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# LOVE CANAL: THE SOCIAL CONSTRUCTION OF DISASTER

Final Report For

The Federal Emergency Management Agency  
FEMA Award Number: EMW-1-4048  
FEMA Work Unit Number: 6441E  
October, 1982

Approved for Public Release;  
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BY

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\*The data collection, analysis and writing were undertaken entirely co-equally by the authors, who are listed in alphabetical order. This report has been reviewed in the Federal Emergency Management Agency and approved for publication for information purposes only. Approval does not signify that the contents necessarily reflect the views and policies of the Federal Emergency Management Agency.

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

| REPORT DOCUMENTATION PAGE   |                                    | READ INSTRUCTIONS<br>BEFORE COMPLETING FORM                                 |
|---|------------------------------------|---|
| 1. REPORT NUMBER<br>NA  | 2. GOVT ACCESSION NO.<br>AD-A125-2 | 3. RECIPIENT'S CATALOG NUMBER   |
| 4. TITLE (and Subtitle)<br><br>LOVE CANAL: The social construction of<br>disaster   |                                    | 5. TYPE OF REPORT & PERIOD COVERED<br><br>FINAL                             |
|   |                                    | 6. PERFORMING ORG. REPORT NUMBER  |
| 7. AUTHOR(s)<br><br>Martha R. Fowlkes and Patricia Y. Miller  |                                    | 8. CONTRACT OR GRANT NUMBER(s)<br><br>EMW-1-4048                            |
| 9. PERFORMING ORGANIZATION NAME AND ADDRESS<br><br>Smith College<br>Northampton, Massachusetts 01060  |                                    | 10. PROGRAM ELEMENT, PROJECT, TASK<br>AREA & WORK UNIT NUMBERS<br><br>6441E |
| 11. CONTROLLING OFFICE NAME AND ADDRESS<br><br>Federal Emergency Management Agency<br>500 C Street, S.W.<br>Washington, D.C. 20472  |                                    | 12. REPORT DATE<br>October, 1982  |
|   |                                    | 13. NUMBER OF PAGES<br>148  |
| 14. MONITORING AGENCY NAME & ADDRESS (If different from Controlling Office)   |                                    | 15. SECURITY CLASS. (of this report)<br><br>unclassified                    |
|   |                                    | 15a. DECLASSIFICATION/DOWNGRADING<br>SCHEDULE                               |
| 16. DISTRIBUTION STATEMENT (of this Report)<br><br>Approved For Public Release; Distribution Unlimited  |                                    |   |
| 17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)  |                                    |   |
| 18. SUPPLEMENTARY NOTES   |                                    |   |
| 19. KEY WORDS (Continue on reverse side if necessary and identify by block number)<br><br>Love Canal; chemical migration and risk; slowly developing events;<br>toxic waste; social and behavioral factors; ambiguity; self-reported<br>health experience   |                                    |   |
| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)<br><br>Behavioral response to disaster has typically been studied with<br>reference to the effects of discernible, measurable cataclysm in the<br>natural world. This study of toxic waste disaster at Love Canal as<br>a behavioral phenomenon is intended to fill a gap in scientific under-<br>standing of individual and family response to the uncertainty and<br>ambiguity of slowly developing events. The study is introduced with<br>a brief history of the Love Canal community and (cont.) |                                    |   |

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background to the toxic waste emergency compiled from organizational, agency and newspaper sources.

<sup>4</sup>Data were obtained from 63 in-depth interviews with a primarily random sample of homeowners both relocated from and remaining in the Love Canal area of Niagara Falls, New York. Data analysis centers on the relevance of family health experience and of demographic factors for shaping resident perceptions of "what happened" at Love Canal. Beliefs concerning the scope of chemical migration are highly correlated with age and the presence of dependent children in a household. Additional structural factors and the desire for evidence influenced both access and attentiveness to information and experience and perceptions of the relevance of those as evidence for beliefs. Finally, the quality of family health experience, and the degree to which that was accommodated by traditional medical paradigms of illness and diagnosis relate to differing beliefs regarding chemical migration and attendant risk.

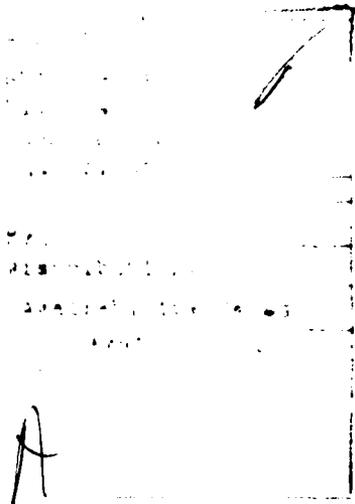
The sources of ambiguity pertaining to the extent and seriousness of chemical migration at Love Canal are discussed and their contributions to widespread resident distrust of official response are assessed. Resident perceptions are the basis for a series of recommendations concerning the management of similar events in the future.

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TABLE OF CONTENTS

|   |     |
|---|-----|
| Introduction                                  |     |
| The Love Canal Community and Its History      | 5   |
| Research Methods                              | 23  |
| The Sample                                    | 23  |
| Data Gathering                                | 28  |
| Profile of Respondent Families                | 30  |
| The Social Construction of Disaster           | 43  |
| Belief Systems                                | 47  |
| The Components of Belief: Demographic Factors | 54  |
| The Components of Evidence:                   |     |
| Experience and Information                    | 62  |
| Selected Case Studies                         | 64  |
| Health Experience: The Cornerstone of Belief  | 101 |
| The Components of Distrust                    | 117 |
| The EPA Report                                | 130 |
| Conclusions                                   | 134 |
| Recommendations                               | 138 |
| References                                    | 142 |



## FIGURES AND TABLES

|          |  |    |
|----------|--|----|
| Figure 1 | Map of the City of Niagara Falls   | 6  |
| Figure 2 | Map of the Love Canal area   | 10 |
| Table 1  | Interview Completion and Incompletion Data<br>(Expressed in Dwelling Units), By Stratum                            | 27 |
| Table 2  | Length of Family Residence at Love Canal,<br>By Stratum  | 31 |
| Table 3  | Age of Head of Household, By Stratum   | 33 |
| Table 4  | Length of Residence, By Age of Head of<br>Household  | 34 |
| Table 5  | Commitment to Residence, By Length of<br>Occupancy   | 34 |
| Table 6  | Childhood Residence, By Stratum  | 36 |
| Table 7  | Current or Pre-Retirement Occupational<br>Status of Head of Household, By Stratum                                  | 36 |
| Table 8  | Chemical Industry Careers Among Heads of<br>Households, By Stratum   | 40 |
| Table 9  | Education of Head of Household and Spouse,<br>By Gender and Stratum  | 41 |
| Table 10 | Children Ever Born and Dependent Children<br>Eligible for Permanent Relocation From<br>Love Canal, By Stratum      | 42 |
| Table 11 | Beliefs Regarding Probable Scope of<br>Chemical Contamination and Probable Extent<br>of Risk to Health, By Stratum | 52 |
| Table 12 | Beliefs Regarding Probable Scope of<br>Chemical Contamination, By Education<br>and Location                        | 55 |
| Table 13 | Beliefs Regarding Probable Scope of<br>Chemical Contamination, By Occupation<br>and Location                       | 55 |
| Table 14 | Beliefs Regarding Probable Scope of<br>Chemical Contamination, By Age and<br>Location                              | 58 |

FIGURES AND TABLES (cont.)

|          |  |     |
|----------|--|-----|
| Table 15 | Beliefs Regarding Probable Scope of<br>Chemical Contamination, By Household<br>Composition and Location                              | 58  |
| Table 16 | Relocation Status, By Beliefs Regarding<br>Probable Scope of Chemical Contamination,<br>Presence of Dependent Children, and Location | 59  |
| Table 17 | Relocation Status, By Beliefs Regarding<br>Probable Scope of Chemical Contamination,<br>Age and Location                             | 59  |
| Table 18 | Self-Reported Health Experience During Love<br>Canal Residence, By Beliefs Regarding<br>Probable Scope of Chemical Contamination     | 105 |

## INTRODUCTION

The history of disaster research is overwhelmingly the history of the study of the effects of cataclysm in the natural world. Frequently such research has derived from interests in the evaluation of individual and institutional reactions to conditions construed to be analogs to military attack. Natural disasters, which resemble war-time experience in certain critical respects, thus constitute "natural experiments" for the assessment of response and preparedness. Since natural disasters originate in the "acts of God," their causes are of little importance in the organization of research. Disaster research usually entails exploration of the consequences of upheaval for the functioning of human populations and social systems. The study of disaster, then, is the study of the observable effects of an observable impact on an observable population, all of which are clearly bounded in space and time.

The present study explores a much different kind of disaster event. In fact, it is neither a disaster nor an event in the formal sense of these terms. An official disaster (as distinct from an emergency) was never declared in the City of Niagara Falls and nothing "struck" there. Nevertheless, the consequences of the chemical contamination of the Love Canal area are consonant with commonsense understandings of disaster. Expressed in terms of diminished individual functioning, community disorganization and financial costs, the consequences of chemical contamination at Love Canal are similar to or, indeed, exceed the typical consequences of official disaster events.

We wish to emphasize that this case study constitutes neither a full nor a formal assessment of institutional, organizational and official preparedness and response. To be sure the data presented here pertaining to the experiences, reactions and adjustments of the affected population in the Love Canal area bear on these issues and strongly suggest the usefulness of undertaking such a full and formal assessment. Neither does the research attempt to answer the question, "What happened?", nor to measure the objective effects of what happened. Given the persistence of dissension among officials, community leaders, eminent scientists, government agencies and the residents themselves, it is probable that any "truth" about Love Canal will always be provisional. As a participant in this study observed, "[T]hat's the whole summary of the canal. Everybody knew what was going on and when you got right down to it, nobody knew what was going on."

The uncertainty as to what happened at Love Canal provides the focus for the present research. While conventional models of disaster research do not explicitly inform the present effort, our study nonetheless finds its antecedents in both the community studies (e.g., Form and Nosow, 1958) and the qualitative research (e.g., Bucher, 1957) that characterize much of the disaster research tradition. In addition, the sociological perspectives established by symbolic interactionist theory inform our analysis of the social construction of "the definition of the situation." Drawing on data obtained from interviews with a random sample of homeowners, the question of what the residents think happened at Love Canal is explored in terms of the influence of family health experience and a variety of demographic factors.

As background to the study, the report begins with a summary narrative of the chronology of events relating to the chemical contamination of the community and the response to it. This summary is necessary to understand the geography, development and social character of the area, and also to understand the events that provide the context for the study. The several extant chronologies reflect different and somewhat unique perspectives. Considered carefully with respect to each other, they provide an invaluable resource to the student of Love Canal. The summary that follows was compiled and reconciled from the following documents: "Love Canal Chronological Report, April 1978 to January 1980," (Love Canal Homeowner's Association, n.d.); "History of Disaster at Love Canal: Chronology of Events," (in Ecumenical Task Force, The Love Canal Disaster: An Interfaith Response, addendum, n.d.); "Love Canal Chronology," (in New York State Department of Health, Love Canal: A Special Report to the Governor and Legislature, pp.46-52, 1981). In addition to these materials, several other sources were consulted: newspaper coverage appearing in the Niagara Gazette, the Buffalo Evening News and the Buffalo Courier-Express, 1975-1982; the United States Census, PCI and PCII, 1930-1970; Love Canal: Science, Politics, and People (Levine, 1982); Laying Waste (Brown, 1979); and "Factline Hooker" Nos. 11 and 12 (Hooker Chemical, 1980). To cite all of the relevant documents pertaining to any given assertion would burden the narrative with excessive interruptions; selective citations would misrepresent the research actually undertaken for this section. We have elected the reasonable alternative of omitting all citations in the following section except those pertaining to quoted material.

Finally, we would like to acknowledge the efforts of Gisele Litalien, who patiently assisted us throughout this research. The staff and board members of the Ecumenical Task Force graciously consulted with us and generously granted us access to their archives. We would also like to thank Dr. Adeline G. Levine of the State University of New York at Buffalo, Richard J. Morris of the Love Canal Area Revitalization Task Force and Dr. Beverly Paigen of the Children's Hospital Medical Center, Oakland, California for their time and interest. Our deepest gratitude is reserved for the present and former residents of the Love Canal area who thoughtfully shared their experiences and perceptions with us.

## THE LOVE CANAL COMMUNITY AND ITS HISTORY

Love Canal denotes a 16 acre area in the extreme southeast section of what is now the City of Niagara Falls (figure 1). The canal was excavated at the end of the nineteenth century to provide hydroelectric power for a planned industrial facility -- Model City -- that was never built. The "lake" thus formed was subsequently used as a recreational area for many years. Available sources offer conflicting reports regarding the use of the canal in the 1930's. During World War II, the City of Niagara Falls and the Hooker Electrochemical Company deposited municipal and chemical waste, respectively, into the canal. In this interval the latter acquired title to the property. Following a ten year period of intensive dumping, the canal was covered and the property was transferred to the Board of Education of the City of Niagara Falls in 1953, to provide the site for a new elementary school.

Agriculture was a significant economic activity at the turn of the century in the area surrounding the Love Canal. With the growth of industry and population, residential housing gradually gained dominance over earlier agricultural land use patterns in this region near the periphery of the city. The immigration of an urban population, attracted to the job opportunities provided by an expanding chemical industry, and an associated growth in the number of young families during the period immediately following World War II increased residential construction. Subsequent federal programs designed to stimulate the construction of moderate income housing, in conjunction

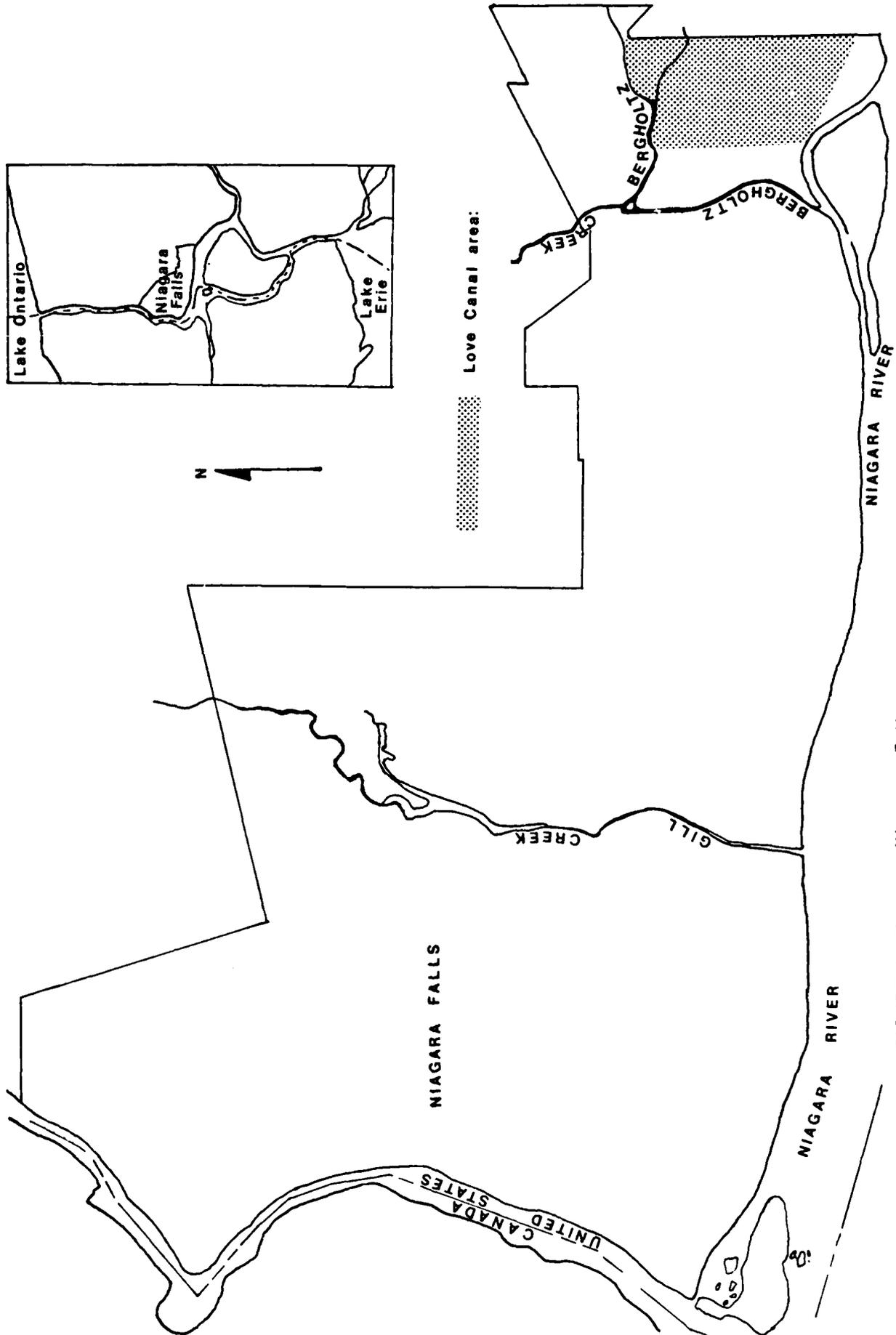


FIGURE 1. Map of Niagara Falls.

with the new school, encouraged even more intensive residential use of the area.

There is some indication that residents proximate to the canal began to lodge isolated complaints about the public nuisance created by the chemical landfill operation shortly after it began. During the thirty-five years that followed, both the frequency and the insistence of their complaints increased. The principal impetus for these expressions of concern was the apparently increasing seepage of chemical waste products and their attendant noxious odors onto the land and into the homes of some of the residents adjacent to the canal. There were also persistent reports of chemicals breaking through the topsoil of the canal, spontaneous fires over the canal, children and pets injured by chemicals while playing at the canal, etc.

An independent investigation in 1976 into possible sources of the toxic chemical contamination of nearby Lake Ontario eventually led to the identification of similar chemical waste products in the basements and storm sewers of certain homes immediately adjacent to the Love Canal. Occasional media reports and questions raised by officials, particularly U.S. Congressman John LaFalce, led to separate studies by the Department of Environmental Conservation of the State of New York (NYSDEC) and the United States Environmental Protection Agency (USEPA) during the winter of 1977-78. These "small sample" studies confirmed the presence of toxic chemicals in the air and the sump pumps in some basements. Some of those involved in the process of collecting and analyzing these data began to suspect that chemical waste constituted more than a narrowly confined, public nuisance, as the possibility of a more extensive real or potential threat to health emerged. On 15 May,

the USEPA announced that a serious health threat might exist. Lacking access to the results of the research still in progress, several area residents nonetheless had begun simultaneously to contemplate this possibility as well. Both the earlier media reports and the frequent and visible presence of state and federal technicians in the neighborhood generated a growing concern for the safety of the area. These concerns for health and safety raised, in turn, a concern for property values, with the realization that the earlier publicity and expressions of official interest rendered the sale of their homes virtually impossible. Their fears resulted in a petition to the city requesting relief.

Official reactions during late May, June and July, 1978 focused on expanding data collections, planning for interim containment and reconstruction of the canal site, and numerous meetings with residents. These various actions culminated in an order issued by Robert P. Whalen, M.D., Commissioner of Health of the State of New York (NYSDOH), on 2 August 1978, declaring that the Love Canal "constitutes a public nuisance and an extremely serious threat and danger to the health, safety and welfare of those . . . living near it . . . ." (New York State Department of Health, 1981:55) In declaring "the existence of an emergency," Whalen recommended the temporary evacuation of pregnant women and children under two residing in those dwellings adjacent to the canal. In addition, he recommended that residents avoid the use of their basements and the consumption of food grown in their gardens. The precise chronology of events in the week August 3-9 is impossible to determine given the contradictory reports provided in the media and available official documents. But it is certain that on 9 August, the

state authorized the purchase of 239 homes on Colvin Boulevard, 97th and 99th Streets as part of a larger plan to relocate residents of the area that came to be known as "Rings I and II" (figure 2). Thus, the initial plan for a temporary evacuation of selected members of some families was revised and expanded dramatically to effect the permanent relocation of some 300 entire families.

Almost immediately, arrangements were made and procedures set in place to enable the purchase of designated homes by the state and the movement of residents into interim or, in some cases, permanent housing. Plans were finalized during the next two months for the remedial work that promised to contain the migration of chemicals from the canal site and, also, for the protection of construction workers from harmful exposure. In conformance with the order issued by Dr. Whalen on 2 August, the 99th Street School remained closed with the start of classes in September. The NYSDEC and the NYSDOH continued environmental testing in the canal area.

These measures failed to reassure some of the residents remaining in the area that their own safety was secured. Many of those situated due east of the canal, on 100th through 103rd Streets, inclusive, were particularly concerned that toxic chemical wastes might have migrated to their own homes; there was also widespread concern that they would be further imperiled by the disturbance of the waste site during the planned remedial work. Moreover, many expressed grave reservations regarding the long-term effectiveness of the proposed remedial program. The nascent Love Canal Homeowner's Association (LCHA) became the principal mechanism through which these residents expressed their concerns. With 101st Street resident Lois Gibbs as their newly elected

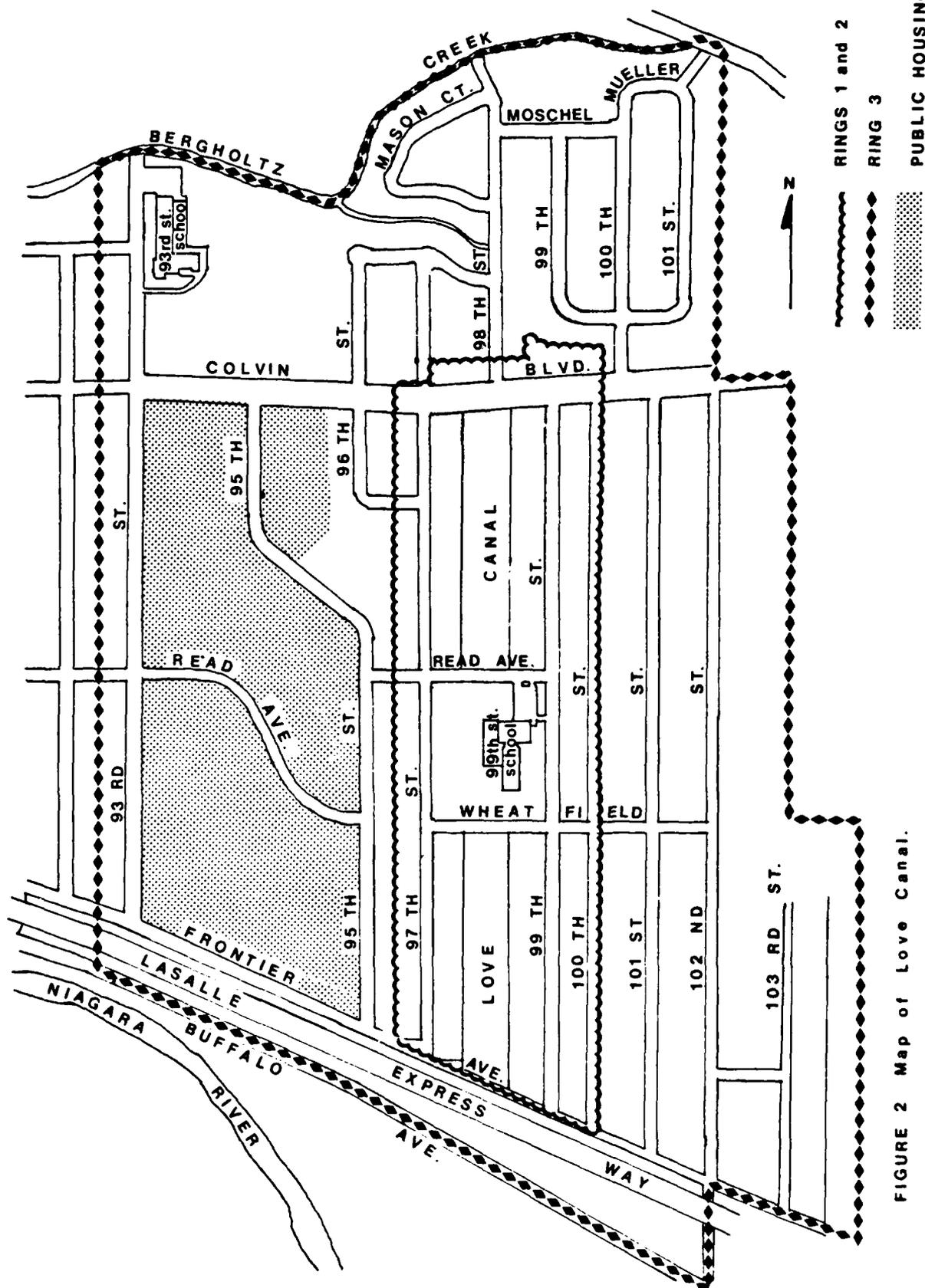


FIGURE 2 Map of Love Canal.

president, LCHA became the locus of organized activity to effect a further expansion of the boundaries of the officially designated "state of emergency," in order to be eligible for permanent relocation. The legacy, then, of the permanent relocation of families from Rings I and II was widespread confusion and uncertainty among the residents remaining as to where the "real" boundaries -- in both space and time -- of the chemical hazard began and ended.

Eventually, an additional 550 families were declared eligible for permanent relocation some two years later. This decision can be viewed as an outcome of the convergence of a series of complex and disparate events in the intervening twenty seven months: human health and environmental testing continued; excavation work at the canal began; NYSDOH orders, court orders and temporary relocations were carried out; and various political actions were undertaken by both citizens and officials. The resolve on the part of numerous remaining residents to be permanently relocated was reinforced and enhanced by the unfolding of many and various events, particularly as these related to human health in the larger Love Canal area:

- A. Jon Kenny, aged 7, of 1064 96th Street died suddenly in October 1978 amid speculation that his death was linked to exposure to toxic chemical wastes.
- B. Local newspapers reported NYSDOH identification of radioactivity near the school on 93rd Street in September 1978. Subsequent analysis determined the level of contamination to be insignificant with respect to any implication for public health. Speculation regarding the source of this contamination centered on landfill removed from the perimeter of the Love Canal in the course of school construction. Toxic chemicals were identified on the playground of this same school the following March. Blood and liver function tests were administered to teachers in April. The school was subsequently closed in August 1979 following NYSDOH notification to the school physician that dioxin had been found in the Black Creek, which borders the school grounds. The school was closed pending further evaluation of chemical

contamination. It remains closed at present.

- C. The NYSDOH confirmed the presence of chemical leachate in the wider Love Canal area in November 1978.
- D. Preliminary results of epidemiological research conducted by LCHA consultant Beverly Paigen, Ph.D., appeared in local newspapers in October 1978. Data revealed a significant correlation between a range of self-reported health problems and residential location in the so-called "wet" areas, where homes lie on or near the paths of old streambeds that also traverse the canal site. David Axelrod, M.D., Commissioner of NYSDOH, concluded that, "The consistency of observations relative to the outcomes of pregnancies of residents of historically 'wet' properties when compared to pregnancy outcomes of (a) residents of historically 'dry' properties, (b) residents of New York State excluding New York City, and (c) subjects studied and reported by Warburton and Fraser, as reported in 'Human Genetics,' Volume 16, No. 1, 1964, together greatly strengthen the hypothesis of past adverse health effects resulting from residence in such homes likely contaminated by chemicals." (New York State Department of Health, 1981:66) In conjunction with his announcement of these findings on 8 February 1979, Dr. Axelrod recommended the temporary relocation of all pregnant women and children under two living in the six block area due east of the canal. Dr. Paigen took issue with NYSDOH findings, advising residents that the NYSDOH under-estimated the true prevalence of birth problems and illnesses and, thus, the concomitant risk to residents living in the "wet" areas. On 22 March, Dr. Paigen reiterated her disagreement with the NYSDOH findings in testimony before the Commerce Committee on Oversight and Investigation of the U.S. House of Representatives and urged wider evacuation of families from the "wet" areas.
- E. In December 1978, the NYSDOH confirmed the presence of dioxin in soil samples taken from 93rd Street. During April and May of the following year, additional reports located dioxin in soil samples taken from yards in the area. The NYSDOH reported that dioxin had been found in the on-site holding tanks and also at the southern end of the canal in August 1979. The NYSDOH identified dioxin in Black Creek at the northern boundary of the Love Canal area in November 1979.
- F. Results of tests indicating abnormal liver functioning among Love Canal residents were released to the public by the NYSDOH in November 1978.
- G. The USEPA-sponsored study was publicized in May 1980 revealing an apparently elevated incidence of chromosome damage among Love Canal residents.

Ironically, the reconstruction which promised "the solution" to "the problem" became a problem in itself. The work was begun in October 1978, after engineering plans were quickly finalized, and continued throughout the winter. But the immediate containment of surface leachate could not be accomplished in the early stages of remedial work. The spring thaw brought reports of renewed contamination in the area as a large volume of leachate mingled with the surface water flowing off the north end of the canal and into nearby sewers. Concern for health hazards attending the reconstruction work was exacerbated by persistent noxious odors and occasional accidents at the work site. Various problems encountered in executing the construction work suggested to some that the remedial plan was flawed and that the aftermath of the work would entail chemical invasion as an enduring reality. This belief was reinforced when state and federal officials conceded, in the fall of 1979, that the reconstruction represented but a partial solution to the problem of chemical contamination and migration in the larger Love Canal area.

Thus, the reconstruction work at the canal did not necessarily reassure the remaining residents of the viability of the neighborhood. Indeed, for some it may have actually fostered the resolve to effect permanent relocation. It is certainly the case that the spectacle of the remedial work, the unfolding of events bearing on health damage and risk during this period, and the media attention focused on these provided the backdrop for citizen and official actions and reactions around the issue of relocation.

In the two years following the first permanent relocation, an increasingly adversarial relationship developed between certain state and local officials, on the one hand, and a core of remaining residents, on the other. The conflict between the two was rooted in the fact that the boundaries of risk were and continue to be ambiguous. Prior to the release of the USEPA report in the summer of 1982, no official report had been issued that purported to document either the perimeter of leachate migration or the probability of health risk attendant upon it. The decision to relocate permanently residents from Rings I and II can be viewed as a pragmatic one, based on limited data demonstrating beyond any reasonable doubt that life-threatening chemical waste products had been identified in and/or on the property of some specific homeowners living adjacent to the landfill. This finding and the reactions of homeowners to it suggested the relocation of all residents living on the streets immediately surrounding the canal as the most prudent and reassuring course of action. The operative line of concession on the part of the state appears to have been that all homes surrounding the canal were potentially endangered regardless of whether the presence of contamination had actually been established in all of them. Thus, the residential perimeter of the landfill became the official perimeter of risk.

The assessment made by the state as the basis for drawing the boundaries for the initial relocation of residents can be seen, then, as simultaneously reasonable and arbitrary. From the beginning, many remaining residents felt and feared that the arbitrary overshadowed the reasonable in the delineation of these boundaries. Even as government continued to affirm the reasonableness of its judgment and to assert its

control over the problem, evidence mounted, in the eyes of many remaining residents, suggesting that the problem was not under control and, therefore, that the state's judgement was less than fully reasonable. The LCHA emerged as the first and most publically prominent of a number of groups to organize action around this conviction. Their conviction was to grow in strength and to gain in momentum with the occurrence of health-related events and the accumulation of health-related information in the months following the first relocation.

At the outset, citizen action was primarily expressive, with an emphasis on the mobilization of residents, petitions, sporadic picketing, small demonstrations and confrontations with officials. The decision of LCHA to seek a court injunction to halt the remaining remedial work at the canal in May 1979 can be seen as marking the transition from expressive to more focused and instrumental modes of action. The association was unsuccessful in obtaining the injunction. But the judgment handed down by the court in June 1979 set the stage for the permanent relocation of remaining residents, although such an outcome was neither intended nor anticipated by any of the official actors involved. The court endorsed a state plan to provide short-term temporary relocation for residents whose health was negatively affected by the conditions created by the remedial work. Accordingly, at the end of August, the New York State Department of Transportation (NYSDOT) authorized the temporary relocation of some twenty-five families. Once residents were able to leave their homes at state expense, however temporarily, the psychological and physiological toll of their continued residence in the area abated and their resolve to obtain permanent relocation solidified. At the same time, the temporarily relocated

families experienced the state's residential and medical management of their situation as exacting substantial personal costs. Nonetheless, their number soon swelled to 300. In Niagara Falls, the recently constituted Ecumenical Task Force (ETF), under the leadership of Sr. Margeen Hoffman, OSF, expanded the base of local concern and action beyond the neighborhood grass-roots organizations already in place. The ETF was to play a major role on behalf of the temporarily relocated as a provider of extensive social services, a clearinghouse for medical and technical information, and a political advocate for their interests.

The state was eager for residents to return to their homes. Their temporary relocation was not only expensive, it threatened the integrity of the previously defined boundaries of chemical risk and the eligibility for permanent relocation attendant upon them. Accordingly, relocated residents were informed that state financial support for temporary housing would be withdrawn in the absence of medical certification that actual illness existed and that such illness was causally related to the construction. The NYSDOH initially refused to accept the overwhelming majority of the certifications obtained by temporarily relocated residents, but subsequently capitulated and accepted medical certification as the basis for continued temporary relocation.

The state's determination to "hold the line" was further eroded by intense media coverage which focused public and political attention on the plight of the "Love Canal refugees," as they came to be described. A barrage of criticism of the state's policies framing the Love Canal situation ensued. Amid much fanfare, actress and activist Jane Fonda visited the Love Canal community and called for the evacuation of its

residents. In Washington, the U.S. House Commerce Sub-Committee on Oversight and Investigation issued a report finding fault with the management of Love Canal matters by the State of New York and, also, supporting Dr. Paigen's earlier recommendation that additional families be moved. USEPA consultant Jeanette Sherman "strongly urged the relocation of Love Canal residents as soon as possible." And in Albany, State Senator John Daly and Assemblyman Matthew Murphy counselled Governor Carey to seek permanent relocation of the remaining Love Canal residents. While the Governor demurred, invoking the state's lack of necessary funds, both the Governor and the New York State Legislature finally endorsed the Murphy/Daly legislation authorizing expenditures for both revitalization and stabilization efforts at Love Canal, as well as the purchase of remaining homes in the area. Those residents anxious to leave understood this special appropriations measure to mean that the opportunity for permanent relocation was imminent.

But it was to be a year after the passage of the Murphy/Daly bill before the first home was actually purchased in November 1980. Support for temporary housing was withdrawn in the fall of 1979 on the grounds that the deep excavations required for the remedial work were completed and residents could, therefore, safely return to their homes. In a manner consistent with the intent of the legislation, Governor Carey, Mayor Michael O'Laughlin of Niagara Falls, and the new Love Canal Revitalization Task Force worked to encourage residents to trust in the viability of their neighborhood. Nonetheless, when the Task Force authorized home appraisals in December 1980, as part of the plan to purchase and re-sell the homes of those wishing to relocate permanently, several hundred homeowners requested and received appraisals.

But the sale of these dwellings was stalled by two factors. The legislative appropriation was insufficient to finance immediately the full costs of purchasing such a large number of homes. More importantly, Mayor O'Laughlin and the Love Canal Revitalization Task Force were unsuccessful in their efforts to constitute the necessary corporate entity to administer the purchase and resale of Love Canal homes. As a first step toward the formation of this entity, the Task Force called for the formation of a board of directors to be comprised of representatives appointed by the State of New York, the Niagara County Legislature, the Town of Wheatfield and the City of Niagara Falls. With prospects of financial and legal liability looming large, both the State and the County declined participation, thereby impeding the creation of the administrative authority essential to purchase the homes.

Despite the continued activism of citizen groups and the determined advocacy of the Ecumenical Task Force, by the spring of 1980 larger political developments had rendered the prospects for permanent relocation increasingly remote. However, at the end of May 1980 events took a rather dramatic turn, as the media spotlight focused once again on the residents of Love Canal. On 17 May, the USEPA held simultaneous press conferences in Niagara Falls and Washington, D.C. to release the results of a chromosome study. These indicated significant damage to the chromosomes in the blood of a number of Love Canal residents. This announcement created widespread panic and renewed fear among remaining residents. At the headquarters of the Love Canal Homeowner's Association, two USEPA officials were held captive for several hours. Pressure for permanent relocation intensified on every front. President

Jimmy Carter responded by declaring a Federal Emergency in the area and federal funds were offered for temporary relocation. In June, Governor Carey and the Commissioner of NYSDOH conceded the existence of a "mental health emergency," and appealed for federal assistance in funding permanent relocation.

For the next few weeks, the State of New York and the federal government were locked into a "holding pattern" regarding the assumption of financial responsibility for the second permanent relocation. The terms of federal financial assistance and its administration had to be resolved before permanent relocation could go forward. In part, this involved a reconceptualization of the basis for federal intervention, particularly with reference to the legal mandate of the Federal Emergency Management Agency (FEMA). The state also was unwilling to bear the full burden of financial indebtedness entailed by acceptance of the proffered federal loans. Representatives of the state's Task Force and FEMA eventually negotiated an agreement whereby the federal government was to provide a combination of loans and grants totalling \$15 million to supplement the \$5 million appropriated earlier by the state for revitalization. The use of these funds for the purchase of homes in the area bounded by 93rd and 103rd Streets, Buffalo Avenue and Bergholtz Creek, was to be administered by the newly appointed Love Canal Area Revitalization Agency (LCARA). In rendering some 550 homes eligible for purchase at their owners' request, the agreement set aside the last obstacle to permanent relocation for Ring III, as it became known.

In the eyes of many remaining residents, evidence had steadily mounted during the preceding two years to strengthen their conviction that the originally designated boundaries of risk were arbitrary. Residents who believed that their own health, safety and property were no less jeopardized than had been the case in Rings I and II made their case for permanent relocation on those grounds. Nonetheless, the second permanent relocation differed from the first in important ways. Although the boundaries of permanent relocation were obviously redefined, this did not occur in the context of an official redefinition of the boundaries of chemical risk. The second relocation was construed as a mental health rather than a physical health emergency, with the emphasis clearly on psychological rather than physical risk. The different rationales for the two relocations were reflected in differences in the terms of relocation offered to residents. Homeowners in Rings I and II were allowed some limited negotiation with the state around its appraised value of their homes. In addition, a "benefit package" was assembled that included expenses for temporary relocation, moving costs, compensation for mortgage differentials and additional costs incurred in obtaining comparable homes. In contrast, homeowners in Ring III were presented with an offer to purchase at a non-negotiable appraised value with no program of supplementary compensation. To date, 402 of the 555 homes in Ring III have been purchased by the LCARA. The remaining 153 homeowners continue to be eligible for the state purchase plan until fall 1983.

The permanent relocations have had a substantial impact on the quality of life within the community. Rings I and II are surrounded by a chain-link fence. For over three years, the homes inside the fence

stood boarded up and the yards were overgrown and strewn with litter. The homes of those relocated from Ring III were also boarded up and unoccupied property has created its own problems. Thieves and vandals prey on the area; burglaries and fires have become rather commonplace. The presence of a security staff and their guard dogs provide an additional reminder of the uncertainty that confronts the neighborhood. Many Ring III families have elected to relocate not out of fear for health or concern for property values but because the consequences of the relocation of others have caused the neighborhood to become an increasingly difficult one in which to live.

The state and local officials involved are understandably eager to turn their full attention to stabilization and revitalization. Houses in Rings I and II have recently been razed as part of a plan to create a park-like setting on the original landfill and the land adjoining it. Eventual resale of many of the homes in Ring III is anticipated along with the re-opening of the neighboring public housing project. However, the revitalization effort is hampered by the ambiguity that continues to surround the issue of the safety of the area. This is so despite the summer 1982 release of the results of the USEPA study (begun in mid-1980) designed to assess the extent of contamination of air, water and soil in the neighborhood. The scope and sources of this ambiguity will be discussed further on in this report. It should be noted here, however, that the declaration of habitability attached to the USEPA report was conditional on the completion of further remedial work as yet not completed. The NYSDOH report, Love Canal: A Special Report to the Governor and Legislature, issued in 1981, is replete with references to questions to be answered by their own on-going and future research.

Since no further reports have been issued by NYSDOH, those questions remain unanswered.

## RESEARCH METHODS

Any study of the impact on residents of the unfolding of events at Love Canal must begin with a recognition of the social and geographic diversity of the area. The recorded history of "The Love Canal Story" in all of its many forms -- scholarly, scientific, journalistic, official, dramatic and activist -- inclines toward a decidedly monolithic view of the community, its understanding of and response to the problem of toxic waste in its midst. While the evaluations and sympathies of these perspectives certainly vary, they are in fundamental accord in their depiction of the community and its perspective. In important respects, however, the recorded history is at odds with the social reality.

The Sample

To begin, the full study of the experiences of Love Canal residents is not encompassed by the study of homeowners, alone. While the neighborhood is dominated by single-family homes, a few of these were occupied by renters. More importantly, the southwestern corner of the community boasts a large complex of publically subsidized dwellings occupied by senior citizens and low-income families. In designing the present research, this population was excluded for pragmatic reasons of time and cost, rather than substantive ones. We realize that their exclusion from the study represents a serious omission and would like to offer a few observations for the written record about this population and its relationship to the situation at Love Canal. First, and most

obviously, as renters, their concern for the stigma attached to the area and its consequences for property values was less salient than it was among the homeowners. Conversely, as renters, they had less leverage for making a case for their own interests. Moreover, the toll of potential relocation had a special meaning for this group because the housing they occupied was distinctly superior to public housing available elsewhere in the city. Thus, they found themselves in an equivocal position with respect to the prospect of undetermined health risks in their locale. Finally, it should be noted that many of the occupants of this public housing complex were non-white, and racial tensions, added to the different interests represented by the owner/renter distinction, prevented the formation of a comfortable and cohesive alliance between the renters and the overwhelmingly white homeowners.

The homeowners, themselves, are a much more diverse group than media depictions suggest. While the young, blue-collar family with dependent children favored by the press is certainly well represented at Love Canal, the overall population is far more disparate with respect to occupational status, family status and age. These demographic distinctions tend roughly to parallel geographic distinctions, with the proportion of white-collar families, post-parental and older couples increasing as one moves through the area from south to north. Geography also organized the ways families became related to the development of the situation at Love Canal. This was necessarily the case since eligibility for the various temporary and permanent relocations was based on geographic location.

These facts suggested the wisdom of organizing the present inquiry to accommodate the geography of relocation, and, correspondingly, of demographic variability. Accordingly, we set the boundaries of our sample frame to conform to the outer boundaries of eligibility for relocation. Following the elimination of the renters in subsidized public housing, three simple random samples were drawn: a sample of relocated residents from Rings I and II; a sample of relocated residents from Ring III; and a sample of Ring III residents remaining in the area as of October, 1981.

The choice of a simple random sample was strategic, as was the decision not to use a purposive (or snowball) sample. In instances such as this, the advantages of the snowball sample, e.g., ease in selecting respondents and gaining access to them, would have been clearly outweighed by the biases in the data thus obtained. Since the purposive sample is derived from referrals through friendship networks, it results in a study of disproportionately similar and like-minded people. A major commitment of our research was to allow for complexity and divergence in the experiences and viewpoints of the residents rather than to presume their simplicity and convergence. A simple random sample, stratified according to relocation status, was chosen as the preferred way to capture diversity.

Working from alphabetical lists of residents and former residents in the three strata, 35 families in each stratum were randomly chosen for inclusion in the sample. Certain practical considerations led to some modification of the random character of the sample selection. Families who had moved out of the greater Buffalo/Niagara Falls area were replaced, as were families who had no telephone numbers (either

listed or unlisted). Initial contact was made by letter with each family (see Appendix A) explaining the purpose of the study and requesting their cooperation in it. This was followed by a telephone call to schedule an appointment for an interview with (at least) one adult member of the household.

The random sample poses its own difficulties as a technique for gaining access to respondents. First, it is usually impossible to find everyone in the sample. We were unsuccessful in locating one family that had moved and left no forwarding address; an additional 14 families could not be reached either because their telephones had unlisted numbers or were perpetually unanswered, despite repeated call backs (Table 1). For a variety of reasons, we were unable to schedule interviews with another 13 families. Finally, 17 families declined to participate in the study. For obvious reasons, random sampling methods do not build in the kind of predisposition to participate in a research project that the more personally based purposive sampling technique does. The refusal rate of 16.2% is neither surprising nor alarming. It should be noted, however, that the highest number of refusals (9) occurred in the sample of residents remaining in the area. This may reflect either a high level of indecision or uncertainty about their continued residence there, or an understandably guarded response from persons who experience themselves as a beleaguered minority. In anticipation of probable sample attrition from all of these sources, the size of the initial sample was inflated to insure that interviews would be completed with a reasonable number of families. In all, interviews were completed with 54% (or 57) of the families in the total random sample.

TABLE 1

Interview Completion and Incompletion Data  
(Expressed in Dwelling Units), By Stratum

|                                  | Relocated<br>Rings I & II | Relocated<br>Ring III | Ring III<br>Remaining | TOTAL | %     |
|----------------------------------|---------------------------|-----------------------|-----------------------|-------|-------|
| Population                       | 237                       | 391                   | 166                   |       |       |
| <u>Random Sample</u>             | 35                        | 35                    | 35                    | 105   | 100.0 |
| Unlocated                        | 2                         | 5                     | 5                     | 12    | 11.4  |
| Perpetual Not<br>At Homes        | 0                         | 0                     | 3                     | 3     | 2.9   |
| No Show                          | 0                         | 1                     | 2                     | 3     | 2.9   |
| Call Back                        | 4                         | 8                     | 1                     | 13    | 12.4  |
| Refusal                          | 4                         | 4                     | 9                     | 17    | 16.2  |
| Completed                        | 25                        | 17                    | 15                    | 57    | 54.2  |
| <u>Additional<br/>Interviews</u> | 3                         | 2                     | 1                     | 6     |       |
| TOTAL                            | 28                        | 19                    | 16                    | 63    |       |

Six additional interviews were conducted with families who were either referred to us (four) or sought out by us (two) because of their distinctive experiences or roles in the community. The inclusion of these six families brought to 63 the total number of families interviewed. In summary, our interviews enabled us to obtain extensive information from about 5% of all the families relocated from Ring III; about 10% of the smaller populations of families relocated from Rings I and II, and of families continuing to reside in the area were interviewed. Three of the sixteen families in the latter situation had made plans to move at the time of the interview.

#### Data Gathering

Most interviews were conducted in the respondent's own home; often the entire family participated. With two exceptions, all of the respondents consented to have their interviews tape-recorded. Each participant was explicitly assured that all interview material would be used anonymously and confidentially. We introduced the interviews by describing the purpose of the research as a follow-up study of the experiences of Love Canal families, the funding source for the study, and our independence as sociologists in seeking the funds and designing the study.

Interestingly, most respondents were reassured by our candor in presenting the study as basic rather than applied research. We quickly came to understand how extensively this population has been researched in the name of "their own good," how few, in their estimation, have been the results to emerge from such research, and fewer still the actual solutions or decisions following from it. More will be said later about

the well-developed cynicism of our respondent population toward research and researchers. The point, here, is that given the prevalence of such cynicism, the willingness of our respondents to participate in yet another research project and their gracious receptivity to our interviews were especially gratifying. We had little to promise them but our best professional efforts in producing the fullest possible sociological analysis of their past and present situations, and access to that analysis. For virtually all respondents, these were a sufficient basis for the establishment of trust in the context of the interviews.

The interviews averaged about two hours in length, although many were considerably longer. The advantage of the in-depth, personal interview as a data gathering technique is that it combines structure and standardization with open-endedness and flexibility. Although all of the interviews covered the same topics, each one was also tailored to the individual family member, who was able to respond in his or her own way with facts as well as attitudes. The interviews consistently encompassed the following domains: routine demographic data; residential history at Love Canal; awareness and assessment of chemical presence and migration; perceptions of health as related to the presence of chemical wastes; sources of official information and perceptions of government and grass-roots leadership; assignment of blame and responsibility; factors in relocation decisions; perceptions of present and future well-being. Every interview concluded with an invitation to the respondent to add to or elaborate on any aspect of the material covered.

## PROFILE OF RESPONDENT FAMILIES

The Love Canal landfill is situated within a much larger section of the City of Niagara Falls known as "La Salle," for the former village that was annexed by the city some 50 years ago. While there are both more and less "desirable" sections within the area, local residents know it as a respectable, lower-middle class community of, predominately, single-family homes. The low density, scatter site, subsidized housing project, set on spacious grounds to the west of the canal site, is compatible with the neat, modest, residential character of the larger neighborhood. In the Love Canal neighborhood itself, much of the housing is of recent vintage, having been constructed in the 30 years since the landfill was closed. Many of the newer homes in the immediate vicinity of the landfill are "starter homes," two and three bedroom bungalows designed for young families; some were built under Title 235, as part of a federal plan to make home ownership a possibility for younger families of modest means.

Despite the transiency implied in the concept of the "starter home," most of the families in our sample had lived in their homes for several years; many had lived there for virtually their entire lives as adults (Table 2). The residential histories of the permanently relocated families were distinctive in comparison to those who stayed behind. The median number of years occupancy for relocated families from Rings I and II, and from Ring III were 8 1/2 and 10 years, respectively. The median remaining family had occupied its home for 24

TABLE 2

## Length of Family Residence at Love Canal, By Stratum.

|                                | Relocated<br>Rings I & II | Relocated<br>Ring III | Ring III<br>Remaining |
|--------------------------------|---------------------------|-----------------------|-----------------------|
| Less Than Five Years           | 4                         | 4                     | 1                     |
| Five Thru Nine Years           | 12                        | 3                     | 1                     |
| Ten Thru Fourteen<br>Years     | 5                         | 6                     | 3                     |
| Fifteen Thru Nineteen<br>Years | 3                         | 2                     | 0                     |
| Twenty or More Years           | 4                         | 4                     | 11                    |
| Total                          | 28                        | 19                    | 16                    |
| Median Years                   | 8.5                       | 10                    | 24                    |
| Range                          | 2 - 27                    | 1 - 40                | 3 - 37                |

years at the time of the interview.

Not surprisingly, these differences in length of residence across the strata correlate strongly with differences in age (Tables 3 and 4). The median age of the heads of households of the remaining residents, 60 years, is substantially greater in comparison to the other two groups. The median age of the relocated heads of households in both rings was just under 45 years.

Naturally enough, these contrasts in age and length of residence imply differences in attachment to home. Some, but by no means all, of the more recent residents were not in the neighborhood to stay. Indeed, about 40% of those families who had lived in the area for less than 12 years reported that they had expected to move out of the area someday (Table 5). These families typically described their residential histories in the following ways:

It was our first home, the home that was to be the first of several. It was a modest home; we spent a lot of time and money fixing it up. . . . After ten years, I finally had my kitchen remodelled with new cupboards, new floor, built-in dishwasher and so on. . . . We intended to stay there for awhile. Knowing the second child was on the way, and with only two bedrooms, it would be only a matter of time before we would want to move. . . . It wasn't your dream home, by any means, and we never intended that it would be our final home, . . . It was an older neighborhood on our street, . . . and we were more or less people who stayed to ourselves. . . . We were on friendly terms but I'd never been inside any of my neighbor's homes.

(Relocated Resident of 10 Years From Ring III)

We were looking for a house in a nice area. My son was diagnosed as asthmatic. The apartment we were living in was across the street from all the factories. That disturbed his asthma. . . . We picked that [house] because of the price, and it was also nice and residential. The school was half a block away. My son was only a year and a half [old] when we moved in but we planned on staying there for a few years. . . . It looked fantastic because my backyard

TABLE 3

## Age of Head of Household,\* By Stratum.

|                  | Relocated<br>Rings I & II | Relocated<br>Ring III | Ring III<br>Remaining |
|------------------|---------------------------|-----------------------|-----------------------|
| Under 35 Years   | 6                         | 3                     | 0                     |
| 35 Thru 49 Years | 13                        | 7                     | 2                     |
| 50 Thru 64 Years | 8                         | 7                     | 8                     |
| 65 Or Older      | 1                         | 2                     | 6                     |
| Total            | 28                        | 19                    | 16                    |
| Median Age       | 43 1/2                    | 44                    | 60                    |
| Range            | 30-66                     | 28-74                 | 36-75                 |

\*Includes 11 female heads of households.

TABLE 4

Length of Residence, By Age of Head of Household.

|                                | Age                |             |
|--------------------------------|--------------------|-------------|
|                                | Less Than 50 Years | 50 or Older |
| Less Than Five Years           | 5                  | 4           |
| Five Thru Nine Years           | 14                 | 2           |
| Ten Thru Fourteen<br>Years     | 10                 | 4           |
| Fifteen Thru Nineteen<br>Years | 2                  | 3           |
| Twenty or More Years           | 0                  | 19          |
| Total                          | 31                 | 32          |
| Median Years                   | 8                  | 22 1/2      |
| Range                          | 2-17               | 1-40        |

TABLE 5

Commitment to Residence, By Length of Occupancy (Resident expectations of ever moving, as of August, 1978).

|                                  | Length of Occupancy    |                      |
|----------------------------------|------------------------|----------------------|
|                                  | Less Than Twelve Years | Twelve Years or More |
| No Expectation of<br>Ever Moving | 21                     | 26                   |
| Expectation of<br>Eventual Move  | 14                     | 2                    |
| TOTAL                            | 35                     | 28                   |

abutted the canal; it looked like I had all this room. It was very pretty. . . . We had just started remodeling. . . . We did like the neighbors; I miss my next-door neighbors. Our one next door neighbor and the three families across the street were the only families we really got to know.

(Relocated Resident of 2 Years From Rings I and II)

For many of the families, then, these were their first homes. Some of the newer arrivals planned to move up and out of the neighborhood as greater financial stability and the size of their families made it possible and necessary to do so. But even so, the majority of those more recently settled in the area did plan to stay. They liked their homes. Many had grown up there (Table 6); some still had kin, childhood friends and former classmates in the area. The sentiments of this settled majority are captured in these remarks, offered by a former resident of Rings I and II.

It was immaculate, the house was just a super home and the people were immaculate people . . . it was in the LaSalle area where I grew up and I wanted to stay. . . . There was a baseball diamond there and they played Little League. It was really nice. I'd haul the kids down there when the league was playing and I'd tell my son, "you'll play Little League someday." We loved the house. I redid the basement. . . . we remodeled the bathroom a little bit upstairs and wallpapered the kitchen. . . . It was a close-knit neighborhood, everyone got along. If they were going to the store, they called and asked if we needed anything. . . . They'd come over and have coffee and invite you over to swim in their pool.

(Relocated Resident of 9 Years, Rings I and II)

The long-term residents typically saw themselves as permanently settled. Indeed, only 2 of 28 families in the entire sample who had lived in their homes for 12 years or longer voiced any interest in ever moving away. Their homes had special meaning for these long-term residents.

TABLE 6

Childhood Residence, By Stratum (Number of families where one or more adults grew up in the Love Canal area).

|   | Relocated<br>Rings I & II | Relocated<br>Ring III | Ring III<br>Remaining |
|---|---------------------------|-----------------------|-----------------------|
| Childhood Residence<br>Proximate to L/C     | 16                        | 3                     | 5                     |
| Childhood Residence<br>Not Proximate to L/C | 12                        | 16                    | 11                    |
| Total                                       | 28                        | 19                    | 16                    |

TABLE 7

Current or Pre-Retirement Occupational Status  
of Head of Household, By Stratum.

|                   | Relocated<br>Rings I & II | Relocated<br>Ring III | Ring III<br>Remaining |
|-------------------|---------------------------|-----------------------|-----------------------|
| Semi-Professional | 0                         | 3                     | 0                     |
| White Collar      | 6                         | 5                     | 3                     |
| Blue Collar       | 21                        | 9                     | 12                    |
| None*             | 1                         | .                     | 1                     |
| Total             | 28                        | 19                    | 16                    |

\*Widowed, separated and divorced homemakers not in paid labor force.

We finished a couple of rooms in the basement. We built a bedroom down there. I had Girl Scout troops for quite awhile before the kids got bigger. I used it for a meeting room. . . . It was our house right from the beginning. Nobody else had ever lived there. We got pretty attached to it, that's for sure. It had hardwood floors, it was just beautiful. . . . You know, it was all paid off.

(Relocated Resident of 24 Years, Ring III)

My family built the house; it was the house I grew up in. I never really thought about living anywhere else. It was a beautiful house. Yes, we did work on it. We had the house in the middle; we had two empty lots and the kids loved it for a baseball area. We put up a privacy fence all the way around; we finished remodeling and we built a nice garage. . . . We knew everybody around there. . . . It was a nice neighborhood. You could leave things out, I would say right out. Everybody looked out for everybody else. Very friendly neighborhood where I lived. We had some good neighbors; kids had a lot of friends there. We had coffee clatches and quite a number of times, we had people in. We'd party at Christmas and New Years.

(Relocated Resident of 17 Years, Rings I and II)

So I got a good price. We liked it here. It's nice here. It still is, even though the families did move out. It's quiet here, clean . . . and everybody was remodeling their homes, making their homes look a lot prettier. . . . It was a nice neighborhood, it seemed like everybody minded their own business. It was enough to say, "good morning," "good afternoon," . . . But they kept their lawns up and everything looked beautiful around here.

(Remaining Resident of 13 Years)

Virtually all of the families we interviewed held a set of values in common with many middle-class Americans regarding the meaning of home ownership. This was the case regardless of how long they had owned their homes or whether they had long-term commitments to them. Their homes were central to their lives as financial and socio-emotional investments, and served also as a location for the exercise of family-based autonomy. For some, their houses also provided a context for the expression of mobility aspirations. The convergence of all

these values was reflected in the on-going expenditure of discretionary time and money on home maintenance and improvement so amply illustrated in the quoted material above.

In contrast to the commonalities of home ownership, the quoted material reveals something of the markedly different kinds of ties that people established to their neighbors and their neighborhood. Some valued the immediate neighborhood for its respectability and for the cordial distance maintained by neighbors. Many formed casual ties to a large number of their neighbors through their children. Others built on-going, adult-centered social relationships encompassing some degree of intimacy and interdependency with their neighbors. And for still others, neighborhood ties were synonymous with kin ties. These different ways of being "at home" in the neighborhood have no particular relationship to a family's length of residence or expectations of ever moving. Rather, this variability in neighboring patterns is another example of the general variability that characterizes the area.

Other factors -- occupational status, educational attainment and household composition -- further demarcate the population in the Love Canal area. The families in our study are overwhelmingly blue-collar families, whose heads are employed primarily as factory workers (Table 7). Indeed, two-thirds of the heads of households (42 of 63) are employed in or retired from blue-collar occupations. There is, nonetheless, substantial white-collar representation among the Ring III relocated families. In almost half (8 of 19) of these families, the head of household is employed in a white-collar or semi-professional occupation, such as teaching, accounting, sales, etc. More than one-third (24 of 63) of all of the heads of households have or have had

enduring careers in one or another of the local chemical industries (Table 8). Predictably, educational attainment is consistent with occupational status (Table 9). The modal adult resident is a high school graduate; the minority with college education are clustered in the stratum of residents relocated from Ring III. Finally, in keeping with the age differences across strata discussed earlier, the great majority of families still remaining in the area had no children living in the household at the time of their eligibility for relocation (Table 10). This stands in sharp contrast to the relocated families, very few of whom were without children at home at the time of relocation.

Our discussion here of social, demographic and geographic variations in the Love Canal area is not meant to imply profound divergence between and among families. These variations are best viewed as differences in degree rather than differences in kind. The fundamental homogeneity of our research population is suggested by their generally common station in life and verified in their consensus on the central themes and concerns of life. This consensus, in turn, can be seen as constituting a community, with its own boundaries and a sense of its own identity. Cohesion and interdependency were manifest, at least formally, by the churches, schools, shopping and recreational facilities that "belonged" to the neighborhood. Against this backdrop of community and commonality, differences between families and across the strata appear as mere nuances. Yet, differences as well as similarities in the characteristics of the Love Canal population were to play an important role in determining the reactions and decisions of families in response to the possible hazard posed by the chemical landfill in their midst.

TABLE 8

Chemical Industry Careers Among Heads of Households, By Stratum.

|   | Relocated<br>Rings I & II | Relocated<br>Ring III | Ring III<br>Remaining |
|---|---------------------------|-----------------------|-----------------------|
| Career Employment in<br>Chemical Industry     | 9                         | 7                     | 8                     |
| Non-Career Employment<br>in Chemical Industry | 2                         | 3                     | 4                     |
| No Employment Ever<br>in Chemical Industry    | 17                        | 9                     | 4                     |
| Total   | 28                        | 19                    | 16                    |

TABLE 9

## Education of Head of Household and Spouse, By Gender and Stratum.

|                    | Relocated<br>Rings I & II |        | Relocated<br>Ring III |        | Ring III<br>Remaining |        |
|--------------------|---------------------------|--------|-----------------------|--------|-----------------------|--------|
|                    | Male                      | Female | Male                  | Female | Male                  | Female |
| Less Than 12 Years | 4                         | 4      | 0                     | 0      | 5                     | 5      |
| Twelve Years*      | 17                        | 17     | 8                     | 10     | 6                     | 7      |
| Some College       | 3                         | 3      | 2                     | 3      | 2                     | 2      |
| College Graduate   | 0                         | 2      | 5                     | 5      | 0                     | 0      |
| No Spouse          | 4                         | 2      | 4                     | 0      | 3                     | 2      |
| Total              | 28                        | 28     | 19                    | 18**   | 16                    | 16     |

\*Includes General Equivalency Degree.

\*\*One respondent educated abroad.

TABLE 10

Children Ever Born and Dependent Children Eligible  
for Permanent Relocation from Love Canal, By Stratum.

|               | Relocated<br>Rings I & II |               | Relocated<br>Ring III |               | Ring III<br>Remaining |               |
|---------------|---------------------------|---------------|-----------------------|---------------|-----------------------|---------------|
|               | Ever<br>Born              | L/C<br>Child. | Ever<br>Born          | L/C<br>Child. | Ever<br>Born          | L/C<br>Child. |
| None          | 2                         | 5             | 0                     | 4             | 2                     | 14            |
| One or Two    | 10                        | 10            | 11                    | 11            | 4                     | 0             |
| Three or Four | 15                        | 12            | 3                     | 3             | 10                    | 2             |
| Five or More  | 1                         | 1             | 5                     | 1             | 0                     | 0             |
| Total         | 28                        | 28            | 19                    | 19            | 16                    | 16            |
| Median        | 3                         | 2             | 2                     | 2             | 3                     | 0             |

## THE SOCIAL CONSTRUCTION OF DISASTER

Although the events at Love Canal have frequently and popularly been referred to as constituting a disaster, in fact, disaster was never officially declared there, nor do those events conform precisely to prevailing policy- or social science-based definitions of disaster. Such definitions derive primarily from "acts of God," which have their origins in a natural agent. Notwithstanding obvious differences in the features of earthquakes, hurricanes, tornadoes, floods, etc., their sources are uncontrollable and they "strike" according to a predictable temporal progression with a measurable spatial impact on a human population (Wallace, 1956). The sources (or constructions) of such disasters and the parameters of damage to persons and property are more or less self-evident. Social consensus around the legitimacy of the need for immediate relief and rehabilitation, including the likelihood of federal intervention, follows readily. The assumption that only the impact, but not the occurrence of disaster itself, can be controlled has dominated policy and research. The result has been an emphasis on the study of post-disaster behavior, social and physical reconstruction, and individual and organizational functioning as well as pre-disaster planning and preparedness (see, for example, Baker and Chapman, 1962; Barton, 1969; Bates, 1963; Dynes, 1974; Quarantelli and Tierney, 1979; White and Haas, 1975; Wright and Rossi, 1981).

In important respects, the situation at Love Canal did not present itself with the clarity that attends natural disasters. That there were chemicals with known toxic affects to humans present in the landfill is undeniable. That they had made their way to the surface of the landfill in places is undeniable. That the presence of toxic chemicals was confirmed in and/or on the property of some specific homeowners is undeniable as well. It is also undeniable that the actual physical destruction of property, as distinct from the lowering of property values, commonly associated with natural disasters did not occur. That the conditions at Love Canal had physically harmed or injured residents, or placed them at widespread risk of physical harm or injury was uncertain from the beginning. The 2 August 1978 health emergency declared by NYSDOH Commissioner Whalen cited only a probable risk of limited duration to fetal and early childhood development for a small population within a narrowly circumscribed geographical area. The temporary evacuation from this area of pregnant women and children under two, therefore, was prescribed as the appropriate relief measure in response to the declared emergency. While the emergency declaration allowed for the possibility that the boundaries and magnitude of risk might be more extensive, in neither instance did permanent relocation go forward on the basis of any official declaration that the physical health and well-being of residents, generally, were imperiled by the chemicals.

In contrast, then, to natural disasters, which leave no doubt that a destructive event has occurred, the nature of what, exactly, occurred at Love Canal was, and continues to be, highly ambiguous. First, no visible event or impact occurred to which the larger society or the

community qua community could bear witness. Second, the assertion by NYSDOH that an emergency existed in the area did not (and, indeed, could not) derive from comprehensive documentation of the exact impact of chemical exposure on the population. The circumstances at Love Canal were such that no real evidence, either self-ascertained or expert-based, confirmed the occurrence of a disaster. Neither was there evidence to disconfirm the occurrence of a disaster. Indeed, the possibility that life-threatening disaster conditions prevailed in the neighborhood had been strongly suggested by officials and clearly recognized by citizens.

In situations of natural disaster, the consequences are obvious to all; it is not incumbent on affected populations to identify those consequences, although individuals may exhibit a wide range of responses to them (Wolfenstein, 1977). Nonetheless, vocabularies of motive are always essential as a justification or basis for social action. In common sense situations, such as natural disasters, the definition of the situation and whatever actions follow from it are likely to be inchoate rather than self-conscious (Scott and Lyman, 1968). At Love Canal, however, each family found itself in the unusual and difficult position of having to arrive at its own decision concerning the significance of the presence of the chemicals. Confronting either the possibility or desirability of relocation, families were required to articulate coherent perspectives about the actual or potential impact of the chemicals on their well-being. The consequences of the chemicals were not only less than fully visible, there were no independent criteria on which to achieve consensus among individuals regarding what the consequences actually were. The information available to them in

this decision-making process was fragmentary, evolving and sometimes contradictory. Clearly, an unself-conscious process of understanding framed in reference to natural forces was unavailable. Of necessity, their understandings and explanations had to be constructed substantially in terms of experiences, attitudes and values. It is in this sense, then, that the construction of disaster at Love Canal was socially based.

The ambiguity surrounding the situation at Love Canal organized the focus of this study in the same way that it organized the experiences of the residents, themselves. This is unequivocally not, and cannot be, a study of a disaster event and its attendant impact, in the usual sense. Any social science researcher is faced with the same problem of proof that the residents, both relocated and remaining, confronted and continue to confront. The salient questions become, then, what have people come to believe about the meaning of the chemicals for their lives and what are the factors that have shaped those beliefs. In the following analysis of beliefs held by our respondents, it is important to recognize that beliefs are not fictions; indeed, a socially constructed definition of a situation is no less powerful than a concrete event as a foundation for action (Thomas, 1931).

## BELIEF SYSTEMS

The language the members of these families used in talking about chemical migration and risk was overwhelmingly the conditional language of belief rather than the certain language of knowledge. They recognized that they could not speak with authority of what they knew but they could speak with conviction of what they thought they knew, basing their assessments on what they saw in the evidence available to them. In this process, they drew on their perceptions of the presence of chemicals in their own homes and in the homes of others, their perceptions of chemical effects on their own health and the health of others, test reports, media coverage, official reports and declarations, the "off the record" remarks of officials, and the reports and declarations issued by grass-roots neighborhood and other community organizations. The credibility assigned by families to these different sources of data often varied with the social and demographic realities of the household.

Each family interviewed was able to offer with reasonable clarity a provisional truth concerning the actual and potential hazard represented by the chemicals. In this regard, they expressed opinions about both the scope and the seriousness of the problem. These opinions were not easily arrived at. As expressed, each reveals uncertainty and the struggle with contradiction. On the one hand, there are those who believe the contamination was probably limited in scope and of minimal seriousness. Such families tended to locate any existing problems in

the immediate area of the landfill and to question the credibility of allegations of a link between health and chemical exposure.

We don't see really any reason for it. We think it's a bunch of hogwash. Black Creek is my backyard, it's a lot line, and I've spent a lot of time down in the creek and I never got any skin rash. I got poison ivy, that's all. We've had so much wildlife, too . . . schools of fish, rabbits. They tell us, now that everybody's gone, on the next creek there are deer. . . . They didn't have to come down this far with the boundary. I don't think there was any migration of chemicals. . . . The reason they had them move [out of Rings I and II] was to trench their backyards in order to put the piping in. . . . There might have been a very few with health problems there, but I think there's more than a few that are trying to get something for nothing, make this a great big issue. Not only for their property, but everything else. I mean, health-wise, they're blaming everything on the chemicals.

(Remaining Resident of 24 Years)

Well, in our area there was none. We never even thought of it. It's probably at the south end but we were at the north end. . . . So maybe just on the south end. Maybe there may have been something seeping through. Maybe. If they broke the cap or whatever they did. They knew what was there. . . . The area right there and the people that are right there, go ahead, move them out, because of the smell alone. But this became mass hysteria down there. Every little illness that came up they blamed it on the chemicals. . . . You find this every place. You find that one person's looking for something, trying to make a name for themselves, just wants to get things stirred up.

(Relocated Resident of 19 Years, Rings I and II)

Other residents agreed with those quoted above that the boundaries of contamination lay proximate to the canal, but they thought it both plausible and likely that the chemicals constituted a serious threat to health within those boundaries.

I can't say they exaggerated or whatever because I don't know the evidence. The immediate neighbors that we had never said anything. I think some people may have exaggerated a little bit . . . but not on our side. I imagine there might have been all sorts of things because there are a few people [I work with] that live on the street behind 96th, going out that way. I heard them telling

stories about trees and stuff like that or just the slush that was always in their backyard. . . . I don't know about Ring III . . . I think it would have been hard to stay, you would have been putting pressure on yourself. It got to a point, you didn't know what was going to happen if you didn't move. . . . I don't think it was a matter of just neighbors putting pressure on people to move. That was not the case. Not on our street, but on 99th Street. . . . I'm talking about Ring I, I don't know about the outside houses. . . . I don't think it's affected adults as much as it's affected kids. Kids played in it. . . . I think a lot of people were emotional but I'm not saying that all those chemicals couldn't have caused some sort of deformity or whatever the children suffered. . . . It's possible. It was never a matter of health for us. Maybe if we had stayed longer, who knows what might have happened. . . . If others had stayed, I would have stayed, if they hadn't put the fence up.

(Relocated Resident of 6 Years, Rings I and II)

I still don't think it's dangerous, other than 99th Street. Yes, matter of fact, I would never have lived on 99th Street. No, I didn't have a sense that people up closer were in real danger. . . . 99th Street, no, I wouldn't live there because it is right on top of Love Canal and I would not want to build in that particular neighborhood. And then, this stuff is going to travel, I imagine, eventually, but I certainly wouldn't want to live that close to it. I respect chemicals, they're all right in their place, but I wouldn't want to live next door to them. Over a long period of time, yes, anything is dangerous, anything is toxic. . . . You breathe something other than air and there's going to be some changes in you. So living next door to a dump is not my idea of a good living. . . . In other words, I would never have moved on 99th or 98th. Well, of course . . . between 96th and 98th and 100th, far as I was concerned, was a no man's land.

(Remaining Resident of 23 Years)

The majority of respondents constituted a third, and final, group. These families are disposed to believe that chemical migration is widespread throughout the entire area encompassed by the boundaries of Ring III. All of the families holding this position are also of the opinion that serious health risks and effects in all likelihood parallel the migration of the chemicals. It should be noted, no one in this study viewed the chemicals simultaneously as widespread with minimal effects.

I don't think anybody realized what was being dumped there or what harm it could probably do. . . . The city's practically surrounded with chemicals, the dumps are all around. . . . In the last 10, 12 or 15 years, this stuff has really started to migrate. Their argument always has been that there was a clay cap there. A clay cap is fine, it might seal something from the top but anyone that's familiar with clay or any kind of dirt knows that when you get a hot sun baking on it, it cracks. . . . This is where all your fissures come from. . . . Then eventually, it could conceivably migrate to the extent that it has . . . so if the barrels rot, there's nothing to contain it. . . . Initially, I think they included the Ring III area because I think they had some idea that the chemicals had migrated to Black Creek . . . but they didn't know to what extent, in other words, how heavy a concentration is there. . . . Black Creek, there, . . . the first five or seven years [we were here], in that creek in the spring, you'd see the pike. The Great Northern Pike would come up the creek and spawn and then go back out to the river. . . . Then you never saw them anymore, and we used to get this foul odor off the creek back there. . . . Our cat just died, we didn't know of what, we thought she must have gotten into that water. Her mouth had all that cancer. She was about seven years old. . . . The first one was that young lad, remember? They lived right over there in back of Black Creek. Their boy died quite suddenly . . . they just couldn't explain it. . . . That was even before they expected contamination. . . . Yes, and then there was another couple who lost their six year old boy the same way. I think he played in the Black Creek, too. . . . My son likes where he lives now. Of course, he's much younger and they had planned to move out eventually anyway. And he probably should have gotten out. . . . Some young people wondered whether they should have children.

(Remaining Resident of 24 Years)

And I think the most important question that people ask, they always ask, 'Well, how do the chemicals affect your family?' That really has nothing to do with it, because having two children, and living in that neighborhood, we had no choice. You had to get out of there whether the chemicals affected us or not. You cannot live a good, happy life always wondering. . . . To me, it was a proven fact that the first two rings got out because of the chemicals, but with all those underground swales and stuff, it was just a matter of time before it started seeping your way. . . . The fact is, when you listen to what the chemicals can do to you and the amount of time it takes, you cannot give a direct answer and say, 'Yes, I developed cancer from it.' Twenty years from now, I don't know if I develop cancer if it's from the Love Canal, but I'll feel a lot better knowing that I'm out of there. You can't face your children twenty years down the line when they both become sterile, or they have cancer, or something like that and they say, 'Well, why didn't you move from there?' . . . They can't draw a boundary there. There are some natural boundaries they could have followed to a degree. . . . I think the chemicals are there. I think the only thing they can conceivably do is knock down the houses and fence it all up and

leave it as a non-residential area. Even then, those chemicals are still going to leach out to a certain degree.

(Relocated Resident of 8 Years, Ring III)

As might be supposed, the majority (75%) of those who lived in Rings I and II and were, therefore, both adjacent to the landfill and affected by the first emergency declaration, believe that the scope of the contamination was probably widespread and that the risk to health was probably serious (Table 11). Interestingly though, an equal proportion (79%) of those residents in Ring III who elected to relocate share the same perception concerning the scope and risk of the contamination. Clearly, then, within the Love Canal area, residential proximity to the landfill, alone, is not a major factor determining beliefs. (This conclusion is strengthened by the fact that the relocated Ring III families, just referred to, resided in about equal numbers both above and below Colvin Blvd., data not shown.) Also, as we might expect, the majority (81%) of the remaining families believe that the scope of contamination is limited, although they have varying opinions as to its seriousness. For this group, as well, residential geography is not a factor in belief; the total number of remaining families is equally distributed to the north and south of Colvin Blvd. (data not shown). Finally, it is worth noting that all of the families who believed the chemicals were widespread thought that their probable risk to health was serious. Given the known toxicity of the chemicals, it is reasonable that people would believe that serious risk was intrinsic to their migration.

TABLE 11  
Beliefs Regarding Probable Scope of Chemical Contamination  
and Probable Extent of Risk to Health, By Stratum.

| Scope/Risk             | Relocated<br>Rings I & II | Relocated<br>Ring III | Ring III<br>Remaining |
|------------------------|---------------------------|-----------------------|-----------------------|
| Widespread/<br>Serious | 21                        | 15                    | 3                     |
| Widespread/<br>Minimal | 0                         | 0                     | 0                     |
| Limited/<br>Serious    | 3                         | 3                     | 9                     |
| Limited/<br>Minimal    | 4                         | 1                     | 4                     |
| Total                  | 28                        | 19                    | 16                    |

The high correlation between perceptions of probable scope and probable seriousness, in conjunction with the small case base, suggests the wisdom of framing further demographic analysis in terms of perceptions of scope alone. (Of course, this high correlation is probably particular to Love Canal; the magnitude of correlations between perceptions of probable scope and probable seriousness is likely to vary for natural and man-made disasters as well as for frequent and rare disasters and for slowly evolving as opposed to sudden events.) In addition, several factors indicate the logic of combining the two Ring III samples for the purposes of considering the significance of structural variables for the formation of beliefs. First, regardless of whether a given household chose to relocate, all families in Ring III share a common history with respect to their residence outside the boundaries of Rings I and II, and the conditions and timing of eligibility for permanent relocation. Compared to the relocation histories and experiences of families in Rings I and II, then, those of Ring III families, taken together, are more similar than dissimilar. Of course, differences did eventually emerge among these families as some decided to relocate while others have remained. These decisions were apparently related to both beliefs and demographic factors. However, what remains to be seen are the ways in which beliefs are informed by demographic factors. How, taken together, did beliefs and demographic factors function to differentiate an otherwise undifferentiated population and, subsequently, to influence the decision to remain or to relocate?

## COMPONENTS OF BELIEF: DEMOGRAPHIC FACTORS

The differences between the experiences of families in Rings I and II, compared to those in Ring III, and the effects of those differences on the relationship between beliefs and demographic factors are especially apparent in the case of education. The relationship between education and the beliefs families hold about the scope of chemical contamination initially appears somewhat anomalous (Table 12). In Rings I and II, families that believe that chemical contamination was probably widespread are more often those where a high school education was the highest level of education achieved by either spouse. In Ring III, though, the belief in probable widespread chemical contamination is more often held by families in which some college education had been attained by either spouse. There are several possible interpretations of these patterns. It may be that education is not reliably associated in the Love Canal population with beliefs about the scope of chemical contamination. Alternatively, the discrepancy may be due to the small size of the sample or to some form of bias in the sample as a result of the problem of attrition discussed earlier. Or, the seemingly anomalous patterns may not be anomalous at all. In Rings I and II, residents were presented with what they took to be an official definition of the gravity of the situation, which included the suggestion that the chemicals might, indeed, have migrated beyond the boundaries established for relocation. They were required merely to concur in that definition and to assess its plausibility. It is also the case that as typically younger families, they had come of age in an era of growing

TABLE 12

Beliefs Regarding Probable Scope of Chemical Contamination,  
By Education and Location (Probable scope by highest  
educational attainment of either spouse and ring location).

| Scope      | Relocated<br>Rings I & II |                            | Remaining & Relocated<br>Ring III |                            |
|------------|---------------------------|----------------------------|-----------------------------------|----------------------------|
|            | H.S. Grad.<br>Or Less     | Some Coll./<br>Coll. Grad. | H.S. Grad.<br>Or Less             | Some Coll./<br>Coll. Grad. |
| Limited    | 4                         | 3                          | 14                                | 3                          |
| Widespread | 17                        | 4                          | 8                                 | 10                         |
| Total      | 21                        | 7                          | 22                                | 13                         |
| Q          |                           | -.52                       |                                   | .71                        |

TABLE 13

Beliefs Regarding Probable Scope of Chemical Contamination,  
By Occupation and Location (Probable scope by chemical  
industry career of head of household and ring location).

| Scope      | Relocated<br>Rings I & II |               | Remaining & Relocated<br>Ring III |               |
|------------|---------------------------|---------------|-----------------------------------|---------------|
|            | Chemical Industry<br>No   | Career<br>Yes | Chemical Industry<br>No           | Career<br>Yes |
| Limited    | 4                         | 3             | 9                                 | 8             |
| Widespread | 15                        | 6             | 13                                | 7             |
| Total      | 19                        | 9             | 20                                | 15            |
| Q          |                           | -.30          |                                   | -.25          |

environmental awareness which has become increasingly pervasive across social class lines and is no longer necessarily based in educational attainment. In Ring III, in the absence of any authoritative declaration about the scope of contamination, the burden of assessing this rested with the individual homeowner. Given this situation, it is possible that the college educated more often embarked on the kind of independent evaluation often associated with higher education.

Formal education is not, of course, the only kind of education that conceivably influences beliefs about the scope of chemical contamination. Indeed, given the substantial number of Love Canal residents who worked for many years in the chemical industry, one might expect these people to claim an independent basis in experience for judging the scope of contamination. In Table 13, belief in the scope of the chemicals is examined in relationship to whether or not the head of household had career employment in the chemical industry. For both groups, there is a slightly greater tendency for those who had substantial industry experience to view the scope of contamination as limited. The reader should note that the Q values indicate that the strength of these relationships is unquestionably minimal.

The two major life-cycle factors, age and household composition, exert a strong influence on beliefs. The importance of age, in relation to beliefs, is twofold: for those near retirement or in retirement, any potential drain on limited resources is a threat to financial stability; also, any disruption in established patterns of sociality and residential security constitutes a major erosion of the individual's sense of well-being. For these reasons, then, we would expect older people to be less disposed than younger to viewing their neighborhood as

widely contaminated with chemicals. And, indeed, in large measure, this is the case for residents in both groups (Table 14).

Younger people face a different set of problems owing to their concerns as parents. Although they are not immune to worries about financial or residential security, the welfare of their children can be expected to have priority over such other worries. Parents are, thus, generally unwilling to tolerate the presence of gratuitous risk in their children's environment. They tend to be conservative in their judgments when assessing the probability that such risk is present. When faced with the ambiguity of the situation at Love Canal, parental conservatism is understandably expressed in the belief that the boundaries of the chemicals could very well be widespread since they have not been proven to be limited. This pattern of belief is seen to be very striking in Table 15.

As we indicated earlier, we expect beliefs to work in concert with demographic factors in affecting the decision to relocate or to remain. Table 16 shows clearly that the presence of dependent children in a household combined with a family's belief that the chemicals are widespread in scope is powerfully predictive of the decision to relocate. As the table indicates, 12 of the 13 families in this category have relocated from Ring III. Conversely, 12 of the 13 families who have no dependent children in the home and who view the contamination as limited remain in their Love Canal homes. In Table 17, age, beliefs and relocation are similarly examined simultaneously. Older people who believe that the scope of the chemicals is probably limited have generally tended to remain; this is the case for 12 of the 15 families in this category. And 9 of the 10 younger families who

TABLE 14

Beliefs Regarding Probable Scope of Chemical Contamination,  
By Age and Location (Probable scope by age  
of head of household and ring location).

| Scope      | Relocated<br>Rings I & II<br>Age |             | Remaining & Relocated<br>Ring III<br>Age |             |
|------------|----------------------------------|-------------|--|-------------|
|            | Under 50                         | 50 or Older | Under 50                                 | 50 or Older |
|            | Limited                          | 3           | 4  | 2           |
| Widespread | 16                               | 5           | 10                                       | 8           |
| Total      | 19                               | 9           | 12                                       | 23          |
| Q          | -.62                             |             | -.81                                     |             |

TABLE 15

Beliefs Regarding Probable Scope of Chemical Contamination,  
By Household Composition and Location (Probable scope by  
presence of dependent children and ring location).

| Scope      | Relocated<br>Rings I & II<br>Dependent Children |     | Remaining & Relocated<br>Ring III<br>Dependent Children |     |
|------------|---|-----|---|-----|
|            | No  | Yes | No  | Yes |
|            | Limited   | 5   | 2   | 13  |
| Widespread | 0   | 21  | 5   | 13  |
| Total      | 5   | 23  | 18  | 17  |
| Q          | 1.0   |     | .79   |     |

TABLE 16

Relocation Status, By Beliefs Regarding Probable Scope of  
Chemical Contamination, Presence of Dependent Children  
and Location (Ring III only).

| Relocation Status | Presence of Dependent Children |                                   |                                |                                   |
|-------------------|--------------------------------|-----------------------------------|--------------------------------|-----------------------------------|
|                   | No                             |                                   | Yes                            |                                   |
|                   | Scope of Contamination Limited | Scope of Contamination Widespread | Scope of Contamination Limited | Scope of Contamination Widespread |
| Remaining         | 12                             | 2                                 | 1                              | 1                                 |
| Relocated         | 1                              | 3                                 | 3                              | 12                                |
| Total             | 13                             | 5                                 | 4                              | 13                                |
| Q                 |                                | .89                               |                                | .60                               |

TABLE 17

Relocation Status, By Beliefs Regarding Probable Scope of  
Chemical Contamination, Age and Location (Ring III only).

| Relocation Status | Age                            |                                   |                                |                                   |
|-------------------|--------------------------------|-----------------------------------|--------------------------------|-----------------------------------|
|                   | Under 50                       |                                   | 50 or Older                    |                                   |
|                   | Scope of Contamination Limited | Scope of Contamination Widespread | Scope of Contamination Limited | Scope of Contamination Widespread |
| Remaining         | 1                              | 1                                 | 12                             | 2                                 |
| Relocated         | 1                              | 9                                 | 3                              | 6                                 |
| Total             | 2                              | 10                                | 15                             | 8                                 |
| Q                 |                                | .80                               |                                | .85                               |

believe the chemicals could be pervasive have moved. A comparison of these two tables suggests that the presence of children is more powerful than youth in influencing the relocation decision in younger families. In contrast, age rather than the absence of children appears as the more powerful factor encouraging older families to remain. We may speculate, based on the analysis thus far, that beliefs concerning the scope of the chemicals are mitigated by certain demographic factors, which can be understood as a shorthand reference to what families have at stake in their lives. Older people can ill-afford to believe that their emotional and financial investments in their homes are in jeopardy. Younger people, most especially parents of dependent children, can ill afford to believe that their children are not in jeopardy. Either vantage point can be seen as the result of an eminently rational calculus aimed at achieving resolution in a highly ambiguous context.

There are six exceptions to the patterns shown in Tables 16 and 17. In each of these instances, the convergence of the demographic factor with belief status in the table failed to correctly predict the family's relocation status. In Table 16, one family with dependent children believes that chemical migration is probably extensive and continues, nonetheless, to live in their home in the Love Canal area. During the interview, however, this family reported that they had sold their home and were in the process of building another outside the city. In Table 17, this same young family is the apparent exception to the predicted pattern of relationships among age, beliefs and relocation status. The priority of children over age in shaping the decision to relocate is confirmed in the experiences of two of the three older families in Table 17 who moved. Despite their conviction that chemical contamination was

not widespread, their concern for their children's well-being in a depopulated neighborhood informed their decisions to move. The third of these families appears as an anomaly in Table 16, as well as in Table 17. This older couple with no children at home believes that chemical contamination was probably confined to Rings I and II. In explaining their decision to relocate, they stressed three considerations: their grown children strongly urged them to move; they were apprehensive about the probable long-term decline in property values; and, most importantly, they were extremely demoralized by the deterioration of the neighborhood as a social community.

Parenthetically, the strength of the neighboring ties experienced by Ring III families appears to be curiously implicated in their decisions to remain or to relocate. Paradoxically, the tie that binds the 13 remaining families who have no plans to move is the absence of ties to their neighbors. Twelve of these families report that social or friendship bonds with neighbors have not characterized their lives in the neighborhood over the years (data not shown). The remaining families are, therefore, accustomed to living in highly privatized worlds. This suggests that they may be somewhat better able to endure the residential isolation imposed by massive relocation out of the area than families who relied more heavily on close-knit neighboring relationships.

## THE COMPONENTS OF EVIDENCE: EXPERIENCE AND INFORMATION

The analysis offered in the preceding section attempted to show that demographic variables impact substantially on the beliefs people hold about the risk posed by toxic wastes at Love Canal. Of course, demographic factors did not, of themselves, determine or cause beliefs. Rather, they provided the framework within which individuals sought out and evaluated evidence from which to form those beliefs. While beliefs themselves are anchored in a base of experience and information, experience and information, in turn, are perceived and understood as evidence within an interpretive structure. The various life situations of the different families undoubtedly affected in several ways the process by which their beliefs were formed. Structural factors differentially encouraged the desire for evidence in the first place. Structural factors and the desire for evidence shaped both access and attentiveness to information and experience and perceptions of the relevance of those as evidence. Although structural factors constrain the process by which evidence is translated into beliefs, the process itself is inherently interpretive.

This idea that in such areas of group life the independent variable automatically exercises its influence on the dependent variable is, it seems to me, a basic fallacy. There is a process of definition intervening between the events of experience presupposed by the independent variable and the formed behavior represented by the dependent variable. . . . This intervening interpretation is essential to the outcome. It gives the meaning to the presentation that sets the response. Because of the integral position of the defining process between the two variables, it becomes necessary, it seems to me, to incorporate the process in the account of the relationship. (Blumer, 1956:687)

This "process of definition" is well illustrated in the in-depth interviews collected for this study. Family members were asked about the history of their knowledge of the presence of chemicals in the canal, the development of their own thinking about the seriousness and scope of migration, and their evaluations of the relationship between the chemicals and health. In addition to their own experiences, their accounts invariably drew on their awareness and perceptions of pronouncements made by others, including friends, neighbors, and representatives of government, industry, the academy, and the media. An understanding of the influence of all these sources of information is essential, of course, for understanding beliefs, since beliefs both originate and find validation in social experience.

The process of constructing beliefs is depicted below for selected individual families. These families were chosen to represent *moderately* experiences and outcomes. They were not chosen because there is anything particularly dramatic or unusual about them or their experiences compared to other families in the study. Rather, they were judged to exemplify certain classes of families that stood in specific kinds of relationship to events at Love Canal. The criteria established for selecting these "typical" families included requirements that each had originally been identified by the random sampling procedures, and that none had taken a major leadership role in a grass-roots political organization. All such families, the majority in the study, were then organized into categories based on geographic location, relocation status, and beliefs about the scope and seriousness of chemical contamination. Individual families were finally chosen from these categories, based on the maximum feasible "typicality" of their

demographic characteristics.

The interview with each of the selected families was read very carefully. All references to evidence, subjective experience and information obtained from others was extracted, as were the judgments respondents made of these. The interviewer's queries were incorporated into the quotations where required to preserve the sense of the material, and minor details were changed to obscure identification of the families. Without further editing, the extracted quotations were reorganized along topical lines where necessary to form a coherent narrative. Although some of the interviews included both spouses, the material is presented in a single voice to preserve the flow of their account. What follows, then, are exhaustive inventories of minimally edited remarks pertaining to beliefs, presented in the respondents' own words, although not necessarily presented in the order in which they were originally spoken.

#### Selected Case Studies

1. This couple resides north of Colvin Blvd. in a home they have occupied for 29 years. Their children are now grown and live elsewhere. The interview was conducted with the husband who is retired. Previously, he worked for many years as a skilled tradesman in a chemical factory. He believes that any problems related to the chemicals were most likely confined to the area adjacent to the canal.

I don't know why these people left. Like these people down the block, they claim their kids were born without fingers, without teeth. I think some of them inherited it from their grandparents, it wasn't from Love Canal. You know, the people are crying about, you know, several things, like little children having different difficulties. If it was the chemicals, why wouldn't the whole area be affected. We're all drinking the same water. And this water is

coming out of that plant over there on Buffalo Avenue. They claim, what is it, that the intake is in the S Dump. We're all drinking that water. . . . I think people invented sicknesses, people that didn't have them, just to leave. . . . Half of them were sick when they moved in. . . . Everybody there was crying and hollering about the canal. They claimed they had health problems. Whether they did or not I don't know. It could be an inherited thing, too, you know. Like everybody's hollering about everybody dying of cancer. This is a big cancer area. Well, there's cancer all over this country, isn't there? . . . I've got a neighbor who lives on the creek. His backyard goes into the creek. And he had a cat and his cat was drinking this water in the summer, you know how cats are with water. He said that cat died of old age. Now, if there's chemicals in that stream, they sure would have killed that cat, wouldn't they? That was his theory and I agree with him. . . . Cripes, we plant tomatoes out here, and cucumbers, and eat them every year. I'm not dead yet. I might die of old age. . . . There's nothing wrong with my kids. They were raised here. . . .

There's no reason to leave [Ring III]. It's like this Black Creek Drive, there's a little stream runs past down there. It goes across into Bergholtz Creek. If there was anything leaching out of that dump, it would surely go through there, because that would be the lowest point. And there's nothing in our cellar, never was. . . . No, I don't think the [second] relocation meant it was unsafe. You know your own property. You know what you had, if you lived in the house, what it would be like in the cellar, or wherever. We've never had that stuff here. They went too far. There's houses they bought that are quite a ways away from the canal. There's been houses there for years. . . . If I were living right across the street from the fence, I think if my house was sound and safe and the cellar wasn't leaking, I wouldn't move, 'cause you know your own house. . . . I don't feel there's any evidence at all that the chemical problem isn't right around the canal. . . . There was a house on this side of the creek. He had a swimming pool and he had all these chemicals like you put in your water, chlorine or something. He kept them in the cellar. He had enough there to last him a hundred years. Well, naturally, the cellar's going to pick up dampness. That's why his house stunk like it did. It wasn't the canal. It was him. . . .

If anything is going to go, it's going to go toward the river, because that's only natural with these swales. In those houses close to the canal, they claim they were eating their sump pumps up, so it must have been a chemical reaction against the metal or something like that, and like this ooze coming up in the ground. I believe that. I wouldn't live over there. No, I'd move. . . . If I had lived over there, I would have sold, because if things like this are leaking into your cellar or into your yard, naturally you aren't going to hang around. On that side, yes, near the canal, there could have been some health problems. . . .

They haven't told us yet if it's dangerous here. This report is supposed to come out in the next month, they said. Then, another month, then, another month. It hasn't come out yet. Yeah, that's

the report from Axelrod, the state. . . . If the Health Department [NYSDOH] comes out and says it isn't safe, then you should move. I think I'd move. But they haven't come out with that. . . . They don't tell you anything. That's what we're waiting for. Even the State Department of Health doesn't tell us anything. They've got so many people working there, I guess they don't know what they're doing. . . . I was hoping to get a report from the Health Department, whether we should stay or we shouldn't. That's all they got to tell us. If they tell me it's not safe, I'll go. . . . No, they didn't do any testing in this house. Across the street, they had a thing in the backyard. On the next block, they drilled a hole in the front yard. People asked for those tests. They're supposed to get a report from that ground water test but I haven't seen anything on that. As far as tests, that's about as far as it went, then they ran out of money. They couldn't drill any more holes. They haven't done any medical tests on me. I don't know if those people right close to the canal had any tests, anything like blood tests. I don't know, I wouldn't know anything about that. I don't know anything about any reports about whether there was a health risk. . . . The only thing I know is what I read in the paper. . . .

I wouldn't trust a chemical company to tell me how safe those chemicals are 'cause they're protecting themselves and they wouldn't say anything. They can't. . . .

Lois Gibbs decided there was a health risk. . . . This Lois Gibbs and a few other radicals up there just started raising Cain in the City Council and all that. And then they organized, what did they call it, Love Canal Association [LCHA], or something like that. I don't know. That was it. And then she got this part over here, you know, on this side of Colvin. . . . Lois Gibbs was just hyper, like the rest of them over there. Soon as you tell them something, they think the world's going to end and they all go jump in a gorge. I wouldn't stay on that side, no. But I wouldn't make any noise about it. I'd just sell the house and move. But they had to make a big todo about it. She had a big following. They had us outnumbered. First I heard of the problem was when they started this Home Owner's Association and started crying about their cellars smelling like chemicals. No, I don't remember when that was. . . . To hear Lois Gibbs talk, you'd think this place was running with chemicals, but it ain't. . . . Those families that organized weren't such nice families over there. I didn't know them very well. I mean, I wouldn't associate with them. I'm not too picky, but I can't stand too boisterous people. . . .

It was just that group over there. They got everybody so wound up, scared, that would be a good word, scared. . . . Then they really went ape, they were leaving like flies. . . . They got scared. . . . People panicked because of the dollar. If they thought this place was so dangerous, why did they move somewhere else in the city? You'd think they'd leave the city. They're still drinking the same water as I am. I think they left because they wanted the money. They figured that if they'd stayed, nobody would buy their houses because of the reputation that Lois Gibbs started. Pretty soon, it snowballs, and persons on the other side started

hollering. . . . These people looked like rats on a sinking ship. They're all gone. Yes, they're just a bunch of blockbusters. . . .

See, Governor Carey was running for governor then. So, naturally, he had to put his two bits in for a couple of votes. So he said they'd buy those houses, the state would. So then his buddy Carter was running as president, so he brought him up here. Big hullabaloo, you know? And so he said the federal government will take this area, take up these houses. . . . I think they went too far when they brought Carter up here and he bought the rest of these houses. There's the federal, there's the state, and they're both running for office. They didn't care about moving people, or chasing people out, they were just worrying about votes. That's the trouble with this country. They think more of votes than they think of doing anything. I'd believe a used-car salesman before I'd believe a politician. That's the truth. . . . Carter could have stayed out of Niagara Falls, but he was here to buy this place for votes. He said it was an emergency. . . . I wouldn't listen to any politician. . . .

You know what I think? They've got so many people working for the government, nobody wants to take responsibility. Same with the state. Hooker sold that fill to the School Board for a dollar, or something like that, and, according to the papers, warned them not to level it off or anything. Well, the first thing they did, the School Board sold it to the developers. Well, what are the developers going to do but level things off and build houses. They don't care. So one is just as bad as the other. . . .

Hell, these young kids can afford a new house. I can't. I was only offered \$32 thousand, that's what they gave me. That isn't market value. Heck, I'm 69 years old. How could I assume a mortgage; \$32 thousand wouldn't even be a down payment. . . . Loneliness don't hurt me. I guess I inherited that from my ancestors. I read, do crossword puzzles, make things for the kids, and monkey around. When the neighbors were here, that was different. You'd go and visit, talk, shoot the breeze. . . .

2. This older couple lives south of Colvin Blvd. in Ring III. They have lived in their home for about 30 years. Their grown children have moved away. The husband nears retirement from his job in a chemical factory; his wife is a full-time homemaker. They believe that the chemicals are widespread and have had a very destructive effect on health in their neighborhood.

Well, I remember them dumping the chemicals. I saw them. Gee, that was shortly after I got out of the service. We used to swim in that canal, we used to fish in there, before they were dumping. It

was pure water then. It was muddy, but it was pure water. I never thought about it when they started dumping. Yeah, I saw the barrels going in. They'd just back up with trucks. It was full of water at the time, so when they dumped, it would go right into the water. . . . Yes, neighbors complained. We belonged to the fire company over here. We'd go over there and put fires out. It was a regular garbage dump, too, papers and stuff like that, 'cause I can remember all that stuff burned, old wood, besides the chemical plant's stuff. It used to catch on fire. They probably put sodium in there, which always catches fire very easily. But there was so much fields and open space, you didn't notice it, it was isolated. . . .

I don't remember anything, really, about that, until they started talking about it. When it started getting in cellars, that's when we heard. The houses right close to the canal would get the goop coming up in their sumps. . . . We felt sorry for them, over there, so we went to meetings anyway and still had our blood tested and so on. But I think the concern, the immediate concern of ours, was people over there, not so much for over here.

That was until everything started coming over in this direction and they found all this stuff. . . . Right, and it was through one of their maps that we saw where one of the waterways comes right from the canal and under our house. Of course, we knew there was water there all along, and we always had a lot of water in our basement, especially in the wet season. . . . We had one of those leads all the way back through our lot until we filled it in back there. We had a big skating pond there that was all full of water and it would go all the way across the street. . . . I mean, we weren't all that concerned about ourselves until we found out what the readings were in our area right here. . . . I think we have most of our papers here. They sent us a copy of what they found in our house, and it was the highest reading in all the area. They drilled a hole right here in the front of the lot, and then they drilled a hole over there and they found chemicals in both of them. They found chemicals in the sump and in the air in the basement. . . . We had stuff raise up in our basement. One day I went down there and there was little black spots all over the floor, kind of like an oily substance come right through the cement. It looked like someone had taken a paint brush and just flicked it. It was all over down there. Then it disappeared. Then when they took the reading in our sump pump, we had such a high reading, I went to a meeting and discussed it with them. They tried to blame it on, they said it probably came from your plastic, the vinyl, you know, the plastic sump pump. I said 'I don't have one. I have all brass.' They said, 'It has to be from your lines.' I said, 'I have all galvanized ones.' They said, 'Well, then, we'll test it again.' So they tested it again and they said oil must have seeped through your sump from some place. I wish it was oil. . . .

How did that make us feel? You say, well, now we know what our trouble was all these years. . . . Oh yes, when you stop and think, when you stop and think of the people that you knew that died of cancer, it's excessive. Died young, there've been a lot of people on this street who've had cancer. Our neighbors, her father died of

cancer, but he was elderly. Maybe he'd have lived a lot longer if he hadn't had the cancer. Other neighbors down the street had a lot of cancer. . . . And then you got to thinking about the babies that died at birth, or the cancer and all the rest of it, and you start putting everything together and it became your concern. . . .

All of our children were born in the area. All the children have problems, all of them. The youngest is the worst. I have one son who has nerve problems, and you can imagine being a salesman and having nerve problems. He even gets his wife to go to the door to sign for packages because he shakes so much. He's young, only in his 30's. The oldest one thinks all her problems are allergies. She's treated for allergies constantly, all the time going for medication, mostly respiratory problems. . . .

The youngest, the one with the most problems, he was born at seven months and had upper respiratory infections of some sort. There was supposed to be a problem with milk and they switched him onto goat's milk. For eight years, I had to sit up with that boy many a night holding him so that he could breathe. We almost lost him when he was five weeks old. Changing to goat's milk helped, but it certainly didn't take care of the problem. . . . When he was five, six years old, we had to take him to get x-rayed. He was crying most of the time of his stomach hurting. The doctor came out and really railed into us and asked us, 'What the hell have you been doing to that kid.' His stomach was just like a fist, like a hard fist. And yet, he had been the child who was special to every one of us, from our two other ones to ourselves. We took better care of him because he did have problems. Then, when he was about 12 or 13 years old, we got a call from the school psychiatrist that he was going to commit suicide. I'm telling you, there were problems. He's still doctoring, he's still sick. He's married. He has two children, a home, but I would say, wrapped up in himself. How can it be different when you're in constant pain. He just goes from doctor to doctor to doctor.

I do myself. Mostly for constant headaches and nerve problems. . . . I would get so shaky at times I couldn't sign my name. I could only sign with holding one hand over the other. And I used to go just for a visit with my sisters-in-law, and I love them. I've never had a sister, so they were my sisters. Yet I'd get there and I couldn't open my mouth. I spoke through my teeth and my stomach was all tied up. Why? Why? We were real good friends. And then I'd go there and have to spend half my time in the bathroom. Just going to visit someone you cared for, it almost seemed too much. It don't make sense. And I used to tell my husband, years back, he could take anything. He was like a man of steel. Now, he's the opposite. No steel anymore. . . .

This year, our daughter-in-law was found to have cancer. She's only 31 years old. No, she didn't grow up around here, but they stayed with us for about a year. They removed a wedge from her breast, nodes from under the arm, and she had a hysterectomy. . . . I'm not saying the cancer came from here. I'm not saying that at all. But she has it and we live here. It's contaminated here. And

yes, it worries you about the children and we have eight grandchildren. . . .

As far as the relationship of this to the chemicals, let me put it this way, when we go away from here, we feel fine. We just spent a month out west, no eye problems, no nerve problems, felt good. I slept like a log. We're back home, we have the same problems again. Headaches, eyes, nerves, not sleeping. I don't know. We cannot say for sure that's the whole cause of the thing. But it's funny that when you go away from here you feel so good and when you come back. . . . I remember what our neighbor told us. She said she had constant headaches all the time she lived here. And they moved and she said she has no more problems, no more headaches. So it must be something. . . .

Most of the neighbors believe there was a problem, except we had one on this street that didn't. I hate to say it, but he's not real smart. He believes it, but he can't afford to do anything. He says there's no problem, but he's had all kinds of health problems himself. He says he don't blame it on the chemicals, but I believe maybe he really thinks it is. . . . I think this probably migrates as far as the creeks in the area. I think the problem is as far as the waterways go, they go right out through. I would say it probably carries right on over there across Colvin. I don't know why they wouldn't be affected. . . .

They've had all kinds of investigations. They tested everything. I mean, they was looking. They just went so far and never went beyond. Mainly health problems, they didn't follow that. The state's been pretty much into it, almost from the beginning, because we had a couple of representatives that came to the meetings from the health office. Albany has called here a number of times. As I say, it all sits up there. None of it comes down to the real basics. They wanted pictures we had. They found out, somehow, that we had pictures of this area when the swales were still water. So we sent them the pictures. . . . They were supposed to do research [on health], but they haven't done it. There was supposed to be a grant made for that, to test all the people. And the last I heard, they were going to test a few, a very few. But that isn't started either. I think they're just gradually putting it off. . . . When this all got stirred up in the newspapers, that's when there was supposed to be a big grant for a lot of testing to find out what people's problems were in the area. But gradually that died down. They set a date, then they don't do it. Then they've extended the time. And now, they've cut it down to just a very few families. I think, eventually, they'll cancel it. . . .

They had a blood test over here for people and my records got lost. So I don't know. When they had those tests where they found the problem with people's chromosomes, I had mine tested and mine was good. They sent us a questionnaire, we filled it out to the best of our ability, but that's a very minor thing. You can only put so much down. You really can't get right down to the nitty gritty. It was just sort of cut and dry. I believe someone followed up from this information. Someone called us up. Yes, the

one that got fired from Roswell. She called because she was very interested in the study here. I don't remember her name. Yes, she was very interested. She was on the committee, she's on the cancer section. And there's been so much cancer in the area. . . . I would like to know if all of our health problems are caused by this. It surely isn't normal when the whole street and every member of our family has something. And the chromosome study, how many people were there? About half of them had damage after it was done. . . .

It makes you wonder whether you can believe anything. When they pulled what they did with the sump pump, just a sump pump alone, how can you believe it? How can you, when they try to put a different slant on it and say that it's because of something else or it's normal. With all the deaths of cancer and miscarriages they've had here. . . . The only thing we know is what Beverly Paigen said, the nerve damage is irreversible. Once I wrote to her and she wrote back a very nice letter and that was what she wrote in the letter. And then they wouldn't give her the grant to continue whatever work it was she was doing at the hospital, which was just an indication she was getting too close. I don't know where she and her husband are right now. It sure looks like somebody's trying to cover up something. . . .

I think they were pressed into it, that first relocation. I think so. The media, for one thing, and the people complaining. Then the media got into it and I think that was when they were really pressed into doing something. Well, two or three of the television stations would be at just about every meeting. Sounds very much like it was a way of shutting people up. I don't think they would have did anything if it wasn't for the pressure. They have no interest in it now. All they care about is to get, well, if you want to move, if they had an interest in you, they would have given you enough money to buy a comparable home. But they don't even have that and not even enough to follow up health problems, not enough interest to do that. It really don't seem like anybody cares. . . .

My doctors don't want to say anything. Now I've changed doctors several times, 'cause none of them seem to help. They don't seem to know what's wrong. I don't know whether they know what's wrong. One doctor had me on a tranquilizer for years, 16 years. And I asked him, 'Could it be the chemicals,' and he wouldn't even answer me. He just ignored it. They won't get involved. Maybe somebody did tell them to shut up. They won't get involved. . . .

I just worry about my son all the time. How can you stop it? You raise that boy, you love that boy. He's awfully depressed with his illness he has. His doctors say the same things that my husband's do, practically. There's no reason for it and they don't know. Nerves is another thing doctors don't seem to believe in. Oh yes, you feel like you're lost, making it up. The doctors look at you as though you're making it up, too. This one doctor that he went to for a physical, he wanted him in the hospital. He wanted to check out everything. He did check out everything. This doctor wouldn't talk about Love Canal, either. None of them would. I

don't know why they won't talk about it. Yes, and you go to a doctor and you try to tell him what your problem is and it's hard to tell him, because really you don't hardly know yourself. They look at you strange when you tell them how you feel. . . .

As far as Lois Gibbs and the association, as far as they could do, I think they did a real good job. Some people say she had too much mouth, but that's what you have to have to get anything done. . . . Lois Gibbs was always at the meetings we went to. The homeowners were talking to James Daly, he was one of them, and the mayor. All the town officials were there. They were sympathetic but the trouble with it is nobody seems to do anything. They knew there was a problem then. They would try arguing around it a bit, the politicians, especially uptown, the mayor. The city was being sued so naturally they don't want to say there's a problem, that they know there's a problem. They all tried to help and then, of course, you had people in the neighborhood who want to shout down anybody, so that doesn't make for a very pleasant meeting. I mean, it would have been nicer if they had stood up and had their say and said it right, instead of trying to shout down somebody that's trying to talk. So, of course, there'd be a bit of bickering back and forth, you know. You get all kinds of people at meetings. . . . There was always a sister that came in from the Catholic church. I forget what her name is. I talked to her several times. She was very nice, she was doing a lot for the community. . . .

Some people say it won't hurt you, there's nothing to hurt you here. I think some of the people think you're making a lot of money. . . . They're so far removed from it, though, they can't grasp the faintest idea what it's about. I mean, how do you find out. We live here day after day with it. If there's a way to prove it, if you could take some of the people who don't really believe it and put them in your house and let them go through what you went through, then they would believe. . . . It's not normal in the house. It's not normal to have chemicals. . . . Of course, there's a risk of contamination in the chemical factory because they make all chemicals. But they do everything they can in the factory. We have a physical once a year, a good physical. . . . And you figure, when you're in the plant working, after you go home, you should get away from chemicals. But here, I figure, I'm getting into worse chemicals when I get home than I have at the plant, because they found several different chemicals here, and none of them are good. . . .

You know, what I was foremost, was a parent, not like mothers today that are working and letting their kids run. Something like this happens, none of our kids were ever in any kind of trouble. They were all good kids. Something like this that you have no control over at all and can't help with, there's no way under the sun you can help with, it's sickening. . . . And we don't know what to do about it. I don't know if I should say this but the Attorney General's Office, when he was here, I won't mention his name or anything, he said you should get a good lawyer. He even found a way to give me the name of a lawyer without actually making it look as though he was recommending him. I would like to sue somebody for

all the health problems we've had all our life and I'd like to sue somebody because we've got to leave here. . . .

No, we're not optimistic. If we were younger, perhaps it would be a different story than when you get towards retirement. Another thing you think too is what am I going to wind up with? Am I going to wind up with cancer? What kind of disease is this going to cause? As you get older and the longer we stay here, how much more damage is it going to do. The worst thing is my son, that's the worst thing of all. . . . Nobody's making any profit on it. In fact, you lose, you lose not only money, you lose what you worked for all your life, your home. It's your home and it's the only place we ever lived in. It is hard to leave.

3. This family with two children was relocated from Rings I and II. They had lived there for almost 11 years and considered themselves permanently settled in their Love Canal home. The husband is a skilled factory worker in a chemical plant; his wife is a full-time homemaker. They tend to believe that the chemical migration was highly confined and posed a minimal risk to health.

I would say about two years before we left, a few were complaining, but not down our end. Oh, they had stuff leaking in their cellar and all kinds of gook that we didn't. Then, the last year, right, then it really started. Everybody got on the bandwagon. Complaints started coming in; they were getting this and that. And it seemed to build up more and more, and then you started getting the state coming over and that. And then, all of a sudden, people down our end were panicking. They had all these smells. They had meetings and that, the governor was down, declared it an emergency. We went to that meeting and I was surprised to see all the complaints and the problems the people had at the time. You know, you don't listen to other people. You're in your own house, you've got your own problems.

You know what was hard to believe? We lived in our cellar, we really did. We had three rooms down there. We cooked, we ate our suppers there, everything. And they're telling me that they can't breathe? Now I'm sure I wouldn't have kept my family in an area that was hazardous. We lived there ten years. I fixed the cellar up. Not that we didn't live upstairs, you know. But we spent a lot of time downstairs. I had the same people downstairs at my house that were complaining about their own houses. They used to come over and we watched TV, you know.

They were complaining and yet their readings were not as high as ours. . . . They came in and took a couple of air tests 'cause, see, like I could smell Hooker 24 hours a day since I work for a

chemical plant. So if there was any odor, we were immune to it, I guess. Our cellar was something like .45. No, it was more than that. Well, the guy next door to me was up in the thousands. I think it came to a total of 200 or something. I don't know what it meant. You know, what's your tolerance? They never really come out with a table. Is this standard or is this over and above? Is that parts per million or parts per billion? Everything was kept a mystery. Everything seemed like it happened stupid-like. We bought a bird when all of this commotion was going on, and a couple weeks later, we found the bird downstairs dead. That's what makes you start to think, you know, is there something wrong. I don't believe there's any connection. . . .

They did blood tests. Oh, God, we went crazy. They put my older daughter in the hospital. They thought she was really shot. They didn't know what was the matter with her, because of her reading. Well, that's where I'm making a mistake. That's where we were really bad, more than compared to the house readings. It was our blood counts that were all way off. All of us. My older one and me were about the highest, white blood cells and enzymes. They just put the one in the hospital. They thought maybe she had liver problems or hepatitis. And then our doctor checked her out and said she was fine. So here the state says one thing and we're going against that. Nobody wants to commit themselves, or something. Let me tell you something. They said we all had a problem, a blood problem. But we all went to our separate doctors and everyone of those doctors said there's nothing wrong with us. Yet, the state said yes. Now what do you do? I was getting more calls from the state, I didn't know what to do. They were planning to keep checking my daughter and she got disgusted. She thought, that's it. I mean, the kid's had enough. She just about passed out, 'cause she can't stand shots anyway. She never felt bad and we never thought anything developed. Well, she was always tired, though. . . .

The only problem that we all really had when we were over there is we did do a lot of sleeping. We'd fall asleep after supper every night. Well, I do here, though, I eat and I go and I lie down on the couch, boom, and I'm out. Debbie used to do that over there a lot and I used to worry about her. You know, just laziness, for some reason. Yes, but she never complained about anything, none of us did. As far as sleep, all right, that is like any chemical. It could be a depressant, it could make you tired. I don't know about that.

Let me give you a classic example. Down the block, there was a guy, he retired early. He was active all his life. He hunted, fished. he couldn't wait to move around. The guy never sat still five minutes, yet his readings were up in the thousands. Now how do you figure that? Well as far as health problems, yeah, he died. So he did have a bad problem. He died not even a year after he left the area. I think he had cancer. Whatever happened came on fast, he didn't linger. O.K., he was close to 70, so I think the guy lived just about a normal life. Then, on the other side, they never had any problems. And they started complaining all of a sudden, 'I can't breathe, I can't do this or that.' I said, 'Aw, come on.

You've been there 20 years and never had a problem.' They're what you call complainers. You know, some people just thrive on being sick for some reason. It makes you want to throw up. . . .

Well, there was a series of problems with us. Was it related? I don't know. I had a tumor taken out up here. Another in my nose, one on my arm. O.K., she's having problems, this past year, in and out. Yeah, it was malignant, female. But I'm getting through it anyways. I had the surgery done in the winter and then, after I get done with my treatments, I wind up with all these other infections and problems. I guess they were probably caused from the treatment. It's funny, 'cause when I first had my surgery, three days after, I wound up with an infection and that never cleared up, all through the treatment. Sometimes I think somebody screwed up surgery, but I can't say it for sure. Then I had to have surgery again. I had to have my insides all reconstructed. They don't know what caused it, it's taken a while to get back on my feet. . . . You get through it. Like in the beginning, it was hard 'cause here I was, you got a family, you've got to worry about them, you're not ready to leave, you've got to take care of your family. I think you have to think positive. She's coming along a little bit at a time. . . . It's possible it could be related to the chemicals. I never gave it much thought. 'Cause really, what happened to us could happen anywhere in the country, right? The only thing is, if you take all the cases out of that one area, then the rates are high. Yeah, they were having their problems. Like we moved out and we started with our different problems. Now the guy down the block, that was his problem, right? Yeah, I think he had the same. Then, across the street. Yeah, but she didn't have no malignancy. She just had a tumor out. It wasn't malignant. Or was it? When you cite different medical cases, there's quite a few of the same in that one block. It makes you wonder, but I don't think we've ever worried. . . . If you take this city here and compare it with others, it's really not that bad. The State of New Jersey is in such bad shape right now, it's like a walking time bomb. . . .

We wonder maybe if it's related, but you never worry. Hey, whatever it is, you know you just take each problem as it comes. Everything that's over there, chemical-wise, I work with every day. So to me, it was nothing. It was funny, you know, I work with these things all the time. Now, why shouldn't I have it in my blood from there more so than these other people. I come in direct contact. Well, there's occupational hazard on any job, right? You know, probably a little more, with the chemical thing. It's like crossing the street with a banana peel constantly in your way. But I do know that people have to eat, they've got to work. There's always going to be some hazard. . . .

Half the people over there worked in chemical plants. I never said too much, 'cause I had one as my boss. I'm on the other side of the fence there, you know, and I had to watch what I said. The one's feeding me, you know, I can't stab the one that's feeding me. . . . I got no complaints. I went in there and I knew what it was like. I could have quit. You've got to make a living. So if I take two years off my life, what's the difference. My children have



I said this from day one, over there, and I still believe it. If they were that worried about their families, if they really thought there was a problem, especially down at the far end, and if it was me and I thought I had a bad problem, if I had \$20 thousand invested in the house, the hell with the house. The hell with the money. My family would come first. Right. Health-wise, you'd get out, you'd get them out. But they were concerned, mainly, it was all money. It was a money deal. Well, what's more important to you, the \$20 thousand or your health? I would have lost. I would have taken the chance if I thought it was that bad. I would have just as soon lost the house, let the bank take it. I mean, as long as he's working and bringing a pay check home, you're still going to survive. That is how I feel. And if I thought my kids or I was in jeopardy, but I didn't feel we were. . . . You know what's funny, though? With all these health problems that everybody so-called said they had anyway, why didn't they take a survey of the whole City of Niagara Falls, different areas and that, and see if they can relate it to living there, because this is a chemical city. . . . They went to motels and everything. I mean, we stood right there. I just didn't want to leave. If they didn't work there [hadn't done the remedial work], I'd still be there. I don't say there wasn't a problem, but I think it could have been remedied without us even having to leave. They could have taken us somewhere and put us somewhere for a while and fixed it. . . .

Lois Gibbs came to our house. I thought she was a complete idiot. She's a radical. She's looking for a name for herself. This is right in the beginning, when she was organizing this thing. Right now, she has what she wanted. A little limelight, a job in Washington, D.C. I don't think she lived in the area four years. She didn't own her own home to begin with, that's what somebody said. And then they said she did. So I don't know for sure if she rented or what. . . .

The only person in government whose views we didn't care too much about was the mayor. The mayor was a complete ass in the beginning and he still is. He was afraid to get the stuff into the city. We asked him one night at the meeting what he would have done if his family and them lived there. What was the smart-aleck answer he gave? He said, 'Well, look, you bought it and you're stuck with it.' He really could care less, you know. . . . I think the only ones we really trusted was ourselves, because I felt we'd seen a lot of the true colors of people. You know, all these years that we knew them, we didn't hear any complaints and all of a sudden. . . . But as far as the state, at least with us, I was satisfied. There was one fellow from Albany I had faith in. And I tell you, all those people that came from the state, the Health Department, they were nice. I think, anyway, they were honest. In fact, this one person, he gave me his home number and everything. We used to call back and forth a few times. He was a wonderful person. He was the one that told us, 'You really do have a problem.' And I wound up telling him what my doctor said. He said, 'Oh. Well, you better go check somewhere else.' Then you start to wonder. The doctors say they just don't want to get involved. I feel, if you're sick, aren't they going to try to help you. Are they going to say there's

nothing wrong? My first blood count was low, low all the way through this. Now did I have a problem then? I don't know. I don't think the doctors ignored you, he just wouldn't pinpoint what it's source was. They didn't want to get involved in Love Canal. There could be a lot of offsets from this, if somebody makes a statement like that. It could involve a lot of time in court and these doctors, they're not going to benefit. So they figure they're putting in a lot of their own time for nothing. They don't want to know.

I probably would feel better that I'd know definitely. Maybe my problems didn't come from there, you know. It's not going to make any difference one way or the other now, because it's too late. I already had the problem but, I mean, you're more or less curious, could it have stemmed from there? A lady came and talked to me from the health board because every time you have an operation and it's malignant, they send the information to Albany. I didn't know that. So she came and was asking me different questions and if I felt that it was connected with the Love Canal. I said, 'I certainly don't know.' And she said, 'Why? Do you feel it might not be? You certainly seem like you're not sure.' It's so hard to put in words. But I don't know if it would be related to the chemicals. I thought they were supposed to decide that and then they ask you.

It would be nice to know if it was causing any problem, 'cause you wouldn't put a bunch of homes on something like that again. But what's the knowledge? I really don't know. . . . Nobody will ever know what really went on there. I don't believe, right now, that aside from maybe Hooker, anybody knows what's in that ground. They might know maybe 90 percent of the stuff. But don't forget, it went through two wars. Who knows what it is really. I don't believe anybody will ever know. They'll never let it out. . . . And we'd never know the results of them tests anyway. We didn't know the results of the tests when they took them, when we were there, the air samples, when they had that thing behind our house taking readings and that. They never let us know what they found. . . .

Like I say, you want to know if it was from there, 'cause maybe your kids could inherit part of this, different things from you, if they're going to have these problems or not. I don't think my kids think about it. They may end up dying before they think it's serious. But as long as you're walking around, you think you're all right. I don't know if it's related to health or not to live there. I don't know and I never will [know]. I know I've got a problem [cancer], but who are you going to blame. You just hope about getting better and don't worry who to blame for it. . . . Sure, like I say, there's a few things in there, like lindane, I know it's a killer. I know it's a killer. But, hey, it's like crossing the street. If you know there's a car coming 200 miles an hour, you can't cross. But if you don't know, you're going to go to the other side.

4. This middle-aged couple and their four children lived in Rings I and II for 9 years. In their opinion, the contamination is widespread in the area. The husband is a skilled tradesman employed by a manufacturing firm; his wife is a self-employed service worker who conducts her business in their home. Both husband and wife participated in the interview.

I grew up here and didn't know anything about the Love Canal. . . I guess you really can't pinpoint when we first realized about the chemicals. Something like the year before it broke out, people started complaining about different things. Everybody started talking about it. Somebody had trouble with the gas lines. The pipes kept rotting. The chemicals underground, I guess, ate the gas lines. I wondered why it ate all my fence posts up. Every time I put these fence posts up, they'd deteriorate. They wouldn't even last six months. The wood would rot, even though we put creosote and stuff like that on it. It was unreal, I couldn't believe it. Every day, you'd get up and you could smell -- you'd open the door and you could smell the chemicals. You'd say it must be one of the chemical factories, like Hooker, letting out the chemicals. You could smell it in the air, at nighttime when you're sleeping, and I'd hate the smell. The sewers were outside. You could smell that, too. Everybody kept saying that. Then the guy down the street, I guess he said he dumped stuff there, years and years ago.

This visiting with the neighbors must have been within the last year and a half before we moved out of there. Things started coming to the surface. They started going to City Hall to complain about it. No, we didn't go with them when they complained. They were the ones more like sitting on the, right on the canal, that couldn't plant the grass, stuff was leaking through, and stuff like that. And I thought, I didn't see nothing, 'cause I was right across the street from it.

The neighbors started talking even five or six years before that. The stuff was coming out of the ground. I thought they were crazy, you know? I never heard of a canal. They told me, 'Yeah, it's on the deed to your land.' I said, 'Like hell, it is.' I went home and checked my deed. It said nothing on it. If I'd known there was a canal there, I'd never have bought. I don't know of a soul who had anything on their deeds about the chemicals. They tried to pull that, that it was on the deeds. It wasn't. It was on nobody's deeds.

There had to be something going on. I carried a lot of headaches in that place. I never had headaches in my life. And it gave me an ulcer before it all broke. I was nervous a lot, too. My oldest kid was an asthmatic, very hyper. She was on medicine for hyperactive kids. She used to run around the kitchen table just to

do it, like an animal. Nobody was calm about anything. I came to find out everybody over there was nervous. You'd hear fights and stuff like that. It just wasn't a normal neighborhood, 'cause we live in this neighborhood now and it's quieter. There's a big difference.

There was a lot of suicides down there. It was terrible. My girlfriend, 30 years old, disfigured herself. She just totally cracked up and went insane. This was the summer before it come out about the chemicals. She committed suicide. The guy across the street shot himself. After we moved out of the canal, the lady up the street jumped over the gorge, and another guy across from the school asphyxiated himself in his garage. The nerves were bad, a lot of them. You could feel tension in the air. There was a lot of hyper people, very hyper.

I was a very hyper person over there. I was on medication. I thought, at times, I really was cracking up, thought, what's the matter with me? It wasn't long after we moved in -- I think two years -- and it started. We'd been doing our lawn, we were out in the front yard, and I broke out in this rash. I thought it was sun poisoning. It really was itchy and stuff like that. I didn't think too much of it, just too much sun and heat rash. I was at my girlfriend's wedding, and I started to get sick at the wedding. We left the church and went to her house and I started vomiting. I said to him, 'You better take me home. I'll take a cab home if you don't take me home.' I vomited for 17 hours. I had a headache that lasted seven days.

I went to the hospital because my girlfriend walked in the house and said, 'What's the matter?' I'm crying. I said, 'I don't know what's the matter with me.' My husband decided to take me to the hospital. I guess he was afraid I was cracking right up. That was it. When they took me to the hospital, he didn't want to admit me. He thought I was either cracking up or having a stroke. My speech started getting funny. The doctor stopped me and said, 'Does your face always droop?' I said, 'What's the matter with my face.' I guess one side started drooping so he had me come back the next day, and I had to keep going back to the hospital for different tests. They sent me to a neurologist. My face, by the end of the week, it really hung down. I was drooling out of one side, my speech was bothering me. They had done all kinds of tests, skull x-rays, brain scans. They thought I had a tumor of the brain. My husband came out and hugged me and kissed me. He says, 'You know, honey, they've done all those tests and you don't have a tumor.' Well, I never thought of a tumor.

And all the medicine they were giving me was making me sicker. It lasted seven days, until the couch was twirling around. And the medicine wasn't doing nothing but making me sick, and the migraine headaches, they'd come on just like that. After that, I'd never know when they were going to come on. All that happened right at the end of the week, when we'd been putting in that lawn. It was on a Saturday. We'd finished up, maybe Friday. We were getting shrubs put in and stuff like that. I'd shake a lot. I felt like nothing

was really doing anything for me. I felt very hysterical all of the time. Little things would bother me so much that I felt like I was jumping out of my skin. It was just hard to explain. I stayed on the librium three years. I felt, like after a while, I was addicted to it, and it was terrible. I wasn't myself. I wasn't myself, my own natural self. I haven't been on nerve medication since I moved out of there. . . .

Everybody around was sick, sicker than anything I've seen in my life. . . . A lot of cancer victims over there. A lot of miscarriages, too. Yeah, I had a miscarriage, too. That was about five years ago, before it all broke. I had a lot of hemorrhaging; for two years, I hemorrhaged. I wound up getting a hysterectomy after we moved out. . . .

My son had a lot of ear problems. One time, his ears ran like a runny nose for six weeks. I kept him on medicine. I kept going back in for checkups. He was in and out of the hospital quite a bit with it. When we moved out of there, they did a hearing test on him, because they thought he might have some hearing loss. He checked him out and he said, 'You know, there's nothing wrong with his ear.' He had a hearing test done and it came out above normal. We couldn't believe it because there was a time he couldn't hear anything.

My other daughter had nose bleeds all the time. She was hemorrhaging all the time from the nose. We took her to a nose specialist. He worked three and a half hours in his office trying to stop this nose bleed. It would be all of a sudden she'd just wake up in the middle of the night in a pool of blood. When we moved in there, she'd never had any nose bleeds before. When she started getting her periods, over there in the junior high, she'd just pass right out. . . . One morning, she woke up and was feeling severe pains and kept passing out. I made her lie on the floor so she wouldn't hit nothing, so she wouldn't split her head. Since we moved out of there, she's had no problems. She had a lot of kidney and bladder problems, too. She's been in the hospital with that, too, at other times. She was loaded with blood in the urine. One time, they couldn't believe how much blood. . . . She hasn't been hospitalized for her kidneys and bladder since we moved. She's had some attacks and the doctors gave her medicine. The hospitalizations were all when we were over there. . . .

The kids had a lot of experiences over at the school with the chemicals. You ain't kidding, that sparking stuff and everything else. The kids used to throw these stones and watch them burst into flames. They called them fire rocks. . . . There had to be something wrong in that area. One time, my oldest daughter was at school. She was over there playing with her girlfriends. They found this chalk, they were writing on the school ground. It was powdery and I guess they threw it up in the air, and it got in her eyes and her hair. She came running in screaming. You could smell the chemicals. So I got a sample of the chemicals to take to the hospital with me. We got to the hospital. They irrigated her eyes. They tested the chemical I had brought in. It was some kind of

pesticide. My girlfriend was with me and she was wearing contact lenses at the time and didn't realize that some of this stuff had got into her eyes. It warped one of the lenses and caused an ulcer to her eye. As a result of that, she can't wear contacts any more. They notified the police and sent the fire department over to the school to get that stuff off the playground. . . .

We never had chemicals coming through the walls of our house. You know, we got used to living in the house, so the odor could have been there all the time. We didn't know. We got used to it. Different people would come in and say, 'Gee, it smells just like the plants.' But I just shrugged it off. They come in and done tests on our sump pumps and took a reading. That's when they found high readings. That's the first we knew there was any trouble with the sump pump. . . . Yeah, they did air tests and everything in our basement. I had to go over and get the results. They wouldn't mail them to you. We had high readings, toluene, benzene. They didn't test for dioxin around here in any of the houses. Yes, there was chloroform, and I don't remember what else. They just give you the numbers and you kind of figured if they were high . . . They tell certain people you couldn't go in your cellars for any length of time. They told me I shouldn't go down there unless it was absolutely necessary. They told me that when they were doing the readings. . . .

I got a puppy for my daughter. The dog would never go in the cellar, and if I'd go down there, she'd cry. We'd take her down to bathe her and she'd jump right out and go upstairs. We'd take her biscuits down there, and she wouldn't go down there. She'd run upstairs and cry. I thought, what a big baby, she just wants to be upstairs. When we moved out of the Love Canal into another place, and I was down cellar washing clothes, the dog goes running down, prancing around the cellar and everything. My daughter says, 'Ma, I bet she smelled the chemicals even before we smelled it.' I said, 'I'm beginning to wonder.' Well, I had to go back to the other place 'cause we were still moving things, and the dog wouldn't go in that cellar. I notified the state about it, and they checked her out and talked to me and everything. I told them, I said, when we moved into this place here, 'If that dog don't go into the cellar, I'm not even buying the house. There's no way you'll get me in, 'cause she knows more than I do.' . . .

But they never tell you, these doctors in town never say anything. They've been given orders not to say anything. Well, one doctor at the school, he says to me, 'You can't really smell chemicals over there.' I said, 'You know, it's not what you smell. Some of your most dangerous chemicals you can't even smell, but how do you know what they're doing to you.' And he said he worked over at the school and he knew. I think he lost his sense of smell years ago, that's why he can't smell anything. That's why the school never had a cellar. If you put two and two together, at the time, I should have known what it meant that it had no cellar. . . . But chemicals can do a lot of things.

It was in May they started talking about moving people. It was in May they did the blood tests. We figured out that was why they wanted to do these blood tests, because of all the sickness. We found out what the chemicals could do just talking to different people, asking them what they work with. Different people, you know, that worked in chemical factories. . . . A friend of mine, her husband worked at Hooker and he got cancer. People were dying at a young age. There was a lot of cancer and stuff like that. Nobody wanted to do a thing about it. They went to City Hall, they called the news and the radio in Niagara Falls. I know they got hold of the Gazette. Everything was talked down.

When it first started breaking out, people were in a panic. There were people with bad respiratory problems. The doctor wanted them moved out right away, but they were only taking the ones that were pregnant and had children under two. It was just like a living nightmare. Then Governor Carey came and said, 'I'm going to put your minds at rest. I'm going to take the homes adjacent to the canal.' I know I heard the Governor say that. The next day, I went back over to the school. I asked three different people, 'Are you taking our home?' They said no, they were not. I went door to door and said there's an emergency meeting at the school. They're not going to take our homes. We're going to be stuck in here like a concentration camp, with a fence all around us. There's no way we're going to get out. I'm not staying here. I'm protecting my family. I want out.

Some people didn't want to move. Some people didn't want to leave their homes and everything. I didn't want to stay there with my family, with their lives in jeopardy. That night there was an emergency meeting. We had this guy from the state backed up against the wall. One guy's yelling, 'If you put a bulldozer here, if you start cleaning this canal, I'll blow your brains out. My wife's dying, she's got cancer. You think you're leaving us in here, there's no way.' For three days, I don't think anyone slept in that neighborhood. They called an emergency meeting, called the people back over to the school. This was before Lois Gibbs ever came in.

My husband did not want to leave his home. No, why should I go into debt three times as much as when I come over here. But I did change my mind, all the sickness and stuff. . . . I said, I'd better get out of here. It was the children. . . . I can see normal sickness, but every week, every week. . . . My oldest daughter had just gotten married. She was expecting a baby. She couldn't come into the canal. When it broke out, she couldn't come back in here, being pregnant, and I knew I wouldn't be able to see my grandchild. . . . When my daughter was pregnant, they told her not to nurse her baby, being that she was from the Love Canal. Like they say, dioxin and all that stuff will store up in the fatty cells of your body.

The pressures were terrible all day long. You'd get a phone call from the school saying bring your daughter right back, she needs another blood test. She must have had five of them. They wouldn't even tell you the results of the blood test. They wouldn't tell you nothing. You wouldn't know, nobody knows still. I took a

breathing test over at a clinic with a machine and they never told me about that either. They sent my report to my doctor but they said they wouldn't tell me. My doctor wouldn't tell me either. I asked him and he never gave me a straight answer.

Then after I had just come home from my hysterectomy, and my kid would come home crying every day. She'd be nauseated. She complained of headaches and that. I thought, wait a minute, I heard they were doing tests for radioactivity in there [93rd St. School]. I'm going to call my doctor and ask him if radioactivity causes kids to get headaches and nausea. She'd never complained of that before. He said, 'Why are you asking all these questions?' I said, 'There's something wrong with her.' I took her in and they ran tests at the hospital. They done blood tests and everything else, and he came back and said, 'Well, we found a virus in her blood.' I said, 'What does that mean, Doc, you found a virus in her blood?' He said, 'Let's put it this way, when we don't know what it is, we call it a virus in the blood.' They didn't do anything. He said it wasn't radioactivity, that's what he said. Even the blood tests, you'd think a doctor would tell you if you had something wrong with you. After all, they're messing with human life. . . .

When the Love Canal mess did break out, that doctor, Vianna, from New York City, he was over there in the Health Department. He come over to the house, him and one of the nurses, to check her out. . . . When I filled out the form about medical problems, I just kept going, page after page after page, with the kids. I took a shoebox full with all my doctors' bills, all my prescriptions, for my whole family. They couldn't believe it. The guy was shocked. I said to him, 'How would you like to pay all of that out?' . . .

See, most of the people in the Love Canal were from Pennsylvania. What the hell did they know about a canal. But they were smart chemists at Hooker. They knew what they were doing when they dumped the stuff in. They've been dumping the stuff in the river for years and years. I know people that work there. I know a guy that worked at Carborundum. He says, 'I'm going to call and report them in. I'm watching that stuff go down the sewers, and that's going into our rivers.' But he can't report it. He'll lose his job. Nobody in the plants could say anything. There wasn't much protecting the fellow workers that worked there.

Love Canal scared Carey. It's politics. It all has to do with politics, that's a known fact. When Carey came out here and he took the Love Canal, those 239 homes, he was running for re-election. All right, they took the rest of the homes when Carter was running, and Carter made a little trip here, too. Now sure, the federal government, they can take more homes because they have more money than the state government has. So that's the difference. That's why we got out.

When you moved away, you felt a hundred percent better. I don't have headaches. Over at that place, gee, I never had so many headaches in my life. . . . Yeah, I feel better now, mentally and physically. I learned one thing, that when you live in a house,

things are just material things. The most important thing is your family and your health. No money in the world can buy health. You just don't know about the kids now. That's why I wish they'd do a chromosome test. They were supposed to do it and the government cut out the funds. I would definitely like some follow-up on the health stuff. I don't think the information we have is reliable. How could it be? You can't believe all of them. They don't even give you doctors' reports or nothing. I don't know if there's anyone you can believe.

5. The speaker in this interview is a woman in her 30's who lived in Ring III, south of Colvin Blvd., for about 10 years. At the time of the relocations, she was living as a single parent with her young child. She works in one of the allied health professions and, in her opinion, chemical contamination was neither widespread nor serious in the Love Canal area. She regards the first relocation as precautionary.

I couldn't even tell you what year it was. I never looked into it or got that much involved that I would be able to say that there really could be a problem. The thing just kind of turned me off. I saw it in the paper every day, I saw it in the news, and I was just so sick of it. And every day I came home from work and there was something in my door. . . . I do remember my daughter asking me once it got into, you know, when the people were becoming hysterical about it, and the kids were going to school, and telling my daughter that they're all going to die. She'd come home and ask, 'What's going on, Ma? Are we going to really die?' I said, 'Oh, God. . . .' I know there were a few parents who really got worked up over this, and it went through their children and of course they're like a mirror of their parents. Of course, emotionally they couldn't handle it as well as maybe their parents were, and they were becoming upset and trying to upset the other kids in school. . . .

No, that first relocation didn't alarm me at all. I felt it was like a precaution. It wasn't exactly that they were in danger. I thought it was more of a situation where something could happen, so why don't we just alleviate it now before something does happen. This happens a lot -- as far as taking things off the market -- it could cause this so we'll just get it off. I didn't feel threatened by it. I felt it was a precaution, they were moving people and perhaps there is something there. But even now, I question the people that lived in the area. . . .

I think it was just mass hysteria, it seemed to me, like as far as these people, that's why I've never gone to the meetings or whatever. You know, I feel you should be involved in the community, but it got to a point where people were just irrational, hysterical. The people that did attend the meetings were screaming, and, to me,

you don't solve anything by screaming at somebody and crying. It was a little too emotional. And they just got too worked up over it. I, myself, didn't feel it was an 'I'm going to die tomorrow' type thing, like these people were trying to come across. I think they just became too worked up. . . .

Well, I think, first of all, when the first ring was moved out, the primary center there, I feel it was an election year. I think that had an awful lot to do with it. I became more disgusted with the people that were almost pressuring you into attending these meetings. You've got to go to work in the morning and they'd be picketing somewhere and I couldn't even get through, as far as being late for work. This was aggravating me. I thought, my God, that's all you've got to do is stand there in a picket line? I've got to get to work. And I was thinking to myself, 'Don't you people have anything else to do?' It was to a point where some of them spent full time on this whole thing. I don't think as far as the residents are concerned, they handled it rationally. It was more emotional. Like when I would look at TV, they would bring their kids there, to have their kids cry on TV. To me, that's a lot of emotional hype they were putting across. And I heard, people not knowing that I was from the Canal, remarks saying, 'Oh those poor babies there, poor children.' I'm thinking to myself, 'Oh my God,' you know? And this is a lot of people, they base their opinions on emotion. I really don't think these people knew any facts, as far as the chemicals, any more than I did. . . .

I don't think anybody will ever get them or have them, the facts, I mean. These people, as far as the residents, one of them lived near me and I know he was the worst. I think he was the type that would sue anybody. He was always out for the free buck, wanted something for nothing out of life, trying to get compensations. You know this type of person, wherever you can get a free handout, he would take it. He was one of the most avid supporters of the residents and it wasn't like he didn't have something he wanted out of it personally. Living in the neighborhood, you know some of the people and they were the worst ones, as far as television-wise, newspaper quoting and things like that. This man came off as being an expert on chemicals, on this and that, which, if you know the man's background, he couldn't be an expert on fixing your TV, let alone on chemicals. . . . I saw that with the Love Canal. You found out that the people that were unemployed, people that were on welfare, were the ones who were really causing the most trouble. . . . It was a situation that I really didn't have any opinions because I didn't know any facts. . . .

You could see a chaotic situation really growing, people who were on the fence didn't really know what to think. They were tending to listen more to their surrounding neighbors, who were probably panicking at the time. And, of course, it was like a lot of situations -- this guy starts and tells his friend and all of a sudden it's like this guy following, like Chicken Little. That's what the whole situation reminded me of. It was almost like a problem in itself, the way it was encompassing the whole area. People were beginning to panic. They wanted to get out, they were

getting themselves into such emotional turmoil that they were losing weight, weren't eating. They were causing a lot of their own problems from the experience. A lot of people started saying that it was causing psychological problems. I would tend to believe that it would be the panic that was causing their emotional and probably some of their physical problems. . . .

But I think that's the whole summary of the Canal. Everybody knew what was going on and when you got right down to it, nobody knew what was going on. Everybody had their opinion, but nobody had any hard fact. As I watched the TV and the people at those meetings, it was all based on emotions. . . . It's like I really couldn't get worked up over it 'cause, like I said, I really didn't know the facts. I wasn't completely informed. . . . I didn't know that much about the canal itself, or the chemicals that were there, or anything specific, to have an intelligent opinion about the whole thing. . . . As far as the chemicals that were in there, I didn't know where they were located as far as where I was situated. I didn't look into it that much to know. . . .

As I said, when you lump everything together, as far as looking at the physical aspect of it, I don't see anything that really supports what they're saying. I've never seen any statistics, of course, but I understand there was supposed to be something to do with cancer in the area. But I'm questioning where they got their statistics from. Did they also sample a group that lived in a heavily industrialized area, as compared to someone further away that doesn't experience the chemical fumes, even the carbon monoxide things from the cars, traffic, you know. I think they're too biased as far as their studies are concerned. . . . When they were doing the chromosome studies, things like this, they take everything at face value and don't compare it to anything. They will take a study or a statistic and say, well, anything they want [to say], and show them this paper, and they'll say that's God's law because that was done for this report. How can that be wrong? How can you question it? But you know, it's like I say, I never really got into the study of the whole situation as far as the chemicals, or anything like that, and I've never seen any proof. . . .

From working in the health field, I knew a lot of these people as far as being residents in the area, and they had been alcoholics since you could remember. Now, they're trying to blame the liver damage on the chemicals. It kind of discredits a lot of these problems people are bringing up. I'm not saying some of them may not have been caused by chemicals, but I know that a number we have seen of these people, I'm sure the liquor had a lot to do with it. When you drink a pint or quart a day, it's got to have an effect. But I mean, as far as any real physical problems, I've never seen statistics as far as the canal goes. . . .

But really, I question, like, the credentials of the people that the residents would hire, as far as, I think they hired them on a bias. This type of thing -- are they going to be on my side or not. I think this is how they took their priorities as far as getting people in to investigate the chemicals. . . . I don't know

her [Dr. Paigen's] qualifications, personally, as far as what her background is, what the study was she did, if she's ever had any research experience, academic-like. Maybe I look into things a little too much because I really form an opinion, but I find that, to jump to a conclusion without really knowing, something could be wrong. . . .

I can see their point as far as not trusting the government. I mean, things have happened, especially in the last ten years, as far as the government goes. I think at one time people felt, well, if the government says something, it's God's law, where it's not that way any more. . . . Well, as far as the government, they're going to give you what they want. I don't know if they'll ever really get to the bottom of this. As far as I'm concerned, the government will let you see exactly what they want you to see as far as reports, statistics, this type of thing. . . . I think if the government was to release full information, they would really start a snowball in this country as far as chemical waste was concerned. Because if it ever came out that, like, Love Canal was severely polluted and really destroyed the area in which these people were residing and these physical problems were caused by these chemicals, I mean, there's no saying where this could ever end. In a way, I think it would probably be best if they never got it out, because there might be two people who really have a problem and a situation that was caused by the chemicals but you're going to have another 300 that are going to accuse the government. That's the way people are today. I think the consequences could be just devastating, especially with the financial situation of the country, with the recession, unemployment, people are going to want something for nothing. . . .

If it really is very dangerous at Love Canal, I think it's something that I wouldn't want to know. It would be hard for me to really believe that I was in danger, if you know what I mean. My daughter, she lived probably most of her life there, the first nine years. And physically, mentally, I mean, she's got a learning disability. But I'm sure it's not caused by chemicals because it's probably inherited more than anything else.

No, I never had any tests done in the house. Like I said, I couldn't see any reason. I never had any leakage for it. We had a dry basement. . . . Chemical-wise, I never had any problems until they started to dig. I mean, as far as from what I understood, there were supposed to be problems that were caused by leaching or whatever. I don't know what it was but as far as smell or anything, I never smelled anything until after they started to dig. I was yelling at my daughter when I went out to go to work one morning because I thought she'd gotten into the gas for the lawnmower. Then I walked around the house and realized it wasn't any one area. It was the whole area that smelled like that. That was the only time I ever really smelled anything strong. I had no odors or leaking in my home and I didn't know anybody who did.

The only thing, they used to kid me at work. My face used to be scaly, like peeling all the time. They always knew if I wasn't home that week-end or something like that because my face had

cleared up. When I was home, my face would start breaking out again, but that's the only problem I had. And I probably wouldn't have realized it if they hadn't brought it to my attention that this was happening. I really don't remember much about it, but my problems started after they started the digging. I was upset because I thought if they'd left it alone, we'd have been fine, as far as my situation was. But, of course, from what I understand, it would have gotten worse if they had left it alone. I don't know.

But I've always been very sensitive to anything, even Clorox, when I use it. I mean, it's not like I'm your average person, as far as being sensitive. . . . Even working in the hospital, there were chemicals that I couldn't go near because of my sensitivity to them and I stayed away from them. No, I don't think it was necessary to post any information about them. In my situation, these chemicals weren't hazardous, as far as internally, but they were absolutely necessary to the work I was doing. If I had any information, it wouldn't have changed my situation at all. I'm still going to be working there, there's no way they're going to eliminate these chemicals from my work. They have to have them in there. It was just being around them, the vapors and things caused a lot of irritation. It was the same skin problem. Unless you go through extensive testing, patch testing, which is very time consuming and expensive, there would be no way I would have known I was going to be allergic to that stuff. As far as working there, we worked it out so that somebody else would take over the clean-up. I think as far as health risk, I was probably an exception. Probably three or four hundred people could have worked with that chemical and never had a problem. It's just that I have this sensitivity. . . . Maybe there should be some restrictions, but how far do you go before you really undermine the whole industrial situation. Really, I think the responsibility almost has to be on the individual.

Nobody I knew in the neighborhood had any real fear of contamination. As far as the neighborhood, I don't know how it got going, or who got them to buy those houses. But, I mean, once you were faced with the situation, to either sell now or keep your house, you had no choice. I mean, even the people who felt they wanted to stay, couldn't. The biggest priority as far as I was concerned was property value going down. The chemicals had almost nothing to do with it. . . . As far as selling the house, as far as my situation goes, I mean, I had a lot of mixed feelings about it. I didn't have to sell the house as far as getting this house here because my husband had already bought this before I even left the other one. But it was a situation where I couldn't even rent it, because I thought, 'Am I going to be held personally responsible if some guy turns up with cancer?' Even if it's not related, is he going to sue me, you know, this kind of thing. So, as far as keeping the house, it would have been crazy, when they did buy them. But if they hadn't bought the house, I wouldn't have minded that either. But, like I said, I'd hate to rent a house and have them accuse me, because a lot of people are really getting on the bandwagon. . . .

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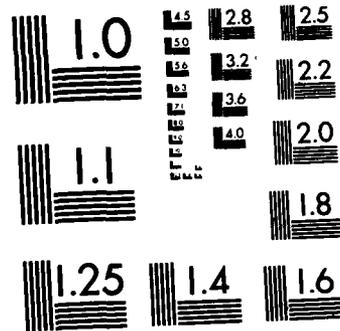
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That's why I say I don't become worked up over this. I myself, am physically, and my daughter, is fine. And I never had any terrible problems as far as leakage and stuff like that. It sounds like I'm very selfish, saying, well, I never had any problems, so I don't care about [other people]. It's just that I have nothing to go on -- like the man next door, he died of cancer. How that would be related to chemicals, I have no idea in the world. So it's really hard to have an opinion. If you sit in on a debate and listen to the pros, they're certainly right, you can't challenge them. Then you listen to the others, it's the same situation. You really come to no conclusion at all. I feel terrible. I'm sure there are problems in the area. And there's a big question mark whether they're related to the chemicals or not. I want to know exactly how they can prove what the chemicals can cause, I'm not saying they didn't do it, but I'd like to know the procedure they're going to use to prove it. As far as doing more health testing, I think I would have to know how they're going to go about it. I think there's been an awful lot of waste as far as studies go. . . . This is the whole thing, what it comes down to. Nobody's ever been able to prove anything and I don't see where they're going to be able to prove what these chemicals have caused. . . .

I can't say I ever do worry about the possible health effects. I take things as they come. I never worry about things that could happen. That's the way I've always been made up. I'm not going to worry about if I'm going to eat three years from now. I worry now about next week. . . . The situation didn't make me mad. It inconvenienced me, that's probably it. If you went to someone's house and they knew you lived there, they'd start talking about how 'Oh, that's terrible.' You really didn't care to talk about it because, as far as that went, you were fine, the family's fine. I mean, it was on the news, like I said, every night. Papers full of it all the time. It's just one of those things that you got tired of hearing. . . . I really don't know anything about it. I haven't kept in touch and, usually, when I see something about the canal, I don't read it.

6. This couple lived in Ring III for about twelve years before they relocated. Both are in their middle years; they have two small children. The husband is a college graduate, employed in the public sector. His wife works out of their home. They believe contamination is widespread in the area.

My husband remembers when that canal was an open canal. He used to swim in it. He said his mother used to tell them, when they came home, they smelled like the sewer. . . . But I wasn't aware, I didn't know what the Love Canal was. I lived there for 12 years and I'd never heard of it. That spring, I saw some government cars and people there on Frontier Avenue. We used to ride bikes through the

area and you could smell it. And I used to wonder what it was you could smell. It was a very distinct chemical smell but, heck, that was three or four blocks away. It didn't bother me. I didn't smell it at my house so I never got particularly concerned. I was just curious as to why there were U.S. Government cars parked over there and some people with those survey machines, equipment, and so on. . . .

It wasn't until the summer of '78 that I was really aware there was a problem. When that canal thing hit, August first, I went over to my neighbor and said, 'Hey, I don't know what this whole canal thing is about, but you can bet it's going to affect our property value. There's a meeting tonight, why don't you go?' He said, 'We lived here for 40 years, don't get worried. There's no problem.' I said, 'I don't know if you folks are aware, but we're expecting another baby and our older one has a lot of birth defects. And I don't like the sound of them moving pregnant mothers out four blocks away. We're going to get involved.' . . .

As soon as we heard that they wanted expectant mothers and children under two removed in Rings I and II -- because of the high birth defect rate, because of the risk to the fetus, because of the excessive amount of kidney disorders, heart disorders, digestive disorders -- we thought, 'Oh God, that's exactly what's wrong with our son, heart, kidneys, pancreas and bladder. All of a sudden these things are hitting you off the front of the newspaper and they're talking about your neighborhood. I said, 'I don't believe this. It makes sense, that's what's wrong with him.'

He had a urinary tract obstruction that's been repaired. He had another kidney surgery recently. Originally, it was a birth defect, and the second time they repaired this, it was because there was an obstruction in the urinary tract, scar tissue. And they had to repair it again for a third time. He has a heart murmur. When he was a pre-schooler, finally when he could talk, he would tell you, 'Mommy, my tummy hurts.' He'd come in from playing, he'd be white as a ghost, doubling over with pain, and his stomach would bloat up like a balloon. The doctor said it didn't have anything to do with his kidneys. He sent us to the gastroenterology clinic. They did so many tests on him. Finally they said, 'He's doing this to get attention.' I just hit the roof. I said, 'A kid cannot turn pale to get attention. He does not bloat up to get attention. He's an only child. I do not work, he is not lacking for attention. There's something wrong with this boy.' They put him back in. He was in every two or three weeks. He was doubling over, he'd wake up crying that his stomach hurt. Finally, they determined that his pancreas did not produce enough enzymes. He didn't produce enough to digest the lactose and sucrose in the diet, and the undigested sugars would turn to gas, which would cause him to bloat, which caused the distress. His waist would be two inches smaller in the morning than at night. . . .

It was a nerve disorder of the pancreas. It's something he has outgrown to a degree. He could not tolerate any milk or sugar in his diet and was on soybean milk until about a year ago. . . . When

he was a baby, he would throw up all the time. I really think that part of his fussiness as an infant was because of his intolerance to milk. It was not recognized as such and, I think, today that's why he gets allergies to a lot of things. He can't breathe worth a darn. . . . He has allergies to pollution, air pollution, house dust.

He seemed to be the sickest kid around. We were always broke with doctors' bills. We thought all kids were sick. But we found out, after we got out of there, how much our doctor bills decreased. Our kid was sick so you didn't think anything of it, except that when I would talk about spending a hundred dollars a month on office calls and prescriptions, my girlfriends would say they didn't spend a hundred dollars a year. I couldn't believe it. I believe it now. . . .

We had no idea when we bought the house. When they tested our house for chemical readings in the basement, the first time they tested it, they sent back these little computer forms giving us names and numbers. It didn't mean anything to me. I couldn't pronounce the names, and I didn't have anything to compare the numbers to. Were they on a scale of one to ten? One to a million? It didn't mean a thing. So I called a person who had a doctorate in chemistry and was in charge of an industrial chemistry lab. I called him up and said, 'If I give you the names of some chemicals and some numbers, can you tell me what they mean?' He said, 'Well, give me a try.' I spelled off these words to him, chloroform, trichloroethylene. I can't remember all the words, there were about five or six of them. He said, 'Why?' I said, 'Well, you've probably heard of the Love Canal. These were the readings they came up with in our basement.' He said, 'Can you smell anything down there?' I said, 'No.' He said, 'All right, I'll call you back.' So he called me back a couple of days later and he said, 'My God, your chloroform reading is so high they wouldn't allow it under OSHA standards in the chem lab. That chloroform would be allowed only in a pass-thru area.' I said, 'That's in my basement. I'm three months pregnant and I've got a kid with multiple birth defects and we're fixing up the basement for a playroom.' He said, 'My God, how can the state tell you to stay there and you're pregnant. Get the hell out of your house. I wouldn't spend any time in that basement. And the only thing between that basement and your kitchen floor and your living room floor is about two inches of wood. If I were you, I'd fight to get out of there.' . . .

We never smelled a thing, never. That's the thing that's so frightening, that you never did smell anything. But when you think about it, chloroform or natural gas is not detectable either, so it did make sense in those terms. Then another thing, when they came back -- we made a stink after we found out what those readings meant, us and some other families -- they retested and all our readings dropped to zero. I say, 'Isn't that interesting? Now who do I believe? Do I believe a friend who is telling me, who has nothing to lose one way or the other, or do I believe the state that all of a sudden my chemical readings dropped to zero?' I said, 'I want out. I'm not staying here to find out.' . . .

There was no doubt in my mind that I wanted out of there as soon as I heard that somebody somewhere along the line had determined there was a high risk of birth defects and danger to the fetus, and I was pregnant. I knew what my child had. I wanted out. I liked my house, but I didn't like it to the degree that I was going to stay there and fight for it. I wanted to get out of there, because, to me, you couldn't put a price on your child's health. I had seen what happened to my son and I couldn't prove one way or the other that it was a direct result of the Love Canal, but I was convinced enough that it was not worth staying there to find out. Whatever the price was, we had to get out of there. . . .

We were very active. We lost friendships with some people who didn't feel there was any problem there and that you were just doing it to sell your house, or to get out of there. I personally don't care, because I feel that I was right. I will never change my mind. I feel that it is a health hazard. I would not wish anybody to go through what we went through. You couldn't make plans, you couldn't do anything. You were waiting to find out if somebody was going to buy your house. . . . And I know that Lois Gibbs was criticized by many people but I give her a lot of credit. She really personally got everybody out. . . .

It was strictly a political issue for the mayor. He had no compassion for the people who lived there. He covers it up. His job is to promote tourism and bring people into the city, not chase them out. He's looking at the tax money, public image, what's happening to the city. You see Love Canal? Niagara Falls is in the background, eight or ten miles from Love Canal. So he didn't like the implications, the national coverage. He tried to down play it at the expense of the people that live there. He could have been more helpful with the political contacts and phone calls that he could pull as the mayor. He could have used his influence to our benefit. . . .

We finally got moved out of the canal in February of '79, just after the baby was born. They came out with the February directive to expectant mothers outside of Rings I and II to be removed because of the hazard to the unborn child. Well, I just sat down and cried because I had a two-week old baby. I'd been out on the picket line fighting, my husband was out on the picket line at five in the morning. We wanted out in the worst way. Axelrod, who was the health commissioner, had told another girl that she was in no more danger than anyone else, even though she was seven, eight months pregnant and lived right across the street from the fence. Then less than a month later, they came out with the announcement giving us the chance to leave. So, of course, there was a lot of mixed feelings, anger, and frustration. . . .

I don't think anybody should live there. I don't think that they'll ever be able to say that the area is safe. There are waterways. Have you looked at Dr. Paigen's health studies? You see the overlays of the map, of the swales through the community. You can definitely see a pattern of illness lining up over the swales. You'd have to be a fool not to. I did some calls of my own

for the Homeowner's Association, we were looking for people with visible evidence that you could show to a committee coming through the area for revitalization. I called different people that had leaching in their basements and mold on their walls, and different smells in their homes. I mean, I'm no scientist but when you can see it lining up in the same block, street after street, you've got to know there's some kind of pattern there. All these people got black ooze coming through their cellar walls. Something's got to tie up. That's why I think there was dissension between people. One group of people thinks there's no health hazard because they're out of the swales. There's another group of people that line up across the canal area that is having health problems and having all this leaching in their basement. So they see it differently. It's running through the area in a ribbon effect, or whatever. . . .

The county health department was useless. I don't know if it just overwhelmed them or it was beyond their capabilities. But it wasn't until the state health department came in that they really started getting some action. As far as the medical community goes, I really expected we would get a little more support from them than we did. They've been treating all these families for years and only one or two family doctors stepped forward and really said anything. The others refused to get involved. They're licensed by the State of New York and, indirectly, the New York State Health Commissioner has something to say about their getting their licenses. They also don't get involved because they say there's no significant level. It's not something like an epidemic spreading through the community. These diseases are not unknown in the general population. Our doctor said that the children in that area are no sicker than children in other parts of the city. . . . Well, they probably really don't have any significant evidence. They probably have never done a survey within their own practices. I think they'd be surprised if they did, because the survey that Dr. Paigen did showed significant health problems showing up in clusters along the swales that ran through the Love Canal community. I'm sure if the doctors would get involved and do some kind of survey, they would see the significant health problem there. It's not something that's showing up like an epidemic, measles or tuberculosis, or something that's going to be documented because they're required to take note of these kinds of things. So, in that respect, they're probably right. It's nothing that isn't seen in the general population. But when neighbors start talking to each other and realize there's an unusually high number of miscarriages and birth defects and kidney disorders and so on, somebody somewhere has got documentation. But certainly your own doctors could be the best proof, because they're fighting the illnesses. . . .

I really resent the EPA not coming out and making some kind of government statement. It's disgraceful the way they've handled that. A lot of people, I think, wanted to stay there. Fine. They're adults, they're intelligent people. They have two years to think about it, read about it, see what's going on around them. But I don't think that the EPA has helped at all by not having a reasonably prompt report. They really seem to be backing off, waiting and waiting to soften the blow, or downplay it, or what.

You always had the feeling that they were spoon-feeding you information. They'd come out with a little information and everybody goes all crazy. Then everything kind of dies down. And they come out with another little bit of spoon-fed information -- 'no significant level,' this has happened, such and such has been found, chromosome damage in people and so on, but there's 'no significant level.' They always quote this 'no significant level' until you'd like to throw it back at them, you're so sick of hearing that. And always on Friday afternoons, so there's no government agencies open after five o'clock. . . .

It's been very disappointing the way the information has been disseminated, how it varied from agency to agency, tests. We are very skeptical about any of their test results now because I don't think they've been completely honest. I think that a lot of times they give you half truths. Like having them read the house and saying it was a low level and then finding out from another source it was not a low level. After that, I don't care what they tell me. I don't care what they tell me about the health effects of Love Canal. I'm convinced that it did affect my son and will affect him and will affect me for the rest of my life. Physically, emotionally, mentally, financially. The total impact of the thing is something you will never recover from.

These cases are not intended to be viewed as standing in opposition to one another in terms of the "merits" of their respective positions. Rather, these lengthy excerpts from the in-depth interviews are presented to illustrate the integrity and cohesion of beliefs relevant to the chemicals held by these individual families. Beyond illustrating their integrity, however, the excerpts also suggest that the belief system of each individual family can be profitably considered in terms of the social system represented by the family. Thus age, household composition, residential history, occupational status, occupation-based philosophies of risk, and financial considerations are variously prominent in shaping the perceptions of each family.

Yet underlying the apparent variability among the families are commonalities that organize the perceptions of the "believers" in contrast to the "non-believers." Unlike the three "believer" families,

the three families that share the view that chemical migration and risk are likely minimal also share the conviction that they have experienced no adverse health effects attributable to the chemicals. In addition, the social systems of the two types of families are embedded in differing and distinctive value systems which appear to frame their perspectives. "Non-believers" espouse a highly individualistic and meritocratic set of values. They are defenders of the status quo, and subscribe to the view that life in present-day American industrial society is inherently and pervasively risky. Accordingly they hold that the major burden of responsibility legitimately resides with each family to secure the information and resources necessary to safeguard its own welfare. The "believers," on the other hand, live in less privatized and more sociable worlds. They articulate an inextricable linkage between individual and collective welfare and an expectation that the polity properly stands for the interests of the individual where these would be compromised or jeopardized by the interests of the industrial order.

The excerpts additionally provide a basis for exploring the different ways people processed evidence in support of their perceptions of the extent of chemical migration and hazard. While evidence was not available to homeowners in the form of a complete and conclusive data base, all residents did share access to some basic data elements: the NYSDOH emergency declaration of 2 August 1978; informational meetings held locally; media reports; the periodically visible evidence of leaching at the canal site; and the subjective experiences and claims of other residents. Notwithstanding these common referents, there are striking contrasts between the two types of "believers," depicted most

fully in the six cases, in the amount and kind of evidence they invoke, the initiative taken in the search for evidence, the degree of involvement in informational meetings, and the legitimacy accorded to the evaluations of other residents.

Those three families that believe chemical migration was widespread and serious cite extensive contact with and awareness of the chemicals on their own property as well as in the wider neighborhood. Their search for information took the form of regular attendance at meetings, called by both officials and residents. They describe a pattern of persistent questioning of officials and other authorities regarding the management of the situation in their neighborhood. They were attentive to and welcomed opportunities available for health and environmental testing. And they were insistent in seeking clarification of test results from doctors and other experts. Finally, each of these families is in possession of its own Love Canal "documentary," formed from first-hand engagement with events as they unfolded. From these they then constructed "identity pegs" for the official actors connected to those events. (See Goffman, 1963:57)

In comparison, the three families that felt the problem posed by the chemicals was a limited one kept themselves at a far remove from both events and information sources. Their accounts of "what happened" are vague and contain few inquisitively based details of the "who, what, where, when" variety. In part, they tend to minimize the suggestion of hazard on the grounds that it contradicts their own experience and the experiences of significant others. Alternatively, they maintain that those experiences cannot be construed in terms of chemical hazard. For the most part, however, families that believe chemical migration was of

limited seriousness do not so much marshal a body of evidence in support of their position as they discredit any and all claims that migration was widespread. They discredit those claims primarily by categorically discrediting the people who made them. The "believers" are variously stigmatized as liars, cheats, crazies and radicals. The construction of their identities as illegitimate renders their opinions illegitimate as well.

While the stranger is present before us, evidence can arise of his possessing an attribute that makes him different from others in the category of persons available for him to be, and of a less desirable kind. . . . He is thus reduced in our minds from a whole and usual person to a tainted, discounted one. . . . [T]hose who do not depart negatively from the particular expectations at issue [are] the normals. . . . By definition, of course, we believe the person with a stigma is not quite human. (Goffman, 1963:2-5)

Those who hold that chemical hazard was minimal, then, lay claim to the possession of "normal" identities, in the sense described by Goffman, and to the possession of legitimate beliefs accordingly. Undoubtedly some of the "believers" came from the kinds of blue-collar families that Rubin (1976) has described as "hard living," and had achieved stigmatized identities on that account prior to the emergence of the problems surrounding the Love Canal landfill. When such persons took the stands that they did regarding the scope and risk of the chemicals, it served both to reinforce the stigma already attributed to them as well as to tarnish, in the manner of a halo effect, the identities of others who shared their views. For these latter -- the majority of "believer" families -- their identities as "believers" and the roles they variously assumed in consequence were perceived as a significant departure from the conventional (or normal) and the salient bases, therefore, for the imputation of stigma.

Allegations of bald opportunism at work in the desire to relocate are difficult to assess and must be approached with caution. Naturally enough, none of the respondent families expressed opportunistic sentiments in the interviews conducted for this study. The absence of opportunism as a motivating factor in the desire for relocation might be certified for some by a readiness on the part of families to move in the interests of health without regard to material concerns. Such an expectation is particularly naive in a working-class setting where home and lifestyle constitute virtually the only locus of autonomy. More generally, it is difficult to imagine that many American families are in possession of the wherewithal to abandon a home and the substantial emotional and financial investments it represents. In the matter of reimbursement for property, the majority of families, more often from Rings I and II, reported that they had been treated equitably. It is true that some younger families especially are now enjoying a higher standard of living in their new neighborhoods. It is also true that these same families have undeniably incurred a burden of financial indebtedness that is a source of considerable strain. At the same time, a significant number of families have seriously compromised their previous standards of living and are presently resident in apartments and trailer parks. None of these residential situations is consonant with the realization of opportunistic motives. Finally, the notion that disaster events, this or any other, give rise to exploitative behavior is sustained more by the strength of popular stereotypes than by empirical data, as Dynes (n.d.) has amply demonstrated.

Interestingly, our interviews did not indicate that the imputation of stigma was reciprocal. "Believers" appeared to respect the right of "non-believers" to the views they hold regarding chemical contamination and risk. However, this finding may be conditioned by the timing of our research. At the time of the interviewing, the "believers" had prevailed in the matter of relocation and the views of "non-believers" were no longer of much consequence to them. At an earlier point in time, it is certainly likely that stigma was imputed to "non-believers" as part of the process by which "believers" marshalled support for the relocation effort.

## HEALTH EXPERIENCE: THE CORNERSTONE OF BELIEF

Lodged in the differences between the two belief systems and the evidence appealed to in support of each are fundamental and profound differences in the incentives of families to believe that chemical migration was either widespread or minimal. These incentives, in turn, are expressions of differences among families in the character of their health histories and concerns. As the six family narratives show, the relationship between belief and health experience is not a simple one-to-one correspondence between reports of serious illness in the family and belief that the chemicals constituted a serious health risk. It is not a family's experience of health problems per se but the quality of the experience that accounts for incentive to believe in the possibility of widespread chemical contamination. The presence or absence of incentive to believe organizes the search for evidence.

Thus, of the six families presented, four report experience of serious physical health problems. In one instance, there is a clear medical diagnosis of cancer and concrete techniques of management and treatment follow directly from the diagnosis. The gravity of the condition notwithstanding, this family has the reassurance of conforming to prevailing medical paradigms of what constitutes legitimate illness for which there is a well-developed conventional medical response. Knowing the actual cause of the malignancy is of considerably less relevance to the family than that the malignancy has been identified and treatment is going forward. The fact that the local medical community

has been of assistance to them in defining and managing their problem seems to be a major contributing factor in their disinclination to believe that chemical contamination was any more than limited in scope. Their implicit line of reasoning appears to be that if their personal situation is intelligible and under control medically, there is little incentive to resort to the view that the situation in the community was out of control environmentally.

The health problems reported by the other three families are much less readily accommodated by traditional medical paradigms of illness, diagnosis and treatment. Each of these families has lived over time with one or more chronic conditions that recur unpredictably and are acutely debilitating when they do. The conditions they describe -- stomach pains and bloating, severe and sudden bleeding, disabling headaches, uncontrollable shaking -- entail considerable erosion of regular routines, energy, money and the sense of personal security. They are also the sort of conditions that often elude definitive medical diagnosis by the majority of practitioners whose work is at a far remove from the perspectives of industrial medicine. To be sure, the correspondence between professional claims to expertise and the actual ability of professionals to identify and resolve a particular health problem is very often imperfect (Fowlkes, forthcoming). The knowledge base of professionalism is never wholly complete and always harbors uncertainty as well as certainty (Fox, 1957). Yet, patients whose symptoms are not amenable to routinely available professional expertise are not uncommonly treated as though they themselves are either to blame for their problems or have invented them altogether, just as these families recount.

For families such as these, prevailing medical conceptualizations of and response to illness offer few answers and little consolation. They therefore had resigned themselves on an individual basis to coping with health problems that were bewildering, at best, and terrifying at worst. Their sense of vulnerability was additionally heightened where the health of their children was concerned. With the dissemination of information about the landfill and its toxic contents, known to have a variety of insidious effects on human health, their understanding of their respective situations altered drastically. First, they learned they were not alone in their experience of particular kinds of health problems. In addition, the presence of the chemicals offered an efficient and plausible explanation for the kinds of illnesses they had endured individually and collectively. Seen from the perspectives of traditional medicine, the health problems of these families were a collection of incoherent anomalies. Seen in reference to the chemicals, their problems made sense. The chemicals provided a framework for understanding their health experiences that accorded them a legitimacy traditional medicine was unable and unwilling to grant them. When faced with competing explanatory systems, individuals are disposed to favor the one that offers the most insight into the problem at hand. As Kuhn observes in his analysis of the evolution of scientific paradigms: "Paradigms gain their status because they are more successful than their competitors in solving a few problems that the group . . . has come to recognize as acute." (1970:23)

For these three families, as for a very large number of families who participated in this study, their own health histories provided a very powerful incentive to believe that chemical migration was

widespread with serious effects. Our admittedly informal inventory of the self-reported health histories of the families who hold this belief reveals a strong pattern of unpredictably recurring, debilitating and diagnostically elusive illnesses (Table 18). These are markedly similar in kind to those of the three families whose experiences have been described in detail. This is not to say that those families who believe chemical migration to be limited have no history of health problems, though overall, "non-believers" report fewer health problems than "believers." Among "non-believers," health problems were typically of the sort that traditional medical expertise is able to label and treat -- in other words, to render intelligible and manageable. Thus, families whose health problems consisted of conventional and age-appropriate medical disorders, such as heart disease, gall bladder pathology, high blood pressure, diabetes and even cancers, did not typically look to the chemicals as an explanatory frame of reference. A few persons were inclined to view the chemical migration as probably widespread on the basis of a single health "episode," such as one miscarriage, or a minor disorder like an occasional skin rash. Overwhelmingly, however, persons who shared the belief that chemical migration was widespread also reported a constellation of health problems for which traditional medicine frequently has neither name nor specifically effective control or treatment over time. The possibility exists, of course, that health experience, rather than shaping beliefs, has been shaped by them. That is to say, families predisposed by a combination of demographic and attitudinal factors to minimize or maximize the threat of chemical risk may have been similarly inclined to interpret health experiences in ways consonant with their predispositions.

TABLE 18

Self-Reported Family Health Experiences  
During Love Canal Residence By Beliefs  
Regarding Probable Scope of Chemical Contamination.

Families Believing Chemical Contamination Probably Widespread

Family

- 001 1) Severe recurring headaches (no definitive diagnosis), mucus colitis (diagnosed), vaginal hemorrhaging  
2) Partial deafness (diagnosed)  
3) Severe acne\*
- 002 1) Cyst (surgically removed), stomach ulcers, glaucoma  
2) Severe recurring headaches, female baldness (diagnosed as nerves), benign tumor (surgically removed), severe stomach pains (hospitalized, no definitive diagnosis)  
3) Recurring upper respiratory disorder\*  
4) Recurring cold sores\*  
5) Prolonged infection following tooth extraction (hospitalized no definitive diagnosis), prolonged infection following foot surgery (hospitalized, no definitive diagnosis)\*  
6) None reported\*
- 003 1) Pneumonia, prolonged colds  
2) Prolonged colds  
3) On-going skin irritations, extreme cracking of skin on feet (no definitive diagnosis)\*  
4) Recurring upper respiratory disorder, prolonged colds\*  
5) Recurring upper respiratory disorder, prolonged colds\*
- 004 1) Recurring upper respiratory disorder, high blood pressure, severe recurring headaches (tentative diagnosis of "anxiety")  
2) Diabetes, 2 miscarriages, gall bladder disorder, blood clots on lungs (hospitalized), recurring numbness  
3) Benign tumor (surgery), tested for bone cancer and TB (diagnosis of rheumatoid arthritis), recurring stomach aches and vomiting, under-sized\*
- 005 1) High blood pressure, artery transplant  
2) None reported  
3) Acne\*  
4) Under-sized, warts, acne\*  
5) Under-sized, warts, severe acne\*  
6) Under-sized, warts, severe acne\*  
7) Under-sized, warts, severe acne\*  
8) Under-sized, warts, severe acne\*

TABLE 18 (cont.)

Self-Reported Family Health Experiences  
During Love Canal Residence By Beliefs  
Regarding Probable Scope of Chemical Contamination.

Families Believing Chemical Contamination Probably Widespread

| Family |  |
|--------|--|
| 007    | <ol style="list-style-type: none"> <li>1) None reported</li> <li>2) High blood pressure, heart palpitations (diagnosis of "nerves")<br/>2 miscarriages, vaginal bleeding, arthritis (surgery)</li> <li>3) Severe recurring headaches with associated speech and<br/>vision disorders (no definitive diagnosis)*</li> <li>4) None reported*</li> <li>5) None reported*</li> </ol>   |
| 008    | <ol style="list-style-type: none"> <li>1) Persistent gagging</li> <li>2) Hayfever, difficulty swallowing, gagging, depression and<br/>anxiety (diagnosed), numbness, sustained weight loss (no<br/>definitive diagnosis)</li> <li>3) Nerve ending deafness (diagnosed)*</li> <li>4) Severe recurring nose bleeds*</li> <li>5) Recurring ear infections*</li> <li>6) Severe recurring headaches, under-sized, persistent vomiting,<br/>lethargy*</li> </ol>   |
| 009    | <ol style="list-style-type: none"> <li>1) Liver disorder (diagnosis of toxic hepatitis), recurring<br/>headaches</li> <li>2) Severe recurring headaches</li> <li>3) Severe recurring headaches (brain scan), allergy symptoms*</li> <li>4) Liver disorder (diagnosed), recurring headaches, allergy<br/>symptoms*</li> <li>5) Allergy symptoms, recurring headaches*</li> <li>6) Allergy symptoms, recurring headaches*</li> </ol>   |
| 010    | <ol style="list-style-type: none"> <li>1) Severe recurring headaches, stomach ulcers</li> <li>2) Severe recurring headaches, facial paralysis, slurred speech<br/>(brain scan), uncontrolled shaking (no definitive diagnosis),<br/>vaginal bleeding, hysterectomy, upper respiratory disorder</li> <li>3) Recurring ear infections with prolonged discharge, nausea,<br/>severe recurring headaches (diagnosed virus in blood)*</li> <li>4) Severe recurring nose bleeds, passing out, kidney<br/>and bladder disorder with blood in urine (hospitalized,<br/>no definitive diagnosis)*</li> <li>5) Asthma, hyperactivity (diagnosed)*</li> </ol> |
| 011    | <ol style="list-style-type: none"> <li>1) None reported</li> <li>2) Vaginal bleeding, bone tumor (diagnosed, hospitalized)</li> <li>3) Chronic bone infection (hospitalized, diagnosed controllable<br/>but incurable)*</li> </ol>   |

TABLE 18 (cont.)

Self-Reported Family Health Experiences  
During Love Canal Residence By Beliefs  
Regarding Probable Scope of Chemical Contamination.

Families Believing Chemical Contamination Probably Widespread

## Family

- 013 1) None reported  
2) 2 premature live births, 3 miscarriages  
3) Structural anomaly of urinary tract, under-sized\*  
4) Under-sized, nervous tic\*
- 014 1) None reported  
2) Recurring headaches  
3) Lung damage at birth, recurring asthma (hospitalized), food allergies, chronic irritability\*  
4) Structural defect of genitalia\*
- 015 1) Frequent fainting spells restrict ability to work (no definitive diagnosis)  
2) Recurring colds and sore throats, high blood pressure  
3) Severe asthma, lung damage at birth, recurring ear infections, recurring pneumonia, dyslexia, hyperkenisis (diagnosed)\*  
4) Learning disabled, recurring pneumonia, continual cracking, splitting and bleeding of skin on feet, stomach ulcers\*
- 017 1) None reported  
2) None reported  
3) None reported\*  
4) None reported\*
- 019 1) High blood pressure, severe nose bleeds (hospitalized), leg cramps  
2) None reported\*
- 020 1) Severe recurring headaches with associated vision disorders (diagnosed as tension)  
2) Severe body and facial bloating (diagnosed as food allergies), colitis, depression, nervous breakdown, cirrhosis, blood disorder (no definitive diagnosis)  
3) 2 seizure episodes (diagnosed as idiopathic), prolonged colds\*  
4) Allergies, upper respiratory disorder\*  
5) None reported\*
- 021 1) Stomach ulcers (surgically removed), chronically sore and infected eyes (diagnosed), hearing loss, emphysema (deceased)  
2) Recurring kidney and bladder infections (diagnosed), crippling arthritis, hysterectomy  
3) Frequent nose bleeds, bronchitis\*  
4) Asthma\*  
5) None reported\*

TABLE 18 (cont.)

Self-Reported Family Health Experiences  
During Love Canal Residence By Beliefs  
Regarding Probable Scope of Chemical Contamination.

Families Believing Chemical Contamination Probably Widespread

Family

- 022 1) Diabetes, uncontrollable shaking (brain scan, no definitive diagnosis), nervous disorder, upper respiratory problems, fibroid tumors (hysterectomy), intestinal spasms, arterial sclerosis (surgery)  
2) None reported  
3) Severe recurring headaches (brain scan, diagnosed as hormonally related), persistent vomiting, food allergies, severe persistent stomach cramps\*  
4) Severe recurring headaches, recurring ear infections, severe leg cramps\*
- 026 1) None reported  
2) Severe recurring headaches  
3) None reported\*  
4) None reported\*  
5) None reported\*
- 027 1) None reported  
2) None reported  
3) Rheumatoid arthritis\*  
4) None reported\*  
5) None reported\*
- 028 1) Breathing difficulties, numbness (brain scan, no definitive diagnosis)  
2) Recurring upper respiratory infections, lethargy  
3) Severe recurring nose bleeds, bruising, prolonged colds\*  
4) Severe recurring nose bleeds, bruising, prolonged colds\*  
5) Severe recurring nose bleeds, bruising, prolonged colds\*
- 029 1) Recurring stomach pain, influenza followed by facial contortion and seizures (brain scans, hospitalized, diagnosis of epilepsy)  
2) None reported  
3) Episodic leg paralysis (hospitalized, diagnosed psychosomatic)\*
- 030 1) Long standing upper respiratory disorders, bronchial pneumonia (hospitalized), permanent lung damage (diagnosed)  
2) Cancer (deceased)
- 031 1) None reported  
2) None reported  
3) None reported\*  
4) Joint pains\*

TABLE 18 (cont.)

Self-Reported Family Health Experiences  
During Love Canal Residence By Beliefs  
Regarding Probable Scope of Chemical Contamination.

Families Believing Chemical Contamination Probably Widespread

## Family

- 036 1) None reported  
2) None reported  
3) Heart murmur (diagnosed), structural anomaly in urinary tract (hospitalized, surgery), upper respiratory disorder (diagnosed allergies), stomach cramps and bloating (hospitalized, diagnosed pancreatic disorder)\*
- 037 1) Psoriasis (diagnosed), recurring headaches  
2) Cystic breasts, vaginal bleeding (surgery)  
3) Allergies\*  
4) None reported\*
- 038 1) Skin rashes, high pulse rate, seizures (brain scan, no definitive diagnosis)  
2) None reported  
3) Allergies, skin rashes\*
- 039 1) Nervous condition, tremors (brain scan, no definitive diagnosis)  
2) None reported  
3) Severe recurring stomach cramps (no definitive diagnosis)\*  
4) Kidney disorder (surgery)\*\*
- 040 1) Recurring urinary infections, recurring headaches  
2) Recurring headaches  
3) Crossed eyes, structural anomaly in urinary tract, pneumonia (twice), upper respiratory problems, recurring colds, allergies\*  
4) High blood pressure, recurring urinary problems (no definitive diagnosis), recurring colds, upper respiratory disorder, allergies\*
- 041 1) Diabetes  
2) Liver disorder (diagnosed)
- 042 1) Recurring headaches  
2) Recurring headaches, miscarriage  
3) High fever (1 episode), recurring respiratory disorder\*

TABLE 18 (cont.)

Self-Reported Family Health Experiences  
During Love Canal Residence By Beliefs  
Regarding Probable Scope of Chemical Contamination.

Families Believing Chemical Contamination Probably Widespread

| Family |   |
|--------|---|
| 043    | <ul style="list-style-type: none"> <li>1) None reported</li> <li>2) None reported</li> <li>3) None reported*</li> <li>4) None reported*</li> <li>5) None reported*</li> <li>6) None reported*</li> </ul>  |
| 044    | <ul style="list-style-type: none"> <li>1) Upper respiratory disorder, recurring severe rectal itch and pain (no definitive diagnosis)</li> <li>2) None reported</li> </ul>  |
| 045    | <ul style="list-style-type: none"> <li>1) Joint stiffness, periodic difficulty walking</li> <li>2) Nervous disorder, depression (hospitalized), chest pains, upper respiratory disorder (diagnosed psychosomatic), numbness</li> <li>3) Severe recurring nose bleeds, recurring skin rash*</li> <li>4) Severe recurring nose bleeds*</li> <li>5) Severe recurring nose bleeds, recurring throat infections, recurring lumps and bruises, acute stiffness in hands and feet, jaundice (tentative diagnosis of systemic lupus), female baldness*</li> </ul> |
| 046    | <ul style="list-style-type: none"> <li>1) Severe recurring headaches, recurring upper respiratory disorder, blood sugar, anemia (no definitive diagnosis)</li> <li>2) None reported</li> <li>3) Severe recurring headaches, recurring upper respiratory disorder, viral hepatitis (hospitalized)*</li> <li>4) Severe recurring headaches, recurring upper respiratory disorder, cracked skin on feet, warts*</li> </ul>   |
| 047    | <ul style="list-style-type: none"> <li>1) None reported</li> <li>2) None reported</li> <li>3) Recurring skin rashes (no definitive diagnosis), kidney disorder (diagnosed)*</li> <li>4) Allergies, upper respiratory disorder, under-sized*</li> <li>5) Recurring nose bleeds, under-sized, distended stomach, inflamed eyes (diagnosed allergies), high blood pressure, convulsions (hospitalized, diagnosis of kidney nephrosis), blood clot on lung, heart attack (deceased)*</li> </ul>   |

TABLE 18 (cont.)

Self-Reported Family Health Experiences  
During Love Canal Residence By Beliefs  
Regarding Probable Scope of Chemical Contamination.

Families Believing Chemical Contamination Probably Widespread

## Family

- 048 1) Skin eruptions (no definitive diagnosis), skin cancer (diagnosed, surgery), neurological disorder (diagnosed), impotence (contradictory diagnosis)  
2) Allergies, upper respiratory disorder, recurring headaches, skin rash, herpes (diagnosed)
- 053 1) None reported  
2) None reported  
3) None reported\*  
4) None reported\*  
5) Repeated fainting in infancy, severe recurring stomach pains (diagnosis of seizures)\*
- 059 1) Severe recurring headaches with associated vision disorders, nervous disorder, tremors (no definitive diagnosis)  
2) Anxiety, recurring urinary disorder  
3) Allergies, upper respiratory disorder (hospitalized)\*\*  
4) Nervous disorder, tremors (no definitive diagnosis)\*\*  
5) Severe recurring stomach cramps and bloating, recurring urinary disorder, severe recurring upper respiratory disorder, severe recurring headaches (hospitalized, no definitive diagnosis), recurring depression and suicidal tendencies since adolescence\*\*

Families Believing Chemical Contamination Probably Limited

## Family

- 006 1) Skin tumors (surgery)  
2) Skin tumors, uterine cancer (metastasized, surgery), surgical stomach reconstruction (apparently iatrogenic)  
3) Pigmentation anomaly\*\*  
4) None reported\*
- 012 1) Cerebral meningitis (diagnosed)  
2) Hysterectomy, 2 nervous breakdowns, gall bladder disorder (surgery)  
3) Diabetes\*\*  
4) Viral infection\*\*

TABLE 18 (cont.)

Self-Reported Family Health Experiences  
During Love Canal Residence By Beliefs  
Regarding Probable Scope of Chemical Contamination.

Families Believing Chemical Contamination Probably Limited

Family

- |     |  |
|-----|--|
| 016 | <ul style="list-style-type: none"> <li>1) Severe recurring headaches</li> <li>2) Severe recurring headaches, prolonged colds</li> <li>3) Severe speech impairment (diagnosed), allergies, heart murmur (diagnosed)*</li> <li>4) Heart murmur, allergies (diagnosed)*</li> <li>5) None reported*</li> </ul> |
| 018 | <ul style="list-style-type: none"> <li>1) Hay fever</li> <li>2) Pigmentation anomaly</li> </ul>  |
| 023 | <ul style="list-style-type: none"> <li>1) Employment related disability, depression, blood sugar</li> <li>2) None reported</li> <li>3) None reported*</li> <li>4) None reported*</li> </ul>  |
| 024 | <ul style="list-style-type: none"> <li>1) Cystic mole</li> <li>2) Nervous disorder</li> <li>3) Premature stillbirth**</li> </ul>   |
| 025 | <ul style="list-style-type: none"> <li>1) Diabetes</li> <li>2) None reported</li> </ul>  |
| 032 | <ul style="list-style-type: none"> <li>1) Intermittently scaly skin</li> <li>2) Reading disability (diagnosed)*</li> </ul>   |
| 033 | <ul style="list-style-type: none"> <li>1) None reported</li> <li>2) None reported</li> <li>3) None reported*</li> <li>4) None reported*</li> <li>5) None reported*</li> <li>6) None reported*</li> <li>7) None reported*</li> </ul>  |
| 034 | <ul style="list-style-type: none"> <li>1) Nervous breakdown (hospitalized)</li> <li>2) Hysterectomy, bilateral mastectomy, 2 miscarriages, skin rashes</li> </ul>  |
| 035 | <ul style="list-style-type: none"> <li>1) None reported</li> <li>2) None reported</li> <li>3) None reported*</li> <li>4) None reported*</li> <li>5) None reported*</li> </ul>  |
| 049 | <ul style="list-style-type: none"> <li>1) Mastectomy</li> </ul>  |

TABLE 18 (cont.)

Self-Reported Family Health Experiences  
During Love Canal Residence By Beliefs  
Regarding Probable Scope of Chemical Contamination.

Families Believing Chemical Contamination Probably Limited

## Family

- 050 1) None reported  
2) None reported  
3) None reported\*\*  
4) Asthma, heart murmur\*\*  
5) None reported\*\*
- 051 1) Heart attack  
2) Psoriasis
- 052 1) High blood pressure  
2) Arthritis, irregular heart beat
- 054 1) None reported  
2) None reported  
3) None reported\*  
4) None reported\*  
5) Hyperactive\*  
6) None reported\*
- 055 1) High blood pressure  
2) Gall bladder disorder (surgery), heart attack (deceased)
- 056 1) None reported  
2) None reported
- 057 1) None reported  
2) None reported
- 058 1) Schizophrenia (hospitalized)
- 060 1) Heart trouble, high blood pressure  
2) None reported
- 061 1) Bronchial asthma  
2) None reported
- 062 1) None reported
- 063 1) None reported  
2) Cancer (deceased)  
3) Heart attack (deceased)

\*Dependent child

\*\*Independent (adult) child

Nonetheless, it is important to recognize the apparent inability of traditional, primary-care physicians to identify and assimilate a possible link between exposure to industrial toxins, on the one hand, and the presenting symptoms of the patient, on the other. It may well be the case that the on-going accumulation of data pertaining to toxic exposure and pathology has occasioned a radical revision of prevailing concepts regarding the nature of disease, its symptoms and its treatment within the narrow bounds of the sub-speciality of industrial medicine. But it would appear that such revisions have not been effectively integrated into core medical curricula or general medical practice. The vast majority of persons, after all, do not receive medical care from practitioners of industrial medicine and industrial medicine, itself, is concerned primarily with the presence and effects of toxins in the workplace. Hamilton's articulation of the limitations in the perspectives of traditional medical practice published some sixty years ago remains substantially applicable today:

Not one hospital in twenty has records which yield the sort of information which the student of industrial toxicology craves and yet this is not elaborate. If the recording interne would only treat the poison from which the man is suffering with as much interest as he gives to the coffee the patient has drunk and the tobacco he has smoked, if he would ask as carefully about the length of time he was exposed to the poison as about the age at which he had measles, the task of the searcher for the truth about industrial poisons would be made so very much easier. . . . One must always remember . . . the existence of a prejudice which may cloud the mentality of some first-class men. Apparently it is impossible for some physicians to treat industrial diseases with the detachment and impartiality with which they approach those diseases which are not confined to the working classes. . . . Physicians . . . accept evidence which is on the face of it one-sided, and then indulge in moral observations on the character of working men. . . .  
(1925:v-vi)

It is safe to say there is no feature of industrial poisoning so troublesome to the physician as this difference in susceptibility. If only it were possible to determine once [and] for all the minimum dose of a poison which could possibly give rise

to symptoms, the whole problem of prevention would be so much simpler. Unfortunately the industrial physician must face the fact that in any large group of men and women there will be some individuals whom he cannot possibly recognize when he makes his initial examination, who do not betray themselves in any way, but who sooner or later are destined to fall victims to a quantity of poisonous dust or vapor which has no effect on the rest. It will be very hard for him to get his employer to see this, for the practical layman believes that what is dangerous for one man must be dangerous for all. . . .

Even animals show a great variation in their susceptibility to poisons, yet they cannot be accused of alcoholism, or dyspepsia from eating pie, or late hours and excessive dancing, or any of the other sins against personal hygiene so comforting to the worried employer. (1925:15-16)

Similarly, the validation of expert judgment was substantially withheld from Love Canal residents who claimed certain kinds of impaired health and functioning. It is not surprising, then, that an independent search for evidence was conducted by many families who had every reason to believe that their health and, especially, the health of their children had been and would continue to be affected by their residence at Love Canal. Where the search for evidence culminated in conviction, "believers" found themselves at odds with dominant and official definitions of the situation. Their departures from consensus with prevailing official definitions provided the basis for others' perceptions of them as deviant and for their assignment to stigmatized categories. It is this context that accounts for the tendency of "non-believers" to discredit "believers" and also for the accumulation of a more elaborate body of evidence by "believers" in support of their positions. Ultimately, then, incentive to believe or disbelieve in the possibility of widespread chemical contamination and to build or not to build evidence in consequence is rooted in a cluster of social factors. Pre-eminent among these factors for "believers" is the credibility of

gratuitous, potentially life-threatening health risk.

## THE COMPONENTS OF DISTRUST

Although the residents of Love Canal are sharply divided in their beliefs regarding chemical risk, the management of events and information around the situation left them virtually united in other respects. Their disappointment and disenchantment with experts, elected and appointed officials, and the workings of the American political system culminated in expressions of comprehensive distrust.

You know, what's so hard is you're raised, my husband was raised to respect this country. He went and fought for his country. You grew up with the idea that nobody would ever let anything like this happen. . . . It's something I resent very much. It's stripped you of your trust, your faith. It's made you very bitter. You have the tendency not to trust anybody. You'll find yourself just standing in a grocery store and you watch every item and check every price just waiting to pounce on that poor girl if she charges you too much money. And everybody's human and can make a mistake. But this is what it's done to you. You just distrust.

(Relocated Resident 004, Rings I and II)

Of course the context of official action in response to the situation at Love Canal is essentially without precedent in the United States. In contrast to natural disasters, where a large base of experience organizes agency action and coordination, the management of the affected population and the collection of data at Love Canal necessarily went forward without reference to relevant established guidelines. Participants in this study frequently recognized that certain problems of official response originated in this lack of organizational experience:

I don't think anybody, no matter where they are, had ever had any experience with chemicals at all or what they could do. There wasn't any knowledgeable source to go on to see what to do. This was [to be] the groundwork for everything else that comes in the future, so there was no place to turn to. With that, they did the best they could. If they knew it was as serious as it was, they probably would have done something different. But I don't think Commissioner Whalen knew and I think he was going to do whatever he could to try to keep his job, and that's the way it is.

(Relocated Resident 031, Ring III)

Most residents were also undoubtedly unaware of the distinctions between disaster and emergency declarations and the levels of response and role definitions of officials attached to these.

Granting that the situation was unusual and perhaps unique in its complexity, residents nonetheless anticipated that government officials would be more receptive to investigating the potential severity of the problem. Instead, they often felt their own concerns and apprehensions were trivialized and only reluctantly acknowledged by officials. The tentativeness of local response was frequently traced to the priority officials accorded to local commercial and industrial interests. Once investigation of the potential health hazard of the situation began, residents expected a reasonable display of recognizable expertise, competence and efficiency organized around identifying the extent and nature of the problem. They also anticipated that relevant government officials and agencies would manifest a sincere interest in their personal well-being. It may well be the case that competence and efficiency were generally forthcoming, but it is certain that numerous lapses occurred, most notably around testing and data collection. Such lapses, in conjunction with a repeated failure to communicate effectively with residents, raised further questions in their minds about the motives of government and the credibility of government officials.

These latter fostered a growing cynicism that was reinforced by several factors: 1) contradictory tests, reports and interpretations of these; 2) a data collection effort encompassing neither comprehensive evaluation nor long-term follow-up of individual health; 3) the perceived basis in electoral politics -- as distinct from concerns for health and safety -- for decisions regarding permanent relocation. Ironically, whether residents were disposed to remain or anxious to leave, they received no confirmation or reassurance about the safety or hazard of the situation.

Resident cynicism was neither preconceived nor unqualified. Personnel from NYSDOT -- working outside of the data collection and decision making processes -- repeatedly received "high marks" for efficient and responsive management of the first permanent relocation. Numerous residents singled out individual official and unofficial actors whose communications were interpreted as revealing concern or sympathy. Such expressions of concern usually occurred in a one-to-one context and always entailed what residents understood to be a violation of normative organizational roles. Among residents most alarmed about the potential severity of chemical contamination, trust came to reside most fully in individuals and organizations seen to have nothing tangibly at stake in the present and future of the community.

Issues of trust and distrust, then, are centered in two related themes. These were repeatedly articulated in our interviews. The first raises questions about the reliability of information, reports and declarations issued by government agencies and officials. Following from this is the question of whose interests were being served in the decision-making process. Experience and frustration with ambiguous and

uncertain information, combined with perceptions of official reluctance to respond, provoked residents to conclude that their community welfare was being superseded and their family-based autonomy compromised by competing and variously powerful interests organized to protect themselves (see Erikson, 1976; Sennett and Cobb, 1972). This section will highlight resident experience of official information and response and the conclusions residents drew from these.

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INITIAL RESPONSE:

It was the Niagara County Health Department, the city people, city officials. That was when I was first involved in this thing. I went to the meeting and they talked about this Love Canal. Even as they were talking, it didn't dawn on me until later on in the meeting that it was right under us because there was no water there. Then they talked about how it was covered over, and then I finally caught on, a little slow, but I did catch on. They were taking questions from the audience. It was a very sparse audience, there were maybe 75 at most. They were telling people that they were there to conduct the meeting so then they were taking questions. I raised my hand and asked a question, you know, as a housewife. I say, 'Well, when you dig, aren't you going to stir everything up? You know, it's commonsense. You dig into something where there's water underneath, it's going to stir up like a mixer.' He started laughing at me, Dr. Clifford, and said, 'What do you think we've got buried here, an atomic bomb?' Well, I was crushed. I just sat back down in my seat. Oh, I just turned all colors, thinking, gee, he's right, this guy is intelligent. So I went home to tell my husband what happened at the meeting and told him, you know, that they can handle it. They know what they're talking about. But my husband says, 'You're right. It seems that it would mix it up.' I just can't get over that. He just stood on the stage and laughed. That was the first time I heard that there were chemicals in there. They never mentioned any names of them. They just called it industrial waste.

(Relocated Resident 011, Rings I and II)

I think what used to annoy us more than anything was that the people that were in power, so to speak, they used to have a very condescending attitude. It was as if even if they explained something to us, we were so dumb that we couldn't possibly grasp it. I mean, you're not talking to imbeciles. . . . There's a lot of unanswered questions. Who knows? It's not a cut and dry thing -- medicine. I did feel, taking us on a whole, they treated us as

though we were stupid. I had the feeling with the first rings that it was because they thought it was a bad neighborhood because the project was there. Hey, there's no sin in being poor. I mean, it doesn't mean you have to be stupid but that was the attitude, I really felt that.

(Relocated Resident 037, Ring III)

[When they did the tests], they weren't telling us anything we didn't know. . . . Now there was machinery . . . confirming what we were always complaining about. Of course they wouldn't believe us. They said there was no proof. They used that as an excuse to do nothing. . . . It was going to cost money to do the testing and that's why they took so long doing it. Probably the pressure got them finally to do the tests. People started getting together in small groups, and a lot of times there were more children than grown-ups. It started to attract the news media, and that brought it to the attention of other people. It just got bigger and bigger and bigger until all of a sudden some of the people that were in charge, like Niagara County Health for instance, they were forced to come down and look at a couple of things. Forced to say, 'Oh yeah, you're right.' As soon as they said that, some bigger people moved in and said, 'There's something definitely wrong.' They started to run the tests, everything started to point that way, and they were kind of forced to do what the people were asking them.

(Relocated Resident 014, Rings I and II)

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LOCAL INTERESTS:

I'm not particularly thrilled about city government. They did nothing but put obstacles in the way. All the mayor was worried about was the good name of Niagara Falls.

(Relocated Resident 008, Rings I and II)

We think that the city and Mayor O'Laughlin, in particular, should really look upon this as one of the saddest and sorriest instances of lack of compassion and human care that they've ever been involved in. The mayor himself made some statements. I watched him on the Phil Donohue Show one time. The only thing that came off was that he was concerned about trying to tell people that Niagara Falls is a beautiful city to visit. Love Canal is only an isolated little corner and everybody should come and visit and not be concerned about contamination which is not where the tourists are. He never really had anything in mind like relocation. Only when he got involved, he couldn't get out of it. . . . That's the problem, he's worried about the loss of major industry, the loss of tourism. These are the factors that keep a city alive. But that

swarm of people out there in the LaSalle neighborhood, they would have liked to have him say that he was really doing all he could.

(Relocated Resident 040, Ring III)

To me, the city could have asked for something, but they were so afraid of that lousy tourist business and what it was going to do to that. You know what, it serves them right. The mayor should have been listening. The city, they should have been the ones looking out for our welfare. He's the Mayor of Niagara Falls. He felt that if he could cut that section off -- it's a little section over there in the southeast corner of Niagara Falls. He kept trying to get rid of those ten blocks so badly it was pathetic.

(Relocated Resident 047, Ring III)

I think the ordinary working man is aware of so-called company interests. He knows that any spokesman for a group or organization is certainly going to protect the organization the best he can. Anything the mayor says is going to be affected by his particular position. What he says could have an effect on the City of Niagara Falls being sued. I think that's how I would view it.

(Relocated Resident 043, Ring III)

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DATA COLLECTION:

When we went down to get our blood tests, you never saw such a botched up, mismanaged mess, hundreds of people trying to get blood work. We didn't even go the first couple of weeks. They said they took so much blood it couldn't be processed fast enough and it just spoiled. So if you didn't get a blood test report, they probably lost it somewhere along the line. They took five vials out of each of us, even the kids. That was traumatic for them, first time they had to go through anything like that.

(Relocated Resident 027, Rings I and II)

The State Health Department came around with a 22 page questionnaire. We were still living there. They came to our door passing out these papers, but we happened to have company that day. All they did was knock on your door and hand it to you or put it in your mailbox if you weren't home. So they knocked on the door, and my company was going out the door as these people were coming up my front stairs. And they handed it to my company and they left and took it home with them, not thinking, not really knowing that it was a questionnaire.

(Relocated Resident 011, Rings I and II)

They took a blood test and I never got the results. Either the state or federal government, I can't recall which one, said they lost some somewhere. They were destroyed by accident. (050)

(Remaining Resident 050, Ring III)

They brought the calibrating machine into our basement. They left it there for what was supposed to be a couple of days. They told us that if it goes into the red, it's a danger point. But don't worry, it will never go there. But I began to realize it was serious when it went into the red and remained there for five days.

(Relocated Resident 022, Rings I and II)

They came in and took air tests in the basement one time and two or three of the chemicals were quite high. Then they came back another time and wanted to redo it and they had it marked down. . . . They never sent us a report. They said if you wanted to know any more about it, to call a certain number in Albany and ask for so-and-so. So I did that and they wanted to know what I wanted. I said that I had a letter stating the chemical content of my cellar and that if I wanted to know more about it I should call the girl there and ask her about it. They said, 'Well, she's not here right now, we'll have her get back to you.' So when she called back, she wanted to know what I wanted to know. And I told her the same thing, and she said, 'Well, all I can tell you is I wouldn't spend over two hours down in that cellar and I wouldn't sleep there.'

(Relocated Resident 039, Ring III)

Now they were going around trying to check the air in the homes. They said you had to leave the house for three months. You would close up your house, and they would go in just enough to check the machines. But there were people that didn't want to do that. They did take a couple of soil samples from out in the yard here. They did one across the street. We never heard any results. (052)

(Remaining Resident 052, Ring III)

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COMMUNICATION AND EXPLANATION:

We never received the results of our blood tests. I have a number in Albany and I called it twice a week for a year. And finally, I said, toward the end, well you know I'm a nurse, give me the results. I'll write them down. I'll give them to my doctor and I'll find out what it means. No, they couldn't do that. They couldn't give me the information over the phone but it's going out in the mail. When it came time, the state wanted me to release my medical records to help them with their study. I said I don't even

know what my medical records are. I looked at him and said, 'I never received them. I don't know what they say. And you want me to release them without ever knowing? Aren't you asking a little much. So the reason I'm not releasing them -- when you can give me my medical records, fine. Then you can have my OK.'

(Relocated Resident 028, Rings I and II)

They used to say, 'If you have a problem, call us.' And then they wouldn't come to the phone. That happened to me. My husband was away on a trip. I woke up at 4 o'clock in the morning with my house filled with fumes. I called city hall at 9 o'clock in the morning. I never heard from him. I was hysterical. From 9 o'clock to 5 o'clock, he was in a meeting, he was in the bathroom, he went to lunch, he was in a conference. At 5 o'clock I called the secretary again. By now I'm crying and I said, 'I swear to God, if this man does not call me, I don't know what I'm going to do. My husband's away. I have two children.' I never heard from him.

(Relocated Resident 013, Rings I and II)

They kept giving you nothing answers. Did you ever have someone answer a question and you know it's not answered? We said to him, 'What does this mean?' They just did their job. The only thing we could do with the readings we got was we showed our total to everyone else and saw whose was worse. It was the highest on our block. See, none of that stuff is supposed to be there. And it was even hard to get them to finally say that, that it's not supposed to be there. At the same time, they said it would have to be ongoing for many years in order to know what the figures really mean. But people would turn around and say, 'We've already been here for 20 years.'

(Relocated Resident 014, Rings I and II)

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EXPERT CREDIBILITY:

One meeting I remember we went to, there was some doctor there. You know this guy, he looked like he was a really smart guy, had a beard and everything. And they started getting on him and he was telling everybody there is nothing wrong in that area. Those chemicals aren't that bad. They're under ground. There's no possible way they could affect you. And somebody asked, 'Would you live there?' and he said, 'No.'

(Relocated Resident 026, Rings I and II)

Whatever reports were released, they were always released on a weekend, so they could get the reaction of people before the offices opened on Monday. I felt that New York State let the people down in the whole situation. I would have been happy without the purchase of the house if we had just known that the area was O.K. What was sad is we'd go to the public meetings with the New York State officials, Dr. Axelrod, whoever. You'd watch them, and they were so nervous because you knew the words that were coming out of their mouths weren't really what they were feeling. Especially when Louella Kenry would stand up and say who she was and that her son had died. I'm not saying these people were not compassionate people. You could see it inside. But their job prevented them from really telling us what it really was.

(Relocated Resident 040, Ring III)

I think that for the amount of money the government spent they should probably do a little better health study. Not just because I live here but for my kids' future and everybody else's future. I feel this is a pilot program that's going to affect the entire world, probably. I think there was too much political involvement in the method of doing it. I don't believe that Axelrod, from the state, is an expert in all forms of medicine. Anyone who says they are is a complete fool. I think that a person that's devoted 25 or 30 years of their life at Roswell studying cancer may come out and say, 'Yes, this stuff causes cancer.' And he comes out the next day and says, 'No, it doesn't.' Paigen's one of them, but there were other ones [at Roswell]. But I think they may be a little better versed than someone on that Blue Ribbon Committee, they referred to them as that. For the amount of money a guy is going to be paid, he'll lean the way he's supposed to. I think the state and federal government has a hell of a lot more to cover up than if you took an unbiased research person. I'm talking about professional people. If they used the one in Georgia, the Center for Disease Control, they were all ready to come up here and they cancelled the funding.

(Remaining Resident 053, Ring III)

They haven't really given you an answer to know what to think. . . . The people they brought in were not from the area, not really believers. They didn't have the personal experience. They were brought here for a job. In one sense, I believe they tried. On the other hand, they thought it was ridiculous because they scoffed at the whole thing. I'm thinking about one particular guy, but other people in that same agency appeared to have the same attitude. They couldn't touch it. They couldn't see it. They should have been able to smell it. But aside from that, they never got involved. It's partly a correct attitude, because you've got to be objective. They had to be empathetic, not sympathetic. Well, they lacked the empathy. I don't think some of them were convinced of how serious it could be. An earthquake you can see. You couldn't see this.

(Relocated Resident 044, Ring III)

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## HEALTH AND RISK:

Everything ends with a question mark. I would feel better knowing more about the long-term health effects. Not for myself, but for my children. The government was supposed to do the tests. Now there's neglect. And did you know they even had an office set up on Colvin Blvd.? And I said, 'O.K., that's where we have to go now. We have to make sure everybody's home for the weekend.' I thought we could all go together. It's a lot easier, you know, to process a whole family of people. And the next thing you hear, that was the end of the health study. I think they should keep track of how they did the people.

(Relocated Resident 005, Rings I and II)

They never really admitted it was dangerous. They would not tell us, 'You have to move.' It was a voluntary move. It was stated right in the paper that it was not mandatory. Even with pregnant women and children, they did not say you have to get out, we're ordering you out of your homes. They wouldn't do that because that would be admitting something. It's a twofold thing. People have filed lawsuits, O.K., and the lawsuits they file, if the government had said to them, or the state had said to them, 'Your property's condemned,' it would have solidified their position. They're going to stay in the gray area. All they're saying is it could be hazardous to your health and we're offering to buy your property.  
(017)

(Relocated Resident 017, Rings I and II)

Well, at first, it was the two rings. They had to set a limit somewhere. I guess they just picked an area and said, 'Well, that's it. We'll stop there.' At first I don't think it was based on how safe it was. They just set a limit because you can't get everybody out. The state won't buy everybody. So they just set it there. Then people said, 'Well, we want testing.' So they sent in testing. They went in and tested and found it had seeped past that point.

(Relocated Resident 016, Rings I and II)

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## DECISION MAKING AND ELECTORAL POLITICS:

I was disillusioned all the way down. I don't think anybody did any more than they had to. When they did do it, it was a political year, and I think if this had happened with Reagan instead of Carter in office, we'd still be over there plugging to get out. The first ring got out because Carey was running. We had to wait

four more years. Political convenience, that's the only reason.

(Relocated Resident 037, Ring III)

I think they got out because it was an election year and they was just helping the people out in order to help themselves out.

(Relocated Resident 021, Rings I and II)

As long as there are politicians, they'll do what people want. It was very convenient for Carey. He won by a landslide. I don't believe any of them.

(Relocated Resident 012, Rings I and II)

Lois Gibbs pushed this on our government. I think it really was a political move there between Carey and Carter. They gave her \$20 million and shut her up. Once they [LCHA] could get a little bit, they could get more and more. No, I don't think the politicians believed it was dangerous. It was election time.

(Remaining Resident 061, Ring III)

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SPOKESPERSONS:

Dr. Dunlop is the only doctor that's been willing to make that connection between my son's asthma and the chemicals. He's been to Washington about it, to testify about my son. He's the only doctor in the area that said the chemicals could have caused it. Before we moved here, even though he was asthmatic, he'd never been hospitalized for it. We moved in there in October and he was in intensive care for Halloween. He was blue. He had no oxygen in his blood. They put him in the hospital and then they called in the middle of the night and told me they were putting him in intensive care.

(Relocated Resident 014, Rings I and II)

I mean you get to the point where you don't believe anything anybody tells you, because there's just somebody saving their neck. It was a farce with Axelrod, the Commissioner. I mean all those people in the Health Department, what they did to Dr. Paigen. I think she's marvelous: 1) For sticking her neck out; 2) She took an awful lot of flack and she still is. She really got the ball rolling. She was in the forefront of everything, and she was strong enough. Another person might have been intimidated by what happened to her. They gave her trouble from day one. It was such a big cover-up. I always had it in my mind that this country was big

enough that they would rectify anything, that they couldn't possibly do anything that cruel to people. But you grow up.

(Relocated Resident 037, Ring III)

I think, too, it's educated people who will have the ability to pick up and recognize what's happening. What I mean is, I guess I respect somebody that believes in something and will stand up and say it, if it's putting their job in jeopardy or something like that, that takes a good person in this day and age. And so when I say that about educated people, I always go back and relate to Dr. Paigen, because I see Dr. Paigen out there in an old pair of jeans and she looks like you or I in old, holey sneakers, prancing around and showing Moynihan the black goop coming out of the ground. . . . There would be meetings and she would stand up there and she would tell you to have your children tested every year, at least until they're 18. She was very frank and very truthful. If you had any type of question, she would give you an answer.

(Relocated Resident 004, Rings I and II)

[A]ll I heard was the refuting of Dr. Paigen's information. I know she took it around the neighborhood herself. The state didn't think her method was correct, yet their method was terrible, very impersonal. Not that it had to be one-on-one, but I think we should have been brought into the clinic where they could have examined us.

(Relocated Resident 040, Ring III)

The only three politicians that I know for a fact were helpful, they tried, are John LaFalce (LaFalce was excellent) and, on a local level, John Daly and Matt Murphy. . . . I never saw other politicians or anybody that really wanted to get their hands dirty. The thing that impressed me about them was that party lines didn't make any difference.

(Relocated Resident 009, Rings I and II)

About the only one that people thought did anything was John LaFalce. He did not take the line, 'I'm going to do this so you'll vote for me. I'll be a good guy.' He really seemed to have an interest in the people and their problems. He was about the only one that would really listen and know there was a problem. Everybody else, they just come to get their picture in the paper. They all come in big cars and walk around and act like they're doing something.

(Relocated Resident 016, Rings I and II)

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## LOSS OF AUTONOMY AND COMMUNITY:

I began to feel that a certain amount of freedom had been taken away from me in this country, which really aggravated me, because I just couldn't make any decisions any more with my own life. You know? I've got no freedom, I was stuck here. We couldn't sell the house. I was unemployed. Where do I go now? The government, different branches of government, started playing games, trying to decide whose fault it was. I lost a great deal of respect. I've seen things that happened that made me sick. To see grown-up people who are supposed to be able to run this country fighting among themselves. Nobody knew what to do or where to begin.

(Relocated Resident 031, Rings I and II)

I was born here. It seems like they want to chase me out. If I had to get out of my house, I'd get the heck out of here too. Here, you're born and raised here and everybody says they like Niagara Falls. And I like it myself. Look how nice it is here, a nice back view and all that. Do I want to move out of here?

(Remaining Resident 051, Ring III)

He was crushed, 'cause here was his house. He worked three jobs to buy that, three bloody jobs, and that's what crushed him. At that time interest rates were going sky-high and what we went through in the family so he could work all this time. My daughter only got to see him when I took her over there to lunch. He worked week-ends, around the clock. We had saved a thousand dollars. I know it sounds pretty silly, but we were on cloud nine.

(Relocated Resident 011, Rings I and II)

I can honestly say I cried for three days, saying, 'My God, we came here for the kids. What have we done to the kids. What kind of detrimental effects has it had on them.' Here I'm watching what they eat, I'm canning, giving them whole wheat and all this. I'm very, very concerned about the up-bringing of my children, and I find out I'm living next to a chemical dump and these people had been lying. That hurt.

(Relocated Resident 028, Rings I and II)

We moved here from Griffin Manor, right after I come back from the army. Then we got a G.I. loan to get this house. We had to because the wife was working and I was working and then the more income you made the more you had to pay rent. So my rent went up higher than a house payment. So we were forced out of there then by the wonderful City of Niagara Falls. Now we're getting run out again.

(Remaining Resident 056, Ring III)

What have we lost? Well, we've incurred expenses, will incur, up to \$10 thousand. We didn't want to move. There was no job reason or anything like that. There was no other reason to move. We felt, perhaps unreasonably, displaced. We lost the sense of living in the neighborhood which we enjoyed and liked. I think that made the move easier in that we realized that those people were gone and the whole structure, it was kind of like sand that's washed out to sea. The houses are still there but we have a feeling it's all gone. It isn't like moving away and having all your other neighbors stay there. Everything's just kind of washed away. . . . I know some people who lived right on the canal. The father was especially bitter about it. He moved not far away into a new house, but he was very bitter because he had done an awful lot of work on the house. I guess he made life miserable for his family for weeks about it. But he had to move out. He was right in the first ring. As I say, those people have a sense of unfair loss, maybe more than we do, maybe of being cheated because they weren't made aware of what was going on.

(Relocated Resident 043, Ring III)

Oh, I'd be so happy if I could go back to my old house again. Of course, I wouldn't move again at my age. But when I go by there, like I say, I'd just like to be working right in that yard. . . . I guess we've talked about everything. I really worry about getting things in hand, having people be more responsible. If each individual takes some responsibility for what they're doing, things will be all right. But if everybody's trying to pass it on to the other one, it's never going to be fixed.

(Relocated Resident 030, Ring III)

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### The EPA Report

The preceding material suggests rather strongly that the majority of present and former residents of the Love Canal area have experienced a serious crisis of confidence in the capacity of salient institutions to comprehend the public welfare or to act in ways consonant with it. Distrust was emergent and evolved from the empirical realities of their encounters over time with the range of officials and experts charged

with assessing and responding to the situation. Many families trace the sources of official conduct and, accordingly, the continuing ambiguity regarding chemical risk to the self-protectiveness of elites in their respective organizational roles (for an analysis of elite deviance, see Simon and Eitzen, 1982). The repeated delay of the EPA report on the boundaries of chemical migration and habitability has served both to solidify distrust and to escalate it to the federal level. The report, commissioned during the summer of 1980, had particular significance for the residents of Ring III who became eligible for relocation in the fall of that year. Naturally enough, they looked to a timely and definitive report to inform their residential decisions and to allay or ground their anxieties. Seen against the backdrop of accumulated distrust and uncertainty, the fact of the delay itself becomes understandably the piece de resistance of cynicism.

I would have to weigh pretty carefully who I would believe at this point. There's been no report, it's been 8 or 9 months, they promised us a report. no results. They've lied for so long, insisted on reasons for holding their test [results] back, and then their computers needed fixing. So nobody knows and recently I read the EPA was just about falling apart. . . . I would hope we we'd get full information about the chemicals. But unfortunately, no, I don't think so. It's too vast, first of all. You've got an industry here that's contributing to the economic well-being of the general area or the country. You're wiping out industry in the country and, economically, I don't think that's feasible. So from that standpoint, I'd say they will do everything to squelch it. I love this country, but industry and government have got to realize that you don't create something that is going to maim the same people that are helping you manufacture the products.

(Remaining Resident 048, Ring III)

Well, who's the government. I'm the government, my money goes in to pay those guys. It evolved into politics and now they're spending I don't know how many millions of dollars. You know what they could have done? This is just like a joke. They could have given everybody \$100 thousand for their homes, move everybody, and they still wouldn't have spent all the money that they've spent so far trying to clean it up. I'm saying that a lot of money is being

spent and nothing is being accomplished, or not enough is being accomplished. And they test here and test there and another group comes back and does the same thing. It's just a repetition and then you don't get the EPA report. So what's the story?

(Remaining Resident 057, Ring III)

I don't think the federal government has done as much as they could've, not near as much. That so-called Environmental Protection Agency isn't. They'll protect a snail-darter but they won't protect people. . . . I don't know, I vacillate. One minute I'll say to myself they're not saying anything 'cause there's nothing wrong. The next minute they're not saying anything 'cause if they do then everybody gets out. I have no clear idea, none. I think they're so afraid of setting a precedent because whatever they do here they're going to have to do in all the other places. I went to a meeting with the EPA. They told us to be there at 11 o'clock. They didn't talk to us until 2 o'clock. And the information you got was nothing, absolutely nothing. Now if they would have come out and said this, this, this, and this, now we'd believe them. But all we kept getting was that they would be giving us the results of the tests in 3 months, then later, then later. And they've spent more money on mail for letters postponing the time they would let us know.

(Relocated Resident 041, Ring III)

I'm afraid of what will happen to the neighborhood, and to me. The EPA is the whole big thing. People wouldn't be moving out, maybe, if the EPA had come out. People have in the back of their minds a little fear and they're not going to hang around. I don't think all of these people would have moved 'cause they were very happy with their homes. The only answer you'll get is that the report just isn't ready. It was going to come out, it's going on a year now. I won't believe it when it does come out 'cause they waited too long. It doesn't take all this time to find out if the area is a bad place or a good place to live. So if they come up and say it's safe, I still won't believe it.

(Remaining Resident 060, Ring III)

I don't think that the government put this much time and money into something if it isn't trying to cover up something. They tested all of those houses a year ago. The tests were completed a year ago this past spring. The results are still not out and when they do come out, Reagan is not an environmentalist, and he may even can the whole EPA altogether.

(Relocated Resident 031, Ring III)

We don't know what the studies prove. We don't know what the contamination was because nobody would ever tell you. I don't think we'll ever get the truth because the truth is a non-saleable item. They don't want to set a precedent and say, well the Love Canal was moved out for a radius of say 20 miles every way, so now you can take them to federal court or state court and use that as a precedent. They don't want to make this a landmark decision. So it's a situation where they want to stop it. They want it neutralized and they want it put to bed. The bottom line is economics.

(Relocated Resident 017, Rings I and II)

The recently released EPA report, intended to dispel the deeply embedded uncertainty and suspicion that is the legacy of Love Canal is, in our opinion, unlikely to accomplish that end. In the eyes of many Love Canal residents, the independence and credibility of the EPA had been seriously compromised long before the report was released. Residents have no assurance that the declaration of habitability is any less politicized than they believe earlier reports and declarations to have been. Expressions of dissent from the scientific community have begun in repetition of a now familiar pattern. It would be our prediction that resident beliefs will crystallize and polarize around the EPA report along much the same lines and for much the same reasons as those described in this study. In this connection, it would be revealing to study the social and behavioral factors relevant to the decision-making process on the part of persons considering locating into the Love Canal area in the event that it is fully re-opened pursuant to the EPA report.

## CONCLUSIONS

The situation at Love Canal differed from traditional disasters in two critical respects: there was no "sudden impact" resulting from the play of natural forces and there were no immediately discernible boundaries of destruction. Some degree of ambiguity regarding the definition of the situation was therefore intrinsic to it. It is probably the case that some degree of ambiguity is necessarily characteristic of slowly developing "events" in general. The very process of their development as objective phenomena entails a transition from normal conditions to aggravating and, at the extreme, perilous ones. Imperfectly correlated with this objective process, we can anticipate a parallel social process whereby once tolerable conditions become eligible for identification as intolerable in terms of their implications for the public welfare. Indeed, no social problem exists except in the convergence of objective reality and subjective judgments brought to bear on that reality.

The term social problem indicates not merely an observed phenomenon but the state of mind of the observer as well. Value judgments define certain conditions of human life . . . as social problems; there can be no social problem without a value judgment. . . . Various attempts to treat social problems in a scientific manner have proved useless because they have dealt only with the objective side of social problems and have failed to include the attitude which constituted them problems. The attitude, the value judgment, is the subjective side of the social problem, and its existence renders meaningless any purely objective account of social problems. (Waller, 1936: 922)

Organized response to the consequences of sudden impact phenomena, natural or man-made, such as floods, explosions, oil spills and earthquakes is now taken for granted. That response has evolved from attitudes regarding the social significance of the phenomenon as well as the objective character of the phenomenon itself. The nature of sudden impact phenomena is such that attitudinal consensus is easily achieved and a declaration of disaster or emergency follows readily. This particular mesh of the subjective and the objective has come to shape prevailing paradigms of disaster events and response to them. Because the properties of slowly developing events are markedly different from those of sudden impact phenomena, the former are rendered less compelling candidates for social consensus.

The achievement of consensus that a slowly developing phenomenon constitutes a disaster is further complicated when its agent is man-made rather than natural. Where acts of man rather than acts of God are concerned, human agents stand to be blamed. Time is available for them to mobilize constituencies to protect themselves from blame and, in so doing, to confound and diffuse the attitudinal consensus essential to effective response.

To the extent that a consensus of disaster emerges out of the social process of definition, the opportunity is available to minimize both ambiguity and the potential for destructive consequences inherently attached to the situation. At Love Canal, however, only the most minimal consensus was achieved among officials, experts and the resident population. In the absence of effective consensus, neither an effective definition of the problem nor an effective response to it was forthcoming. Consequently, ambiguity was exacerbated and each family

found itself in the unusual and difficult position of having to arrive at its own decision concerning the significance of the presence of the chemicals. The centrality of this ambiguity and resident reactions to it provided the focus of this study. In this context we have addressed the demographic factors and health experiences that have shaped resident perceptions of the meaning of the chemicals for their lives. Of particular importance from a policy perspective is the relationship of ambiguity to resident distrust of official and expert actors. As we have shown, problems of competence, credibility and communication came to be seen simultaneously by most residents as the sources of ambiguity and as manifestations of allegiances to corporate, government and professional interests that superseded consistent and comprehensive commitment to the public welfare.

In recommending guidelines for the management of similar events in the future, we cannot emphasize too strongly the importance of official willingness to accord legitimacy to evidence suggesting the presence of a potentially serious health risk associated with residence proximate to a toxic waste dump. As noted above, the crucial factor in addressing a social problem is the achievement of a working consensus that a problem either might or does exist. In the course of doing this study, we have come to share with the residents of Love Canal a recognition of what can be at stake in according official validation to residential communities in such a situation. We have also come to appreciate what is at stake for various elite constituencies in withholding recognition of what can be at stake for residential communities established on or near chemical landfills. Despite the known prevalence of chemical dumps, there is a widespread belief among former Love Canal residents that through this

situation, officials and experts have learned techniques for manipulating citizens that will preclude the emergence of another Love Canal event. Parenthetically, it should be noted that Love Canal has also provided a training ground for citizens in developing effective techniques for pressing their cause. The political manipulation of citizens may effectively forestall such situations in the future but it will not eliminate them. Moreover, we would predict that delaying tactics will render them more costly -- socially, politically and economically -- than would otherwise be the case.

## RECOMMENDATIONS

The following recommendations are offered on the assumptions that the emergency management effort on all levels is not complicit in the protection of vested interests that supersede the public welfare and that response is organized by receptivity to recognize the legitimacy of toxic chemical disasters and the kinds of redress and relief they may require. Moreover, as we indicated earlier, this is not a study of institutional preparedness and response. We have no direct knowledge of the perspectives of the officials and experts involved or of the mandates of their organizations or constituencies. We have, therefore only a limited basis for assessing the actions, motives and intentions of officials and experts. Our insights into what might constitute effective management of similar events in the future are founded on our insights into resident experience and perceptions of the management of their situation at Love Canal. With these caveats in mind, we recommend that:

- A. Concerns and inquiries of individual residents be heeded and investigated promptly with a view to identifying and effectively containing any contamination and risk.
- B. The complainant(s) be informed of the results of such investigations.
- C. The location of all present and former chemical dump sites and their contents be a matter of public record.
- D. Where any evidence of probable widespread chemical migration exists, the boundaries for investigation be drawn to encompass maximum feasible risk (cf. Paigen, 1982).
- E. The salient professional and scientific community reach accord on the indicators of contamination and risk and implement studies within the boundaries set for investigation to

establish the actual boundaries of risk.

- F. The community at issue be informed prior to undertaking any studies of the indicators to be employed and the criteria to be used in determining the significance of findings. Any subsequent decision to modify either the indicators or the criteria should be promptly disclosed.
- G. Estimates of time required for the completion of research, review and dissemination of findings be drawn according to the realistic requirements of the research. Deadlines thus established must be adhered to with minimal delays.
- H. Dissenting or minority opinion and interpretation within the scientific community be anticipated and protected. Where practical, such opinion should be identified and incorporated into published reports of study and test results in a manner analogous to the publication of U.S. Supreme Court decisions.
- I. Any agency or organizational representative involved in the management of such a situation be fully apprised of the roles and mandates of other agencies and organizations similarly involved.
- J. A high level of inter-agency coordination is essential to avoid gaps and redundancies in information gathering and response in the management of this type of public health crisis. To accomplish this, it is desirable that relevant federal agencies develop a fast inter-agency information transmission system as well as a fast health "alert" system. As the ultimate "end-users," state health officials should be encouraged to help in the development of these systems.
- K. All agency or organizational representatives involved be fully briefed on the social and economic character of the community and the history of the events culminating in the disaster or emergency situation to minimize reciprocal invidious judgments based on differences in social class and expertise.
- L. "Outside" officials and experts work with citizen advocates and other grass-roots leaders in a cooperative fashion and utilize channels of communication to the residential community available through such local leaders (cf. Gibbs, 1981).
- M. Whenever any individual member of a household is deemed eligible for either temporary or permanent relocation for reasons of health risk, the entire household should be designated eligible for relocation.
- N. Accountable officials be consistently available to meet with residents in their own community. Major official decisions and expert findings should be communicated directly to community residents in conjunction with or prior to any wider public release of those.

- O. Depending on the kinds of expertise and planning called for in the management of the situation, on-site offices be established with resident personnel to consult directly with residents in the relevant areas of expertise and planning.
- P. Outside experts and consultants be selected to maximize both their independence and the display of their independence.
- Q. Insofar as possible, appointments be made with individual families for the collections of health related data. "Batched processing" and self-administered questionnaires are to be avoided.
- R. Provisions be made for initial in-depth study and long-term monitoring of individual and family health on behalf of both the residential and scientific communities in recognition of the likelihood that there are enduring effects of residential exposure to toxic chemicals.

Finally, we wish to make the obvious and idealistic point that in actuality there need never be another Love Canal. The routine monitoring of chemical dump sites and proactive or out-reach work by both public and private health care practitioners schooled in the precepts of industrial medicine could constitute a first-line of prevention. Such prevention would insure that neither individual health nor community well-being could become so acutely impaired as to require organized emergency or disaster response. Where these situations reach emergency or disaster proportion, response should not be muted for fear that the desire for residential relocation is uppermost in the minds of concerned residents. As sociologists generally and as students of Love Canal particularly, we would assert that in the absence of clear and present danger homeowners typically and understandably prefer to remain in the homes they have chosen and to choose to leave them on their own terms. In summarizing our experiences at Love Canal, we would maintain that there have been no winners at Love Canal. Bitterness and grief in response to the loss of home, the demise of community and the mismanagement of the public interest were palpable at every turn. In

addition to these personal costs, the wider social, political and financial costs are inestimable.

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