some of the leaves on a large tree in front of her house exhibited a black oiliness much like that on the trees and shrubs of 99th Street; she was located near what had been a drainage swale.

After I had extracted a jar of sediment from her sump pump for the analysis, we conversed about her family situation and what the trauma now unfolding meant to them. Ms. Pino was extremely depressed and embittered. Both of her children had what appeared to be slight liver abnormalities, and her son had been plagued with "non-specific" allergies, teary eyes, sinus trouble, which improved markedly when he was sent away from home. Patricia told of times, during the heat of summer, when fumes were readily noticeable in her basement and sometimes even upstairs. She herself had been treated for a possibly cancerous condition on her cervix. But, like others, her family was now trapped.

On September 24, 1978, I obtained a state memorandum that said chemical infiltration of the outer regions was significant indeed. The letter, sent from the state laboratories to the U.S. Environmental Protection Agency, said, "Preliminary

analysis of soil samples demonstrates extensive migration of potentially toxic materials outside the immediate canal area." There it was, in the state's own words. Not long afterward, the state medical investigator, Dr. Nicholas Vianna, reported indications that residents from 93rd to 103rd streets might also have incurred liver damage.

On October 4, a young boy, John Allen Kenny, who lived quite a distance north of the evacuation zone, died. The fatality was due to the failure of another organ that can be readily affected by toxicants, the, kidney. Naturally, suspicions were raised that his death was in some way related to a creek that still flowed behind his house and carried, near an outfall, the odor of chlorinated compounds. Because the creek served as a catch basin for a portion of the Love Canal, the state studied an autopsy of the boy. No conclusions were reached. John Allen's parents, Norman, a chemist, and Luella, a medical research assistant, were unsatisfied with the state's investigation, which they felt was "superficial." Luella said, "He played in the creek all the time. There had been restrictions on the older boys, but he was the youngest and played with them when they were old enough to go to the creek. We let him do what the other boys did. He died of nephrosis. Proteins were passing through his urine. Well, in reading the literature, we discovered that chemicals can trigger this. There was no evidence of infection, which there should have been, and there was damage to his thymus and brain. He also had nosebleeds and headaches, and dry heaves. So our feeling is that chemicals probably triggered it."

The likelihood that water-carried chemicals had escaped from the canal's deteriorating bounds and were causing problems quite a distance from the site was not lost upon the Love Canal Homeowners Association and its president, Lois Gibbs, who was attempting to have additional families relocated. Because she lived on 101st Street, she was one of those left behind, with no means of moving despite persistent medical difficulties in her six-year-old son, Michael, who had been operated on twice for urethral strictures. Mrs. Gibbs's husband, a worker at a chemical plant, brought home only \$150 a week, she told me, and when they subtracted from that the \$90 a week for food and other necessities, clothing costs for their two children, \$125 a month for mortgage payments and taxes, utility and phone expenses, and medical bills, they had hardly enough cash to buy gas and cigarettes, let alone vacate their house.

Assisted by two other stranded residents, Marie Pozniak and Grace McCoulf, and with the professional analysis of a Buffalo scientist named Beverly Paigen, Lois Gibbs mapped out the swale and creekbed areas, many of them long ago filled, and set about interviewing the numerous people who lived on or near formerly wet ground. The survey indicated that these people were suffering from an abnormal number of kidney and bladder aggravations and problems of the reproductive system. In a report to the state, Dr. Paigen claimed to have found, in 245 homes outside the evacuation zone, thirty-four miscarriages, eighteen birth defects, nineteen nervous breakdowns, ten cases of epilepsy, and high rates of hyperactivity and suicide.

In their roundabout way, the state health experts, after an elaborate investigation, confirmed some of the homeowners' worst fears. On February 8, 1979, Dr. David Axelrod, who by then had been appointed health commissioner, and whose excellence as a scientist was widely acknowledged, issued a new order that officially extended the health emergency of the previous August, citing high incidences of birth deformities and miscarriages in the areas where creeks and swales had once flowed, or where swamps had been. With that, the state offered to evacuate temporarily those families with pregnant women or children under the age of two from the outer areas of contamination, up to 103rd Street. But no additional homes would be purchased; nor was another large-scale evacuation, temporary or otherwise, under consideration. Those who left under the new plan would have to return when their children passed the age limit.

Twenty-three families accepted the state's offer. Another seven families, ineligible under the plan but of adequate financial means to do so, simply left their homes and took the huge loss of investment. Soon boarded windows speckled the outlying neighborhoods.

**T**he previous November and December, not long after the evacuation of 97th and 99th streets, I became interested in the possibility that Hooker might have buried in the Love Canal waste residues from the manufacture of what is known as 2,4,5-trichlorophenol. My curiosity was keen because I knew that this substance, which Hooker produced for the manufacture of the antibacterial agent hexachlorophene, and which was also used to make defoliants such as Agent Orange, the herbicide employed in Vietnam, carries with it an unwanted by-product technically called 2,3,7,8-tetrachlorodibenzo-para-dioxin, or tetra dioxin. The potency of dioxin of this isomer is nearly beyond imagination. Although its toxicological effects are not fully known, the few experts on the subject estimate that if three ounces were evenly distributed and subsequently ingested among a million people, or perhaps more than that, all of them would die. It

compares in toxicity to the botulinum toxin. On skin contact, dioxin causes a disfiguration called "chloracne," which begins as pimples, lesions, and cysts, but can lead to calamitous internal damage. Some scientists suspect that dioxin causes cancer, perhaps even malignancies that occur, in galloping fashion, within a short time of contact. At least two (some estimates went as high as eleven) pounds of dioxin were dispersed over Seveso, Italy, in 1976, after an explosion at a trichlorophenol plant: dead animals littered the streets, and more than 300 acres of land were immediately evacuated. In Vietnam, the spraying of Agent Orange, because of the dioxin contaminant, was banned in 1970, when the first effects on human beings began to surface, including dioxin's powerful teratogenic, or fetus-deforming, effects.

The ban on herbicidal warfare that involved Agent Orange was sparked by articles in *The New Yorker* under the byline of Thomas Whiteside. I called him for an informed viewpoint. "It's an extremely serious situation if they find dioxin there," he said. "This is most serious. If they buried trichlorophenol, there are heavy odds, heavy odds, that dioxin, in whatever quantities, will be there too."

After our conversation, I called Hooker. Its sole spokesman, Bruce Davis, executive vice president, was by now speaking to the media, but obtaining information from the firm was not the easiest, nor the most pleasant, of tasks. Often, questions had to be submitted days before they were answered; they would be circulated through the legal hands and sometimes sent on to Hooker's parent company, Occidental Petroleum in Los Angeles. I posed two questions concerning trichlorophenol: Were wastes from the process buried in the canal? If so, what were the quantities?

On November 8, before Hooker answered my queries, I learned that, indeed, trichlorophenol had been found in liquids pumped from the remedial drain ditches. No dioxin had been found yet, and some officials, ever wary of more emotionalism among the people, argued that, because the compound was not soluble in water, there was little chance it had migrated off-site. Officials at Newco Chemical Waste Systems, a local waste disposal firm, at the same time claimed that if dioxin had been there, it had probably been photolytically destroyed. Its half-life, they contended was just a few short years.

I knew from Whiteside, however, that in every known case, waste from 2,4,5-trichlorophenol carried dioxin with it. I also knew that dioxin *could* become soluble in groundwater and migrate into the neighborhood upon mixing with solvents such as benzene. Moreover, because it had been buried, sunlight would not break it down.

On Friday, November 10, I called Hooker again to urge that they answer my questions. Davis came to the phone and, in a controlled tone, gave me the answer: His firm had indeed buried trichlorophenol in the canal—200 tons of it.

Immediately I called Whiteside. His voice took on an urgent tone. According to his calculations, if 200 tons of trichlorophenol were there, in all likelihood they were accompanied by 130 pounds of tetra dioxin, an amount equaling the estimated total content of dioxin in the thousands of tons of Agent Orange rained upon Vietnamese jungles. The seriousness of the crisis had deepened, for now the Love Canal was not only a dump for highly dangerous solvents and pesticides; it was also the broken container for the most toxic substance ever synthesized by man.

I reckoned that the main danger was to those working on the remedial project, digging in the trenches. The literature on dioxin indicated that, even in quantities at times too small to detect, the substance possessed vicious characteristics. In one case, workers in a trichlorophenol plant had developed chloracne, although the substance could not be traced on the equipment with which they worked. The mere tracking of minuscule amounts of dioxin on a pedestrian's shoes in Seveso led to major concerns, and, according to Whiteside, a plant in Amsterdam, upon being found contaminated with dioxin, had been "dismantled, brick by brick, and the material embedded in concrete, loaded at a specially constructed dock, on ships, and dumped at sea, in deep water near the Azores." Workers in trichlorophenol plants had died of cancer or severe liver damage, or had suffered emotional and sexual disturbances.

Less than a month after the first suspicions arose, on the evening of December 9, I received a call from Dr. Axelrod. He asked what my schedule was like.

"I'm going on vacation," I informed him. "Starting today."

"You might want to delay that a little while," he replied. "We're going to have something big next week."

That confused me. "What do you mean by that?"



He paused, then said, "We found it. The dioxin. In a drainage trench behind 97th Street. It was in the part-per-trillion range."

The state remained firm in its plans to continue the construction, and, despite the ominous new findings, no further evacuations were announced. During the next several weeks, small incidents of vandalism occurred along 97th and 99th streets. Tacks were spread on the road, causing numerous flat tires on the trucks. Signs of protest were hung in the school. Meetings of the Love Canal Homeowners Association became more vociferous. Christmas was near, and in the association's office at the 99th Street School, a holiday tree was decorated with bulbs arranged to spell "DIOXIN."

The Love Canal people chanted and cursed at meetings with state officials, cried on the telephone, burned an effigy of the health commissioner, traveled to Albany with a makeshift child's coffin, threatened to hold officials hostage, sent letters and telegrams to the White House, held days of mourning and nights of prayer. On Mother's Day this year, they marched down the industrial corridor and waved signs denouncing Hooker, which had issued not so much as a statement of remorse. But no happy ending was in store for them. The federal government was clearly not planning to come to their rescue, and the state felt it had already done more than its share. City Hall was silent and remains silent today. Some residents still hoped that, miraculously, an agency of government would move them. All of them watched with anxiety as each newborn came to the neighborhood, and they looked at their bodies for signs of cancer.

One hundred and thirty families from the Love Canal area began leaving their homes last August and September, seeking temporary refuge in local hotel rooms under a relocation plan funded by the state which had been implemented after fumes became so strong, during remedial trenching operations, that the United Way abandoned a care center it had opened in the neighborhood.

As soon as remedial construction is complete, the people will probably be forced to return home, as the state will no longer pay for their lodging. Some have threatened to barricade themselves in the hotels. Some have mentioned violence. Anne Hillis of 102nd Street, who told reporters her first child had been born so badly decomposed that doctors could not determine its sex, was so bitter that she threw table knives and a soda can at the state's on-site coordinator.

In October, Governor Carey announced that the state probably would buy an additional 200 to 240 homes, at an expense of some \$5 million. In the meantime, lawyers have prepared lawsuits totaling about \$2.65 billion and have sought court action for permanent relocation. Even if the latter action is successful, and they are allowed to move, the residents' plight will not necessarily have ended. The psychological scars are bound to remain among them and their children, along with the knowledge that, because they have already been exposed, they may never fully escape the Love Canal's insidious grasp.

<http://www.theatlantic.com/issues/79dec/lovecanal1.htm>

Niagara Gazette - Aug. 2, 1978

# Evacuation of kids urged

By MIKE BROWN  
Gazette Staff Writer

ALBANY — State Health Commissioner Robert Whalen today declared the Love Canal situation in Niagara Falls an official emergency and urged that young children and pregnant women move away from the area immediately.

In a 12-page order issued to federal, state, county and city officials, Whalen recommended that two pregnant women

known to be living in the area temporarily relocate.

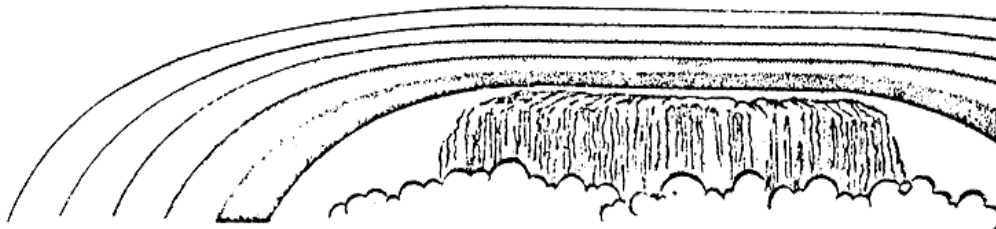
He also urged 20 families with children under two years of age to have the youngsters move out of the homes along 97th and 99th streets as well as Colvin Boulevard as soon as possible.

No evacuation order was served, but a spokesman for Whalen said his advice is "very strong." No state funds were immediately made available to assist the

families, but that possibility was left open for future study.

The health commissioner also asked that the Niagara Falls Board of Education temporarily delay the opening of 99th Street School "to minimize exposure of school-age children to waste chemicals while corrective construction activity takes place."

Dr. Whalen described the situation as "a public nuisance and an extremely serious threat to health, safety and welfare."



"A review of all the available evidence respecting the Love Canal landfill site has convinced me of the existence of a great and imminent peril to the health of the general public residing at or near the said site as a result of exposure to toxic substances emanating from such site," Dr. Whalen said.

At the special meeting in Albany, it was revealed that the risk of spontaneous abortion in the area is nearly double normal. Most of such occurrences have been in the

southern section of the canal during summer months. The state order also directs the Niagara County Board of Health to take remedial actions designed to alleviate the hazards.

Whalen's emergency declaration was ordered under Section 1388 of the Public Health Law. The action maintains responsibility for the Love Canal in the state health commissioner's office, instead of transferring that power to Gov. Hugh Carey.

Meanwhile, Carey described the Love Canal as a "social catastrophe," pledging the creation of a task force to investigate the matter and issue him recommendations.

"I have directed Mr. Thomas Frey, director of state operations, to explore what means of assistance may be available to help individuals who are affected by the order handed down today by the state health commissioner," Carey said.

"I have also instructed him to inquire into possible federal funds available for this purpose."

In his order, Whalen approved of an engineering study conducted by the private consulting firm of Conestoga-Rovers and Associates of Waterloo, Ont. That study calls for the construction of drain tiles around the site to halt the migration of buried chemicals and collect toxic substances for removal.

The state will oversee further studies aiming at the following:

- Delineation of chronic diseases inflicting all residents who have lived adjacent of the old Hooker Chemical Corp. landfill, with particular emphasis on the frequency of spontaneous abortions, congenital defects and other illnesses including cancer.

- A study of the full limits of the Love Canal with respect to the location of toxic chemicals.

- Continued air, water and ground sampling in the area.

- Identification of groundwater that may have been contaminated by chemical leachate.

- Determination of whether customized ventilation systems, carbon filters and special sumps should be employed in the area.

It has already been determined that residents near the canal have suffered an abnormal number of birth defects and miscarriages. A number of residents also have what appear to be liver problems.

Hooker had three technical advisers at Whelan's meeting acting as observers, a spokesman for the firm said.

He said "we're waiting to hear from them" and indicated there would be no official reaction until they reported back.

Residents from the Love Canal area were also present at the meeting.

## The Love Canal Story Is Not Finished

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In this issue, Gensburg et al. (2009) summarize the mortality experience of > 6,100 former residents of Love Canal, New York, over the period 1979–1996. Love Canal became a household word 30 years ago when outraged residents, led by Lois Gibbs and the Love Canal Homeowners Association, demanded attention to the apparent adverse effects of hazardous waste exposures on their children's health (Boston University School of Public Health 2004). Love Canal was evacuated between 1978 and 1980, and property owners were compensated in the first such widely publicized creation of environmental refugees in the United States. Several books and documentaries have described the process and the responses of the various parties involved, including the New York State Department of Health (Boston University School of Public Health 2004; Levine 1982).

The Love Canal saga was called a “warning signal” for other communities that could be experiencing the same types of exposures and similar effects on children's health. As a result of this evacuation and other similar instances in contaminated communities around the United States, the Senate Environment and Public Works Committee and other legislative committees held hearings that led to the passage of the Superfund legislation in 1980. The trust fund created by this legislation paid for cleanup of the most dangerous contamination sites, and its amendments and reauthorization in 1986 created the Agency for Toxic Substances and Disease Registry (ATSDR; Atlanta, GA) to conduct health studies of residents in exposed communities, among other things. The New York State Department of Health used funds from the ATSDR to pay, in part, for the study by Gensburg et al. (2009).

Early studies by researchers at the Roswell Park Memorial Institute (Buffalo, NY) suggested an increased number of stillbirths, birth defects, and other adverse reproductive outcomes in Love Canal children (Goldman et al. 1985). Initial evaluation of cancer incidence suggested a possible increase in respiratory cancer, but it was left to later investigators to examine this more thoroughly. Over the years since the initial controversy about health impacts, community representatives have expressed concern that the scientific information has been part of a “politically inspired cover-up” (Levine 1983). The mortality study by Gensburg et al. (2009) is part of the Love Canal Follow-up Health Study, an attempt to use existing records to understand the health consequences of living near Love Canal between 1940 and 1978, with community involvement and the advice of a prestigious expert advisory committee. Additional results are available in the Project Report to the ATSDR (New York State Department of Health 2008) and will be the subject of future published articles.

The results of the mortality study are limited by several factors, which Gensburg et al. (2009) describe in the “Discussion” of their article. The most obvious limitation, which is common to most retrospective studies of community exposures, is the inability to assess



Richard Clapp

exposure before 1978 and reliance on qualitative estimates. The authors note that “exposure misclassification may have occurred, obscuring possible associations.” Another common limitation is the reliance on death certificate information, with its attendant incompleteness and inaccuracy with respect to certain causes of death. The two most striking findings—increased deaths from acute myocardial infarction, and external causes, such as suicide and motor vehicle accidents—are less susceptible to inaccurate reporting than, for example, specific cancers.

The relatively short follow-up period and relatively young average age of the participants through 1996 led Gensburg et al. to conclude that further follow-up “could reveal patterns that are not yet apparent.” The full story about the health impacts of living near Love Canal is yet to come. Given the importance of this community in the history of environmental health over the past three decades, it is well worth the effort required to understand and honestly report the full story.

*The author declares he has no competing financial interests.*

**Richard Clapp**

Department of Environmental Health  
Boston University School of Public Health  
Boston, Massachusetts  
E-mail: rclapp@bu.edu

### REFERENCES

- Boston University School of Public Health. 2004. Lessons from Love Canal. Available: <http://www.bu.edu/lovecanal> [accessed 5 November 2008].
- Gensburg LJ, Pantea C, Fitzgerald E, Stark A, Kim N. 2009. Mortality among Former Love Canal Residents. *Environ Health Perspect* 117:209–216.
- Goldman LR, Paigen B, Magnant MM, Highland JH. 1985. Low birth weight, prematurity and birth defects in children living near the hazardous waste site, Love Canal. *Haz Waste Haz Mater* 2:209–223.
- Levine A. 1982. *Love Canal: Science, Politics and People*. Lexington, MA:Lexington Books, D.C. Heath.
- Levine A. 1983. Psychosocial impact of toxic chemical waste dumps. *Environ Health Perspect* 48:15–17.
- New York State Department of Health. 2008. Love Canal Follow-up Health Study. Available: [http://www.health.state.ny.us/environmental/investigations/love\\_canal/docs/report\\_public\\_comment\\_final.pdf](http://www.health.state.ny.us/environmental/investigations/love_canal/docs/report_public_comment_final.pdf) [accessed 8 January 2009].

*Richard Clapp is professor of public health at the Boston University School of Public Health and adjunct professor at the University of Massachusetts Lowell. His primary research focuses on environmental and occupational causes of cancer. He previously served as director of the Massachusetts Cancer Registry and examined cancer near hazardous waste sites in Massachusetts.*

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# Prevalence of Health Problems in Children Living Near Love Canal

BEVERLY PAIGEN and LYNN R. GOLDMAN

*Bruce Lyon Memorial Research Laboratory  
Children's Hospital Medical Center  
Oakland, CA 94609*

JOSEPH H. HIGHLAND

*Department of Chemical Engineering  
Princeton University  
Princeton, NJ 08544*

MARY M. MAGNANT and A. T. STEEGMAN, JR.

*Department of Anthropology  
State University of New York/Buffalo  
Amherst, NY 14261*

## ABSTRACT

In order to assess the potential health impact of a hazardous waste disposal site, the parents of Love Canal and control children were interviewed about their children's health. The study population consisted of 523 Love Canal and 440 control children. The Love Canal population was composed of two groups. The homeowner group was primarily white and middle class. The renter group was primarily black and lived in low income housing. The two Love Canal groups were matched with two control groups from the same city for income, race, and education. The mean age of Love Canal children was  $117.6 \pm SE\ 2.2$  months compared to  $98.0 \pm 2.4$  months for control children.

Interviewers questioned parents concerning children's health problems which were diagnosed by a physician. Seven health problems were more prevalent in Love Canal children after controlling for age, race, sex, household size, income and education. Adjusted odds ratios were: seizures, 2.45; learning problems, 1.51; hyperactivity (homeowners only), 2.95; eye irritation, 1.96; skin rashes, 2.25; abdominal pain, 2.09; and incontinence, 3.27. No health problem was identified as more common in controls.

Intensity of exposure was defined in two ways: (1) distance of the home from the canal and (2) proximity of homes to possible paths of chemical migration (wet homes). Six of seven problems that were found elevated in Love Canal children showed a gradient with distance from the canal and six were more prevalent in wet homes. The fact that these health problems showed a dose response strengthens the association of these problems with residence in the Love Canal neighborhood.

The problems of respondent bias, recall bias and stress in a community alarmed by exposure to toxic chemicals are discussed. The problems of assessing health impact by survey methods in such a community are discussed, and methods that could help to reduce bias are suggested.

## INTRODUCTION

In 1978, Love Canal, a hazardous waste site in Niagara Falls, NY, focused national attention on a possible environmental problem arising out of inappropriate disposal of chemical wastes. For decades chemical waste had been disposed of in improperly constructed landfills, in unsuitable soil, or near drinking water supplies. Over time these chemical wastes migrated from some sites, contaminating soil and water supplies (1). Assessment of potential health impact on nearby communities by measuring the types and quantities of these chemicals and estimating the risk is difficult. No toxicological studies are available for chemicals that are manufacturing byproducts or intermediates rather than commercial products. For example, no toxicological information was found for 100 of the 248 chemicals found in the Love Canal area (2). In addition, few estimates of the effects of exposure to mixtures of many chemicals have been attempted. Risk assessments generally are based on the toxicity of a single chemical without regard for the fact that exposure to multiple chemicals simultaneously may greatly increase the risk. Furthermore, most data have been derived from studies on adult animals or healthy male workers. As a result, little is known about the toxicological impact of these chemicals on the general population, including children and pregnant women.

As a background to this study of possible health effects resulting from exposure to Love Canal, it is important to summarize the historical records, the identity of chemicals present in the landfill and their known toxicities, results of similar surveys done at other hazardous waste disposal sites, and results of a pilot study done at Love Canal in 1978.

Love Canal has a long history. In 1896, William T. Love attempted to build a navigable canal connecting the upper and lower Niagara River. This attempt was abandoned after digging a 3000-meter canal that was close to but not connected with the Niagara River. In 1942, the canal was purchased by a chemical company, and by 1953, the canal was filled with more than 19,000 metric tons of solid and liquid waste. Some time after the canal was filled, ownership was transferred to the Niagara Falls Board of Education. The central surface of the canal area was used to build a school and playground. The southern and northern sections of the 6.5-hectare site were used for home sites on the former banks of the canal. In 1977, a sampling study detected migration of chemicals into nearby basements and via storm sewers (3). In 1978, New York State declared a health emergency, closed the school, and evacuated 235 families living within 120 meters of the canal (4). In 1979, New York State evacuated families with pregnant women or children under the age of 2 years living in the southern half of the Love Canal neighborhood, which was judged to be the most contaminated. The remaining families were advised not to initiate pregnancies. In May, 1980, just before this study was initiated, the Federal government offered relocation to all Love Canal residents. To date, about 80-90% of the original families have moved away from the site.

Both New York State and the U.S. Environmental Protection Agency conducted extensive sampling programs to measure the extent of possible chemical contamination in the neighborhood creeks, sanitary sewers, storm sewers, drinking water, air, soil, and sump pumps. Those storm sewers and creeks found to be contaminated had several chemicals including 2,3,7,8-tetrachlorodibenzo-p-dioxin. Drinking water, which came from a municipal treatment plant, was not contaminated, but sump pumps, soil, and air inside homes were found to contain many of the chemicals found in Love Canal. Five index chemicals were measured in the basement air of over 200 Love Canal homes: benzene, chloroform, trichloroethylene, tetrachloroethylene, and toluene (5). If the permissible occupational standards for these are modified to account for continuous (full time) exposure rather than 40-hour work week exposure, the highest reading in a Love Canal home (excluding the 239 homes closest to the Canal, which were not part of this study) was less than 1/100th of occupational standards. However, measurement of levels of these index chemicals may not be an accurate gauge of the exposure to the complex mixture of chemicals which was present.

At least 248 chemicals were identified in Love Canal. They were primarily



# Low Birth Weight, Prematurity and Birth Defects in Children Living Near the Hazardous Waste Site, Love Canal

LYNN R. GOLDMAN AND BEVERLY PAIGEN

*Bruce Lyon Memorial Research Laboratory  
Children's Hospital Medical Center  
Oakland, CA 94609*

MARY M. MAGNANT

*Department of Anthropology  
State University of New York/Buffalo  
Amherst, NY 14261*

JOSEPH H. HIGHLAND

*Center for Energy and Environmental Studies  
Princeton University  
Princeton, NJ 08544*

## ABSTRACT

Birth weight, prematurity, gestational age, and birth defects were assessed in 239 children exposed during gestational life to the Love Canal neighborhood and in 707 control children. The population living in Love Canal was composed of two groups; those referred to as homeowners who lived in single family homes and were predominantly white, and those referred to as renters who lived in a low income apartment complex and were predominantly black. These two groups were matched with comparable groups in the same city and a questionnaire was administered by trained interviewers at a neighborhood site or in the home. Mothers of exposed and control children were similar in socioeconomic status, smoking, alcohol consumption and medication use during pregnancy. There was no significant difference in prematurity, but the prevalence of low birth weight babies (<2500 g) was increased in exposed compared to control children, and multiple regression analysis showed that for the homeowner group the adjusted odds ratio was 3.0 (95% confidence interval 1.3-7.0). Both exposed and control renter groups had a high prevalence of low birth weight babies and there was no difference between the two groups. Birth defects were increased in exposed homeowner and renter groups compared to control groups with adjusted odds ratios of 1.95 (1.03-3.72) and 2.87 (1.15-7.18), respectively.

The use of birth weight of babies may be useful in evaluating possible adverse effect from exposure to low levels of chemicals. In this study, a difference in the prevalence of low birth weight babies could have been detected in as few as 95 births in the exposed group. This apparent association between low birth weight and hazardous waste exposure should be confirmed in other sites and in animal species before inferring causality.

## INTRODUCTION

The developing human fetus is known to be sensitive to many environmental factors, including prenatal nutrition and maternal exposure to air pollution, tobacco, and alcohol (1,2) and may represent a segment of the population that is particularly susceptible to the toxic effects of chemicals. This report evaluates whether adverse effects to the fetus resulted from exposure to the hazardous wastes buried at the disposal site known as Love Canal.

At least 248 chemicals have been found at the site which contained 19,000 metric tons of waste. On the basis of animal and in vitro studies, 30 chemicals are suspected embryotoxins or fetotoxins and 18 are suspected teratogens (3). These chemicals can be divided into two major categories: organic solvents, such as benzene, toluene, xylenes and methyl ethyl ketone; and chlorinated hydrocarbons, such as chloroform, hexachlorobenzene, carbon tetrachloride, dichloroethanes, polychlorinated biphenyls (PCB's), trichlorophenols, 2,3,7,8-tetrachlorodibenzo-p-dioxin, and hexachlorocyclohexane (lindane) (3). For both solvents and chlorinated hydrocarbons, there have been few studies which show reproductive effects in humans. The most solid evidence of adverse effect has been shown for chlorinated hydrocarbons; PCB exposure has been associated with low birth weight (4) and vinyl chloride with spontaneous abortions and birth defects (5). Maternal and infant pesticide levels have been linked to prematurity (6,7) low birth weight (6) and spontaneous abortions (7). More controversial have been studies associating maternal and paternal occupational exposure to anesthetic gases with birth defects and spontaneous abortions (8,9,10), maternal occupational exposure to hexachlorophene with birth defects (11), and environmental levels of 2,4,5-trichlorophenol with neural tube defects and cleft palate (12,13,14). Large epidemiologic investigations have shown that air pollution, as measured by distance from a smelter (15) and by zones of ambient air pollution in Los Angeles (2), may be associated with lowering of birth weight. Another environmental exposure, airport noise, has been linked to decrease in weeks gestation (16) and birth weight (17).

To investigate the effect of residence in the Love Canal neighborhood on the fetus, questions about birth weight, duration of pregnancy, and maternal health during gestation were asked as part of a larger study of the health of children conducted during the summer of 1980. Participants were children living in the Love Canal area at the time of the study and control children from nearby uncontaminated areas in the same city, Niagara Falls, NY. The overall study involved questions concerning health, measurement of growth, and other objective parameters. In this report we ask the following questions. Are birth defects more prevalent than expected in the Love Canal population and, if so, are these of some specific types? Are low birth weight and prematurity more prevalent than expected in Love Canal children? If such adverse reproductive outcomes occur, do they show any trends with time or degree of exposure?

Three prior studies had been done in the Love Canal area, but all three lacked concurrent controls. In 1978, New York State concluded that there was a high rate of miscarriages in the first row of houses surrounding the canal (18), and on this basis, evacuated the 235 families living closest to the canal. A pilot study in 1978 surveyed households in the northern and eastern parts of the Love Canal neighborhood (19) and reported a three-fold increase in the crude rate of miscarriages and a 2.9-fold increase in birth defects in homes which were located in historically "wet" areas, which were thought to provide paths of preferential migration for leachate from the canal, compared to the rest of the neighborhood. Vianna and coworkers from the New York State Department of Health, who searched medical records for confirmation of medical conditions, found that miscarriages, low birth weight, and birth defects were more prevalent in wet than in dry areas (20).

## Growth of Children Living Near the Hazardous Waste Site, Love Canal

BY BEVERLY PAIGEN,<sup>1</sup> LYNN R. GOLDMAN,<sup>1</sup> MARY M. MAGNANT,<sup>2</sup> JOSEPH H. HIGHLAND,<sup>3</sup> AND A.T. STEEGMANN, JR.<sup>2</sup>

**Abstract** To determine whether living near a hazardous waste site had an adverse impact on growth, 493 children living near Love Canal and 428 children living in matched census tracts were compared. Anthropometric measures of children, statures of parents, demographics, and health information were obtained. The two groups were similar for midparent height and for most demographic variables.

Children born and spending at least 75% of their lives in the Love Canal area ( $n = 172$ ) had significantly shorter stature for age than control children. These children had a mean stature for age percentile of  $46.6 \pm SE 2.2$  ( $n = 172$ ) compared with  $53.3 \pm SE 1.4$  ( $n = 404$ ) for children born in the control area ( $p = 0.004$ ). The difference in stature associated with birth and residence in the Love Canal neighborhood could not be accounted for by differences in midparent height, socioeconomic class, nutrition, birth weight, or chronic illness. Mean weight for age percentile was  $50.1 \pm SE 2.2$  for exposed children compared with  $53.1 \pm SE 1.4$  for controls. The difference was not statistically significant.

The problem of evaluating health risk in communities near hazardous waste sites is one of increasing concern. Since growth of children is sensitive to many environmental factors, we questioned whether children's growth might be a reliable and sensitive tool in assessing the impact, if any, of community exposure to low levels of hazardous chemicals. The primary hypothesis to be tested was whether living in proximity to a hazardous waste site decreased the growth of children. This growth was to be measured by stature, weight, and age of menarche. In order to test this hypothesis adequately, we wished to control for all known confounding variables such as parental height, birth weight, socioeconomic class, chronic illness, race and psychological stress. To answer this hypothesis affirmatively, we expected exposed children to be smaller than controls and to show a dose response with respect to exposure.

For laboratory animals, toxic exposure of many types affect growth, as

<sup>1</sup>Bruce Lyon Memorial Research Laboratory, Children's Hospital Medical Center, 747 52nd Street, Oakland, CA 94609.

<sup>2</sup>Department of Anthropology, State University of New York, Buffalo, NY 14261.

<sup>3</sup>Center for Energy and Environmental Studies, Princeton University, Princeton, NJ 08544.

Friday, December 14, 1990

## DONN ESMONDE



### Come and listen to a story 'bout a canal named 'Love'

**M**AKING SENSE of the Love Canal/Occidental Chemical trial. We could talk about hole borings, radiating tendencies of buried chemicals and polychlorinated biphenyls.

We could talk about a projected 1 million pages of documents. About the \$610 million in damages the state wants from Occidental (formerly Hooker Chemical) for befouling the region.

Or we could catch up with what has happened so far, sung to the tune of "The Beverly Hillbillies" theme song:

Listen to a story 'bout a canal named Love.

Clear and clean the stream it used to run.

Then one day came a certain company,  
Before you knew it all the basements  
were smelly.

Toxins, that is  
Chemical gunk  
Yellow crud.

Next thing you know the ground is spit-  
tin' fire.

Little volcanoes bubblin' up from all the  
mire.

One young lad, into the field he ran,  
And sunk to his knees in chemical  
quicksand.

Sucked right down,  
Lost his boots.  
Scared him some.

Neighbors all said that the barrels were  
explodin'.

Day and night, filled 'em with forebod-  
in'.

What could be in 'em when they're  
burstin' into flame?

Since Hooker showed up, well, this  
place just ain't the same.

No problem, folks,  
Takin' care of it,  
Under control.

Rumor has it now that the Army joined  
the fray.

Pourin' rocket fuel into the dump some  
days.

A secret memo claims that it gave the  
brass a fear.

Up in smoke.

Maybe a chemical fire.

After a while, the barrels they'd a-rise.

Filled with the stuff Hooker hoped  
would vaporize.

Stickin' up from the ground, clear and  
bright as day.

The kids would come and atop 'em all  
they'd play.

Pass the time

Make mud pies

Goocy ones.

Eleven long years, the chemicals they'd  
dump,

All in all, 20,000 tons of gunk,

That's tons, we say, the count is 20,000,  
No wonder Love Canal became low-  
priced housin'.

What's that smell?

Nothin', son

Go play upstairs.

Come the 1950s, Hooker said, "We're  
cuttin' out."

Told the school board, "Got a deal will  
make you shout.

"You can have it for a dollar, if you let  
us off the hook,

"Cause we can't be responsible for  
cleanin' up the gunk."

Whatta bargain.

Closeout sale

No refunds or exchanges.

Sad but true, on the land they built a  
school.

More houses sprung up, prosperity did  
rule.

But the stinky stuff kept bubblin' up  
from underground

And one day Jimmy Carter said, 'Y'all  
get outta town.'

Evacuate

On the double

Leave the mud pies.

Here and now, Hooker says it ain't its  
fault.

If they knew better then, they'd have  
stored it in a vault.

"How could we know that the stuff was  
worse than ink?

"Which isn't to say that we put it in our  
drinks."

Lethal mixture

Quite a wallop.

Make mine a double.

Hooker got itself a lawyer, he's from  
Washington, D.C.

Client list of Exxon, Ashland Oil,

IT & T.

Got a PR guy from New York, that's  
not Pomona.

Last time we looked, he was workin' for  
Leona.

Helmsley, that is

Expense account queen

Taxes ain't me.

On and on for months this thing will  
drag

Charts & graphs & No-Doz by the bag

In the end, Judge Curtin will decree

If the party in the wrong was the Hook-  
er Co.

They got lawyers

Gonna need 'em

That goocy stuff, bad.

LOVE CANAL.  
LOVE CANAL NOT.  
LOVE CANAL.  
LOVE CANAL NOT.  
LOVE CANAL...

PLINK

TOMORROW'S  
HEADLINE:  
CANAL FOUND  
SAFE FOR  
BALD PEOPLE

TLS

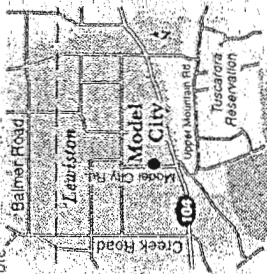
BUFFALO COURIER-EXPRESS 7/82

# LOVE CANAL: 20 years later

## Love Canal chronology

■ 1836: U.S. government surveys the Lewiston area (present site of Model City) as possible site for ship canal linking Lakes Erie and Ontario.

Despite many proposals, nothing results from the engineer's report.



William T. Love, 1894

■ 1892: William T. Love arrives in Niagara Falls with an ambitious scheme to build a carefully planned industrial city and easy access to inexpensive water power and major markets.

■ 1893: Love announces plan for a city to accommodate upwards of 600,000 people. He cites a need to control 10,000 acres; he buys or secures options on 20,000 acres and starts laying out the site.

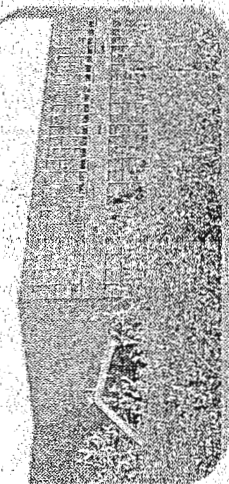
■ 1894: Construction starts on canal to bring in hydroelectric power.

■ 1910: William Love's failed project sold at public auction.

■ 1942: Hooker Electrochemical Co. enters into an agreement with the Niagara Power and Development Co. to buy the area known as Lot 60 of the Mile Reserve (Love Canal). On April 15, a letter from the power company granted permission to Hooker to use the site for waste disposal until the sale could be completed.



■ 1952: Niagara Falls Board of Education, looking at the prospects for residential growth, announced it wanted to build a school in that neighborhood.



99th Street School, 1982

■ 1953: Hooker dedicates the land to the Board of Education for \$1; a single paragraph in the document disclaims the company's liability for any injuries or deaths which might occur at that site.

■ 1978: State Health Commissioner Dr. Robert P. Whalen declares emergency at Love Canal; recommends relocating pregnant women and children under age two.



Robert P. Whalen, M.D.

■ 1979: State officials extend the evacuation area; remedial work starts.



Dioxin clean up on vacant lot on 101st Street

■ 1980: City of Niagara Falls issues \$6.5 million in bonds to pay for remedial work in the south section of the canal.



■ 1980: New York State files lawsuit against Hooker Chemical and its parent company, Occidental Chemical Corp., to recover damages. President Jimmy Carter declares second federal emergency and first federal homes are purchased.

■ 1988: State finds a section of the neighborhood habitable.

■ 1994: U.S. District Judge John T. Curtin rules that Occidental does not have to pay punitive damages because it did not display reckless disregard for the safety of others.

■ 1995: City of Niagara Falls receives \$8 million in the Love Canal settlement money under an agreement reached in June. Under the plan, the city will get \$4 million on June 1, 1996, and another \$4 million on June 1, 1997.

■ 1996: Under the name Black Creek Village, many of the homes north of the canal are resold and rehabilitated by the Love Canal Revitalization Agency.

■ 1998: Nearly 900 former Love Canal residents are notified they will receive awards ranging from \$33 to \$153,000 in personal injury damages.



“CHEJ is the strongest environmental organization today – the one that is making the greatest impact on changing the way our society does business.”

*Ralph Nader*

“CHEJ has been a pioneer nationally in alerting parents to the environmental hazards that can affect the health of their children.”

*New York, New York*

“Again, thank you for all that you do for us out here. I would have given up a long time ago if I had not connected with CHEJ!”

*Claremont, New Hampshire*



**Center for Health, Environment & Justice**

P.O. Box 6806, Falls Church, VA 22040-6806

703-237-2249 [chej@chej.org](mailto:chej@chej.org) [www.chej.org](http://www.chej.org)

