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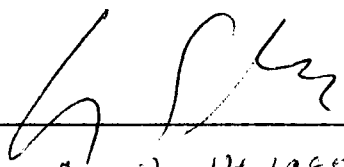
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MERCURY POLLUTION IN OAK RIDGE, TENNESSEE: AN ANALYSIS OF THE COLLECTIVE DEFINITION OF A SOCIAL PROBLEM

A Thesis

Presented for the

Master of Arts

Degree

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Lawrence S. Solomon

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ABSTRACT

In May, 1983 the Department of Energy disclosed that 2.4 million pounds of mercury had leaked into the environment in Oak Ridge, Tennessee. This disclosure was the result of the employment of the Freedom of Information Act by an area newspaper. This topic was discussed in light of the social problems literature provided by sociologist Herbert Blumer. A theoretical model depicting the collective definition of a social problem was applied to discover the status of the Oak Ridge mercury pollution. Furthermore, public opinion on the topic was gathered to further define the social problem. Newspaper accounts of the pollution provided data as did the transcript of a Congressional Hearing. The bulk of the data came from interviews with voluntary association group leaders in the city of Oak Ridge as well as in the surrounding area.

The results showed that the social problem of mercury pollution has not yet traveled through all five stages of Herbert Blumer's model of social problems. Furthermore, the initial social problem of mercury pollution showed that the underlying concern of area residents was the information disclosure policies of the Department of Energy. Residents, as a general rule, were not concerned about the health effects of the mercury but did find fault with the Department of Energy's policies on how information could be allowed to become classified and thus withheld from public disclosure. Oak

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LIST OF ABBREVIATIONS

ATLC	-	Atomic Trades and Labor Council
DOE	-	Department of Energy
FDA	-	Food and Drug Administration
LEAF	-	Legal Environment Assistance Foundation
NAACP	-	National Association for the Advancement of Colored People
Ppb	-	Parts per billion
Ppm	-	Parts per million
RAEC	-	Roane-Anderson Economic Council
SMSA	-	Standard Metropolitan Statistical Area
SNIA	-	Scarboro Neighborhood Improvement Association
SOCM	-	Save Our Cumberland Mountains
µg/g	-	Micrograms per gram

CHAPTER I

COLLECTIVE DEFINITION OF SOCIAL PROBLEMS

Introduction

This research project is designed to study a social problem and the process by which it comes to be collectively defined by the affected publics. In Oak Ridge, Tennessee, mercury pollution has recently been found in the environment. To understand the collective definition process, work by Herbert Blumer will be adopted. His framework of the process of collective definition of a social problem will serve as a sensitizing instrument in such a way as to study the dynamics of the process of collective definition of a social problem.

Although the pollution has been in the area environment since the 1950s, only in 1983 did the issue emerge as a point of public concern (La Grone, 1983). Residents of the area have been aware of mass-media coverage of the issue. The Knoxville Journal, Knoxville News-Sentinel, Oak Ridger, and other newspapers and television and radio stations have extensively covered the issue. A flurry of activity from the mass-media occurred after the July, 1983 Congressional Hearing (released in transcript form as "The Impact of Mercury Releases at the Oak Ridge Complex"). So, for a brief period in 1983, the mercury pollution issue was in the forefront of mass-media coverage, but was it perceived by Oak Ridge residents to be a commonly

defined social problem? The central focus must be upon how publics define the issue.

Social Problems

Consider this definition of social problems by Walsh and Furfey (1958:1):

> A social problem is a deviation from the social ideal remedial by group effort. Obviously, there are two elements in this definition. First of all, there must be a situation that is recognized as somehow undesirable, wrong, abnormal, or at least in some sense less than ideal. What standard should be used in judging that the situation in question is a deviation from the social ideal is a hotly debated issue, but at the outset it is at least clear that the term "social problem" is applied only to aspects of society that we judge unfavorably.

Since it was unclear at the outset of this research whether or not the mercury pollution issue had become a social problem in the community of Oak Ridge, the terms of public debate seemed the appropriate focus of sociological inquiry. As Walsh and Furfey (1958:1) point out, "What standard should be used in judging that the situation in question is a deviation from the social ideal is a hotly debated issue . . ." In Oak Ridge, what is the social ideal and has there been any deviation from it?

Amitai Etzioni (1976) offers two main theoretical approaches that are used to examine social problems. The use of the two approaches outlines to us the many possibilities that exist in the task of defining some state of being or event as a social problem.

Under the consensus perspective, social problems are "what people think they are" (Fuller and Myers, 1941:320). In essence, a given condition is only considered a social problem if many people collectively agree that it is a problem. Furthermore, under this approach, the social problem exists only whenever there is a great deal of difference between social standards and societal reality (Merton and Nisbet, 1971).

The conflict or alienation approach considers social problems in light of the social, economic, and political structures that exist. Strife between the classes and its dynamics form a breeding ground for social problems (Mills, 1956). As a result, particular social problems can only be eliminated if relevant socioeconomic conditions are altered. According to orthodox Marxism, the basis of conflict between society's members must be removed through the elimination of private property and the state (Etzioni, 1976).

Herbert Blumer's Work on Social Movements and Public Opinion

The key to Herbert Blumer's account of how a social problem comes to be recognized lies in his early discussions of social movements (Blumer, 1951). In this work, he develops a typology of social movements in relation to social problems. Most generally, Blumer distinguishes between general and specific social movements. The general social movement is, as Blumer states, made up of "groping and uncoordinated efforts" (1951:200). The goals of the general social movement are vague and not well-defined. There is little organization, leadership, and structure. The root of such a movement

is in the "cultural drift," which is the "gradual and pervasive change in the values of the people" (Blumer, 1951:200). This drift later gives way to the general social movement, and spokespeople are evident, though these spokespeople are not strong or charismatic. Rather they are, as Blumer notes, "voices in the wilderness" (1951:200). Some protest literature begins to develop at this stage, and the uneasiness of the situation is discussed by interested members of the group. There is little group action, as most of the activity is done in an individual basis. The members of the general social movement are, more than likely, a part of the group called by Blumer (1951:185) the "mass," or possibly the "public." To elaborate, the "mass" is a group of people who participate in mass-behavior, and furthermore, as Blumer states:

> The mass is devoid of the features of a society or community. It has no social organization, no body of custom or tradition, no established set of rules or rituals, no organized group of sentiments, no structure of status roles, and no established leadership. It merely consists of an aggregation of individuals who are separate, detached, anonymous, and thus, homogeneous as far as mass behavior is concerned. It can be seen, further, that the behavior of the mass, just because it is not made by pre-established rule or expectation, is spontaneous, indigenous, and elementary (1951:186).

In essence, there is no sharing of orientations or expectations. The mass is quite characteristic of the modern society, in that the way of life causes people to migrate, listen to radio and watch television, and the like. A "new and wider world" (Blumer, 1951:187) exists, with detachment a characteristic of the citizens. People

are thus attracted away from the local groups and communities. A mass has members from all walks of life and from various parts of the stratification ladder, and it is anonymous in both the collective and individualistic senses. Some prime examples offered by Blumer for the mass include the Klondike Land Boom, Oklahoma Land Boom, and various gold rushes. In each of these activities, there was little cooperation between individuals, little loyalty, and a low amount of discipline. For a mass, order is difficult to enforce, so a rush can easily become a panic. Also, Blumer notes the example of mass-media advertising. In advertising, the appeal to buy the product in question must be addressed to individuals who are unknown. Each individual acts on a basis of his or her own choice. People who respond to advertising come from many different groups. Finally, Blumer offers the example of the proletarian masses. These people, who have been taken out of a stable group life, have a small amount of organization.

Blumer suggests that the mass is a phase in a progression tc the next stage of organization, that being the public. A public is a group of people who, in Blumer's (1951:189) words: (a) Are confronted by an issue, (b) are divided in their ideas as to how to meet the issue, and (c) engage in discussion over the issue. In essence, then, there needs to be an issue, a discussion, and a collective opinion to show that the public really exists. Publics vary according to issue, and spring to life in a spontaneous manner. The public is not a previously established group.

The public, according to Blumer, is much like the mass in that it does not have all of the characteristics of a society. No rules or understandings exist that tell a public what to do in a given situation. As Blumer states: "It is in this sense that we speak of the public as having no culture--no traditions to dictate what its actions shall be" (1951:189). In essence, there is no consciousness or we-ness in a public. A public is characterized by some measures of disagreement. As a result, there is discussion about an issue at hand. Internal conflict is a characteristic of the public. Blumer (1951) argues that the public acquires unity when it develops a collective definition. In the case of Oak Ridge, it is initially unclear whether unanimity of definition was achieved by participants in the debate over mercury pollution, just as it is unclear what role collective definition played in determining the fate of the issue.

According to Blumer (1951), public opinion is collective in nature. This does not necessarily mean that all of the individuals in the public agree on the issue at hand. It is also not necessary for the majority of the individuals to show agreement. Blumer (1951: 191) terms the opinion as "composite" in that it is formed from several opinions that individuals hold. The interaction process is in focus at this level. The implication of this argument for studying the Oak Ridge case is that we need not look for a single definition that is identically understood by all participants. A collective definition may be one that is of sufficient generality

as to unite diverse interests around a common theme, while each continues to pursue its own desired ends.

Blumer (1951:191) terms the "universe of discourse" the possession of a sense of commonality of language or basic terms among members of the public. With these common terms, the discussion can readily take place. Blumer notes that if various sectors of the public become dogmatic and provincial, public discussion ceases to occur. The key to the formation of public opinion is a sense of compromise.

Interest groups tend to dominate a public. On the other hand, there is a less-interested spectator body that is also a part of the public. The interest group sector of the public tends to be aggressive in their presentation of ideas and opinions, and they attempt to win over the spectator group. The interest group, then, tends to try to shape the opinion of the spectator group. Public opinion as exhibited by the interest group can be based on rational/logical ideas, or it can be more laden with emotions. Sometimes, misinformation is provided. But oftentimes, as false claims are put to the test of rationality, they fall from view. As Blumer states, "Perhaps it would be accurate to say that public opinion is rational, but need not be intelligent" (1951:192).

In summary, Herbert Blumer's model of public opinion lends itself to a categorization of collective definition. Public opinion is made up by a dynamic process of interaction between people. Defining and redefining the situation is an inherent part of the

process of public opinion formation under the thoughts of Blumer.

As previously mentioned, Blumer's works on public opinion are quite relevant to this research project inasmuch as his theoretical model of the stages of social problems will serve as the sensitizing instrument for this study of mercury pollution. However, there is still a wealth of theoretical literature available on the concept of public opinion outside of Blumer's perspective.

Further Definitions of Public Opinion

The most basic definition is given by the International Encyclopedia of the Social Sciences: "A collection of individual opinions on an issue of public interest, and . . . these opinions can exercise influence over individual behavior, group behavior, and government policy" (Sills, 1968:188).

Schettler (1960) cites the importance of ideologies, as a part of one's culture, in his definition of public opinion. If people share a common culture, it is expected that defining a problem will be along similar lines for members of a public within that culture. This line of thought is also held by Gross and Rayner (1985) in terms of cultural relativism. Gross and Rayner describe the perception of risks by members of a culture. Those who share a common culture tend to perceive risk in a way which is dependent upon that culture.

MacKinnon refers to public opinion as ". . . that sentiment on any given subject which is entertained by the best informed, most intelligent, and most moral persons in the community" (1828:15).

Park and Burgess (1924) believe that when a topic reaches the stage of public discussion it becomes a matter of public opinion. Again, public opinion is defined in a collective sense.

Psychologist Floyd Allport has offered yet another definition of public opinion:

> The term public opinion is given its meaning with reference to a multi-individual situation in which individuals are expressing themselves, or can be called upon to express themselves, as favoring (or else dis-favoring or opposing) some definite condition, person, or proposal of widespread importance, in such a proportion of number, intensity, and constancy, as to give rise to the probability of affecting action, directly or indirectly, toward the subject concerned (Powell, 1951:2).

Walter Lippman, a respected journalist, has offered the following definition of public opinion:

> Those features of the world outside which have to do with the behavior of other human beings, in so far as that behavior crosses ours, is dependent upon us, or is interesting to us, we roughly call public affairs. The pictures inside the heads of these human beings, the pictures of themselves, of others, of their needs, purposes, and relationships are their public opinions. Those pictures which are acted upon by groups of people, or by individuals acting in the names of groups, are Public Opinion with capital letters (Childs, 1965:22).

In essence, public opinion is a collective phenomenon which is highly involved with discourse between members of a public. This interaction is central to the shaping of the opinion.

Oak Ridge Mercury Pollution

For the specific topic of the mercury pollution in Oak Ridge, there is the assumption that there are several publics to consider. That is, the members of the community have varied interests to such an extent that the interests must be considered to constitute several publics. Although the research that determined the number and types of these publics has yet to be reported, a preliminary examination of the data revealed that the following exist:

1. Scientific/Technical/Professional Public
2. Labor/Trade Public
3. Black Public
4. Business/Merchant Public.

As more data were examined, more publics emerged. Each of the publics has unique qualities which exist. So, the research will draw comparisons and contrasts between the publics.

Herbert Blumer's Framework of Social Problems as Collective Behavior

From what we have considered as Blumer's account of social issues, his work seems to provide an appropriate framework/starting point for looking at the issue of mercury pollution in Oak Ridge. To bring focus to this project, this design will now be further elaborated. The title of the article is "Social Problems as Collective Behavior," published in the journal Social Problems in 1971. As Blumer states: "My thesis is that social problems are

fundamentally products of a process of collective definition instead of existing independently as a set of objective social arrangements with an intrinsic makeup" (1971:298). Blumer is advancing that the definition of social problems is a process. The process, or stages of the career of a social problem, are as follows:

STAGE ONE

THE EMERGENCE OF SOCIAL PROBLEMS--A given condition is picked out and identified as a social problem. It is unclear how this process actually happens. However, Blumer notes that agitation, mass-media attention, violence, play of interest groups, political figures, powerful organizations, powerless groups, and adventitious happenings all may be relevant to the emergence of social problems. If a social problem does not emerge, it does not, as Blumer states, ". . . begin a life" (1971:302).

STAGE TWO

LEGITIMATION OF SOCIAL PROBLEMS--This is the stage of social endorsement of the social problem. It must acquire a degree of respectability which allows it to be in the arenas of public discussion, such as the press and radio and television, the church, the school, civic organizations, legislative chambers, and the places of officialdom.

STAGE THREE

MOBILIZATION OF ACTION--At this stage, the social problem becomes the object of discussion of controversy, of differing

depictions, and of diverse claims. Discussion, advocacy, evaluation, falsification, diversionary tactics, and advancing of proposals take place in the media, casual meetings, organized meetings, legislative chambers, and committee hearings.

STAGE FOUR

FORMATION OF AN OFFICIAL PLAN OF ACTION--At this stage, an official plan of action is put together to deal with the social problem. This occurs in legislative committees, legislative chambers, and executive boards. This official plan is almost always a result of the bargaining of interested parties, so that diverse views are accommodated.

STAGE FIVE

IMPLEMENTATION OF THE OFFICIAL PLAN--The result of Stage Four is put into operation, often with modifications. Oftentimes, the reality of the social problem requires an alteration, as unanticipated events can appear after the official plan is devised.

For the purposes of this research project, Blumer's stages of the career of a social problem are to serve to sensitize the issue. That is, the existence and importance of the events, and not the sequence is of primary interest. There is the interest of discovering what has occurred in the realm of public definition without concern over the order of what has occurred. To be discovered are the constituencies which have arisen and why.

How did these constituencies come to shape this as a public issue? What activities are present in the Oak Ridge case that are also seen in the framework given by Blumer?

CHAPTER II

MERCURY POLLUTION AS A SOCIAL PROBLEM IN HISTORY

Introduction

Mercury exists in three forms. Inorganic elemental, and organic mercury have all been found in various environments. Most common are the inorganic salts. Organic mercury is most often associated with pollution. Only thirty years ago was the health risk of organic mercury fully realized (Revis, 1983).

Early Years

Mercury has not always been viewed as a hazardous substance. In Roman times, mercury identified the Roman god of commerce and the financial market in the mythology of the society (D'Itri and D'Itri, 1977). Mercury was considered the shrewdest and most cunning of the gods of the Roman times (D'Itri and D'Itri, 1977). The Greeks and Romans used mercury for war paint, religious ceremonies, and medical preparations. Mercury was also used as a process which allowed for the retrieval of gold thread from fabric. Ironically, the mercury used killed Roman slaves, convicted criminals, and emperors in China (D'Itri and D'Itri, 1977). Mercury was thus recognized as lethal, but not defined as a social problem.

By the Middle Ages, western societies began to reject the worshipers of the Roman god of mercury. These people were considered

"heathens who put a human shape on a god with wings on his feet" (D'Itri and D'Itri, 1977:7). In essence, the progression from Roman mythology to Christianity showed the god mercury replaced by the planet Mercury as the object of public interest. Some of the people of the medieval times viewed the planet Mercury as being on a geographical progression toward heaven (D'Itri and D'Itri, 1977).

Later, it was believed that mercury had magical powers. For example, Ivan the Terrible, Napolean, Robert Burns, and others believed in the ability of mercury to cure syphilis (D'Itri and D'Itri, 1977). In literature, this began to symbolize the end of love, as noted in the following Shakespearean piece from "Love's Labor Lost," Act IV (1598): "The words of mercury are harsh after the songs of Apollo."

In essence, the perception of mercury was much more negative in Shakespearean times than it was during Roman times.

Knowledge of various perceptions of mercury in the past allow the inference that the possibility of a social problem did exist. That is, deaths did occur, and mercury itself had negative images surrounding it at various points. However, Blumer's concept of social problems being defined collectively does not allow us to consider these early mercury perceptions as a social problem. To show this, the various stages of Herbert Blumer's (1971) model of "Social Problems as Collective Behavior" are elaborated upon.

As Blumer states: "We have a vast field which beckons study and which needs to be studied if we are to understand the simple, but basic

matter of how social problems emerge. And I repeat, that if they don't emerge, they don't even begin a life" (1971:302). Blumer (1971:302) notes that although the emergence of social problems is a necessary prerequisite to the rest of the model, it is not completely evident how and why social problems do, in fact, emerge. Blumer (1971:302) does note, however, that such items as the mass-media, political figures, powerful organizations, and adventitious happenings do have relevance to the activity of the emergence of the social problem. So, although it is unclear how social problems emerge, Blumer does indicate some possibilities.

Mercury did not emerge as a social problem in the early years. The literature of the early years does not mention mercury as a problem, nor does it report mass-media attention or political figures who thought that mercury should be considered a social problem. Mercury did cause deaths of Roman slaves and convicted criminals, but prevailing opinion apparently did not recognize these deaths as a social problem. Slaves and criminals were expendable. However, accounts of these deaths do not provide enough information to undertake any type of collective, subjectivist interpretation. In the early years there was no emergence of mercury as a social problem. ". . . If they [social problems] don't emerge, they don't even begin a life" (Blumer, 1971:302). As a result, the non-emergence of mercury as a social problem in the early years affords us the ability to state that the other stages of Blumer's model will not be reached.

With the knowledge, then, that a collective subjectivist viewpoint of mercury pollution did not exist in the early years,

where, if at all, does it exist in this state? The major incidents of mercury pollution in history will now be discussed. For these incidents, is Blumer's model appropriate? Are these social problems collectively defined? If so, what events and practices allow us to see the events as collectively defined social problems?

The Minamata Case

The location of the first major recognition of the effects of mercury pollution was in the area of Minamata Bay on Kyushu Island in Japan. The first recognizable sign of the pollution was the event of strange behavior by cats. The animals were screaming, dancing, and making other such movements in an uncontrollable fashion (D'Itri and D'Itri, 1977). This was first observed in the year 1953, and by 1960 other animals, such as fish, pigs, and dogs, were acting in the same violent manner (D'Itri and D'Itri, 1977). At about this same time, human beings began to be stricken. The people of the society, as a result of their culture, felt shame after contracting the afflictions and did not seek help in the early years of the Minamata pollution. Many people believed the disease to be contagious, as many instances showed members of the same families contracting the illness (D'Itri and D'Itri, 1977). For many area residents, their nervous systems were affected, but the early years of the pollution saw doctors at a loss to decide what the cause was (D'Itri and D'Itri, 1977). In total, 48 people died from the pollution from the year 1953 to the year 1960. As the disease came

to be understood by doctors, the ability to diagnose became sharpened. This ability lent itself to the knowledge that over 850 Minamata disease victims had emerged, and the count will certainly rise as time progresses (D'Itri and D'Itri, 1977).

For human beings, much of the damage of mercury is permanent (D'Itri and D'Itri, 1977). In the so-called Minamata Disease, symptoms include numbness of the lips and limbs, visual constriction, a lack of muscular coordination, problems in swallowing and chewing, loss of speaking ability, inability to taste and hear adequately, and facial contortions. Also, cycles of excitement and depression along with periods of insomnia were evident in Minamata (Normura, 1968). Victims in Minamata forgot, in several instances, how to write and spell (Curley et al., 1971). Emotions were uncontrollable in many cases, as the area residents would cry and scream for no apparent reason (D'Itri and D'Itri, 1977).

How does Herbert Blumer's account of the stages of development of a social problem apply to the Minamata case? The first stage of Blumer's (1971:302) model is the "emergence of social problems." It is not completely evident how social problems initially emerge. As a substitute for this, Blumer offers the following relevant activities that can be related to this emergence:

1. The role of agitation in getting recognition for a problem.
2. The role of violence in gaining such recognition.
3. The play of interest groups who seek to shut off recognition of a problem.
4. The role of other interest groups who foresee material gains by elevating a given condition to a problem.
5. The role of political figures in formenting concern with certain problems and putting the damper on concern with other conditions.

6. The role of powerful organizations and corporations doing the same thing.
7. The role of the mass media in selecting social problems.
8. The influence of adventitious happenings that shock public sensitivities (1971:302).

At Minimata, the evidence is present that supports some of these items. As a result, the social problem emerged. For example, victims of the disaster rebelled (mobilized) in reaction to the pollution in an interest-group setting (D'Itri and D'Itri, 1977). The Japanese government became interested in the issue, and the Ministry of Health and Welfare, the Ministry of Education, and other such bodies supported research at the medical school at Kumamoto University. The Japanese Diet also recognized the problem (D'Itri and D'Itri, 1977). There was some struggle between the Chisso Company (the firm which dumped the mercury) and the affected public. But, as D'Itri and D'Itri (1977:87) stated, the situation was one of a "weak struggle against the odds." The poor fishermen were "essentially powerless against the combined opposition of industry, government, and influential citizens who benefit from modern society" (D'Itri and D'Itri, 1977:87). Furthermore, some local political leaders attempted to sidetrack the investigation, due to the fact that the Chisso Company paid about half of the city's income taxes (D'Itri and D'Itri, 1977).

In essence, mercury pollution in Minamata did emerge as a social problem, because there was some interest group action and political group action. Other powerful groups opposed the interpretation of mercury pollution as a social problem.

Herbert Blumer's second stage in the study of social problems in a collective behavior framework is one of "legitimation of social problems." As Blumer states:

> Yet, after gaining initial recognition, a social problem must acquire social endorsement if it is to be taken seriously and move forward in its career. It must acquire a necessary degree of respectability which entitles it to consideration in the recognized arenas of public discussion. In our society, such arenas are the press, other media of communication, the church, the school, civic organizations, legislative chambers, and the assembly places of officialdom (1971:303).

Does the Minamata incident of mercury pollution qualify as a formally legitimated event in the social problems realm? The answer seems to be affirmative, in light of the following supporting evidence:

A major Japanese newspaper called Asahi editorialized that the small amount of compensation for victims of the pollution showed how little human life was valued, especially in a time of a high-growth economic climate (Newsweek, 1973). Legitimation was certainly reached from mass-media accounts.

Herbert Blumer's third stage in the study of social problems is one of "mobilization of action." As Blumer states:

> [For this stage] the problem becomes the object of discussion, of controversy, of differing depictions, and of diverse claims. . . . Discussion, advocacy, evaluation, falsification, diversionary tactics, and advancing of proposals take place in the media of communication, casual meetings, organized meetings, legislative chambers, and committee hearings.

At Minimata, mobilization was quite apparent in the area. For example, a great deal of discussion took place between well-known

scientists, and the reports oftentimes contradicted one another. Note, for example, the statement by a scientist named Kiyoura that the mercury pollution in Minamata Bay was slight compared to other districts of Japan, while others disagreed (Kiyoura, 1963; Moore, 1964). The conflicts that existed between the members of the committee studying the Minamata disease caused a cessation of their work. On another level, the members of the public were involved in much discussion with representatives of the Chisso Company. Violence was a part of the negotiations, at some points (D'Itri and D'Itri, 1977). Quite a large amount of disagreement existed in Minamata between a segment of the public, the government, and the company that dumped the mercury. Mobilization did, in fact, take place.

Herbert Blumer's fourth stage in the study of social problems is one of "formation of an official plan of action." This plan, according to Blumer, is:

> . . . hammer[ed] together in legislative committees, legislative chambers, and executive boards. The official plan is almost always a product of bargaining, in which diverse views and interests are accommodated. Compromises, concessions, trade-offs, deference to influence, response to power, and judgements of what may be workable--all play a part in the final formulation (1971:304).

Plans were formulated for the compensation to dependents of the deceased as well as for pensions for the injured (D'Itri and D'Itri, 1977). These settlements were negotiated. Legal channels were utilized to negotiate the settlements, as in the example of March 1973 when a judge ruled that the Chisso Company was responsible for Minamata Disease and awarded 112 victims and their families

$3.5 million (D'Itri and D'Itri, 1977). So, the plan was formulated and Blumer's stage was met.

For the Minimata incident, the Japanese Diet was a center for discussion on the problems of the mercury pollution. In 1970, the Victim's Relief Act passed the Diet and allowed exempted medical costs for the "officially recognized victims of pollution disease" (D'Itri and D'Itri, 1977:91).

In summary, then, the events of Minamata indicate that a social problem of mercury pollution can be interpreted by Herbert Blumer's model of social problems based upon a collective behavior framework. In this case, the chronological order of Blumer's study appears to be valid. However, a single case does not justify the validity of the chronology.

The Canadian Case

Another relevant case is that of mercury pollution in Canada during the 1960s. In 1962, Dryden Chemicals started to use a mercury cell process in their operations, which caused the discharging of 10 to 20 pounds or mercury into the air, and the same amount into the Wabigoon River (Troyer, 1977). In summary, no deaths have been attributed to the mercury problem in Northwest Ontario, but some authors such as Troyer (1977) believe that the likelihood exists that deaths have, in fact, occurred while being attributed to other causes. The population affected was largely of Indian origin (Troyer, 1977). The Dryden Chemical Company began

by denying responsibility for the pollution (Troyer, 1977). Despite the fact that deaths were not officially attributed to the mercury pollution, much information does exist on the symptoms of the pollution, referred to as Minamata Disease (Troyer, 1977). Dr. Tom Clarkson of Canada performed a program of blood tests and hair sampling, with the following results:

> Adult males working as guides at fishing camps have the highest intake of mercury. Five guides out of eleven that were sampled had blood levels in the range of 100 ppb to 330 ppb. Analysis of hair samples from the guide having the highest blood concentration (330 ppb) revealed that the peak mercury concentration had occurred two months prior to the collection of the blood sample. The peak value in hair was close to 150 ppm equivalent to a blood concentration of 500 ppb (a level where symptoms were unmistakable in both Japan and Iraq) (Troyer, 1977:151).

One man, Matthew Beaver, had the following symptoms of Minamata Disease:

> (i) Constricted visual field
> (ii) Tremor (when attempting to hold his hands steady)
> (iii) Romberg's sign (inability to balance with feet close together)
> (iv) Glove and stocking syndrome (loss of feeling in the skin of the extremities) (Troyer, 1977:152).

Essentially, then, many symptoms of the Minamata disaster were seen in the Canadian example. Does Blumer's model apply?

The social problem emerged in Canada, but not without opposition. Consider that Canadian delegates to international conferences on the dangers of heavy metals were warned that any industrial uses of mercury should be closely monitored for dangers (Troyer, 1977). The knowledge was made available that mercury was

being dumped into the Wabigoon River every day, so these delegates became concerned. But, health authorities told the delegates not to worry (Troyer, 1977). In 1966 and 1967, the Canadian Federal Health Department was told by three different sources that mercury pollution could cause health hazards. Members of the National Research Council, Dr. Robert Jervis of the University of Toronto, and the World Health Organization all showed concern (Troyer, 1977). The government did not recognize the mercury as a social problem until a Norwegian graduate student received a federal grant to study birds and the effects of mercury on them. Furthermore, the mass-media played a role in the selection of this pollution as a social problem. For example, note the following account given in Troyer:

> In 1970, a reporter for the Toronto Globe and Mail, Frances Russell, asked an Ontario Water Resources Commission spokesman why the province hadn't moved to check for mercury danger in Canada after reading the Japanese and Swedish studies. There were two answers. First, "The Japanese eat far more fish than we do, and they don't have any pollution controls." (Nor, in terms that mattered, did Canada or the United States in respect of Chlor-alkali plants like the one at Dryden). Second, "We have all their papers," said the spokesman for Ontario's chief environmental regulation agency, "but they're written in Japanese and Swedish and we couldn't read them" (1977:25).

In sum, the social problem of mercury pollution did emerge in Northwest Ontario.

Herbert Blumer's second stage in the study of social problems in a collective fashion is one of "legitimation of social problems." Did arenas for public discussion exist in Northwest Ontario on the issue? Many examples exist. Consider, for example, discussion of the issue of mercury pollution in the Toronto Star on several occasions.

Furthermore, such popular magazines as Esquire and National Geographic had reports on the issue (Troyer, 1977). Public discussion was facilitated by legitimation of the problem.

Blumer's third stage in the study of social problems in a collective fashion is one of "mobilization of action." It was indicated previously that discussion took place in the area as claims were advanced. To elaborate, note that all press coverage was not in support of the mercury pollution being a social problem. The Dryden Observer, a newspaper published by Alex M. Wilson, who has substantial business dealings with the company that polluted the area, had the following editorial:

> Once again, erroneous reporting is threatening the life-style, industry, and economy of this part of Northwestern Ontario. Once again, the reports on mercury pollution, mercury content in fish and probable dangers of mercury to people eating fish have been clipped, mangled, and misquoted in reports in newspapers, radio and TV reports
> . . .
> Those who are exploiting the situation for their own selfish ends must be exposed and prevented from doing any further harm. In the interests of truth and the interest also of an area that has been maligned all over the country by false, malicious, and ignorant publicity, it is time that people all over this part of Northwestern Ontario begin a campaign on their behalf (Troyer, 1977:15).

Other examples of mobilization included the work done by the Indian Community Secretariat in their efforts to obtain relief from the effects of mercury pollution.

In sum, the Canadian example of mercury pollution shows clear-cut cases of mobilization.

Blumer's fourth stage is one of "formation of an official plan of action." For the Canadian pollution problem, such a plan has not been arranged. The existing environmental legislation did not serve as the official plan, as noted in the Saskatchewan Law Review, Volume 38, 1973/74:

> Implementation of much of the legislation by regulation or administration has been slow or non-existent. . . . National standards dealing with pollution from mercury, phosphorous, and pulp and paper plants . . . promised under the Fisheries Act, have not yet appeared. A promised pollution claims fund allowing individuals to claim for water, air, and soil pollution has not been established.
>
> Much of the present legislation is impotent as a result of this failure. . . . Unless the federal government is prepared to activate this legislation one is drawn irresistably to the conclusion that the flurry of environmental legislation was designed for political propaganda rather than to genuinely deal with the problems at hand. . . . The legislation rarely gives the individual or a class of individuals a right to sue those who breach it (Troyer, 1977:113).

Federal law was considered insufficient to deal with the problem of mercury pollution, but the cabinet did not act on any new proposals (Troyer, 1977).

The fourth stage of Blumer's model was, therefore, not reached as no official plan of action was formulated. However, a social problem was clearly defined by the affected parties. The fact that Blumer's fourth stage was not reached indicates that at least this stage is not a necessary condition for establishing the existence of a social problem. If this is the case with any of the other stages, the relevance of Blumer's chronology is cast into doubt, although recognition of a cluster of some of the elements may still be important to understanding social problems.

The Swedish Case

The final example to be offered is the incident of mercury pollution in Sweden in the 1960s. At that time, Swedish farmers began to notice that many wild birds were flopping in a helpless manner on the ground, then settled into irregular positions and died (D'Itri and D'Itri, 1977). The eggs of the birds showed high concentrations of mercury. By 1965, Swedish eggs had four times as much mercury as those from most other European countries (D'Itri and D'Itri, 1977). The source of the pollution was apparently the use of pesticides with mercury included. Mercury was noticed in Swedish ham cutlets and various beef cuts (Westoo, 1966). No human deaths were attributed to the pollution in Sweden (D'Itri and D'Itri, 1977).

Information on the Swedish occurrence of mercury pollution is not readily available. In terms of applying Herbert Blumer's (1971) framework, only information is available that shows the fourth and fifth stages of the framework fulfilled. A plan of action was suggested, and this plan was implemented. In 1964, the Swedish Plant Protection Institute restricted the addition of pesticides with mercury to the fall planting. By 1966, all use of these treatments was banned (D'Itri and D'Itri, 1977). The result was a much lower concentration of mercury in the meats, poultry, and liver as well as a lower amount of deaths of the birds (D'Itri and D'Itri, 1977).

In sum, public mobilization in Sweden was not reported. It is, therefore, difficult to state whether or not there was a collective definition of a social problem.

Agency Involvement

In regard to mercury pollution being recognized as a social problem, it is important to note the political and institutional involvement of various agencies. That is, if legislation is adopted to deal with the mercury issue, it is probable that there is perception of a social problem.

For example, as of 1977, about 26 states, including Tennessee, had passed laws regarding the threat of mercury pollution (National Research Council, 1978). These laws generally pertain to the fisheries of the states. In 1975, the occurrence of mercury pollution caused the Environmental Protection Agency to request technical data on health effects (National Research Council, 1978). The World Health Organization also became involved in the perception of mercury as a problem as they studied health/environmental effects (National Research Council, 1978). The essence is that mercury has been recognized as a social problem in a number of instances. Legitimacy of this problem was given by the many laws passed by federal and state bodies as well as by the testimony of independent research scientists. Apparently, the passing of legislation in these prior instances of mercury pollution supports the statement that it has reached the fourth stage of Blumer's (1971) account of a social problem.

Summary

In overall summary, the narratives of past incidents of mercury pollution can be interpreted in the light of elements of Herbert Blumer's (1971) framework. For that reason, the Blumer model, when used as a sensitizing framework, may prove to be a useful research design in examining the Oak Ridge mercury pollution issue.

CHAPTER III

MERCURY POLLUTION IN OAK RIDGE, TENNESSEE--THE EMERGENCE OF THE SOCIAL PROBLEM IN A UNIQUE COMMUNITY

The literature in Chapter II documents the instances of mercury pollution as a social problem. Inasmuch as Blumer's (1971) first stage of social problem development is the "emergence" of such, this chapter will serve as the part of this thesis which shows that the mercury pollution has, in fact, emerged as a problem in the community of Oak Ridge. Since this community is the area of research interest for the project, a history of the city and its current demographic composition will be offered in this chapter, followed by a descriptive account of the mercury pollution problem. From this account, the emergence of the pollution problem in Oak Ridge will be apparent.

History of Oak Ridge

Oak Ridge did not evolve in the way that most cities did. From the outset, it was a planned community. It was established for a distinct purpose; that being the designated site for a major part of the Manhattan Project undertaken by the United States Army during the World War II era. The purpose of this project was the production of the atomic bomb within three years (Johnson and Jackson, 1981). The town was chosen as the optimum site on September 19, 1942. The location was considered ideal in that the area was isolated and there was plentiful land available (Johnson and Jackson, 1981).

Plus, labor supplies were plentiful as communities like Knoxville were close (Case, 1955).

In order to carry out the plans of the United States government, the developmental plans for the atomic bomb were to be carried out at three major plants in Oak Ridge. The gaseous diffusion plant, which was code-named K-25, was begun in 1943 (Johnson and Jackson, 1981). This plant had, as a purpose, combining uranium with a chemical called flourine, thereby putting it into a gaseous form. This gas would be used to separate U-235 from U-238 isotopes. The second plant, also begun in 1943, was code-named X-10 (Johnson and Jackson, 1981). At X-10, a graphite reactor was used for nuclear fission. The third plant central to the development of the atomic bomb was code named Y-12. It was also started in 1943 (Johnson and Jackson, 1981). At this location, uranium was put through a magnetic field where U-235 was separated from U-238. These three new plants became the central places of employment for the new residents of Oak Ridge. The new town was mostly surrounded by fences and had check points at entrances (Kelly, 1943).

The early years of Oak Ridge (prior to the end of World War II) showed no existing core community (Johnson and Jackson, 1981). As a result, the entities that comprise a core community (such as institutions) had to be developed from the ground up. Furthermore, the reservation belonged to the United States government (U.S. Army) and this controlling agency had a vested interest in keeping the community as one that its residents could enjoy, gain spiritual

knowledge, obtain an academic education, and obtain general morale and emotional boosts. As a result, the government was to see that institutions were in place for the residents (Johnson and Jackson, 1981). The U.S. Army did not allow for any random development. Schools were established. Seven were open by 1945 (Johnson and Jackson, 1981). The newly arrived Oak Ridge residents were quite concerned about the quality of education, as many of them were highly educated themselves (Johnson and Jackson, 1981). This resulted in a large teacher recruitment drive, which resulted in the hiring of many Master's degree holders (Johnson and Jackson, 1981). Recreational activities were also provided by the government for the new citizens. Dances, parades, and sporting events were held oftentimes at the Grove Recreational Hall (Johnson and Jackson, 1981). Places of worship, such as the Chapel-on-the-Hill, were built by the Army (Johnson and Jackson, 1981).

In summary, Oak Ridge began as a community with a specific purpose. As a result of that purpose, it is quite certain that a sense of community developed. That is, practically all of the area residents arrived at Oak Ridge at the same time, and they all worked on one specific ultimate goal, the production of the first atomic bomb. As one's identity is tied to one's occupation (Berger, 1964), and so much commonality existed between the workers in Oak Ridge, it is not surprising to note that the sense of community was strong (Johnson and Jackson, 1981). However, this shared identity apparently did not extend to all members of the Oak Ridge community.

Although, as mentioned previously, many of the workers who came to Oak Ridge were well-educated, many lower-educated people were also evident in the area, as they were needed to perform the more menial tasks (Johnson and Jackson, 1981). Many of the lower-class workers on the Manhattan project were black, and they lived in poorly maintained housing (Johnson and Jackson, 1981).

After the end of the war, Oak Ridge's population grew smaller. From a peak of 75,000 during the war years, the population fell to 36,000 by 1947. The town was opened up to the public on March 17, 1949. As a result, strict security measures were somewhat relaxed. The "city behind a fence," as Johnson and Jackson (1981) called it, was no longer that. The Manhattan Project continued to operate, but under civilian control by the Atomic Energy Commission. In 1953, Oak Ridge residents were granted permission to lease land in the area. In 1955, an act was passed by the United States Congress which was the forerunner of permission to allow citizens to own community property and to have self-government. In 1959, municipal government was established in the city.

For many years, Union Carbide Corporation operated the three plants in Oak Ridge, X-10, Y-12, and K-25. In 1984, Martin Marietta Corporation assumed the management of the plants from Union Carbide for the United States Department of Energy (Rickert, 1985).

The town has thus remained under the heavy influence of the three plants and related institutions such as the Oak Ridge Associated Universities. The facilities are heavily involved in research and

development of technology, and are the chief recipients of contract work in both the natural and social sciences.

See Table 1 for demographic data on the Anderson County and Oak Ridge city areas, and Table 2 for socioeconomic data on Anderson County, Oak Ridge city, Tennessee, and the United States. It is noteworthy that the education figures shown in Table 1 are generally higher than any other municipalities in the Knoxville SMSA.

Department of Energy's Economic Implications

In 1942, when Oak Ridge was founded, all expenditures were federal in nature. As time progressed, private funding took over to a large extent, and the major industrial plants became tax-exempt. However, there is still a major amount of funding provided by the Department of Energy. There is assistance to the general fund of the city as provided through the Atomic Energy Community Act of 1955, as amended in 1967. More specifically, in 1970, assistance from the Atomic Energy Commission totaled 32 percent of the city's general fund. For understanding, note that the total city property tax totaled about 40 percent of this fund. The projected assistance from the Atomic Energy Commission totaled approximately $2,800,000 in the projected figures for fiscal year 1976. So, it is apparent that there is substantial assistance from the governmental operations. In fact, the governmental source of funding is the second highest source available to the city of Oak Ridge (Oak Ridge Planning Department, 1970).

TABLE 1

DEMOGRAPHIC DATA

	Anderson County (Percent)	Oak Ridge City (Percent)
	Race	
White	96.0	93.0
Black	3.0	7.0
	Education Completed--Age 25 and Over	
High school graduates	62.2	79.3
One-three years college	10.0	23.0
Four-more years college	20.0	33.0

Source: U.S. Bureau of the Census, U.S. Census Population and Housing: Knoxville, Tennessee SMSA, 1980 (Washington, D.C.: Government Printing Office, 1981).

TABLE 2

SOCIOECONOMIC DATA

	Anderson County (Percent)	Oak Ridge City (Percent)	Tennessee (Percent)	U.S.A. (Percent)
Poverty level (percent of families below)	11.3	6.6	16.5	12.4
Type of occupations held: (age 16 and over):				
Managerial/professional	22.0	33.0	18.0	21.0
Technical/admin/sales	35.0	36.0	24.0	28.0
Total "education directed" occupations	57.0	69.0	42.0	49.0

Mean incomes:

Anderson County:	$25,124
Oak Ridge city:	$27,141
Tennessee:	$19,616
U.S.A.:	$23,433

Source: U.S. Census, Population and Housing: Knoxville, Tennessee SMSA (Washington: U.S. Government Printing Office, 1980).

This review of literature pertaining to the community of Oak Ridge shows the uniqueness of the community. The population is highly educated (it was once the area with the highest per capita rate of PhD's in the nation (Johnson and Jackson, 1981). Incomes are above average compared to the rest of the Knoxville SMSA, and the presence of the governmental operations adds a very important distinguishing factor. To the observer, Oak Ridge remains a very logical and planned community. A visitor can notice the presence of numbered street lights and the alphabetical naming of side streets off of the Oak Ridge Turnpike to gauge this planning.

In summary, several conclusions can be drawn about Oak Ridge as a community. There is a large core of highly educated scientists and technicians. Many of these are long-term residents of the city (i.e., from the inception). A sense of paternalism exists from the presence of the Department of Energy in the community. People have been loyal to the chief economic provider in the community. There is a serious concern with the unauthorized release of classified and unclassified information that could harm either the Department of Energy's operations or the community of Oak Ridge in general. In essence, there is a possibility of an existent power elite in the terms of C. Wright Mills (1956). As Mills notes, members of the power elite tend to socialize together, work together, and have similar social backgrounds. As Oak Ridge brought together many people for one task, it is not surprising that this power elite might exist. Furthermore, Mills (1956) argues that the interests of the military,

big business, and the federal government coincide. In Oak Ridge, all three of these organizations are represented (or have been at some point in history). The Manhattan Project was under the direction of the United States Army, the big business concerns of Union Carbide and Martin Marietta have been present in the community, and the federal government has been represented in terms of the Atomic Energy Commission and the Department of Energy. In Oak Ridge, there has been a high level of technical knowledge coupled with economic dominance. With this state of affairs, how has the mercury pollution issue appeared in the realm of a social problem?

Mercury Pollution in Oak Ridge

The comments of Joseph La Grone, Manager of the Oak Ridge Operations Office of the United States Department of Energy in "The Impact of Mercury Releases at the Oak Ridge Complex" (1983) published as a result of a hearing of the Committee on Science and Technology of the U.S. House of Representatives, provide a history of mercury pollution in Oak Ridge. In the early 1950s, the military defense of the United States required a process requiring lithium deuteride in order to make thermonuclear weapons. The Y-12 plant in Oak Ridge was chosen as the point of production. This production function required the use of the chemical mercury. The lithium separation at the plant took place in two distinct stages. From 1950 to 1955, testing and development of the process was performed. Then, from 1955 until 1963, the actual production function took

place. By 1963, the production plants were placed in a standby mode. The plants were decontaminated at the end of the production process. Although at least one production facility is still in place, it has not operated since 1962.

In 1977, Oak Ridge Operations requested that Union Carbide try to reconstruct the mercury inventory at Y-12 as it had been earlier. The company employed contractors to search for any available data, and this information was presented in a report entitled "Mercury Inventory at the Y-12 Plant 1950 Until 1977." This report relayed the information that about 650,000 pounds of mercury had been put into the environment and that there were 1.9 million pounds that were unaccounted for. Later, in 1982, a meeting took place between the Tennessee Department of Health and Environment and the Oak Ridge Operations Office. At the meeting, the state officials questioned whether or not there was mercury in the East Fork Poplar Creek. The Oak Ridge Operations Office officials responded that there might very well be some reports on the issue, but that they were likely to be considered classified information. The reference to the classified information led the Appalachian Observer, a small weekly newspaper in Clinton, Tennessee, to request information on mercury spillages and emissions in Oak Ridge. This request was made under the Freedom of Information Act. The request was approved, and the 1977 report was released to the state of Tennessee, the Environmental Protection Agency, the city of Oak Ridge, and media outlets. In this report, there was mention of mercury pollution in the New Hope Pond, East

Fork Poplar Creek, and portions of the Clinch River. These locations are in the vicinity of the Y-12 plant, from which the mercury was originally released. However, other locations were identified as well. Some of the mercury was detected at the Oak Ridge National Laboratory (X-10) at the White Oak Creek and White Oak Lake. Also, some losses were identified in the vicinity of the Oak Ridge Gaseous Diffusion Plant (K-25). As a result of the mercury pollution, the state of Tennessee provided legislation in 1982 that prohibited consumption of fish caught from the East Fork Poplar Creek. On May 9, 1983, a twelve-member group called the Oak Ridge Environmental Task Force was appointed to study the pollution. The consensus of regulatory and scientific personnel was that the mercury pollution found in the soil, water, air, and sediment in the area posed no immediate threat to area residents in terms of health concerns. See Table 3 for a more detailed analysis.

The mercury pollution did emerge in light of the first stage of Herbert Blumer's 1971 model of social problems. This first stage, explained in Chapter II as applicable to the Minamata and Ontario mercury pollution cases, is now applied to the Oak Ridge case.

In Oak Ridge, for example, political figures became involved soon after the mass media carried accounts for the mercury pollution in May of 1983. Roughly 90 percent of the newspaper articles collected by this researcher from the Knoxville Journal, Knoxville News-Sentinel, New York Times, Oak Ridger, Nashville Tennessean, and others were published between May and December, 1983.

TABLE 3

MAJOR EVENTS IN MERCURY POLLUTION CONTROVERSY

Date	Event
April 15, 1966	The Knoxville News-Sentinel and The Oak Ridger report that the Atomic Energy Commission revealed that 50,000 pounds of mercury have been lost around the Y-12 plant. The issue concerns the financial loss entailed. Health effects are not an issue. An Atomic Energy Commission spokesperson said that "No one was injured and there was no threat to public health and safety, so we didn't feel it necessary to make an official announcement."
Early 1976	The Elwood Report is commissioned. A planning meeting on preliminary studies for environmental impact statements on the three Oak Ridge Department of Energy facilities was held. Mike Mitchell, coordinator for the K-25 plant, requested that a study on mercury pollution in the Clinch River, East Fork Poplar Creek, and Poplar Creek be performed since a high concentration of mercury had been noted in the sediment surrounding the K-25 plant. The scope of the study was to omit the East Fork Poplar Creek despite Mitchell's request. Jerry Elwood, author of the report, doesn't recall who restricted the study in this fashion. However, he stated that funding for the study was from the Department of Energy and they had final say on the scope of the study.
December 20, 1976	The Elwood Report is presented. It documented that concentrations of total mercury in the muscle of largemouth bass collected in Poplar Creek in 1976 exceeded the Food and Drug Administration level for mercury in fish at 0.5 parts per million, and that 95 percent of the total mercury in these fish was in the methyl form. Recommendations were made for continued monitoring to identify the source of the pollution. The report was classified as "business confidential." The report was circulated for comment.

TABLE 3 (continued)

Date	Event
June 9, 1977	The Mercury Inventory Report at Y-12 was presented. It inventoried mercury losses and spills for the years 1955-77. The report showed 2.4 million pounds either lost or unaccounted for, with about 500,000 pounds discharged into the East Fork Poplar Creek. The report was made classified, and therefore was only distributed to the Department of Energy assistant directors for the three plants (X-10, Y-12, K-25), the plant managers, and the environmental coordinators. A non-classified Union Carbide Nuclear Division memo also reported the loss of a substantial quantity of mercury.
August 2, 1978	The Department of Energy notified the Tennessee Department of Health and Environment about the mercury contamination. Earl Leming, of this state agency, concluded that there was no threat to public health and safety.
August 2, 1978-May, 1982	No further monitoring or sampling for mercury was done. (This only pertained to the directed task of specifically searching for mercury pollution, as yearly Environmental Assessments were still performed with general water sampling for mercury as one of a range of heavy metals.)
December, 1981	Dr. Stephen B. Gough, former employee of the Oak Ridge National Laboratory, Environmental Sciences Division, took grab samples from the Bear Creek and East Fork Poplar Creek of mosses, liverworts, and sycamore rootlets to prepare for a proposal to study trace metal dynamics in plants. The plants were sent to the United States Geological Survey lab in Denver, Colorado. Testing showed that mercury levels were high and unusual, and replicate testing of the same material gave comparable values each time. Union Carbide management squashed further analysis when the results became known and requested that all material be returned from Denver without

TABLE 3 (continued)

Date	Event
	any official recording. Dr. Gough was reprimanded (later rescinded) and was removed from consideration for promotion to a management position at the Y-12 facility. He later resigned his position with the laboratory.
April-May, 1982	The Van Winkle Report was commissioned. It was intended to be a month-long intensive study of a survey of mercury pollution in the East Fork Poplar Creek to determine if any more mercury was being released from the Y-12 plant. The study, which was finalized in September, 1982, concluded that there was a currently active source for mercury in the East Fork Poplar Creek and in New Hope Pond. It noted that 87 percent of the bluegill fish in the upstream area exceeded FDA level of 1.0 µg/g and that mercury concentrations at all stations exceeded background by a factor of 60 or more. The report also indicated that foliage and sediments in the upstream area were highly contaminated.
October 26, 1982	Jerry Wing, Chief of the Environmental Protection Branch of the Department of Energy, wrote a letter to the Tennessee Department of Health and Environment stating that there were no health risks associated with the mercury. This was stated in the context of there not being a significant amount of fishing in the East Fork Poplar Creek area. He also expressed the thought that the FDA levels were too high.
November, 1982	The Tennessee Department of Health and Environment closed the East Fork Poplar Creek to fishing.
January 27, 1983	The Department of Energy discounted the threat of mercury pollution. Jerry Wing, DOE official, in a letter to the Tennessee Department of Health and Environment, said the East Fork Poplar Creek is used rarely for water supplies (only by a few cattle and horses).

TABLE 3 (continued)

Date	Event
March 8, 1983	The Environmental Protection Agency was notified by the state of the extent of the mercury contamination.
May 17, 1983	The Department of Energy released the unclassified mercury inventory report. This public release occurred shortly after it was declassified at the requests of Ed Slavin, editor of the Appalachian Observer newspaper in Clinton, Tennessee, and officials from the Tennessee Department of Health and Environment under the Freedom of Information Act. Mass-media coverage was rampant after this date.
May 23, 1983	The Department of Energy made a presentation to the Oak Ridge City Council.
June 16, 1983	The Department of Energy sent to the Environmental Protection Agency data showing elevated mercury levels near White Oak Creek. This was noted in the soil and sediment near the Oak Ridge National Laboratory.

Source of this Chronology: "The Impact of Mercury Releases at the Oak Ridge Complex," Hearing of the Committee on Science and Technology of the U.S. House of Representatives, July 11, 1983, pp. 796-800.

In sum, the social problem of mercury pollution emerged as a direct result of the media coverage afforded it. That is, although other entities became involved as time passed in the controversy, it is worth noting that the media coverage of May, 1983 led to the further intensity of the emergence of the social problem. Would the mercury pollution problem have emerged without the media coverage? Probably not, as the media's role was central to most of the other occurrences in the controversy, including the release of the 1977 report in May, 1983.

Chapter IV will build on this emergence stage of the social problem of mercury pollution.

CHAPTER IV

MERCURY POLLUTION IN OAK RIDGE, TENNESSEE--THE DATA ANALYSIS OF THE SOCIAL PROBLEM

In this chapter, the problem of mercury pollution in Oak Ridge, Tennessee will be examined, to see if a common collective definition actually exists.

In what way has this social problem developed as an issue? To facilitate this analysis, the various actions that fulfill the various stages of Herbert Blumer's (1971) stages of social problems will be noted and information on the public opinion concerning the mercury pollution will be examined, so as to show the differing perceptions of the social problem.

Methods of Obtaining Data

Data were obtained in three ways. First, open-ended interviews were conducted with people who were involved with the mercury pollution controversy. Those involved included, for example, city council officials in Oak Ridge, newspaper reporters and editors who were immediately responsible for the conveying of the mercury pollution problem to the public, real estate developers in areas affected by the pollution, and attorneys involved in litigation on the pollution. Others interviewed included area business people who were aware of the pollution, but who had no close personal interest in the problem. These people included merchants whose businesses had

apparently not been altered by the pollution, but who were nevertheless concerned about the social problem. The contacts for these interviews were obtained from newspaper accounts on the mercury pollution, provided in the Knoxville News-Sentinel, Knoxville Journal, the Appalachian Observer, and the Oak Ridger. The initial list of 28 names was obtained in this fashion. Initial contacts were asked for other people to contact, in the technique of snowball sampling. In all, 33 people were interviewed. The list of interview questions is provided in Appendix A. This list is merely a protocol, as the people interviewed were encouraged to speak at any length on any of their related interests. As a result, the order of the guiding questions was not strictly adhered to at any time. The interviews were tape recorded and written notes were taken on appropriate points that were made. Furthermore, impressions and notes on non-verbal behavior were noted soon after each interview.

Second, data were obtained from reading newspaper accounts of the pollution. In general, these were taken from the Knoxville News-Sentinel, Knoxville Journal, Oak Ridger, Appalachian Observer, the New York Times, and the Nashville Tennessean.

Third, data were obtained from the testimony provided in the transcript of the Congressional Hearing of "The Impact of Mercury Releases at the Oak Ridge Complex." This hearing aired the sentiments in existence as of July, 1983. Many people expressed opinions there.

Application of Herbert Blumer's Stages

In Chapter III it was noted that the first stage of Herbert Blumer's (1971) collective definition of social problems was fulfilled in Oak Ridge, Tennessee for the mercury pollution issue. Hence, the social problem emerged as a point of public concern. To further show the process by which the social problem is collectively defined, the other stages in Blumer's framework must be examined. Despite the fact that these stages are ordered from "one" to "five," this order is not the central focus of this research. The presence of the stages regardless of order is the key information that is sought. Such a presence will allow the development of the central theme of the collective definition of social problems. By noting the presence or absence of group involvement and interaction, a collective perspective will be shown to exist or not.

Stage Two: Legitimation of Social Problems

Blumer describes the legitimation of social problems as the stage of social endorsement. The problem must acquire a degree of respectability which allows it to be in the arenas of public discussion, such as the press, radio and television, the church, the school, civic organizations, legislative chambers, and the assembly places of officialdom. The Oak Ridge mercury pollution was discussed in the newspapers and on the radio and television. The Knoxville Journal, Knoxville News-Sentinel, Oak Ridger, Nashville Tennessean, Appalachian Observer, and the New York Times printed information

about the controversy. Knoxville radio stations WIVK-FM, WIVK-AM, WMYU, WKGN, and WIMZ aired stories about the controversy. Media coverage was noted as early as 1966, and as late as 1984. Table 4 provides a distribution of the newspaper coverage by month.

At the First United Presbyterian Church of Oak Ridge, at least one discussion on mercury pollution took place in a social awareness seminar. A meeting took place at the Spurgeon Chapel AME Zion Church to discuss the mercury's implications for the Scarboro community. No public discussion in the school was discovered. As noted in the Oak Ridger newspaper on June 22, 1983, principals at Jefferson and Robertsville Junior High Schools had had no concern reported about mercury. The Oak Ridge City Council discussed the issue. They had been involved in environmental matters through recommendations made by the Environmental Quality Advisory Board, which they appoint. The Environmental Quality Advisory Board is a voluntary citizen panel. Some of the members are scientists, such as ecologists and chemists. Other members have little or no technical expertise. The group attempts to reflect the opinions of other Oak Ridge residents, and has the resources to obtain technical aid as it is needed for environmental matters (Coutant, 1983). Public meetings occurred at the Municipal Building in Oak Ridge, as Department of Energy officials answered questions from the public. Meetings also occurred at the Scarboro Neighborhood Community Center so the black residents could air their views.

TABLE 4

DISTRIBUTION BY DATE OF NEWSPAPER ARTICLES ON MERCURY POLLUTION

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
					1966						
			2								
					1967-1982						
					None						
					1983						
				25	32	37	19	17	14	10	17
					1984						
2	3	2				3	2	1	4		1

Stage Three: Mobilization of Action

Blumer describes this stage as the point at which the problem becomes an object of discussion, of controversy, of differing depictions, and of diverse claims. Advocacy, discussion, evaluation, falsification, diversionary tactics, and advancing of proposals occur in media. Casual meetings, organized meetings, legislative chambers, and committee hearings also are oftentimes a part of this stage.

Mercury pollution was discussed in a controversial sense on many occasions. For example, workers at the Y-12 plant in Oak Ridge attributed many ill effects to a lack of safety measures related to the mercury. Several workers, responding to a survey reported in the Oak Ridger on December 5, 1983, noted that problems with teeth and nerves were related to the mercury. But, these claims of worker illness were not upheld by a Department of Energy report. As a Department of Energy spokesperson stated in the Oak Ridger on October 26, 1983, "There were no significant signs of mercurialism during the time of the operations, nor have the studies conducted since shown any long-term effect from these mercury exposures." As a result of this disagreement, many Y-12 workers became interested in an administrative claim against DOE.

The controversy is also evident on another level. The state of Tennessee's findings on the extent of the pollution differed from those of the DOE. Before the 1977 mercury report was released in May of 1983 due to the Freedom of Information Act filing, Jerry Wing of DOE had told the state's Water Management Division that

no more than 200,000 pounds of mercury had been released. In actual fact, this amount, as disclosed in the 1977 report, was 2.4 million pounds. The Tennessee Valley Authority charged DOE with a cover-up of information. This was noted in the Knoxville Journal on May 19, 1983.

Health effects from the mercury continuously were controversial. For example, an attorney for the Legal Environmental Assistance Foundation said that the Department of Energy should not downplay the seriousness of the mercury pollution for human health.

The controversy centered upon the information disclosure topic. A Tennessee Valley Authority board member referred to DOE's action in the controversy as a cover-up. But, DOE officials countered by noting that there were no health hazards or relatively insignificant environmental matters. According to Dr. Nathaniel Revis (1983), about 98 percent of the mercury in Oak Ridge is in the inorganic form, which is much less dangerous than the organic form, which killed people in Minamata, Japan.

Group mobilization is apparent for the social problem of mercury pollution in Oak Ridge. In essence, there is a general controversy which centers upon the Department of Energy versus area citizens. On an institutional level, the controversy is between the Department of Energy versus other agencies, such as the Tennessee Valley Authority and the Tennessee Water Management Division. There are two types of disputes. First, health effects are a topic of discussion. Second, information disclosure by DOE

is the focus of discussion by many of the parties involved. Apparently most, if not all, of the discussion on the mercury pollution issue took place in official meetings, with little or no informal discussions (see Table 5).

The discussions that took place on the mercury show that mobilization was evident. Evaluation of the problem took place, for example, at the June 23, 1983 meeting between the Tennessee Valley Authority, Tennessee state officials, Oak Ridge city officials, and the DOE. At this meeting the seriousness of the problem was discussed, and possible methods to solve it were advanced. As noted in Table 5, many other examples exist of mobilization at organized meetings. An example of the advancing of proposals occurred at the meeting between DOE, the Environmental Protection Agency, and the Tennessee Department of Health on May 26, 1983, which resulted in the agreement on a Memorandum of Understanding. In essence, mobilization was strong in the mercury pollution case. Members of the public were heavily involved.

Another segment of the mobilization stage is noted in the media. The perspectives taken by the editors of various newspapers are summarized in Table 6.

Mobilization is shown as evident through the newspaper editorials. As an object of discussion, the information policy of the DOE was the overriding theme.

TABLE 5

MERCURY POLLUTION AS AN ISSUE OF DEBATE: THE DISCUSSIONS

Date	Participants	Summary
May 6, 1977	Oak Ridge Operations Union Carbide Corporation Tennessee Valley Authority	Tennessee Valley Authority will help monitor the creek, but is not alarmed at the preliminary data on mercury found.
April 8, 1983	Environmental Protection Agency Tennessee State Health Department	Discussed DOE's non-compliance in mercury matters, possible solutions.
May 23, 1983	Oak Ridge City Council DOE	DOE assures candor to the council; fears are set aside.
May 26, 1983	Department of Energy Environmental Protection Agency Tennessee Department of Public Health	The three agencies agree on a Memorandum of Understanding as to the jurisdictions of regulation of environmental matters.
June 1, 1983	Environmental Quality Advisory Board	Discussed moratorium on building permits for land around East Fork Poplar Creek, but decided to call for assessment instead.
June 10, 1983	Department of Energy Oak Ridge City Council	DOE assures candor on mercury problem.

TABLE 5 (continued)

Date	Participants	Summary
June 22, 1983	Department of Energy Scarboro residents	DOE assures candor to Scarboro residents and notes that mercury levels are low. Scarboro residents' comments unavailable.
June 23, 1983	Tennessee state officials Tennessee Valley Authority Oak Ridge city officials DOE	Reviewed data on mercury pollution. Discussions on the magnitude of the problem and the method to solve it.
July 11, 1983	DOE Various agencies Mercury scientists Group representatives	Congressional Hearing (see page 70).
July 12, 1983	Kiwanis Club Oak Ridge Mayor	Mercury is not a threat, but other substances are.
August 4, 1983	Environmental Quality Advisory Board	Wants more interpretation from DOE on mercury data.
August 9, 1983	Department of Energy Tennessee Department of Health and Environment Environmental Protection Agency	Study of environmental recovery plan for Oak Ridge

TABLE 5 (continued)

Date	Participants	Summary
October 11, 1983	Department of Energy Tennessee Department of Health and Environment Oak Ridge Associated Universities Oak Ridge National Laboratory City of Oak Ridge National Center for Disease Control	Discussed methodology for the guidelines for levels of mercury in soil.
November 28, 1983	Department of Energy City of Oak Ridge Environmental Quality Advisory Board	Discussed plan for clean-up.
December 5, 1983	Oak Ridge City Council Department of Energy	Obtained updates on environmental recovery plans.

TABLE 6

NEWSPAPER EDITORIALS ON MERCURY POLLUTION

Date	Newspaper	Summary
May 19, 1983	Knoxville Journal	Editorial cartoon documents DOE's information disclosure problems.
May 20, 1983	Huntsville, Alabama Times	DOE treated the whistleblower, Stephen Gough, unfairly. The public has a right to know about environmental problems.
May 25, 1983	Oak Ridger	DOE should have been more candid.
May 28, 1983	Knoxville Journal	Editorial cartoon documents pollution in Oak Ridge creeks.
May 30, 1983	Appalachian Observer	Accountability is necessary by DOE. Justice must be done.
June 8, 1983	Appalachian Observer	DOE has not been candid.
June 9, 1983	Nashville Tennessean	DOE engineered a cover-up.
June 12, 1983	Knoxville News-Sentinel	DOE has not been candid.
June 16, 1983	Knoxville Journal	DOE has not been candid.
June 23, 1983	Oak Ridger	DOE has not been candid.
July 13, 1983	Oak Ridger	Congressional Hearing showed that there are no current health effects from mercury.

TABLE 6 (continued)

Date	Newspaper	Summary
July 20, 1983	Appalachian Observer	DOE is not always cooperative with the press.
July 20, 1983	Appalachian Observer	Other area newspapers' big business interests did not allow them to be as aggressive on the mercury issue as the Appalachian Observer.
December 2, 1983	Knoxville Journal	DOE cannot be trusted to tell the truth.
December 6, 1983	Oak Ridger	The Knoxville Journal has sensationalized the mercury pollution story.

Stage Four: Formation of an Official Plan of Action and Stage Five: Implementation of an Official Plan of Action

Blumer describes these stages as the formation and implementation of an official plan to deal with the problem. This occurs in legislative committees, legislative chambers, and executive boards. This official plan is almost always a result of the collective bargaining of interested parties, so that diverse views are accommodated. When the official plan is implemented, it is oftentimes altered as unanticipated events can appear after the initial formation.

For the purposes of this project, the official plan of action is defined as a major clean-up of the mercury spill. Some of the mercury has been cleaned up, as shown by the skimming of tons of polluted dirt around the Oak Ridge Civic Center. But this plan was not comprehensive enough to be considered an official plan of action. Although many such official plans have been considered, it appears that no concrete plan has been formed for the clean-up of the bulk of the mercury. For example, signs were posted along the affected East Fork Poplar Creek which read, "WARNING--THIS STREAM IS CONTAMINATED--FISH UNSAFE FOR FOOD--MERCURY (TENNESSEE DEPARTMENT OF PUBLIC HEALTH)." This decision was made in the legislative chambers of the state of Tennessee. The Department of Energy has started a monitoring program which, for example, found high concentrations of mercury in the Oak Ridge Civic Center/Municipal Building areas. DOE's plan to monitor the mercury was designed in consultation with the state of Tennessee. For example, Bill Kaspar, Department of

Energy spokesperson, stated to the Oak Ridge City Council that compliance reviews for all three plants in Oak Ridge--X-10, Y-12, and K-25--would be presented within a specific time frame. This study would include the mercury pollution problem, with particular attention being given to recommendations by other groups and agencies, including the National Institute of Occupational Safety and Health and the Atomic Trades and Labor Council. Furthermore, input was solicited from experts from Johns Hopkins University, the University of Rochester, Duke University, and Kettering Institute. Kaspar describes this group as a peer review vehicle. Another action was the analysis of hair and urine samples from Oak Ridge area residents to study for the presence of mercury. Finally, plans have been made for mercury-worker health studies. A random selection of 70 persons employed at Y-12 before 1967 was made and these people were invited to participate in the study. This plan will be implemented under the direction of the Center of Epidemiological Research at Oak Ridge Associated Universities. Technical assistance is given by the National Institute of Occupational Safety.

Essentially, studies are continuing on the mercury pollution problem. Research shows that studies could lead to a comprehensive plan of action, but at this time no such plan exists. A consortium of agencies, including DOE, the Environmental Protection Agency, Tennessee Department of Public Health, National Center for Disease Control, and the Tennessee Valley Authority, have been coordinating the studies.

Summary of the Application of Blumer's Framework to the Oak Ridge Mercury Pollution

Herbert Blumer's framework is useful in that it allows us to see the basic controversy of the mercury pollution issue in Oak Ridge, but it does not delve deeply enough. The apparent emergence of the controversy is between the Department of Energy and other agencies and between the Department of Energy and the area citizens. To investigate this social problem on a deeper level, it is necessary to provide a more detailed type of analysis. The analysis will follow in the next section of this chapter.

Group Involvement in the Oak Ridge Mercury Pollution Controversy

The goal of obtaining a collective definition of the social problem of mercury pollution in Oak Ridge, if one exists, will be approached by the study of the process involved in public opinion formation. To study this process, it will be necessary to study group involvement in the controversy. The following nine groups were involved in the mercury pollution controversy:

1. Oak Ridge Chamber of Commerce. The group was organized in 1949. It is an organization of business and professional people who promote economic development in the Oak Ridge/Anderson County area. The group includes over 250 members. The group was involved in the controversy by making a statement at the 1983 Congressional Hearing.

2. Roane-Anderson Economic Council. RAEC is a long-standing group of area business people who are interested in the economic betterment of the Oak Ridge/Anderson County/Roane County region. The group is similar to a regional Chamber of Commerce. The group made a statement at the 1983 Congressional Hearing.
3. Atomic Trades and Labor Council. ATLC is the recognized union representing nearly 4,600 hourly employees at the Oak Ridge National Laboratory and the Y-12 plant. The group made a statement at the 1983 Congressional Hearing and has surveyed plant workers on health questions.
4. Save Our Cumberland Mountains. SOCM is a coalfield citizens' organization based outside of Oak Ridge. The group is involved in the protection of land from unlawful stripmining, emissions from coal companies, and other environmental issues. SOCM is composed of ordinary citizens, with an open membership policy. The group organized area citizens and worked with LEAF.
5. National Association for the Advancement of Colored People. The group was organized over 15 years ago. This chapter of the NAACP promotes the interests of the black community in Oak Ridge. The group made a statement at the 1983 Congressional Hearing.
6. Legal Environmental Assistance Foundation. LEAF is a public-interest law firm specializing in environmental matters. The organization has as a primary objective ensuring accountability of governmental agencies on matters affecting the environment

and public health. The group prepared lawsuits against DOE and made a statement at the 1983 Congressional Hearing.

7. Committee of Fifty. The group was organized in 1983. It is a broad-based citizens' action group promoting growth and development of business, industry, and population in Oak Ridge. Retired people, business people, homemakers, and other constituencies are represented. The group made a statement at the 1983 Congressional Hearing.
8. Oak Ridge Area Client Council. The group is a grassroots community organization composed of poor and working poor. The group made a statement at the 1983 Congressional Hearing.
9. Scarboro Neighborhood Improvement Association. SNIA is a long-standing group of citizens in a predominately black neighborhood of Oak Ridge. The group seeks to improve the attractiveness and general quality of life in the neighborhood. The group surveyed Scarboro residents about the mercury pollution and made a statement at the 1983 Congressional Hearing.

See Appendix B for detailed responses for each question posed to the representatives of the above groups on the topic of mercury pollution. See also Tables 7, 8, and 9 for a summary of group involvement in the mercury pollution controversy.

TABLE 7

SUMMARY--GROUP INVOLVEMENT IN THE MERCURY POLLUTION CONTROVERSY

Group	General Concerns	Source of Knowledge	Participation
Oak Ridge Chamber of Commerce	Media sensationalization and the image of the city	Newspaper and television	Statement at the 1983 Congressional Hearing
Roane-Anderson Economic Council	Media sensationalization and the image of the city	Seen in area creeks before public disclosure	Statement at the 1983 Congressional Hearing
Atomic Trades and Labor Council	Some minor health effects, DOE's information policies	Newspaper	Statement at the 1983 Congressional Hearing, health surveys of plant workers
Save Our Cumberland Mountains	DOE's information policies, potential health effects	Reporter with the Appalachian Observer	Organizing area citizens, work with Legal Environmental Assistance Foundation
National Association for the Advancement of Colored People	Media sensationalization and the image of the city	Newspaper	Statement at the 1983 Congressional Hearing
Legal Environmental Assistance Foundation	DOE's information policies	Newspaper and Tennessee state official	Statement at the 1983 Congressional Hearing, prepared lawsuit against DOE
Committee of Fifty	Media sensationalization and the image of the city	Workers at plants	Statement at 1983 Congressional Hearing
Oak Ridge Area Client Council	Serious health effects in Scarboro, racist policies of DOE	Unknown	Statement at 1983 Congressional Hearing
Scarboro Neighborhood Improvement Association	Media sensationalization and the image of the city	Members of the Oak Ridge Environmental Quality Advisory Board	Statement at the 1983 Congressional Hearing Scarboro residents survey

TABLE 8

SUMMARY--GROUP PERCEPTION OF DEPARTMENT OF ENERGY AND GOVERNMENTAL OFFICIALS' INVOLVEMENT

Group	Perception of DOE	City Officials' Role	Tennessee Officials' Role	Federal Officials/ Congressional Hearing
Oak Ridge Chamber of Commerce	Generally acceptable handling of information	Little power	Brought action, but caused media sensationalization	Caused media sensasationalization, but did get funding to solve problem
Roane-Anderson Economic Economic Council	Somewhat unacceptable handling of information	Represented citizens but little power	Brought action, but caused media sensationalization	Allowed for media coverage to offset negative publicity
Atomic Trades and Labor Council	Very unacceptable handling of information	Played problem down, to try to avoid bad publicity	Brought action on mercury and other environmental problems	Brought about needed public awareness
Save Our Cumberland Mountains	Very unacceptable handling of information	Little power	Brought action	Brought about public awareness
National Association for the Advancement of Colored People	Somewhat acceptable handling of information	Little power	Brought action on mercury and other environmental problems	Brought focus to the issue
Legal Environmental Assistance Foundation	Very unacceptable handling of information	Conflict of interest between council and DOE	Brought action on mercury problem	Federal officials accomplished little. Hearing brought about public awareness
Committee of Fifty	Somewhat unacceptable handling of information	Represented citizens but little power	Caused media sensationalization	Brought focus to the issue
Oak Ridge Area Client Council	Very unacceptable handling of information	Insufficient representation of blacks on council	Unknown	Unknown
Scarboro Neighborhood Improvement Association	Somewhat unacceptble handling of information	Little power	Brought action on mercury problem	Got funding to clean up mercury and other environmental problems

TABLE 9

SUMMARY OF TESTIMONY OF WITNESSES AT THE CONGRESSIONAL HEARING ON JULY 11, 1983

Witness	Affiliation	Testimony Summary
Joseph La Grone	Manager, Oak Ridge Operations Office	Gave history of mercury pollution, overview of general environmental situation at Oak Ridge, assured openness and candor in solving problems
Howard Zeller	Assistant Regional Administrator for Policy and Management, Environmental Protection Agency	Environmental problems are serious and must be corrected. However no imminent threat to health is evident with present level of knowledge
Michael Bruner	Assistant Commissioner, Tennessee Department of Health and Environment	Mercury poses a great health and environmental concern. Other pollutants are also evident. Funding is necessary to correct problems. All involved agencies must work together to solve environmental problems
David Freeman	Director of Tennessee Valley Authority	Mercury and other pollutants pose a potentially harmful situation. A cleanup is necessary, and the Tennessee Valley Authority is willing to work with the Department of Energy in these matters
Chester R. Richmond	Associate Director for Biomedical and Environmental Sciences, Oak Ridge National Laboratory	Mercury does not constitute an acute risk to human health. Knowledge of a long-term threat is not available without more information

TABLE 9 (continued)

Witness	Affiliation	Testimony Summary
Stanley Auerbach	Director, Environmental Sciences Division, Oak Ridge National Laboratory	Monitoring procedures of mercury in Oak Ridge environs have been in effect for several years. Mercury does not pose an acute health risk
Nathaniel Revis	Director of the Oak Ridge Research Institute	Risk to human health is minimal, but monitoring should continue
Charles Coutant	City of Oak Ridge, Environmental Quality Advisory Board	Concerned but not alarmed about mercury. Monitoring should continue
Frank D'Itri	Institute of Water Research, Michigan State University	No immediate health hazards from mercury. Concerned about potential effects in the future
Edward Slavin, Jr.	Editor, The Appalachian Observer, Clinton, Tennessee	DOE's information disclosure policies have been unacceptable on the mercury problem
Stephen Gough	Former employee, Environmental Sciences Division, Oak Ridge National Laboratory	Dealings with Union Carbide management and their suppression of data of mercury pollution
James Fuzzell	Chairperson, Oak Ridge Area Client Council	Department of Energy held racist policies against people of Scarboro Community as a great deal of mercury was dumped there
Terry Weaver	President, National Association for the Advancement of Colored People--Oak Ridge Chapter	Mercury problem is large but can be solved. DOE has history of not acting in the best interests of the Scarboro Community. There is public mistrust

TABLE 9 (continued)

Witness	Affiliation	Testimony Summary
Dean Rivkin	Legal Environmental Assistance Foundation and University of Tennessee College of Law	DOE cannot be trusted to comply with laws. They must be brought into compliance
A. K. Bissell	Former Mayor of Oak Ridge	Media sensationalization has hurt DOE and the City of Oak Ridge
Jeffrey Ginsburg	President, Oak Ridge Ridge Chamber of Commerce	Concerned, but not in a state of panic over the mercury. Economic problems have surfaced due to media sensationalization
Ben Adams	President, Roane-Anderson Economic Council	Economic problems have surfaced due to media sensationalization
Jo Ann Garrett	Interim Chairperson of Committee of Fifty	Oak Ridge's image has been hurt by media sensationalization
Robert Keil	President, Atomic Trades and Labor Council	Any health effects to area plant workers must be identified

Source: "The Impact of Mercury Releases at the Oak Ridge Complex," Hearing of the Committee on Science and Technology of the U.S. House of Representatives, July 11, 1983, pp. 5-525.

Discussion of Results

General Concerns

In general, many of the involved social groups were concerned about media sensationalization of the mercury pollution problem. These groups did not believe that the mercury pollution problem warranted the type of coverage afforded it, especially by the Knoxville newspapers. The Oak Ridger newspaper, on the other hand, was generally viewed as less sensational. Interestingly, only the social groups based within the city of Oak Ridge showed this concern. Those outside the area, including the Legal Environmental Assistance Foundation and Save Our Cumberland Mountains, did not show this concern about the media. It is therefore apparent that the Oak Ridge groups, with the possible exception of the Atomic Trades and Labor Council who view the media exposure as an impetus to solve the problem, are quite concerned about the image of the community. The sense of community in Oak Ridge, addressed in Chapter III, has apparently persisted since the days of the Manhattan Project. Oak Ridge residents have pride in their community, and strongly resent the nearby media outlets of Knoxville putting any type of negative image upon it.

Source of Knowledge

In line with the controversy on how the Department of Energy handled the information, this research shows that five of the nine social groups found out about the mercury from the media. One gets

the impression that this was almost akin to reading about losing your job in the newspaper. These groups would have preferred obtaining the information directly from the Department of Energy. The area groups saw the citation of the Freedom of Information Act as an event which lowered the credibility of the Department of Energy. Again, it is noted that the problem was one of information.

Participation

The research shows that only one group, Save Our Cumberland Mountains, based outside of Oak Ridge, was involved in citizen organizing. Other groups were more passive, participating only in terms of the 1983 Congressional Hearing and by administering health surveys to area workers. The research therefore shows that activism did not exist to any large extent among the citizens.

Perception of Department of Energy

Although the groups' perception of media sensationalization shows a profound sense of loyalty to Oak Ridge, this loyalty does not extend to the Department of Energy. Many of the social groups, with the exception of the Oak Ridge Chamber of Commerce, are moderately to greatly concerned about the methods that the Department of Energy uses in handling information (see Table 8). These groups, while thinking that the mercury pollution problem is under control and is devoid of health effects, see the controversy as the proverbial tip of the iceberg. What else is the Department of Energy not telling the community? Are there other substances, either more or less

hazardous than mercury, that DOE knows about but refuses to admit because the information has been classified as confidential? In essence, there is a majority opinion that the Department of Energy has breached the trust of the citizens. DOE's public relations have improved, however, since the mercury pollution controversy with the installation of Joseph La Grone as head of DOE's Oak Ridge Operations office. He is perceived as candid by most area citizens. In essence, the Department of Energy's legitimacy to keep the nature of certain information secret is not as well defined as it was during the years of the Manhattan Project, or even as late as the last few years. Area citizens no longer want to be told that some information is confidential without a reason that is acceptable. Area citizens do not accept the topic of mercury pollution as a legitimate secret in that it has nothing to do with national security. Rather, the information must be provided in that it directly affects the environment and living conditions, even if only in terms of community image. The atomic bomb has been developed and dropped and the citizens want to get on with the business of being a normal community. As a representative of the Committee of Fifty said, "information paranoia" is evident and it gives the city a bad image.

City Officials' Role

Most social groups see the city of Oak Ridge officials as relatively powerless in the mercury pollution controversy. This status is one that is inherent, as the state of Tennessee and

federal officials had greater expertise. But, the city council did provide an interim place for meetings between the citizens and the Department of Energy. One representative of the Legal Environmental Assistance Foundation noted that a conflict of interest might result because of the employment by Martin Marietta of several city councilpeople. A representative of the Atomic Trades and Labor Council noted that the city officials played the problem down so that bad publicity could be avoided. A member of the Oak Ridge Area Client Council noted that there was insufficient representation of blacks on city council. In essence, the city officials played a very minor role in the mercury pollution controversy. But, it is inconclusive from the research whether the city's inaction was completely due to their inability to accomplish actions, or, rather, from an unwillingness to do so due to conflict of interest.

Tennessee Officials' Role

Tennessee state officials, on the other hand, were viewed as a central part of the mercury pollution controversy. By practically all of the groups, the state officials were viewed as heavily involved. But, many groups believed that the state officials' characterizations of Oak Ridge, when reported in the media, greatly hurt the image of the city. But, the blame for these characterizations seems to be put on the media, rather than on the state officials. There seems to be a long-term resentment of the Knoxville media outlets by the citizens of Oak Ridge. They are seen as self-serving,

while the Tennessee state officials are not perceived as possessing this type of self-interest.

The Congressional Hearing on the Impact of Mercury Releases at the Oak Ridge Complex and Federal Officials' Involvement

All of the involved groups presented testimony at the 1983 Congressional Hearing on mercury pollution except for Save Our Cumberland Mountains. As this is the case, some discussion is warranted on the dynamics of this hearing.

The Congressional Hearing before the Subcommittee on Investigations and Oversight and the Subcommittee on Energy Research and Production of the Committee on Science and Technology of the United States House of Representatives of the Ninety-Eighth Congress took place on July 11, 1983. Representative Albert Gore of Tennessee was the chairman of the Subcommittee on Investigations and Oversight and Representative Marilyn Lloyd of Tennessee was the chairwoman of the Subcommittee on Energy Research and Production. Jointly, these individuals called the hearing, which took place at the American Museum of Science and Energy in Oak Ridge. The Committee on Science and Technology became involved with the issue due to their responsibilities for fossil conservation and basic research programs at the Oak Ridge National Laboratory and the Subcommittee on Energy Research and Production drew their involvement from their responsibilities for nuclear fission research and development and magnetic fusion energy programs for the Department of Energy (Lloyd,

1983). Table 9, page 66, lists the witnesses who testified at the hearing and gives a brief summary of their testimony.

On May 17, 1983, as noted earlier in this report, the Department of Energy released the mercury inventory report as required under the Freedom of Information Act as cited by the Appalachian Observer. Less than two months later, on July 11, 1983, a full Congressional Hearing was held on the issue. In terms of studying the mercury pollution as a social problem, the decision to hold the Congressional Hearing is central to the analysis. To discover the justification for holding the hearing, Senator Albert Gore of Tennessee and the Chief Aide to Representative Marilyn Lloyd of Tennessee, Howard Elliot, were interviewed. Gore and Lloyd were the driving forces behind the decision to hold the Congressional Hearing. In essence, the hearing was held after media accounts depicting the pollution convinced Lloyd that there was a potentially serious problem. Lloyd discerned that Oak Ridge area citizens were in favor of obtaining a full disclosure of the mercury problem, especially since DOE was forced to release the inventory report under the Freedom of Information Act. Lloyd contacted Senator Gore, and expressed her sentiments. As a result, the hearing was organized. Apparently, the Department of Energy had no role in making the decision that the Congressional Hearing be held.

As noted above, several witnesses testified at the hearing. Senator Gore (1985) noted that these witnesses were obtained from the groups that Representative Lloyd knew existed in the Oak Ridge

Oak Ridge area. Furthermore, scientific experts were obtained from the contacts at the Oak Ridge National Laboratory and through federal governmental officials. The representatives of the group who testified at the hearing were asked to make any appropriate statements that they wished about the mercury pollution problem. No limit, other than time was placed upon their testimony.

Many witnesses who testified believe that the hearing served to extinguish any panic that might have occurred as a result of the pollution. Also, many of the witnesses who were contacted noted the hearing captured the attention of important federal officials who could appropriate money to clean up the environmental problems of Oak Ridge, including the mercury and other substances. Furthermore, the hearing apparently gave further evidence of the Department of Energy's apparent lack of candor. That is, although representatives of DOE did testify at the hearing, members of the groups concur that the hearing would not have been necessary if DOE had been candid at the outset. In essence, Herbert Blumer's (1971) stage two in the career of social problems model, which is legitimation, was fulfilled to a great extent by the interest of the United States government in the Congressional Hearing.

Effects on Economics and Quality of Life

A primary topic in this research has been the one of media sensationalization. The social groups, as a general rule, believe that the primary problem was an effect on the economics and quality of life in the area by the media sensationalization. Many of the

interviewees expressed the concern that Oak Ridge would receive an image like the Three Mile Island area of Pennsylvania or Times Beach, Missouri as a result of the media coverage. One developer of property near the East Fork Poplar Creek in Oak Ridge said that his property sales had been hurt by the pollution because of signs posted that warned about the dangers of the pollution. One banker noted that citizens new to the area would often talk about the mercury, sometimes in a joking manner. It was difficult, however, to quantify any concrete economic losses in terms of property values as a result of the pollution.

Plan of Action to Follow?

Members of the groups had various suggestions for a plan of action for the mercury pollution cleanup. Many think that monitoring should continue and information should be disclosed in a better manner by the Department of Energy. The Oak Ridge Chamber of Commerce believes that the signs along East Fork Poplar Creek should be taken down, but the Scarboro Neighborhood Improvement Association believes that the signs should remain. The Legal Environmental Assistance Foundation believes that the Oak Ridge plants should be brought into compliance with the environmental laws. The Atomic Trades and Labor Council, representing workers who dealt with mercury directly, would like to see better safety equipment for these workers. It is apparent that the various suggestions for the plan of action reflect each group's self-interest. Table

10 lists the groups, the effects on economics and quality of life, and questions the plan of action to follow.

Scarboro Community

Initial media accounts noted that the people of the Scarboro Community were extremely concerned about the mercury pollution. These accounts noted charges of racism, but the interviews show that there is much less concern. Three black citizen organizations were included in this research. Two of them, the National Association for the Advancement of Colored People and the Scarboro Neighborhood Improvement Association, showed little concern about the pollution, at least in terms of health effects. The Department of Energy was not charged with racism by these groups. Instead, these social groups are concerned about the image of the community of Oak Ridge. A third group, the Oak Ridge Area Client Council, did charge the Department of Energy with racism and unfair treatment, as noted in the Congressional Hearing. This researcher was unable to locate this group, and members of the Scarboro community were generally unaware of their status now. This leads to the conclusion that there are some blacks in Scarboro who are concerned with mercury's health effects and the possibility of racism from the Department of Energy, but this is not the majority opinion. The opinions of two long-standing groups in the community would seem to outweigh the opinion of a group that is no longer able to be located.

TABLE 10

SUMMARY--GROUP PERCEPTION OF EFFECTS ON ECONOMICS AND QUALITY OF LIFE

Group	Effects on Economics and Quality of Life	Plan of Action to Follow?
Oak Ridge Chamber of Commerce	Media sensationalization hurt property sales	Monitoring, remove warning signs along creek
Roane-Anderson Economic Council	Media sensationalization hurt image of Oak Ridge	Spend less money cleaning up mercury
Atomic Trades and Labor Council	Media sensationalization hurt image of Oak Ridge	Better information disclosure by DOE, better safety equipment for plant workers
Save Our Cumberland Mountains	Unaware of any effects	Area citizens must be organized in reaction to DOE's policies
National Association for the Advancement of Colored People	Media sensationalization hurt image of Oak Ridge	Monitoring, trusting the government
Legal Environmental Assistance Foundation	Two hundred homes with mercury contamination on land	Monitoring, compliance with environmental laws
Committee of Fifty	Media sensationalization hurt image of Oak Ridge	Better informa- disclosure by DOE
Oak Ridge Area Client Council	Unknown	Clean up, health screening of residents
Scarboro Neighborhood Improvement Association	Media sensationalization hurt image of Oak Ridge	Leave signs along creek up

Implications for Social Action

Armand Mauss (1975) refers to the case that social problems are a special type of social movement. In light of the data analyzed for Oak Ridge mercury pollution, what conclusions can be drawn in regard to social action that would allow a social movement to develop?

It is apparent that a social movement in reaction to the actual mercury pollution has not developed in Oak Ridge. Neil Smelser (1962) argues that certain conditions make a society susceptible to an episode of collective behavior. One of Smelser's (1962) conditions is that of strain in a society. This refers to the discrepancies in the normative sustem and ambiguities between people's ideals and realities. Strain is but one of the determinants of collective behavior. Other elements, such as structural conduciveness, generalized belief, precipitating event, mobilization, and agents of control must be present in the society for collective behavior to occur (Smelser, 1962). The necessary elements of collective behavior also must be considered in reference to cultural standards, much like the argument given by Gross and Rayner (1985) of cultural relativism. The research shows that the people of Oak Ridge do not perceive these determinants of collective behavior, at least in terms of the actual mercury pollution. But, the information disclosure problem of the Department of Energy has been the impetus for a social movement, although it is loosely organized. The research shows that area citizens expect better information disclosure practices from DOE. Testimony at the 1983 Congressional

Hearing showed a consensus which allowed for a collective definition of a social problem.

DOE's future practices in disclosure of information will allow further research into the realm of social movements in Oak Ridge. It is apparent that the potential for a much larger social movement has been initiated due to the mercury pollution controversy. But, as previously stated, this is the first large breech of trust by DOE, so only future revelations will test the potential.

CHAPTER V

CONCLUSIONS

Summary of the Collective Definition of a Social Problem

In Chapter IV, Herbert Blumer's (1971) framework for the study of social problems was employed to show that the mercury pollution controversy had fulfilled the requirements of certain stages of social problems. With that noted, how does this model stand in relationship to the data collected by interviewing leaders of groups? In essence, it is apparent from the study of the data that a collective definition has occurred. Blumer's (1971) thesis that social problems are a result of collective definition is upheld in this research. That collective definition is not about the issue of mercury pollution, however. Rather, it is the information disclosure of the Department of Energy. The concern of the information disclosure policy was the most often cited concern in this research. The topic of mercury pollution merely allowed the core issue of the DOE information policy to emerge. Blumer's (1971) thesis allowed the realization that the social problem emerged, got legitimated and action was mobilized. Although this framework is sufficient for one social problem, such as the actual mercury pollution, how does it allow for a second social problem, such as the information policy of the Department of Energy? In the course of the stages, the focus of the topic of interest changed from mercury pollution to the information policy of the Department of Energy. Apparently, this change took

place in the stage of mobilization of action. At that point, as Blumer (1971) states, the problem becomes the object of discussion. In the mercury pollution case, the discussion, which mainly took place at the 1983 Congressional Hearing, resulted in the belief that the mercury did not constitute a health hazard. At that point, however, the concerns of the people did not cease to exist. Instead, there was a new focus. This was the problem of the information policy of the Department of Energy. So, this particular case shows an issue being formed, and later giving way to another issue, while the two are still related. This occurred through the definition process. Social problems, as Blumer (1971) states, are not mere reflections of the issues that give rise to them. If they were, the core issue as the information policy of the Department of Energy would probably not have emerged. It is more likely that it would have remained unknown.

Limitations of this Study

The recent occurrence of the mercury pollution has not allowed the issue to become completely understood. As noted in the research, studies that could lead to a plan of action to clean up the mercury are still underway. There are still many unknowns. Perhaps, in the next decade an understanding of the issue will be more apparent. A more accurate analysis of the problem would result.

The interviews for this study were confined to Oak Ridge. As a result, the community was the focus of the research, while

some of the problem definition was caused by those outside the area. Funding and time restraints did not allow a larger focus.

Also, the apparent breach of trust caused by the DOE is a first time occurrence in Oak Ridge. Although another incident which would highlight the breach of trust by DOE would possibly be unfortunate to the area citizens, it would certainly allow a social scientist to make comparisons and contrasts with the mercury issue.

Herbert Blumer's (1971) model of social problems might very well be limiting and rather ambiguous at times. For example, some of the actions, such as mass-media accounts of the pollution, could fit into the first stage of emergence or the third stage of mobilization. The subjective nature of this framework concerned this researcher at some points, and it was only through consultation with others that decisions were made as to which stage to categorize actions from the controversy. Blumer's model is also limiting in terms of sequence. The order of the occurrence of certain actions as a social problem need not follow the model to be understood. As Blumer states, it is not completely clear how social problems emerge. This uncertainty casts some doubt to the first stage of the model. Furthermore, there is quite a substantial amount of overlap in the events of the mercury pollution when the Blumer model is applied. Mobilization occurred in all three stages present in the Oak Ridge case, for example. In essence, Blumer's model sensitizes, but it is not testable.

Implications for Further Research

In Chapter III, the uniqueness of Oak Ridge as a community was examined. Oak Ridge has had this status since its founding during World War II, but many changes are now in focus. As private industry grows, the community will look to the government to a lesser extent for financial support. The Oak Ridge Gaseous Diffusion Plant (K-25) is closing and this will severely affect the local economy. Oak Ridge is becoming, from the terms of a member of the Committee of Fifty, a more "normal" city. As a result, it is apparent that the area citizens will no longer accept the World War II philosophy of withholding information. The Department of Energy will, in all probability, be held much more accountable for matters such as the mercury spill in later years. As this document is being completed, it has been revealed that a great deal of uranium has been found in the area environment. As in the mercury pollution case, the information was released only after the Freedom of Information Act was cited. An attorney for the Legal Environmental Assistance Foundation has noted that there will be further revelations in the years ahead that show the Department of Energy acted less than responsibly in environmental matters. Further research should concentrate on DOE's information policies to note whether or not there has been any improvement. The mercury pollution case was the first test of those policies; more tests must be performed to discover any changes.

Also, further research should be performed on the area citizens' trust of the government. In the next decade, if other DOE information mistakes are made, will the local people become further enraged? Has the new candor of the manager of Oak Ridge Operations, Joseph La Grone, been accepted?

Perhaps a modified version of Blumer's (1971) model of social problems could be adopted to limit the ambiguity of the current model. One possibility is the adaptation of a more systematic content analysis framework, which would categorize actions taken by the various involved parties. Or, it might be advantageous to seek out the work of other social scientists to discover a more appropriate model.

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APPENDICES

APPENDIX A

INTERVIEW QUESTIONS

1. When you hear the phrase "mercury pollution in Oak Ridge," what is your initial reaction?

2. How and when did you hear about the mercury pollution controversy?

3. How have you and/or your group participated in the mercury pollution controversy?

4. Please discuss your perception on how the Department of Energy handled the controversy. Did they have a right to withhold information?

5. Describe the Oak Ridge city officials' role in the controversy. What did they accomplish, in your opinion?

6. Describe the Tennessee state officials' role in the controversy. What did they accomplish, in your opinion?

7. Describe the federal officials' role in the controversy. What did they accomplish, in your opinion?

8. Describe any groups or organizations involved in the controversy.

9. Are you aware that there was a Congressional Hearing on the issue? Did you attend? Did you participate? What did the hearing accomplish, in your opinion?

10. Are you aware of any quantifiable economic damages or harm to the general quality of life in the Oak Ridge area because of the mercury pollution? If so, what are they?

11. Please elaborate on how media handled the controversy. If aware, please compare Oak Ridge media to Knoxville media in terms of fairness.

12. What plan of action should be taken in this controversy?

APPENDIX B

SUMMARY OF INTERVIEW TAPES

A. Oak Ridge Chamber of Commerce

Nature of Interviewees

Seven members of the Chamber of Commerce, including the president of the organization at the time of the 1983 disclosure of the mercury pollution, were interviewed. These included a bank president, some small business owners, and a bank manager.

Opinions on Mercury Pollution Controversy

General Concerns: The overriding perception is that mercury is not a health risk. One of the interviewees fished in the creek for years, and has never seen any ill effects. These business people have a great deal of trust in the scientists who study the mercury pollution, and since they have concluded that there are no great health risks from the mercury, they believe this. The business people put a great deal of trust in the Oak Ridge Environmental Quality Advisory Board, charged with the monitoring of environmental policies in Oak Ridge. The business people believe that the scientists on this board, and the Oak Ridge National Laboratory scientists who were involved in the study of pollution have knowledge that the ordinary citizens do not have. Therefore, trust should be placed in their assessments of the issue.

Source of Knowledge of the Mercury Pollution. All members of this social group learned about the mercury pollution from the media. In particular, the Oak Ridger newspaper was credited along with a Knoxville television station. Hence, these people learned about the controversy in May of 1983, when the 1977 mercury spill report was released in response to the Freedom of Information Act filing.

Participation in Controversy. Only one member of the Chamber of Commerce actively participated in the mercury pollution controversy. This is the past president, who made a statement on behalf of the group at the 1983 Congressional Hearing on the issue. None of the members of the chamber were involved in any type of grassroots activism groups.

Perception of the Role of the Department of Energy. In general, there was little disagreement about the manner in which the Department of Energy handled the mercury pollution controversy, especially in relation to information disclosure activities. One member of the chamber expressed a slight bit of concern that DOE had not been giving as much information as they should have, but this was justified in that much of their information is classified. Praise was expressed for the current administration of Joseph La Grone, the manager of DOE's Oak Ridge Operations. La Grone has been open with the business community, in that many presentations have been made through the city council.

City Officials' Role in the Controversy. The overwhelming view is that the city officials did not have a great deal of power in this controversy. They were, instead, a vehicle by which decisions were implemented in the controversy. The Oak Ridge City Council acted as a liaison between the Department of Energy and the citizenry.

Tennessee Officials' Role in the Controversy. The state officials, by bringing in experts, brought focus to the issue and helped greatly with the plan of action. Unfortunately, the media sensationalized some of the comments made by Tennessee officials which put a negative image on Oak Ridge. One official said, for example, that Oak Ridge was a "witch's cauldron" of environmental problems. This angered chamber members, as Oak Ridge was therefore labeled as a poor place to live and work. The perception is that the Tennessee state officials did not try to place a bad image on Oak Ridge. Rather, they sought to rectify the pollution. By taking the comments out of context, the media harmed Oak Ridge.

Federal Officials' Role in the Controversy/Congressional Hearing. Two different views were taken by chamber members on this topic. Some viewed the federal officials' involvement as unnecessary, and, in fact, somewhat damaging to Oak Ridge in that the media sensationalized the Congressional Hearing in May of 1983. In these members' opinions, the media were able to take various comments from those who testified out of context and present that Oak Ridge really had terrible environmental problems, when, in fact, the major outcome of the hearing was that there were no health hazards from the mercury.

The other view taken by chamber members was that the Congressional Hearing was a positive step in the controversy. It allowed the city to get the attention of Congress, thereby permitting the Department of Energy to obtain funding to solve any environmental problems in Oak Ridge, whether or not the mercury was considered a hazard.

Economic Damages and Quality of Life. Members of the chamber were aware of some economic harm as a result of the controversy. But, this harm was not a result of the actual pollution. Rather, it is from the media sensationalization. One member of the chamber has lost property sales and has had to slow building development in the west end of Oak Ridge. One banker noted that people who move to Oak Ridge often show concern about the pollution, but they still decide to reside in the area after being reassured that the mercury pollution has no real health implications. A group of Canadians who used to train for the Oak Ridge Rowing Association have ceased to visit due to the media sensationalization.

Plan of Action to Follow? Members of the chamber agreed that monitoring of the mercury should continue in the area streams and in the land. Furthermore, money allocated by the federal government should be used to clean up any environmental problems in Oak Ridge. But, members of the chamber believe that the signs posted at the East Fork Poplar Creek that warn against fishing should be taken down, in that they are causing lost real estate sales in the area.

Oak Ridge Chamber of Commerce Conclusions

The mercury pollution was, in the minds of the members of the Oak Ridge Chamber of Commerce, a media event. Members of the chamber are quite willing to entrust the scientific experts with the determination of the possible health effects of the mercury pollution. In that light, the Department of Energy is trusted for the most part. Members of the chamber are concerned about the tarnished image of Oak Ridge, and the resulting implications for the economic health of the region. Media outlets are looked upon with some suspicion, although the Oak Ridger newspaper is, by and large, trusted to a much greater degree than are the Knoxville Journal and the Knoxville News-Sentinel newspapers. Members of the chamber hope that the mercury pollution controversy in the media has run its course, and that the negative image brought about will cease to exist in the minds of the public.

B. Committee of Fifty

Nature of Interviewee

The president of the organization at the time of the 1983 Congressional Hearing was interviewed. This person made a statement on behalf of the group at the hearing. Currently, this person is involved with the group in the capacity of past-president.

Opinions on Mercury Pollution Controversy

General Concerns. The mercury pollution problem is not one of health and environmental concerns. Rather, it stems from the poor image that Oak Ridge has obtained from the publicity in the media. It is the observation of the Committee of Fifty that the vast majority of Oak Ridgers do not feel threatened by the mercury in the health and environmental areas. But, the negative publicity does hurt the future of Oak Ridge. Oak Ridge has many good attributes, like the excellent safety record at the area plants and millions of heart scans using produced thallium isotopes. Unfortunately, these items of good news do not travel, but the bad news does. The scientists know how to handle this mercury. Let them do this.

Source of Knowledge of Mercury Pollution. Members of the group knew about the mercury pollution from workers at the plants in Oak Ridge from at least ten years ago.

Participation in the Controversy. The group participated in the 1983 Congressional Hearing. At this event, a statement was presented that outlined the group's concerns.

Perception of the Role of the Department of Energy. The Department of Energy made the mercury pollution problem worse by giving the appearance of a cover-up. Historically, there has been secrecy in the community. People of the community have continued to accept this tradition. But, the atomic bomb has been developed, so information should now be given more freely. In a way, such withholding of information gives a guarded, frightened, and suspicious attitude. This adversely influences the image of Oak Ridge, especially as a result of media accounts.

City Officials' Role in the Controversy. The city officials had little power in the controversy. Other groups and agencies were more involved in the issues.

Tennessee Officials' Role in the Controversy. The state officials might have used some bad terminology in defining the problem in Oak Ridge.

Federal Officials' Role in the Controversy/Congressional Hearing. The federal involvement allowed for a close examination of the issue. Many things were accomplished, such as the appointment of an oversight committee to help ensure that the Department of Energy acts responsibly in the area of environmental problems.

Economic Damages and Quality of Life. The main effects have been, as mentioned earlier, the image problems that the media have given the area. The group is aware of one real estate developer who claims that the posting of the mercury pollution warning signs along the East Fork Poplar Creek has hurt sales of his property. But, the actual mercury has apparently not caused any direct economic problems.

Plan of Action to Follow? The information paranoia must be cured if Oak Ridge is to downplay the past. Oak Ridge should succeed as a normal city as opposed to a cargo cult whose destiny is totally dependent on outside forces essentially beyond control. The mercury, in particular, seems to be under control.

Committee of Fifty--Conclusions

The Committee of Fifty shows little, if any, concern about the pollution effects of mercury on health and environment. The scientists in Oak Ridge are entrusted with solving the problem of pollution. Rather, the group's concern is about how Oak Ridge is perceived by outsiders. Oak Ridge must set aside the past philosophy of withholding information if it is to go forward and develop both economically and socially.

C. National Association for the Advancement of Colored People

Nature of Interviewee

The president of the NAACP in Oak Ridge was interviewed. This person was responsible for providing testimony for the 1983 Congressional Hearing on behalf of the organization.

Opinions on Mercury Pollution Controversy

General Concerns. The actual health hazards are not a point of great concern. Rather, the mercury pollution was overdramatized by the media, especially the Knoxville newspapers and the Appalachian Observer. But, the overexposure of the mercury pollution hazards allowed officials to uncover other environmental problems that need attention. So, in that respect, the media have performed a service.

Source of Knowledge of the Mercury Pollution. The Appalachian Observer provided the knowledge of the mercury pollution. This was reported before the blitz of media coverage in May of 1983. The

Appalachian Observer, of course, was responsible for initially reporting this story of the mercury pollution.

Participation in Controversy. The NAACP's role was like any other group involved in the controversy. The group sought to find out what was happening in relation to the controversy regardless of racial matters.

Perception of the Role of the Department of Energy. The Department of Energy has a history of being secret about certain information. That type of operation was sanctioned, and was accepted by the citizens. It stemmed from the war effort of the Manhattan Project for the building of the nuclear bomb. So, the mercury pollution issue was handled in this way. There did not seem to be any intention to deliberately cover up any information. DOE did, basically, all that they could do, considering the methods used in providing information to the citizens. But, what hasn't DOE told the citizens? Are there any other problems that the citizens need to be aware of?

City Officials' Role in the Controversy. The Oak Ridge city officials have many concerns other than the environmental problems of the area. The city officials were concerned about the health and safety and the image of Oak Ridge as were, for example, the Tennessee state officials.

Tennessee Officials' Role in the Controversy. At first, there was some reluctance on the part of Tennessee state officials to tackle the problem of mercury pollution. This was due to the confusion about the laws that were applicable to the controversy. But, the Tennessee Department of Health and Environment did play a major role in the issue after questions were resolved. This included the taking of hair and urine samples from area citizens to test for mercury contamination.

Federal Officials' Role in the Controversy/Congressional Hearing. The Congressional Hearing was a positive step in bringing focus to the problem of mercury pollution. It allowed for many groups and people to voice concern about the issue.

Economic Damages and Quality of Life. This representative is not aware of any property value damage due to the mercury pollution. However, the image of Oak Ridge is at stake. The psychological damages of being labeled by the media and others as a "mercury

pollution capital" can be great. It would not be good to be tainted image-wise like the area around Three Mile Island in Pennsylvania. Will people want to move here? Can the community economically survive?

Plan of Action to Follow? Monitoring of the streams and land should continue. There is the belief that the government is doing the best job that it can to clean up the Oak Ridge environment, not only the mercury pollution, but other elements as well. People want to believe the government.

National Association for the Advancement of Colored People--Conclusions

Despite media accounts of members of the black Scarboro community in Oak Ridge showing a great deal of concern about the mercury pollution, this representative of the National Association for the Advancement of Colored People does not support these concerns. There appears to be a relatively strong amount of trust placed in the Department of Energy, although there is some concern that there are other environmental problems that DOE has not disclosed. The NAACP does not view the mercury pollution controversy on racial lines. Rather, they prefer to see themselves as yet another interested party in the controversy who show concern about the pollution for the city of Oak Ridge as a whole. The mercury is not seen as a threat to human health.

D. Legal Environmental Assistance Foundation

Nature of Interviewees

Two attorneys, who presented testimony at the 1983 Congressional Hearing, were interviewed.

Opinions on Mercury Pollution Controversy

General Concerns. It is unclear whether or not any health hazards exist because of the mercury pollution. There are probably some potential implications, but these are difficult to determine at this point. Perhaps, the fish in the streams have some mercury. But, nothing is certain.

Source of Knowledge of the Mercury Pollution. One attorney read about the controversy in the Appalachian Observer newspaper, and the other was told by Barry Sulkin of the Tennessee Department of Health and Environment. Both attorneys heard about the controversy in the month of February, 1983.

Participation in Controversy. Both attorneys participated only in the sense of the Legal Environmental Assistance Foundation. They did not, for example, become involved in the controversy on a grassroots level (outside of the foundation). Through LEAF, testimony was presented at the Congressional Hearing that reviewed the appropriateness of various laws for the controversy.

Perception of the Role of the Department of Energy. It was apparent that the Department of Energy purposely withheld the information about the mercury for over ten years. This information problem was really the main issue for some time. There was a great breach of public trust from the actions undertaken by DOE. The people at DOE have a fortress mentality that says, "Our job is to build bombs, and damn the consequences." They did not think that they should be accountable. That attitude really hurt DOE, especially in the eyes of the media. Their openness has improved since this controversy broke, although there might be other revelations in the future that will be just as bad. DOE resisted the jurisdiction of the Environmental Protection Agency and the Tennessee Department of Health and Environment. But, DOE is now providing some aid in the form of systematic health surveys. That is a step in the right direction.

City Officials' Role in the Controversy. The main concern is that all of the city council members work for Martin Marietta or the Department of Energy. Doesn't that limit their effectiveness? How can they deal with the issue of mercury pollution when their allegiances are considered?

Tennessee Officials' Role in the Controversy. The officials from the state did an outstanding job in bringing focus to the issue, especially given their limited resources. They were somewhat aggressive on the issue. This was achieved despite the huge bureaucracy they were confronted with.

Federal Officials' Role in Controversy/Congressional Hearing. In essence, the federal officials accomplished very little in the controversy. For example, the Environmental Protection Agency was co-opted with the Department of Energy, so they were ineffective. Congresswoman Marilyn Lloyd, who presided over the 1983 Congressional Hearing, was more interested in the image of Oak Ridge rather than the actual pollution problem. Representative Albert Gore, who also presided over the hearing, was somewhat more serious about focusing on the issue of mercury pollution. In essence, the hearing did help, in some ways, to bring focus and attention to the pollution problem. DOE was put on the alert because of the hearing.

Economic Damages and Quality of Life. There are 200 homes that have land with mercury contamination in Oak Ridge.

Plan of Action to Follow? A continuing assessment of the environmental problems at the government's plants should be in effect. This is being done, but not quickly enough. All of the Oak Ridge facilities should be brought into compliance with the environmental laws. The Department of Energy should not be allowed to avoid the jurisdiction.

Legal Environmental Assistance Foundation--Conclusions

Members of this group do not state that there have been, or will be any adverse health effects from the mercury pollution in Oak Ridge. Rather, the problem is defined as one of information disclosure from the Department of Energy. These representatives of LEAF are concerned that DOE has not disclosed information about many potentially hazardous materials. If DOE was not willing to openly discuss the mercury pollution, could they be hiding information about other environmental problems?

E. Scarboro Neighborhood Improvement Association

Nature of Interviewee

The president of the Scarboro Neighborhood Improvement Association responded to questions. This person provided a letter which detailed some of the area residents' concerns about the mercury pollution at the 1983 Congressional Hearing. This letter was presented in conjunction with the testimony provided by the National Association for the Advancement of Colored People.

Opinions on Mercury Pollution Controversy

General Concerns. People in the Scarboro neighborhood are, as a general rule, not concerned about the mercury pollution in the area. In fact, other neighborhoods of Oak Ridge, which are either integrated or all-white, have more reason to be concerned about the pollution. These other areas received much more of the pollution than did Scarboro. Why did this issue get perpetuated by the media? Possibly, the media found a story in the idea that there was this big company picking on a minority neighborhood.

Source of Knowledge of Controversy. The interviewee was made aware of the mercury pollution from members of the Environmental Quality Advisory Board.

Personal Participation in Controversy. All participation came through the Scarboro Neighborhood Improvement Association. SNIA presented testimony at the 1983 Congressional Hearing, and surveyed Scarboro residents on their attitudes toward the pollution. The group acted as a liaison between the Scarboro community and the city of Oak Ridge in mitigating any concerns that the residents had.

Perception of the Role of the Department of Energy. Certainly, DOE made a mistake in withholding the information about the mercury pollution. If they had it to do over again, they would have certainly released it voluntarily. The information problem that DOE caused resulted in greater damage than the mercury pollution itself. It was an information problem, primarily, although the mercury itself is still a problem, in that there are many unknowns.

City Officials' Role in the Controversy. There are a great deal of unknowns, so the city has had problems in deciding what course of action to take. They have been patient, in that they have worked with the State of Tennessee, the Environmental Quality Advisory Board, and the Environmental Protection Agency. The city has acted as a liaison between the citizens of Oak Ridge and the other involved agencies.

Tennessee Officials' Role in the Controversy. The role of the Tennessee state officials was the definition of the mercury as a problem. It was a big problem, and their involvement allowed this definition. Their strong statements about the pollution caused action to be taken that was necessary to form a plan of action.

Federal Officials' Role in the Controversy/Congressional Hearing. The federal officials' involvement allowed for enough high-powered concerns so that the Department of Energy was able to get enough money to clean up the problems of the environment in Oak Ridge.

Economic Damages and Quality of Life. The interviewee is not aware of any property value damage or any detrimental effects to the quality of life in Scarboro or any other areas of Oak Ridge. Some economic damages are possible, however, due to the community image portrayed by the media outlets, but this is something that would be difficult to quantify.

Plan of Action to Follow? The signs warning against the mercury pollution in East Fork Poplar Creek should be left up for a while. There are new residents of Oak Ridge who need to be warned.

Scarboro Neighborhood Improvement Association--Conclusions

Members of this social group are somewhat concerned about the mercury pollution, but for Oak Ridge as a whole, and not particularly for their own neighborhood. The mercury pollution was not a racial issue. Rather, the media perpetrated the belief that the Scarboro neighborhood had been unjustly treated by the Department of Energy. This media bias resulted not from a malicious intent to lie, but rather from misunderstandings. Members of the Scarboro Neighborhood Improvement Association are concerned with the overall image of Oak Ridge as well as that image of their own community.

F. Save Our Cumberland Mountains

Nature of Interviewee

An organizer with the group was interviewed. This person was heavily involved in the mercury pollution issue in Oak Ridge.

Opinions on Mercury Pollution Controversy

General Concerns. The mercury pollution showed the great amount of federal smugness that is in operation. In other words, the government believes that anything done in the interest of national security is exempt from any outside regulators. There is an attitude that the general public does not know enough to understand an issue such as mercury pollution. The scientists believe that they know what the problems are and there is no need to inform the masses.

Source of Knowledge of Mercury Pollution Controversy. Members of this group knew Ed Slavin, the editor of the Appalachian Observer, who "broke" the story on mercury pollution. Consequently, members of the group knew about the pollution before the May, 1983 media disclosure. In particular, the membership in Roane County knew months before the media disclosure that the problem existed.

Participation in the Controversy. The group was involved with organizing area citizens in reaction to the mercury. Such grassroots efforts occurred all over Anderson County and Roane County. In particular, the group worked with the Legal Environmental Assistance Foundation in a study of the Department of Energy's compliance with the federal laws that regulate environmental matters.

Perception of the Role of the Department of Energy. The Department of Energy did everything they could to cover up the mercury pollution controversy. There is evidence of this; it came out at the 1983 Congressional Hearing. The damages of the mercury itself are probably in the past now, but what else is the Department of Energy hiding? What about other types of toxic wastes? The mercury issue was the tip of the iceberg.

City Officials' Role in the Controversy. The group never really dealt with the city officials. The city is really irrelevant in the future of Oak Ridge.

Tennessee Officials' Role in the Controversy. The state officials were quite central in the issue. The group made an issue of the fact that the Tennessee state officials had not correctly regulated the Department of Energy's Oak Ridge operations. This caused action on the state's part. They began to be more interested in their duties.

Federal Officials' Role in Controversy/Congressional Hearing. The Congressional Hearing was important in telling the world about the mercury pollution problem. It brought focus to the issue in this manner. Therefore, it was effective. But, the federal officials were not the group's concern. This group was only concerned with the state of Tennessee. In any event, it appears that the involvement of the federal officials along with an expert on mercury pollution are at the plants and surrounding community, even though the effects of mercury had long since passed.

Economic Damages and Quality of Life. The possibility certainly exists for property value damages, but the group is not aware of anyone personally who has had economic damages. This issue wasn't the concern of the group.

Plan of Action to Follow? The main focus should be in organizing the area citizens. How do they perceive the way that the Department of Energy is handling the wastes? Do they agree with their policies? The area citizens, therefore, should have more input into the policies which are used in Oak Ridge.

Save Our Cumberland Mountains--Conclusions

The grassroots organization, Save Our Cumberland Mountains, was quite vocal in its opposition to the policies of the Department of Energy. Although this group thinks that the possible negative

effects of the mercury have probably passed, there is a greater implication. This is the information policy of the Department of Energy. Are they withholding any other information on hazardous wastes? Is DOE complying with the various laws mandated by the State of Tennessee and the United States Government? In general, then, can the Department of Energy be trusted? Save Our Cumberland Mountains supports the ordinary citizens in Oak Ridge and the surrounding areas. How can these people be assured that their health will be protected?

G. Atomic Trades and Labor Council

Nature of Interviewee

The president of the Atomic Trades and Labor Council was interviewed. This person presented testimony at the 1983 Congressional Hearing.

Opinions on Mercury Pollution Controversy

General Concerns. There is no certainty that the mercury has caused serious health effects. There have been some reports of teeth falling out and the like, but effects such as cancer are hard to prove. There are cancer problems among workers at the plants, but it is probably not related to mercury. Moreover, the controversy was centered around the Department of Energy's disclosure of information activities. Why didn't DOE tell about the mercury pollution problem?

Source of Knowledge of Mercury Pollution Controversy. The group found out about the mercury from the local newspaper. Due to the secrecy of the program, even the workers who were members of the union did not talk about the mercury. As a result, it was necessary to wait until the newspapers carried the story to find out about the pollution.

Participation in the Controversy. The Atomic Trades and Labor Council presented a statement at the 1983 Congressional Hearing. Also, the group conducted a health survey of mercury workers. The results showed little health implications from the pollution.

Perception of the Role of the Department of Energy. The Department of Energy, when involved in the nuclear bomb effort, was required to keep certain information secret. This attitude has carried over into the present time. During World War II, the security issue was valid. But, it is no longer valid. DOE used the security issue

as a screen. They could have opened up with the mercury information. They hoped that people would forget about the pollution. Any issue, including mercury, which is involved in health and safety, should be openly discussed with the public.

City Officials' Role in the Controversy. Some city officials played the mercury pollution problem down after adverse publicity. The Atomic Trades and Labor Council agrees that the publicity is harmful, but will not ignore the detrimental effects of the mercury.

Tennessee Officials' Role in the Controversy. Although the state officials had many strong words for the mercury pollution in Oak Ridge which caused adverse publicity, their involvement proved to be fruitful. Other wastes were discovered due to their work in studying the area creeks and ponds.

Federal Officials' Role in Controversy/Congressional Hearing. The Congressional Hearing brought about a public awareness of the issue of mercury pollution. The hearing showed some of the true colors of the Department of Energy. Many of their answers to questions were evasive. In all, the hearing helped a great deal in bringing focus to the issue.

Economic Damages and Quality of Life. For the most part, there is little private property involved. The image of Oak Ridge might have suffered due to the media coverage, but at least the issue was brought into focus.

Plan of Action to Follow? The Department of Energy must be forced to disclose information to the workers at the plants. The council has pushed "Right to Know" legislation. It is unclear how much effect this will have. But, workers must be informed as to what they are working with and what the hazards are. Proper safety equipment must be provided.

Atomic Trades and Labor Council--Conclusions

The Atomic Trades and Labor Council defines the problem of mercury pollution in terms of the Department of Energy's handling of information. They are quite critical of the policies that DOE uses, and believes that a more open policy should exist. The mercury, per se is not considered as a major health hazard by the group. However, the group is concerned about other hazardous materials, especially those which the Department of Energy has not disclosed.

H. Oak Ridge Area Client Council

Nature of Interviewee

The chairperson of the Oak Ridge Area Client Council is unable to be located. As a result, his testimony from the 1983 Congressional Hearing is all that is available.

Opinions on Mercury Pollution Controversy

General Concerns. There could very possibly be some health effects from the mercury. Why are fish dying in the creeks? Why have relatives, employed at the plants for many years, died of cancer? In particular, why has the black Scarboro neighborhood been used as a dump site by the Department of Energy? The group does not accept the statement by the Department of Energy that Scarboro is less contaminated than the rest of Oak Ridge.

Source of Knowledge of Mercury Pollution. Unknown.

Participation in the Controversy. The group presented testimony at the 1983 Congressional Hearing. Other participation is not disclosed in the transcript of the testimony.

Perception of the Role of the Department of Energy. The Department of Energy has misinformed the Scarboro community about the mercury pollution problem. DOE will not admit that the pollution is of hazardous proportions. Fish are dying, and turtles show a high concentration of mercury. Is our nation unconcerned about the lower income residents? DOE must be forced to comply with the rules that, for example, the Environmental Protection Agency has set down.

City Officials' Role in the Controversy. There is only one black on the Oak Ridge City Council. Scarboro has already undergone the disparities of not having a profound voice in city government.

Tennessee Officials' Role in the Controversy. Unknown.

Federal Officials' Role in the Controversy/Congressional Hearing. Unknown.

Economic Damages and Quality of Life. Unknown.

Plan of Action to Follow? The Department of Energy must clean up the area environment. On-site health screening must take place, including hospitalization, if necessary. Any medical tests should be done by independent clinics.

Oak Ridge Area Client Council--Conclusions

This group views mercury pollution as a definite health hazard. In particular, there is anger expressed toward the Department of Energy as it is perceived that they used the Scarboro community as a dump site. Consequently, racism is charged. The Department of Energy has not been frank with the citizens of Scarboro, in the opinion of the Oak Ridge Area Client Council.

I. Roane-Anderson Economic Council

Nature of Interviewee

The chairman of the Roane-Anderson Economic Council was interviewed. This representative is the president of a large architectural and engineering firm in Oak Ridge. This representative presented testimony in conjunction with the Oak Ridge Chamber of Commerce at the 1983 Congressional Hearing.

Opinions on Mercury Pollution Controversy

General Concerns. There have been many examples of media sensationalization of the mercury pollution issue. Members of the council read newspapers from Knoxville, Nashville, and Chattanooga. One headline in the Knoxville Journal read, "Toxic Mercury Saturated Oak Ridge." Such misleading information has done a great deal of damage to Oak Ridge's image. The group is concerned about health and environmental issues, but it appears that the major harm has come from the information perpetrated by the mass media.

Source of Knowledge of Mercury Pollution. The group was aware of mercury ten years ago. The chairman has seen it in the area creeks. But, this was prior to it being considered "pollution." At that time, the mercury was not considered a great problem. Only after May, 1983 when the media released the amount of information that it did, was the mercury considered "pollution."

Participation in Controversy. The interviewee's business has performed contract work for the Y-12 plant's drainage system for the mercury pollution. The Roane-Anderson Economic Council participated in the Congressional Hearing on the pollution.

Perception of the Role of the Department of Energy. From the inception of Oak Ridge, the Department of Energy did not provide information to anyone voluntarily. Under the need to keep information secret about the atomic bomb, this was legitimate. But, this same mindset has continued on and on. So, it is not surprising that the mercury pollution issue came to a head. Why has the Department of Energy operated for over 35 years without thinking that the mercury was important enough to disclose to the public?

City Officials' Role in the Controversy. The city has, essentially, represented the citizenry in asking and getting correct information from the Department of Energy. But, their involvement was limited in that other organizations such as the Environmental Protection Agency and the state had more weight.

Tennessee Officials' Role in the Controversy. The officials from the state had some negative characterizations for Oak Ridge, such as being a "witches' cauldron" of environmental problems. This type of talk made the pollution into a media event, which was not good. It hurt the image of Oak Ridge. But, comments like this helped to bring focus to the issue and generally get solutions suggested.

Federal Officials' Role in Controversy/Congressional Hearing. Representative Albert Gore was the saving grace in the mercury pollution controversy. He was well-informed about the issue, and this was reflected at the Congressional Hearing. The hearing was quite worthwhile in that it brought focus to the issue. It allowed for media coverage to offset some of the negative information that was printed previously. It also allowed entry to the Congressional Record.

Economic Damages and Quality of Life. The major harm has not been from the direct result of the mercury pollution in the environment. Rather, the major harm has been the result of the negative image of Oak Ridge as relayed by the media. Misinformation can only hurt the economic and social environment of Oak Ridge.

Plan of Action to Follow? The problem of mercury pollution is under control. The amount of money appropriated to clean up the pollution is too high. It is overkill.

Roane-Anderson Economic Council--Conclusions

The group does not believe that the mercury is a health hazard. Rather, they view the problem in terms of how the city of Oak Ridge has been affected by the negative publicity and how the Department of Energy discloses information to the area citizens. Both dimensions have caused problems for the community. The Department of Energy must begin to be more open with the area citizens, and the media reporters must report correct information.

VITA

Lawrence S. Solomon was born in Charlotte, North Carolina on August 17, 1957. He attended elementary schools in that city and graduated from Charlotte Latin School in June 1975. The following August he entered North Carolina State University. In January 1977 he transferred to The University of Tennessee, Knoxville and in March 1979 he received a Bachelor of Science degree in Business Administration. He then worked in radio broadcasting while resuming studies at The University of Tennessee. In June 1983 he received a Bachelor of Arts degree. The following September he entered the graduate school at The University of Tennessee, Knoxville. He received the Master of Arts degree in Sociology in August 1985.

While a graduate student, Mr. Solomon served as a research assistant at the Oak Ridge National Laboratory in Oak Ridge, Tennessee assigned to a project involving hazardous materials. He has published technical reports at the laboratory.

The author is a member of Phi Eta Sigma, Southern Sociological Society, and the Popular Culture Association in the South. Following graduation, Mr. Solomon will enter the doctoral program in Sociology and Anthropology at North Carolina State University, where he will serve as a teaching assistant.