State-Corporate Crime in the U.S. Nuclear Weapons Production Complex: A Case Study

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STATE-CORPORATE CRIME IN THE U.S. NUCLEAR WEAPONS PRODUCTION COMPLEX: A CASE STUDY

by

David Kauzlarich

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
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Department of Sociology

Western Michigan University
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The objectives of this research are (1) to identify the characteristics of the environmental law violations committed during the production of nuclear weapons, (2) to identify the historical forces and events which have contributed to those violations, and (3) to use data on the illegal acts of the nuclear weapons production complex to help adjudicate between a number of competing explanations of the causes of organizational crime.

This research, a qualitative, socio-historical case study, found that a historical and structural level of analysis is best equipped to explain the causes of the weapons production complex’s criminality. The conclusion of this study is that the crimes of the weapons complex were caused by the interplay of historical exigencies and geo-political necessities.
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My deepest gratitude is extended to my wife, Sandy, for her patience, encouragement, and sacrifices needed to bring this project to fruition.

David Kauzlarich
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The United States government has been producing materials for nuclear weapons for over 45 years. From the discovery of fission to the present day, the United States has committed itself to the refinement and development of these weapons of mass destruction. The process of converting materials, such as plutonium and uranium, into useable forms to create nuclear weapons generates an enormous amount of radioactive and non-radioactive waste which pollutes the air and water, and poses a great threat to the health and safety of facility workers and those who live near the production sites.

This research will focus on the criminal violations of environmental law committed by the United States nuclear weapons production complex. In recent years it has been revealed that a substantial number of environmental law violations have occurred at the 17 major sites of the production complex. The three objectives of this research are:

1. To identify the characteristics of the environmental law violations committed during the production of nuclear weapons.
2. To identify the historical forces and events which have contributed to those violations.
3. To use the data concerning the illegal actions of the nuclear weapons production complex to help adjudicate between a number of
competing theoretical explanations of the causes of organizational crime.

The United States nuclear weapons production complex is owned by the United States government and operated on a day to day basis by private corporations. The illegal activities of the weapons complex are best viewed as organizational crime. That is, the law violations are committed during the process of organizational goal attainment, and are a byproduct of the organization's operative agenda. The specific type of organizational crimes the complex has committed are best characterized as state-corporate crime: "illegal or socially injurious actions that occur when one or more institutions of political governance pursue a goal in direct cooperation with one or more institutions of economic production and distribution" (Kramer & Michalowski, 1990, p. 13).

The significance of this research is three-fold. First, it fills a gap in the existing literature. No criminologists have attempted to analyze the crimes of the nuclear weapons production complex. Secondly, few scholars have attempted to evaluate the utility of the various theoretical perspectives on the causes of organizational crime. Finally, this research provides another case study of state-corporate crime, a phenomenon which is clearly in need of additional scholarly research.

The United States Nuclear Weapons Production Complex

The wartime Manhattan Project was formed in 1942 for the sole purpose of generating atomic weapons. This secretive and unregulated enterprise succeeded in converting atomic energy into weapons of mass
destruction. The euphoria generated from producing an operable device from an abstract theoretical notion about the nature of energy was infectious, albeit to a select group of politicians and scientists.

The United States displayed its capacity to militarily devastate a foreign nation in 1945 with the atomic bombings of Hiroshima and Nagasaki. From the post-war period to the present day, the United States has sustained its interest in developing more sophisticated and destructive nuclear weapons. Commonly dictated by the Cold War ideology, the number of nuclear weapons produced by the United States has oscillated: during politically unstable periods, particularly during the Truman and Kennedy years, nuclear weapons production soared; during more stable times, weapons production decreased.

Not until the 1970s was there any real concern with the adverse environmental effects produced by the generation of nuclear weapons. The Cold War had provided a degree of hegemony in which the American public believed that nuclear weapons production was the only real avenue for ensuring that the United States would maintain its role as a global power and be equipped militarily for combat with the Soviets. There was little concern about the massive amounts of waste generated by the production of nuclear weapons.

Between the years of 1970 and 1977, a series of laws was passed which were intended to regulate the emission of nuclear waste. The nuclear weapons production complex was reluctant to comply with these new laws. Indeed, there was little reason for it to be concerned because the new laws were only officially enforced on the rapidly expanding civilian nuclear power industry. Governmentally owned
industries were virtually ignored. Although there is increasing evidence that this is changing, the governmentally owned nuclear weapons complex is still not regulated with the same tenacity as the civilian industry.

Most of the weapons production facilities are located in sparsely populated areas, partly because they were built during World War II or the Cold War, and rural locations were thought to be less susceptible to enemy infiltration. Additionally, a rural area facilitated the need to preserve secrecy (less than a handful of people knew of the program during the early forties).

There is a considerable amount of evidence that the radioactive and hazardous waste generated by the weapons complex has caused serious health problems to facility workers and to the surrounding communities: Cancer rates in some of the areas near the production facilities are the highest in the country; scores of facility workers have experienced severe health problems; the rivers and streams near most of the production facilities are contaminated with nuclear waste; many of the wildlife species residing near the facilities are contaminated with radioactivity, and their offspring are commonly disfigured or die quickly after birth (Abas, 1989; Conner, 1990; Mobilization for Survival, 1989; Stewart, 1988).

This research attempts to present the conditions, circumstances, and characteristics of the United States nuclear weapons production complex’s criminal violations of environmental law. Given the lack of research on the crimes of the weapons complex and on instances of private corporations and governmental agencies collaborating in
criminality, this research has the capacity to provide a deeper empirical and theoretical understanding of the phenomenon of state-corporate crime. Hopefully, this research will also provide criminologists with a better understanding of the factors crucial to the explanation of organizational violations of law.

The Theoretical Literature

From White Collar Crime to Organizational Crime

The concept of organizational crime has its foundations in the conceptualization of white collar crime developed by Sutherland (1940, 1949). Sutherland was one the first criminologists to focus on the crimes of the powerful. It was an enormous achievement that gave rise to a distinct field of criminological research.

Although Sutherland's (1949) pioneering work was a great achievement, many problems existed in his conceptualization. First of all, his definition of white collar crime was ambiguous. He defined this phenomenon as "a crime committed by a person of respectability and high social status in the course of his occupation" (p. 9). Obviously this definition was unclear and open to many different interpretations. Geis and Meier (1977, p. 25) have referred to it as an "intellectual nightmare." Another problem with Sutherland's conceptualization is that he used the term white collar crime inconsistently. At various points in the book he mentions fraud in different repair businesses (some of which are blue collar occupations), white collar crimes in politics, fraud in income tax returns, and fraud committed by a shoe salesman. Thus, there is considerable confusion as to what
Sutherland actually meant by the concept of white collar crime.

It was several years after Sutherland’s work that conceptual breakthroughs in white collar crime research surfaced. One of the earliest of these breakthroughs was Clinard and Quinney’s (1973) effort to define white collar crime in more operational terms. They dichotomized the concept of white collar crime into corporate crime, crimes organizationally based and directed towards corporate goals, and occupational crime, acts committed by individuals during the course of their occupation for their own personal gain.

Clinard and Quinney’s breakthrough prompted another conceptual advance in white collar crime research. Drawing on the work of organizational sociologists like Cohen (1977), Ermann and Lundman (1978b), and Gross (1978), some criminologists began developing an organizational explanation of white collar crime. This perspective advanced the notion that organizations are social actors in their own right that can be studied criminologically because they persist over time, develop and maintain procedures, and pursue goals (Hall, 1987).

Thus, the organizational theorists maintained that organizations themselves can and should be the unit of analysis rather than the individual member of the organization. This research will ground its inquiry within the conceptual framework of organizational crime. Although there are several different formal definitions of organizational crime (see Finney & Lesieur, 1982; Ermann & Lundman, 1978a), Schrager and Short (1978) provide the most useful definition:

Organizational crimes are illegal acts of omission or commission of an individual or group of individuals in a legitimate formal organization in accordance with the operative goals of the organization, which have a serious
impact on employees, consumers, or the general public. (p. 411)

Indeed, the United States nuclear weapons production complex is and has engaged in illegal acts within a legitimate organizational structure; the acts have taken place in accordance with its operational goals; and its criminality has inflicted serious harm upon employees and the general public.

Theoretical Perspectives on Organizational Crime

Having reviewed the evolution of the concept of white collar crime, and the attempts which have been made to reconceptualize the notion, the specific theoretical perspectives on the causes of organizational crime will be reviewed. There are three theoretical perspectives which attempt to explain organizational crime: (1) differential association theory, (2) the organizational approach, and (3) political economy theory. There are also models which attempt to combine these three theoretical models into an integrated explanation of organizational crime. Each of these perspectives will be reviewed.

The social psychological perspective is reflected in Sutherland's (1949) differential association approach. As Sutherland (1949) asserts:

Criminal behavior is learned in association with those who define such behavior favorably and in isolation from those who define it unfavorably, and that such a person in an appropriate situation engages in such criminal behavior if the weight of the favorable definitions exceeds the weight of the unfavorable definitions. (p. 234)

Partial support for differential association as a theory of white collar crime has been found by a number of criminological researchers (Albanese, 1982; Clinard, 1946; Cressey, 1950; Geis, 1967; Lane, 1953).
While there can be no doubt that important insights have been derived from this approach, some criminologists have criticized differential association for its failure to incorporate the institutional level of analysis (Braithwaite, 1985; Ermann & Lundman, 1978a; Gross, 1978; Schrager & Short, 1978). Theories which focus only on social psychological variables, they contend, cannot adequately explain why organizations, as social actors, violate the law. As Schrager and Short (1978) state:

Preoccupation with individuals can lead us to underestimate the pressures within society and organizational structure, which impel those individuals to commit illegal acts. These difficulties make necessary and possible the analysis of organizations as potentially criminal agents. Recognizing that structural forces influence the commission of these offenses does not negate the importance of interaction between individuals and these forces, nor does it deny that individuals are involved in the commission of illegal organizational acts. It serves to emphasize organizational as opposed to individual etiological factors, and calls for macrosociological rather than individual levels of explanation. (p. 410)

Organizational theorists hold that the explanation of organizational crime requires more than an individual level of analysis, and argue that the organization itself should be central to an analysis of organizational crime (Albanese, 1982; Clinard & Yeager, 1980; Ermann & Lundman, 1978b; Gross, 1978, 1980; Hopkins, 1978; Kramer, 1982; Needleman & Needleman, 1979; Schrager & Short, 1978; Sherman, 1980; Vaughn, 1982, 1983). The development of the organizational perspective was hailed as an important theoretical advance in the field. Braithwaite (1985) asserts that "theoretical progress began only in the late 1970s when the individualistic theory spawned by the Sutherland tradition was rejected in favor of applying organizational theory"
paradigms to the phenomenon" (p. 3).

The organizational theorists argue that "there is built into the very structure of organizations an inherent inducement for the organization itself to engage in crime" (Gross, 1978, p. 56). A common argument offered by researchers using this approach is that organizations are, by their very nature, strongly goal oriented and concerned with performance, and that this emphasis on goals and performance may compel organizations to use illegitimate means to achieving those goals. As Finney and Lesieur (1982) note, "one of the key ideas for understanding organizational crime is that formal organizations, by their very nature, are strongly goal oriented and concerned with performance" (p. 264). Using the Mertonian rational goals blocked opportunity model, these theorists maintain that organizations will, if legitimate avenues for achieving goals are blocked, "innovate," and employ illegitimate means for reaching goals. As Gross (1978) states:

Now, as arrangements which are committed to goal attainment or performance, organizations will often find themselves in difficulties. They live in competitive environments, even in socialist society, in which there are always insecurities and uncertainties in supplies, money, sales, and securing support. Given a situation in which the organization is judged (directly or indirectly by sales or other indicators) by its success in goal attainment or performance, one can predict that the organization will, if it must, engage in criminal behavior to attain those goals. (p. 57)

This model stresses the role of the external environment in creating and sustaining strain which may result in illegal activity. Most organizations are justified and evaluated in terms of their success or failure in goal attainment. Organizational goals are essentially abstractions that are distilled from the desires of members and from environmental and internal pressures (Kramer & Michalowski, 1990).
Thus, organizational theorists argue that the organization, because of the pressure on it to attain goals, will employ illegitimate means for achieving such goals. As Finney and Lesieur (1982) state, "barriers to the attainment of desired performance may generate such severe strain that agents resort to illegal solutions" (p. 270). A separate, but related approach within this theoretical perspective stresses that crime may result from the internal management structure of an organization. Defective standard operating procedures may prevent an organization from achieving its goals legitimately, thus pressuring the organization to turn to illegitimate means for achieving goals (Hopkins, 1978).

Pursuing goals through illegitimate means, of course, is dependent on the availability of those deviant means. As Coleman (1987) points out:

> The variations in the menu of opportunities presented to the occupants of different social statuses are one of the principal ways structural constraints shape individual behavior, and the distribution of such opportunities plays a major role in the etiology of white collar crime. (p. 424)

Braithwaite (1989) offers two propositions of a theory of organizational crime:

1. Organizational crime is more likely to occur when an organization (or an organizational subunit) suffers major blockages of legitimate opportunities to achieve its goals.

2. Organizational crime is more likely to occur when illegitimate opportunities for achieving the organization’s goals are available to organizational actors.

The social control of organizations also plays a role in whether
an organization will engage in unlawful behavior. As Finney and Lesieur (1982) note "whether or not a strong performance orientation and operating problems lead to crime depends also on the operationality of various social controls" (p. 275). Similarly, Kramer and Michalowski (1990) propose that organizational crime is more likely to occur when various social control mechanisms fail to arrest the tendency toward using illegitimate means to resolve strain. Vaughn (1982), however, is less confident in the effects of social control, and asserts:

Despite increased measures devoted to social control, organizational misconduct appears to be a natural accompaniment to the complexity of business organizations and their interactions that will continue as long as the structure of opportunity and organizational goals remain the same. (p. 1398)

The third theoretical view on organizational crime is the political economy perspective (Barnett, 1981; Box, 1983; Chambliss, 1988, 1989; Messersmith, 1986; Michalowski, 1985; Young, 1981). The primary assumption of this perspective is that the structure of corporate capitalism provides an incentive for organizations to use illegitimate means toward achieving profit, if legitimate means are blocked. This perspective extends the rational goals blocked model offered by the organizational theorists by considering the dynamics of capitalism, and how this mode of production generates illegal activity. As Barnett (1981) asserts, organizational crime occurs:

When management chooses to pursue corporate goals through circumvention of market constraints in a manner prohibited by the state. Illegal circumvention of market constraints can be translated into expected changes in cost relative to revenue, that is, into changes in expected profits. One can expect that a corporation will be relatively likely to choose to engage in crime when the expected costs of its illegal action
are acceptably low relative to perceived gains, other things being equal. In this choice context, the type of offenses committed by the corporation will depend on the relevant market constraints and the severity of the related legal constraint; that is a corporation will tend to circumvent those constraints whose violation will yield the greatest expected net change in profits. (p. 5)

While this argument seems to apply very well to the crimes of private business corporations, it would not seem applicable to the crimes of government. But as Michalowski (1985) and Chambliss (1988, 1989) demonstrate, the political economy perspective can also be employed to explain the organizational crimes of the state. Michalowski (1985, p. 314) has suggested that the various criminal acts that are usually referred to as white collar crime can be brought together in the more theoretically informed concept of "crimes of capital," which are "socially injurious acts that arise from the ownership or management of capital or from the occupancy of positions of trust in institutions designed to facilitate the accumulation of capital." He argues that corporate crime, governmental crime, organized crime, and occupational crime all arise from the particular forms of social relations associated with the processes of capital accumulation, concentration, and centralization.

One limitation of the political economy approach is its applicability to organizations in state capitalist or "socialist" society. However, the organizational perspective and the political economy perspective share many similarities with the exception of the specific motivation for organizations to engage in crime. As Gross (1978) states, "The problem with organizations is goals--whatever the goals happen to be. Some organizations seek profits, others seek survival."
Whatever the goals might be, it is the emphasis on them that creates the trouble" (p. 59).

There have been three important attempts to form an integrated theory of organizational crime. Each of these theories will be briefly reviewed.

First, Coleman (1987) attempts to integrate the social psychological theory of motivation with the structural features of advanced capitalism. Using the notion of the "culture of competition," Coleman bases his theory on the idea that criminal behavior results from a coincidence of appropriate motivation and opportunity. Ultimately, Coleman rests his theory on the structural level of analysis, citing capitalism as a major factor which causes organizational crime.

The second attempt to form an integrated theory of organizational crime was offered by Braithwaite (1989). Taking a more comprehensive approach than Coleman, Braithwaite offers an integration of existing criminological theories, particularly labeling theory, Hirschi’s (1969) control theory, subculture theory, and strain theory. "The key to this attempt," Braithwaite (1989) asserts, "is the notion of differential shaming: the shaming from organizational culture of compliance versus the shaming from the subculture of resistance to regulatory law" (p. 333). Particularly interesting, is Braithwaite’s (1989) assertion that "organizations can sustain a subculture of noncompliance more successfully if they can employ a code of secrecy or create a smoke-screen of differential accountability" (p. 341). A major limitation of Braithwaite’s theory is that it ignores the possibility that organizations may
sustain an entire organizational culture of non-compliance, rather than just a subculture of non-compliance.

The third attempt to form an integrated theory of organizational crime is Kramer and Michalowski's (1990) conceptual theory of state-corporate crime. Proposing that there is a third major form of organizational crime (commonly only two forms are studied: state-organized and corporate crime), the authors offer the notion of "state-corporate" crime: crimes committed through the interaction between state agencies and private institutions. This model rests on the hypothesis that organizational crime results from a coincidence of appropriate motivation or performance pressure, absent effective social control. The authors present three "core concepts" which motivate, or act as a catalyst for organizations to engage in criminality: (1) the motivation or performance emphasis, (2) opportunity structures, and (3) the operationality of social control. Each of these three concepts is then analyzed on three different levels of analysis: the structural, institutional and individual. Thus, Kramer and Michalowski's model accounts for all levels of criminal organizational action.

This research will attempt to adjudicate between these rival theoretical perspectives on the causes of organizational crime in light of the data collected and analyzed concerning the crimes of the United States nuclear weapons production complex.

Methods

This research will be conducted in a case study format. According
to Yin (1984) "A case study is an empirical inquiry that: investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly defined; and in which multiple data sources are used" (p. 23). In this project, both historical and contemporary data are used. Most of the documents come from governmental inquiries into the weapons complex's activities. Other sources of data include interviews and the publications of various special interest groups involved in the nuclear weapons issue.

According to Kramer (1978), the qualitative analysis of a social phenomenon generally proceeds by asking three important questions:

1. Out of what has the phenomenon come?
2. What are the major features of the phenomenon? and
3. What are the results, outcomes, or effects of the phenomenon?

In this research, the attempt to answer these three questions is conducted in a socio-historical approach.

According to Skocpol (1984), historical sociological studies have four characteristics:

1. They ask questions about social structure or processes understood to be correctly situated in time and space;
2. They address processes over time, and take temporal sequences seriously in accounting for outcomes;
3. They emphasize the interplay of meaningful actions and structural contexts, in order to make sense of the unfolding of unintended as well as intended outcomes in individual lives and social transformations; and
4. They highlight the particular and varying features of specific
kinds of social structures and patterns of change.

Indeed, this research is guided by the notion that the larger structural conditions on a societal and international level play important roles in the governmental policies of nation-states. For historical sociologists, Skocpol (1984) asserts, "the world's past is not seen as a unified developmental story or as a set of standardized sequences" (p. 2). The evolution and contemporary meaning of the weapons production complex can only be understood through a method which accounts for change and process.

The specific vehicles used to answer the research questions of this study are historical documents, governmental documents, and interviews. Thus, the data used in this project come from three distinct types of sources. As Yin (1984) has pointed out, using multiple sources of data in case studies increases the likelihood of researcher accuracy.

The historical documents used in this project are primarily those publications which detail the history of the Atomic Energy Committee, World War II, and the Cold War. Additionally, more recently written monographs which detail the history of both the atomic weapons complex and nuclear weapons policy in general are used in this study.

Governmental documents used in this research include reports produced by governmental agencies which have investigated a number of facets of the weapons complex. For example, this project relies heavily on the reports of the U.S. General Accounting Office, which has evaluated the weapons facilities on several occasions regarding the waste disposal practices and overall safety of the complex. Other
prestigious governmental agencies’ evaluations of the weapons complex, particularly that of the National Academy of Sciences, are used in this research. Examining the Department of Energy and its nuclear weapons facilities requires the full use of governmental documents because important information concerning its activities is commonly available only through such United States government agencies.

Interviews have been conducted with those individuals who maintain a reasonable degree of knowledge about various workings within the weapons complex. The interviews, mostly conducted over the telephone, were unstructured. This approach was taken in order to facilitate a free, but focused, exchange of ideas between the present researcher and the interviewee. My reason for selecting this type of interview structure is identical to Sennett and Cobb’s logic employed in their 1972 landmark study on the hidden injuries of class. In their study, they:

Had no rigid questionnaire to use in the interviews; we instead had a set of concerns that we wanted to explore, and the actual questions were determined more by the particular shape of the interview (p. 41).

The interviews conducted in this research were indeed shaped by the particular nature of each idea being explored, and the interviewee was given great autonomy in addressing the issues. Thus, the questions that were posed were specific enough to facilitate a consistent and focused examination, yet flexible enough to accommodate a free exchange of ideas (see Appendix B).

This research will tell the story of the United States nuclear weapons production complex. Entailed in this description lies an exposition of the crimes committed during the process of manufacturing nuclear weapons and materials. It is hoped that research will be able
to provide criminologists with a clearer understanding of the important factors which contribute to organizational crime.

The findings of this study cannot be generalized to all instances of state-corporate crime since it is but one case and not wholly representative of the phenomenon of organizational criminality. Instead, the findings of this research may help confirm, clarify, or even falsify the existing generalizations about the nature of state-corporate crime. Since the scientific study of the phenomenon of state-corporate crime is still in its infancy, the results of this research could be instrumental in providing some insight into the phenomenon of state-corporate crime.
CHAPTER II

A HISTORICAL PERSPECTIVE ON THE UNITED STATES' EXPERIENCE WITH ATOMIC WEAPONS

This chapter traces the American experience with atomic weapons. The major purpose of the chapter is to present the historical background out of which the current situation at the weapons production complex has arisen. This historical review will focus primarily on the larger geopolitical relationships in which the United States has been involved. Additionally, this historical overview is presented to facilitate a better understanding of the evolution of the production complex within a larger structural context. As Mills (1959) wrote over 30 years ago, "Every social science—or better, every well considered social study—requires a historical scope of conception" (p. 145).

Atomic Energy: The Early Years

The United States' experience with atomic energy began in 1942 when a team of scientists led by Enrico Fermi succeeded in achieving the first controlled, self-sustained nuclear reaction. Within months, the Manhattan Engineering District, commonly referred to as the Manhattan Project, was formed with the sole mission of developing atomic weapons. In 1942, under the military supervision of General Leslie Groves, and the scientific supervision of J. Robert Oppenheimer, three facilities were created to develop the bomb. Los Alamos, New Mexico was chosen to be the site where the design, testing, and assembly of atomic weapons
would occur. In Hanford, Washington, a facility was created to produce plutonium, and in Oak Ridge, Tennessee, a uranium separation plant was created. These three facilities combined to form the $2 billion enterprise called the Manhattan Project.

These facilities operated in extreme secrecy both outside and inside the complex (Clarfield & Wieck, 1984; Cochran, 1988; Center for Defense Information, 1989; Powaski, 1987; Williams & Cantelon, 1984). As Weiner (1990) states, "(secrecy) had become as crucial a component of the bomb as uranium" (p. 20). Clarfield and Wieck (1984) describe the secrecy at one of the earliest facilities:

The residents of Los Alamos became, in some sense non-persons. Children born there could not have the location entered on their birth certificates. No one was allowed to tell the families and friends they left behind where they lived. Army counter-intelligence corps personnel read all outgoing as well as incoming mail. All buildings except housing and community facilities were restricted-access, enforced by security badges. (p. 34)

The activities of the Manhattan Project were hidden very well. Until 1944, "funds for the project came either from the military departments, which concealed their purpose, or from a special contingency fund appropriated for the President which was shielded from congressional scrutiny" (Powaski, 1987, p. 7). The activities of the complex were so secret, in fact, that when Harry Truman, a senator at the time of the Manhattan Project, assumed the presidency in 1945, he had absolutely no knowledge of the Manhattan Project (Clarfield & Wieck, 1984; Powaski, 1987; Williams & Cantelon, 1984).

The primary reason, and perhaps the sole reason, for the extreme secrecy surrounding the activities of the Manhattan Project was because
the United States feared German access to the bomb (Powaski, 1987; Williams & Cantelon, 1984). The Roosevelt administration feared the leakage of information so much that in addition to keeping the activities of the Project secret from the Germans, it also kept the information away from the United States Congress, media, and public (Clarfield & Wiecek, 1984; Powaski, 1987). The Germans had entered World War II with the lead in nuclear research: Otto Hahn and Fritz Strassman had already split the atom in 1938; the Third Reich controlled one of the richest sources of uranium in the world; and Germany had been pursuing the development of atomic weapons at least four years longer than the United States (Powaski, 1987).

The Manhattan scientists were made very much aware of the German threat, and were pressured to "beat Germany to the bomb" (Powaski, 1987; Williams & Cantelon, 1984). However, this was not the only motivation for the hurried development of the bomb. After the German surrender, Oppenheimer stated (quoted in Powaski, 1987) "I don't think there was any time we worked harder at the speed-up than in the period after the German surrender" (p. 12). Two main reasons seemed to have caused this: the Japanese threat, and the Soviet Union.

After the German surrender, the only immediate threat to the United States was Japan. As early as 1944, Roosevelt and Churchill agreed that when a bomb "is finally available, it might, perhaps, after mature consideration, be used against the Japanese" (quoted in Powaski, 1987, p. 13). On August 6, 1945, only months after Truman took office, and days after the first usable forms of plutonium and uranium were produced at Hanford and Oak Ridge, the United States dropped a uranium bomb on
Hiroshima. Three days later, on August 9th, a plutonium bomb was dropped on Nagasaki. Both Japanese cities were destroyed. A Navy officer (quoted in Rhodes, 1986) described the after-effects:

A smell of death and corruption pervades the place. The general impression, which transcends those derived from the evidence of our physical senses, is one of deadness, the absolute essence of death in the sense of finality without hope of resurrection. It's everywhere, and nothing has escaped its touch. (p. 742)

In total, nearly 400,000 people died as a result of the bombings (Rhodes, 1986). The United States had clearly shown the world that it was in command of the ability to harness nuclear energy. After this awesome display of power, the Japanese surrendered, and the birth of a new conflictual relationship was born, the Cold War between the United States, and its former ally, the Soviet Union.

The United States’ concern over losing its monopoly on nuclear power manifested itself prior to the dropping of the atomic bombs on Japan. In April 1945, the United States ordered its Army to bomb the nuclear production facilities in Berlin. The Germans were making significant progress toward harnessing nuclear energy operations into weapons. The idea of this mission was to destroy laboratories and other facilities which were associated with nuclear energy before the planned Soviet Union invasion of Berlin, scheduled a few months later (Powaski, 1987). The reason for the mission, code-named Alsos, was clear. As General Groves stated (quoted in Powaski, 1987) "our principal concern was to keep information and atomic secrets from falling into the hands of Russia" (p. 40). In the end, the operation succeeded, and Russia was denied access to the blueprints for the new weapon.
Post World War II: The Proliferation of Nuclear Weapons

The end of World War II signified the beginning of a massive effort on the part of the United States to raise the sophistication of atomic weapons. At this time, the United States military, the primary beneficiary of nuclear energy research, lost control of the rights to producing atomic weapons. Considerable debate took place between the proponents of placing atomic energy into civilian control, principally advocated by the Federation of Atomic Scientists, and those who wanted atomic energy to stay in the hands of the military. In the end, the scientists won the legislative battle. The Atomic Energy Act of 1946, sometimes referred to as the McMahon bill, established the independent civilian-controlled Atomic Energy Commission (AEC). Under this Act, the military could only gain access to the bomb by a direct presidential order. Although the AEC, in principle, was a civilian body, the military had an enormous influence over atomic energy policies and operations (Clarfield & Wiecek, 1984; Powaski, 1987). As Powaski (1987) explains:

Organizationally, military emphasis was built into the structure of the AEC from the beginning. One of its four operating divisions was military applications. A military liaison committee was appointed by the Department of Defense to participate in the AEC's weapons work. The armed services retained for themselves the intelligence function of the Manhattan Project, rather than transferring it to the AEC. The ties were so close that an incoming secretary of defense is supposed to have asked, after being shown the Department of Defense organization chart "Where is the AEC"? (p. 123).

One of the first postwar responsibilities of the AEC was the transformation of military applications of nuclear energy to civilian uses (Powaski, 1987). Robert Oppenheimer, the chair of the AEC, clearly
wanted to see a complete effort toward this goal, and argued vehem­
ently for the peaceful application of atomic energy. Enrico Fermi,
the scientist credited with the first successful attempt at generating a sustained nuclear reaction, and who also resided high in the AEC hierarchy, argued that primacy should be directed toward future weapons programs. In the end, according to Powaski (1987):

The Fermi view prevailed, and the recommendation for priority in weapons was instrumental in committing the AEC to the same view, which in turn was the basis for President Truman's policy decision to make weapons the highest priority of the American atomic energy program. (p. 111)

Of all the responsibilities granted to the AEC, nowhere has it been found that the committee monitored the environmental effects of the production of nuclear materials. The AEC neglected to consider and create policy which would control the adverse environmental effects which occur during the production of nuclear weapons and nuclear materials (Steele, 1989). As former AEC General Manager Carroll L. Wilson stated in 1979, "Nobody got brownie points for caring about nuclear waste. The Atomic Energy Commission neglected the problem" (Steele, 1989, p. 19).

From 1945 to 1953, Truman embarked upon a massive buildup of nuclear weapons by creating nine new production facilities. A major reason cited for this buildup was the threat of the Soviet Union. The Soviets, in 1949, successfully tested an atomic bomb, ending the United States monopoly and "inaugurating the era of proliferation" (Williams & Cantelon, 1984, p. 114). From this time on, relations between the United States and the Soviet Union dictated, to a large degree, the quantity and quality of the United States production of nuclear weapons.
Soon after the Soviets tested their first atomic bomb, a meeting was called between Truman and the AEC's chair David Lilienthal. Lilienthal was planning on presenting a report to Truman which argued against the development of the newly conceptualized hydrogen bomb. Powaski (1987) describes the meeting:

He (Truman) cut short Lilienthal's presentation and did not even bother to read the report's analysis. He simply asked "Can the Russians do it?" When all heads nodded affirmatively, Truman responded "In that case, we have no choice. We'll go ahead." (p. 56)

Recalling the meeting later, Lilienthal wrote that his effort to block the development of the hydrogen bomb was like saying "no to a steam roller" (Powaski, 1987, p. 57). The AEC, he felt, had become nothing more than a major contractor to the Department of Defense (Powaski, 1987).

The decision to develop the hydrogen bomb was also conducted in extreme secrecy (Clarfield & Wiecek, 1984; Powaski, 1987; Williams & Cantelon, 1984). Similar to the secrecy surrounding the initial development of the bomb during the Manhattan era, "there was no public, or even congressional debate, over the decision to develop the hydrogen bomb" (Powaski, 1987, p. 57). Thus, similar circumstances surround the two major decisions to develop atomic weapons: both were conducted in secrecy; both projects operated under no formal or informal social control; and both decisions were based on the threat of an outside nation or nations. This prompted immense pressure on atomic scientists and the AEC to perform a sole function: developing bombs.

On the same day that Truman approved the production of the hydrogen bomb, he also operationalized the suggestions called for in a report
called NSC-68. This study called "for an enormous increase in American defense spending in order to prevent Soviet domination of the world" (Powaski, 1987, p. 217). Thus, nine new nuclear weapons production facilities were created to accommodate this mission.

In 1954, the Atomic Energy Act of 1946 was replaced by the Atomic Energy Act of 1954. As Clarfield and Wiecek (1984) explain:

The new statute did not altogether overturn the old; rather, it was a complex, tangled and inconsistent cloth of compromises and evasion that marked a determined, if stumbling, effort to create a strategy framework in which civilian nuclear power might develop in the United States and be exported into the international market. (p. 185)

Most of the specific provisions of the new act, and all the licensing and related regulatory requirements, applied solely to commercial reactors regulated by the Nuclear Regulatory Commission. Thus, the Act of 1954 did little to change the Act of 1946 in relation to the government's use of nuclear energy. The government's nuclear weapons production complex remained exempt from any real outside monitoring and did not have to follow the somewhat strict regulations on the emerging civilian nuclear industry. Despite Eisenhower's "Atoms For Peace" plan, the military application of nuclear energy grew substantially during these years. As Lamperti (1984b) notes:

It [the AEA of 1954] hardly had any effect on the development and manufacture of nuclear weapons by the AEC. Despite hopes that "Atoms For Peace" could mean turning swords into plowshares, the production of atomic "swords" continued with little change with the new law. (p. 70)

The production of nuclear weapons peaked between the late 1950s and early 1960s. During this time, twenty military nuclear weapons facilities were operating at peak capacity (Cochran, 1988). As Weiner (1990) describes:
By 1958, nuclear weaponry was an infinitely expanding dynamo. The target list had grown to some 20,000 dots on the communist map. The target list included every city in Russia, Eastern Europe, and China. (p. 35)

By 1960:

Three thousand two hundred and sixty-seven nuclear warheads (could) annihilate the Soviet Union, China and Eastern Europe in a single blinding blow. They planned to follow this apocalyptic spasm with thousands, and thousands of more bombs. Ten nations would be obliterated. Five hundred million people would die. (p. 37)

The United States feared the Soviet Union to such a degree that by 1960, the United States had assembled a nuclear arsenal that maintained the capacity of over 1.5 million Hiroshimas (Weiner, 1990).

A number of factors are thought to be responsible for this buildup: Anti-communism was proliferating; relations between the Soviet Union and the United States were becoming increasingly antagonistic; the Soviet Union had launched Sputnik; and the myth of a weapons gap provided the United States with the motive for increased warhead production. The weapons gap myth is identified by Powaski (1987) as "ultimately resulting in the production of hundreds of unneeded ballistic missiles" (p. 73). Indeed, this weapons production frenzy was in part caused by the adversarial nature of the United States and the Soviet Union’s relationship.

During the Kennedy years (1961-1963), nuclear weapons production reached its zenith with over 5,000 weapons being produced each year (Cochran, 1988). Along with the tense climate of the Cold War, and the residual effects of McCarthyism, the antagonistic relations between the Soviet Union and the United States accelerated with events such as the Berlin Crisis and the Cuban Missile Crisis (see Powaski, 1987). Between
1964 and 1976, however, nuclear weapons production decreased. President Johnson shut down ten weapons production facilities because of abundant stocks of plutonium (Cochran, 1988). The SALT talks, and the attitude of some high level officials in the government, particularly Johnson's Secretary of Defense Robert S. McNamara, that weapons proliferation was futile, fostered this cut back in nuclear weapons production (Powaski, 1987; Williams & Cantelon, 1984).

This brief survey of the years between 1942 and the early 1970s has raised a number of important points. First of all, the United States has continually conducted its weapon production operations in extreme secrecy. As a result of this immense secrecy, the operations have been conducted without independent oversight by a non-partial committee, and thus the program has not been subject to formal or informal social control. Second, the pressure to produce weapons very quickly, both on the AEC and the production facility workers and scientists, has been a central tendency of the operations especially during the early and late 1940s. Third, the nature of the relations between the United States and the Soviet Union have dictated, to a significant degree, the quantity and quality of nuclear weapons production. This competitive mentality has its roots in the philosophy developed during the Manhattan Project, when Germany was the primary enemy. Finally, there is no indication that the environmental consequences of the production of nuclear weapons and material have ever been a major concern. The emphasis seems solely placed on one goal: producing weapons. These five issues have many implications for the theoretical models that will be evaluated in the final chapter.
CHAPTER III

THE DEPARTMENT OF ENERGY: THE ORGANIZATION AND ITS ACTIVITIES

In this chapter, data will be presented concerning the nature and extent of the organizational crimes committed by the Department of Energy (DOE) weapons production complex. After a brief discussion of the general organizational structure and goals of the complex, the focus of this chapter shifts to an examination of the circumstances and particular manner in which DOE facilities violate environmental law.

The Organization of the Weapons Complex

In 1974, the Energy Reorganization Act abolished the Atomic Energy Commission and established two new organizations: the Energy Research and Development Administration (ERDA), and the Nuclear Regulatory Commission (NRC). The legislation was enacted in response to concerns that the AEC was functioning as both regulator (of civilian industries), and promoter of nuclear programs (through the military) (Powaski, 1987; Radioactive Waste Campaign, 1988). ERDA was established to oversee the promotional and defense productions, while the regulating and licencing operations for commercial nuclear power were assigned to the NRC (Radioactive Waste Campaign, 1988).

There is little information about ERDA and its specific activities except that it followed the same basic policies as the AEC and that many of the workers for the newly formed ERDA were former AEC employees.
(Lamperti, 1984b; Radioactive Waste Campaign, 1988). Perhaps the lack of information on ERDA is because the agency was abolished by President Carter in 1977, only three years after its creation.

The Department of Energy was formed by Carter to "give a clear direction and focus to America's energy future by providing the framework for carrying out a comprehensive, balanced energy policy" (U.S. Department of Energy, 1979, p. 2). As a part of orchestrating this "new direction," the Department of Energy was given the responsibility of producing nuclear weapons. Although manufacturing nuclear weapons is only a fraction of DOE's responsibilities, it has traditionally devoted one-third of its funds to warhead production (Lamperti, 1984a).²

The basic mission of DOE defense activities is to produce fuel for the U. S. Navy and material for nuclear weapons (U.S. General Accounting Office, 1986). The DOE oversees the production of nuclear weapons and materials at 17 major facilities around the country: 6 facilities produce nuclear material, 6 other plants both produce material and assemble components into warheads, and 5 facilities design and test nuclear weapons (see Appendix A). Almost all of these facilities were created in the 1940s and 1950s.

The entire complex employs over 100,000 workers, produces, modifies, or retires approximately 4,000 weapons a year, and has an annual budget of 8 billion dollars (Center for Defense Information, 1989). The DOE, like its predecessors, the AEC and ERDA, carries out most of its programs by contracting with private firms and universities. Most of the contractors of the DOE are large, multi-national corporations. Corporate giants such as Westinghouse, DuPont, General Electric, and
Martin Marietta operate most of the DOE facilities.

The United States government owns the equipment and materials used in the manufacturing of nuclear weapons items, and directs the contractor to produce the final product, whether it be the warheads themselves, or the converted nuclear materials. Thus, the contractor is responsible for the actual production of the nuclear weapons, while the DOE acts as a supervisor of the contractor's activities. The organization of the entire weapons complex has much in common with the system that developed during the Manhattan Project era (Cochran, 1988; Lamperti, 1984b; Powaski, 1987). That is, private contractors have maintained the important role of researcher, developer, and manufacturer of the entire nuclear weapons program.

**The DOE-Contractor Relationship**

There are two basic kinds of financial arrangements the DOE makes with its contractors. Some contractors operate on a non-profit basis, in which they receive compensation only for the costs incurred during the production of nuclear weapons. Other contractors operate on a profit basis, or "award fee" arrangement. In this type of contract, DOE agrees to pay a contractor bonus money if, during a six-month period, the contractor meets certain pre-established criteria. Although each contract the DOE makes with its corporate operators is different, most contracts contain essentially the same provisions (Alvarez, 1990; Mobilization for Survival, 1989).

The DuPont corporation has operated the Savannah River Plant, located in Aiken, South Carolina, since the inception of the atomic age.
On a non-profit basis, DuPont has been held responsible for the day to
day operations of the facility. One clause in the DOE-DuPont (National
Academy of Sciences, 1987) contract reads:

The Contractor shall take all reasonable precautions in the
performance of the work under this Contract to protect the
safety of employees and of members of the public and to
minimize dangers from all hazards to life and property, and
shall comply with all health, safety, and fire protection
regulations and requirements. (p. 44)

The exact same provision in which the DOE orders DuPont to comply
with all applicable laws and regulations, is included in DOE's 1987
contract with UNC Nuclear Industries, the operator of the Hanford
facility located in Hanford, Washington. It seems, then, that the only
difference between the two contracts, in relation to the mandates of
the DOE concerning the contractor's obligation to perform all activities
in compliance with applicable environmental laws, is that UNC operates
under a profit arrangement with the DOE, whereas DuPont operates its
facility under a non-profit arrangement (National Academy of Sciences,
1987). Thus, it seems apparent that the DOE places the bulk of the
responsibility on the contractor to operate the facilities in a lawful
manner.

The National Academy of Sciences (1987) has argued that DOE
directives to their contractors are often vague and that they provide
the corporations with a great deal of latitude in the interpretation of
DOE orders. This research has found some evidence which seems to sup-
port this claim. For example, in the 1987 DOE-UNC contract, the DOE
ordered UNC to "operate and monitor the N Reactor and support facilities
in a safe, secure, and environmentally sound manner to achieve a fiscal
year production goal of 705 KMWD, with less than 24 unscheduled outage
days" (National Academy of Sciences, 1987, p. 51). While this directive may be legally inclusive, and thus rather direct in nature, the DOE does not provide the contractor with the specific methods to achieve compliance with applicable environmental issues. It is in this sense that the DOE orders could be considered relatively vague. Additionally, the above clause seems to indicate that the DOE is sending a message to the contractor that while safe and environmentally sound procedures of waste disposal (which are unspecified) are important, it is equally important that precise production quotas are met.

The Organizational Management Structure

The organizational structure of the weapons production complex has changed very little over the years. The complex still uses a three-tier approach to attempt to carry out its operations.

The first tier is the contractor who actually performs the day-to-day operations. The contractor develops its own environmental protection program and periodically checks on its implementation through internal audits and self-appraisals (U.S. General Accounting Office, 1986). The contractor is held responsible to meet all DOE environmental, health, and safety requirements as a condition of the contract between the DOE and the contractor (Walker, 1986). Thus, the contractor has a high degree of responsibility in insuring that the work is carried out in compliance with all applicable environmental laws (Alvarez, 1990; National Academy of Sciences, 1987; U.S. General Accounting Office, 1986).

The second tier of the management structure resides in the DOE
itself. The DOE field offices are directly responsible for overseeing the contractors' performance. The field offices periodically conduct appraisals and audits on the contractors' work including incident releases and quality assurance (U.S. General Accounting Office, 1986).

The final tier of the management structure is the general oversight by DOE headquarters. The office of the Assistant Secretary for Environment, Safety and Health (ES&H) holds primary responsibility for the entire complex's compliance with environmental law. There are three ways this is done: (1) by appraising the field offices' environmental protection activities, (2) reviewing plans for each field office on how it is going to carry out its respective environmental programs, and (3) reviewing accidents and unusual occurrences at DOE facilities (U.S. General Accounting Office, 1986).

Having reviewed the general features, goals, and organizational structure of the weapons production complex, the discussion will now focus on the violations of environmental law committed by the weapons complex. The next section of this research attempts to capture the manner in which the production of nuclear weapons and materials has violated several environmental regulations and standards.

The Criminal Contamination of the Environment

The Extent of the Contamination

The process of converting nuclear material into useable forms generates a large amount of radioactive and non-radioactive (hazardous) waste (Cochran, 1988; Lamperti, 1984b; Reicher & Scher, 1988; U.S. General Accounting Office, 1985, 1986, 1989). In 1986, the Savannah
facility generated over 200,000 gallons of waste each day, and the Hanford plant has dumped over 200 billion gallons of radioactive and hazardous wastes since its inception in 1942 (Steele, 1989). Indeed, the contamination wrought by nuclear weapons production is so severe that the General Accounting Office estimates that the cost of getting the complex into compliance with applicable environmental laws would be a startling 250 billion dollars (U.S. General Accounting Office, 1986).

The waste disposal practices employed by most of the DOE facilities are grounded in the theory that "soil absorbs radioactive and hazardous elements in waste, and harmlessly extinguishes all potentially dangerous chemicals" (U.S. General Accounting Office, 1986, p. 31). Thus, seepage basins and waste ponds are used as containers to filter out the harmful elements in the waste. The problem with this method of disposal, employed since the beginning of the atomic age, is that soil does not, in fact, prevent harmful elements in waste from seeping into groundwater basins (U.S. General Accounting Office, 1986). A dramatic example of this is found in the waste disposal practices of the Savannah facility. Because of their waste disposal practices, the Tuscaloosa Aquifer, part of the Tuscaloosa Group Formation of underground water passages, is now contaminated with several harmful elements including tritium and nitrates (U.S. General Accounting Office, 1986).

The Hanford facility and the Savannah River Plant have been identified by several commentators as being two of the most environmentally damaging nuclear weapons facilities (Mobilization for Survival, 1989; Saleska & Makhijani, 1990; Steele, 1989). Both facilities are involved in the production of plutonium and tritium, compounds which play an integral role in making completed warheads. The Mobilization for Survival (1989) has documented the existence of several adverse
environmental consequences wrought by the activities of the Hanford facility:

100 square miles of groundwater are contaminated with radioactive tritium, iodine, and toxic chemicals. Over a half million gallons of high level radioactive waste [have] leaked from underground tanks and more continues to leak into the soil. Billions of gallons of liquid wastes and waste water with chemical and radioactive elements have been dumped in Hanford soil, contaminating the Columbia River and its watershed. (p. 3)

Steele (1989) has also documented the history of the horrible disregard for the environment that has taken place at Hanford since the beginning of the atomic age. A few of her findings are: between 1944 and 1955, 537,000 curies of unfiltered airborne releases of iodine were released into the atmosphere; between 1952 and 1967, ruthenium-contaminated nitrate flakes fell on nearby farmers' fields, and ultimately resulted in the death of several hundred cattle; and there are over 60 "lost" burial sites of waste which have not been found because of the secret methods of waste disposal used by World War II scientists. The Hanford facility has a long record of abuse and neglect concerning the environment.

Equally poor is the Savannah River Plant's environmental record. The groundwater near the plant is contaminated with nearly all forms of radioactive and hazardous waste, and over 51 million gallons of highly dangerous toxins are stored in leaking underground tanks beneath the facility (Mobilization for Survival, 1989).

Historically, the complex was not required to comply with any laws regarding the protection of the environment. The Atomic Energy Acts of 1946 and 1954 made this condition explicit. Today, the DOE is still
exempt from laws which regulate the disposal and treatment of radioactive waste.

**Violations of Environmental Law**

The DOE regulates itself for radioactive releases into ground and surface water, radioactive waste, and radioactive leaks into water. There are three principal environmental laws the DOE must comply with: (1) the Clean Water Act of 1972, (2) the Clean Air Act of 1970, and (3) the Resource Conservation and Recovery Act (RCRA) of 1976. It is extremely important to remember that the nuclear weapons production complex operated for over 28 years before having to comply with a single environmental law. The DOE has fought the applicability of these laws to their operations for several years. Especially tenacious was the DOE's refusal to comply with RCRA. In the eight years between the 1976 passage of RCRA and the 1984 court ruling by a district judge that the DOE was subject to this law, the DOE argued that under the Atomic Energy Act of 1954, their activities were exempt from the law because of "national security" (Radioactive Waste Campaign, 1988; Reicher & Scher, 1988).

RCRA gives the Environmental Protection Agency (EPA) the authority to regulate DOE's hazardous waste disposal practices. DOE's activities generate an enormous amount of hazardous waste, and it is common knowledge that they are out of compliance with this law (Alverez, 1990; Center for Defense Information, 1988; Cochran, 1988; Radioactive Waste Campaign, 1988; Reicher & Scher, 1988; U.S. General Accounting Office, 1985, 1986, 1989). Millions of gallons of hazardous waste surround some
DOE facilities (Radioactive Waste Campaign, 1988). Because RCRA became applicable to DOE facilities in 1984, in 1986 several facilities were out of compliance with the law. In a 1986 study conducted by the U.S. General Accounting Office (1986), all seven of the facilities reviewed were out of compliance with RCRA. Under RCRA, "an operator must identify its hazardous wastes; receive a permit in order to treat, store, or dispose of such wastes; monitor ground water at waste sites; close and care for sites that are taken out of operation; and undertake corrective action" (Reicher, 1986, p. 205). By 1986, most facilities had only begun the process of obtaining permits, a clear violation of law. In 1985, a report by the Ohio EPA also found numerous violations of RCRA at the Fernald Feeds Materials Plant located in Fernald, Ohio. Historically, safe waste disposal practices were largely ignored because there were no laws which were applicable to the production complex. Extreme amounts of hazardous wastes were disposed of at most DOE facilities, including the Y-12 plant in Oak Ridge, Tennessee, where four waste disposal plants were found to be leaking 4.7 million gallons of metal, acids, and solvents between the years of 1953 and 1963 (Reicher & Scher, 1988).

The Clean Water Act is "the principal law governing the discharge of liquid fluids from DOE facilities into water" (U.S. General Accounting Office, 1986, p. 30). RCRA and the Clean Water Act are not mutually exclusive laws because most of the contamination of water results from the violation of RCRA, that is, illegal waste disposal practices. In the same 1986 General Accounting Office report that identified RCRA violations, noncompliance with the Clean Water Act was determined.
Out of the nine facilities surveyed, all of the sites were in violation of the Clean Water Act. The water was most often contaminated with tritium, mercury, and nitrates. At the Y-12 plant, nitrate concentrations have been reported at a level 1,000 times the drinking water standard. At the Savannah River Plant, solvents have been reported at levels 30,000 times over the EPA's drinking water standards, and tritium levels over 2,500 times the standard. As with the DOE's violations of RCRA, the activities of the complex are being conducted in violation of the Clean Water Act.

The most publicized violations of environmental laws by the DOE were found in the June, 1988 Federal Bureau of Investigation (FBI) and EPA raid on the Rocky Flats facility near Denver. Rocky Flats manufactures the plutonium parts of nuclear warhead cores and various other fission bomb components (Abas, 1989). The FBI raid was prompted by Jim Stone, a six-year Rocky Flats engineer, who uncovered an internal DOE memo which described the operations at Rocky Flats as "patently illegal" and "in poor condition generally in terms of environmental compliance" (Abas, 1989, p. 22). Stone contacted the FBI, and search warrants were issued to search the facility for possible violations of environmental law. The 75-member team which raided the facility was looking for evidence to substantiate the allegations that Rocky Flats had (a) illegally treated, stored and disposed of hazardous waste in violation of RCRA; (b) discharged pollutants without a permit in violation of RCRA and the Clean Water Act; and (c) concealed environmental contamination (Abas, 1989).

Although the raid on Rocky Flats marked the first time a
governmental agency had gathered evidence against another federal facility for the purposes of criminal prosecution, the operation did not result in the filing of criminal charges against the DOE or Rockwell, the contractor for Rocky Flats. According to the EPA Criminal Enforcement director, Dick Emery, as of September 1990 there have been no charges filed as a result of the raid (Emery, 1990). In fact, as little as one month after the raid, Rocky Flats was operating "business as usual" (Abas, 1989, p. 22).

In September of 1989, Rockwell sued the DOE, alleging that their company was forced to violate hazardous waste laws because the government had failed to provide a permanent storage site for liquid wastes contaminated with non-radioactive toxins (Abas, 1989). Within days, Rockwell's contract with the government was terminated.

There is very little information on possible DOE violations of the Clean Air Act. Although the DOE must comply with this law, the contractors, under the agreement with the DOE, are responsible for reporting possible violations of the Act to the DOE. The DOE is then obligated to report the violations to the EPA. One commentator has suggested that the DOE is really given powers of self-regulation in this area (Alverez, 1990).

In the preceding description of the law violations of the DOE, it is clear that many facilities, as evidenced by the 1986 U.S. General Accounting Office and many other sources, are engaged in illegal activity. According to the Head of the Criminal Enforcement Department of the EPA, a number of complaints have been filed against the complex; however, there has never been criminal prosecution for the crimes
engaged in by the weapons complex (Emery, 1990). In fact, it is official EPA and United States Department of Justice policy not to take judicial action against another federal agency over compliance problems (Porter, 1986); instead, the EPA "relies exclusively on administrative enforcement" (p. 9). Other problems exist concerning the enforcement of environmental crimes committed by the DOE. As the Center for Defense Information (1989) states:

The EPA is further handicapped by overlapping laws, a lack of statistical data on military environmental compliance, military reluctance to accept EPA oversight, and the fact that government agencies are constitutionally barred from suing each other to force compliance with the law. (p. 2)

Although the EPA is precluded by Article III of the United States Constitution from prosecuting another federal entity, it does not preclude the EPA from investigating alleged criminal violations by individuals at federal facilities (Thompson, 1989). From 1982 to the present, however, the EPA has acted upon only three of 306 criminal complaints filed against a DOE employee (Thompson, 1989). The EPA is also hand-cuffed because it retains only 47 criminal investigators to combat environmental crimes throughout the entire nation (Emery, 1990). Thus, both organizational and structural problems make the enforcement of environmental laws against the DOE an extremely difficult task.5

The contractors, however, look at the problem of enforcement in a different manner. George B. Merrick (1987), former vice-president of the Rockwell corporation, offers this grievance concerning DOE and EPA enforcement policy at the Rocky Flats facility:

We are in a position where the Department of Energy requires us to continue to produce weapons under threat of civil penalties even though the EPA and Justice Department threaten to prosecute our people and our company for operations
essential to that production. We think that such governmental conduct is unfair, illegal, and unconstitutional. (p. 6)

Summary

The preceding discussion has focused on the environmental crimes committed during the processes of manufacturing nuclear weapons and materials. The information presented in this chapter has shown that not only are the majority of weapons facilities operating illegally, but also that this illegality is not marginal. Rather, tremendous violations have occurred at the various DOE installations. As Thomas Luken (1989), chair of the Subcommittee on Transportation and Hazardous Materials, concluded, "this is a tremendous and massive amount of pollution and contamination totally out of compliance, totally out of control" (p. 1).

Recently, steps have been taken by the Department of Energy to clean up some of the contamination surrounding its weapons facilities. However, this attempt to sanitize the facilities began only after the 1986 Chernobyl disaster in the Soviet Union. After this terrible accident, the United States became concerned about the safety of its own facilities because the reactor which malfunctioned in the Soviet Union was similar in design to many of the reactors used by the United States for warhead production. However, many of the efforts to improve the safety of the United States facilities have focused only on the technical improvements of reactors (Abas, 1989; Luken, 1989). Less attention has been given to the overwhelming problem of contamination which pervades most facilities. Nevertheless, several facilities within the United States nuclear weapons production complex have gone
through periods of shutdowns and restarts. Thus, there is some indication that the government is becoming more concerned with the awesome consequences of nuclear weapons production.\textsuperscript{6}
CHAPTER IV

THEORETICAL INTERPRETATION

In the preceding chapters, a number of important features of the nuclear weapons production complex were identified. The purpose of this chapter is two-fold. First, it will discuss those features of the weapons production complex which seem to be particularly relevant to a theoretical interpretation of the crimes committed by this set of organizations. This interpretation, grounded in the data presented in the preceding chapters, leads into the second part of this chapter in which the utility of the various theoretical perspectives on the causes of organizational crime are evaluated for their capacity to explain the criminality of the weapons complex.

The Historical and Structural Formation of Goals

There is little question that organizations carry out most of their activities in order to reach operative goals. Most organizational theorists stress the importance of understanding an organization's goals if one seeks insight into organizational behavior. Therefore, this section will discuss the nuclear weapons production complex's goals, and the manner in which they were shaped by structural and historical exigencies.

The United States has been engaged in or preparing for war for nearly 60 years. Given that the Cold War military strategies were largely organized around the capabilities of nuclear weapons, and
that use of atomic weapons played a significant role in ending the hostilities of World War II, the production of nuclear weapons became one of the most important United States militarily sponsored programs. This meant that the organization charged with the responsibility of developing and producing nuclear weapons warheads had to be, among other things, highly goal oriented and concerned with performance. Indeed, the United States depended on these powerful weapons as an instrument to deter Soviet aggression, and to gain economic and geopolitical advantages over those countries which did not possess nuclear weapons.

Throughout the tenure of the Cold War, United States geopolitical and economic interests have caused the United States to continually upgrade its stockpile of weapons of mass destruction, which in turn has forced the nuclear weapons production complex to be even more concerned with the achievement of production goals. The United States had to match or beat every Soviet advance in nuclear technology. For example, after the Soviets' first test of a nuclear weapon, Truman gave orders to strengthen existing nuclear weapons production programs and to start production on the hydrogen bomb. Historical evidence, then, supports the contention that the weapons complex's strong commitment to producing nuclear weapons is a result of the United States' interest in exercising global economic and political domination (see Chomsky, 1988; Ellsberg, 1981; Williams, 1969; Zinn, 1980).

The data gathered in this research show that a number of historical and structural conditions have played significant roles in
shaping the criminality of the weapons production complex. Without an understanding of the larger geo-political environment in which the nuclear weapons production complex has developed, a clear understanding of the complex's commitment to production goals cannot be obtained.

A structural level of analysis, however, is sometimes considered analogous to an orthodox Marxian approach to criminality wherein capitalism is identified as a primary structural condition which breeds criminality. The drive for profit is considered by those employing this approach as the primary causal factor in organizational crime. The current research, however, shows that while a structural level of analysis is extremely useful in the understanding of the formation of weapons complex's organizational goals, a purely orthodox Marxist approach is less valuable. Rather, a historically grounded structural analysis, with an emphasis on geo-political factors, is best equipped to explain the creation of the weapons complex's organizational goals. Several commentators have concurred with this claim (Alverez, 1990; Hodges, 1991; Krater, 1991).

The Selection of Means

It is clear that the methods employed to produce nuclear weapons have resulted in the immense contamination of the environment. It is highly unlikely that the Manhattan scientists were unaware of the adverse consequences of nuclear weapons production given their relatively sophisticated understanding of the destructive capabilities of nuclear weapons. Moreover, it will be recalled that former AEC General
Manager Wilson admitted that the AEC neglected the problem of the contamination occurring as a result of weapons production. Given these insights, and other corroborating evidence, it is reasonable to conclude that the production goals of the weapons complex have historically taken primacy, while the adverse environmental consequences of weapons production have never been a major concern of the contractors, the DOE, or its predecessors. Several commentators have agreed with this conclusion (Alvarez, 1990; Center for Defense Information, 1989; Hodges, 1991; Krater, 1991; Mobilization for Survival, 1989; National Academy of Sciences, 1987; Reicher & Scher, 1988).

The Manhattan Project was given one directive: to produce the atomic bomb. At this time, there was little knowledge about the program dispersed among anyone who was not directly involved in the endeavor. Secrecy and a lack of oversight facilitated this rather well. Because the operation was conducted in such secrecy, the weapons complex was free to use any means available to meet its objectives. Thus, the scientists and the military officials in charge of the project had great autonomy in selecting the avenues for the completion of their mission.

As a result of this autonomy, the weapons complex had simply selected the most effective means possible for achieving its goals. Because there was complete state sponsorship of the endeavor, any method which facilitated goal attainment was adopted as policy.

Currently, the weapons complex is still selecting those means which are an effective avenue for goal attainment, and massive contamination of the environment is still occurring. The difference, however, between the contemporary activities of the complex and the circa-World War II
operations is that laws have been created in the last two decades which outlaw certain activities of the complex. Thus, the means that the weapons complex had employed for decades have now become illegal. It seems reasonable, then, to conclude that strain may have existed within the organization of the complex. However, as the last portion of this section will illustrate, there is still little external oversight of the complex's activities and nearly a total lack of criminal enforcement. Thus, there remains little reason for the complex to adjust its activities in order to comply with environmental law. Those means which are the most effective, regardless of their legality, are still being employed because of their capacity to facilitate the achievement of the organization's production goals.7

Oversight

Several commentators have pointed to the lack of external oversight of the weapons complex's activities (Alverez, 1990; Hodges, 1991; Krater, 1991; Lamperti, 1984b; U.S. General Accounting Office, 1986). There is no external, independent review of the DOE's nuclear weapons production operations. Unlike the civilian nuclear energy programs, which are overseen by the NRC, the DOE's operations are mostly self-regulated. This lack of social control over the complex has been present throughout the complex's history. The legacy of secrecy legitimized by the need to protect "national security" has prevented most attempts at regulating the weapons complex's activities. This problem of creating an independent agency to oversee the complex's activities is in large part attributable to the defense mechanisms built
into the United States Constitution and the Atomic Energy Act of 1954. In the former case, Article III of the Constitution bars any federal agency from taking judicial action for the purposes of criminal prosecution against another federal agency. In the latter case, most defense activities are allowed to be exempt from independent oversight, control, and scrutiny because of "national security" concerns. Thus, the operationality of external informal and formal social control mechanisms is limited.

Equally as absent is inter-organizational oversight. Many commentators have identified this lack of inter-organizational oversight within the complex as a contributor to the environmental problems of the organization (Alverez, 1990; Mobilization for Survival, 1989; National Academy of Sciences, 1987). In the most comprehensive study, conducted by the National Academy of Sciences (1987), several specific problems were named. These include:

1. DOE's over-reliance on the contractors to conduct their activities in compliance with environmental laws.

2. Weak ties between the DOE's Environmental, Safety and Health Department (ES&H) and the field offices.

3. The need for strengthening the capability of the field offices to monitor contractor activities.

4. Episodic and narrowly focused audits and appraisals into the safety of production reactors.

5. The DOE has nothing comparable to the offices and divisions of the NRC charged with research, reactor regulation, inspections, and event analysis.

Given the insights of the Academy, it is possible to identify three
general problems in the management structure which contribute to the lack of inter-organizational oversight within the complex:

1. A lack of communication between the various parties involved in the production of nuclear weapons and materials,

2. DOE's apparent lack of concern for appraising the operations of the contractors, and

3. An over-reliance on the contractors to conduct their operations in compliance with applicable laws.

These three problems with the inter-organizational oversight of the complex have surfaced simultaneously at some points. For example, in the years between 1981 and 1987, comprehensive DOE headquarter appraisals of contractor performance occurred only twice at the Savannah facility, and only once at the Hanford plant (National Academy of Sciences, 1987).

As we have seen in earlier chapters, the contemporary management structure of the weapons complex has remained nearly identical to that of the Manhattan Project's. The lack of inter-organizational oversight within the weapons complex seems to be the result of the lack of concern, conveyed by both the DOE and its contractors, with the adverse environmental consequences of weapons production. Many of these problems seem to reflect the general ideology of the complex: i.e., the apparent disregard for the environmental consequences of warhead production and a sole emphasis on production goals.

Organizational Culture

Because the weapons production complex of today has many
similarities to that of the earlier weapons operations, it is reasonable to speculate that an organizational "culture" or "philosophy" has developed within the complex. As United States Secretary of Energy Watkins (quoted in Olshansky & Williams, 1988) has stated:

[the DOE possesses] an underlying philosophy that adequate production of defense materials and a healthy, safe environment were not compatible objectives. A culture of mismanagement and ineptitude will have to be overcome in [this] department before the nation's troubled nuclear weapons manufacturing plants can be brought into compliance with environmental laws. (p. 29)

This statement, from the Secretary of the DOE himself, lends support to the notions that (a) environmental criminality actually exists, and has existed for several years; and (b) production goals have historically taken precedence over concerns about the environmental consequences of warhead production. More importantly, however, is Watkins' claim that a culture and philosophy exist within the complex. Watkins makes it clear that the complex's focus on production goals has existed for many years, and that this organizational ideology is not aberrant. Rather, it is an integral part of the weapons complex's culture. Senator John Glenn (quoted in Steele, 1989) makes a similar claim:

The Department of Energy and its predecessors have been carrying out their mission to produce nuclear weapons with an attitude of neglect bordering on contempt for environmental protection what they've said (the DOE) in effect is "we're going to build bombs and the environment be damned." (p. 17)

Because of the peculiar history of the weapons complex (as a governmental endeavor which supplied the nation's most important military weapons), the complex could operate for a sustained period of time without being subject to external, independent review. This
feature of the complex may have permitted the formation of an organizational culture which was autonomous and virtually immune from outside criticism.

Of the many characteristics of the organization of the weapons production complex, perhaps the most apparent is its tradition of noncompliance with law. As a result of placing primacy on production goals through the most expedient and effective means, the complex has and continues to engage in the illegal disposal and storage of nuclear waste. These illegal practices, then, can be seen as a logical result of the organization's patterned method of operation. Since virtually every weapons production facility is or has operated in violation of one or more environmental laws, the organization as a whole could be viewed as a "culture" of noncompliance.

This notion of a culture of noncompliance is drawn from Braithwaite's (1989) idea of "subcultures of resistance."9 Braithwaite (1989) argues that subcultures of resistance "neutralize the moral bond of the law (and that) organizations can sustain subcultures of noncompliance more successfully if they can enforce a code of secrecy or create a smokescreen of diffused accountability" (p. 346). This research has found that it may be possible to apply Braithwaite's notion to a culture, rather than subculture, of noncompliance. Indeed, as Braithwaite suggests, the weapons complex has, in effect, neutralized commitments, if they were ever existent, to lawful organizational behavior. Additionally, Braithwaite's idea that both secrecy and the "smokescreen" effect facilitate the successful resistance of laws is clearly insightful, given the legacy of secrecy and diffused
accountability within the weapons complex. While the identification of the weapons complex as a culture of noncompliance may be an important contribution in the theoretical understanding of state-corporate crime, the purpose of this section has been to highlight the idea that the weapons complex, as a result of external structural and historical factors, has developed a patterned organizational method of operation. This can be characterized as one which places the achievement of production goals in high priority, and which has been largely autonomous, isolated, and self-regulating.

Having discussed the most salient features of the nuclear weapons production complex which have clear associations with the illegal acts of the organization, this chapter will now turn to an examination of the utility of the various theoretical perspectives on the causes of organizational crime to explain the crimes of the weapons complex. Each major theoretical position on organizational crime reviewed in Chapter I of this research will now be examined.

Evaluation of the Theoretical Perspectives on Organizational Crime

Differential Association Theory

The central notion of differential association theory is that criminal behavior is learned in association with intimate others by interacting and communicating with those significant others. Thus, crime is seen as a manifestation of an individual’s social-psychological interaction with those who define criminal behavior favorably. While
this research may not be able to confirm or refute the utility of
differential association theory to explain the crimes of the weapons
complex, some evidence has been found which supports Sutherland's
(1949) model.

This research has pointed to the possibility that the nuclear
weapons production complex has developed a culture. It seems reason­
able, then, to speculate that certain ideas and values concerning
organizational norms have been instilled in those workers who are
members of the weapons complex. That is, it is possible, and very
likely, that individuals are socialized into the general ideology
of the complex. Thus, the socialization of workers in the complex
could act to perpetuate the continued use of illegitimate means for
achieving organizational goals. If this were the case, which needs
to be determined empirically rather than speculatively, Sutherland’s
differential association theory could provide valuable insights into
the process of organizational socialization.

Because of the limitations of the data in this research, it is not
possible to fully evaluate the utility of differential association
theory to explain the crimes of the weapons complex. It is clear that
future research is needed which addresses the role of social learning
and its association, if any, with the crimes of the nuclear weapons
production complex.

The Organizational Perspective

There are three central notions contained within the organizational
perspective on organizational crime: (1) organizational goals, (2) the
distribution of legitimate and illegitimate means, and (3) social control. In this section, these central notions will be evaluated for their capacity to shed insight into the crimes committed by the nuclear weapons production complex.

A central tenet of the organizational perspective on crime is that organizations are, by their very nature, strongly goal oriented and concerned with performance. Since most organizations are evaluated by their success in goal attainment, it is argued by these theorists that the organization feels pressure to achieve its goals. As demonstrated earlier in this research, the weapons complex has been extremely concerned with its performance, and has developed a strong commitment to its operative goals. Thus, the notion that organizations are deeply concerned with performance and the attainment of organizational goals has been supported in this research.

Most organizational theorists explain the particular causes of organizational crime through the Mertonian notion of innovation. This notion rests on the idea that an organization will employ legitimate means for achieving its goals if those means are available. If, however, legitimate means for achieving goals are blocked, an organization will experience strain, and thus select illegitimate means for achieving its goals. Innovation, then, is a result of the blockage of legitimate means, and the decision to use illegitimate means for achieving organizational goals. This notion assumes that an organization alters its behavior or mode of operation because of strain.

The weapons complex operated for nearly three decades without being subject to official regulatory law. Because of secrecy, and the absence
of social control over its activities, the weapons complex experienced great autonomy in selecting the means for achieving its goal to produce nuclear weapons. Thus, because of the absence of any party capable of defining the organization’s activities as legitimate or illegitimate, the weapons complex’s means for achieving organizational goals were not blocked, and organizational strain did not surface.

In the period between 1970 and 1977, however, regulations on the nuclear industry began to surface. Primarily aimed at the rapidly growing civilian nuclear industry, the Clean Air Act (1970), the Clean Water Act (1972), and the Resource Conservation and Recovery Act (1977) were passed to prevent further environmentally damaging acts committed by the governmental nuclear industry. These laws set standards on radioactive and hazardous waste disposal both in the air and in the water. To be in compliance with these new laws, the weapons production complex would have to adjust its production practices and concern itself with the safe disposal of nuclear waste.

Following the Mertonian rational goals blocked notion, it would seem reasonable to identify, during this period of time, the existence of organizational strain within the complex. Activities which were at one time permitted were now illegal. Thus, the organizational theorists would argue that a threat to the organization’s attainment of goals surfaced because its means were now criminalized. However, the organization did not adjust its behavior after the birth of these laws. It did not react to strain because it experienced no strain. For the Mertonian notion of innovation to apply, there must be the confrontation of strain, a blockage of goals which leads to an adjustment of
organizational behavior. However, there was no official enforcement of these new laws directed at the weapons complex. The enforcement of these laws was aimed at the civilian industry, even though the weapons complex was also subject to these laws. Thus, the organization was using means defined as illegitimate, but their activities were not being officially monitored, enforced, or sanctioned. The complex did not have to adapt to external strain, rather the lack of enforcement and social control encouraged the now defined illegal acts. The complex simply sustained its 30-year-old mode of operation. Thus, this research has found that organizational criminality does not necessarily result from the blockage of legitimate means and strain. Since most theories of organizational crime rely largely on the notions of strain and innovation, this finding represents an important contribution to the understanding of organizational criminality. 

The lack of enforcement of environmental laws by the EPA on the weapons complex permitted the complex to maintain its mode of operation. Both formal and informal social control of the complex's activities were absent. Thus, the organizational perspective's notion of the influence of social control plays an important role in the complex's criminality; however, it is in quite a different sense.

Most organizational theorists stress the importance of the operationality of external social control mechanisms (see Finney & Lesieur, 1982; Kramer & Michalowski, 1990). They argue that illegitimate means to achieving organizational goals can be blocked if there is effective social control. However, in the case of the weapons complex, social control is important not because of its potential for curbing deviant
means, but for allowing organizational criminality to occur. Proportion is not the issue, rather existence. Although speculative, but consistent with the organizational theorists' notion of social control, if there were social control over the complex's activities, perhaps the organization's autonomy could have been limited, and thus be incapable of sustaining its environmentally contaminating activities. Historically, we have seen, there has never been any real control, formal or informal, over the complex's activities. The secretive nature of its operations, facilitated by the government, precluded any real public, congressional, or independent oversight. Thus, when the complex was confronted with the fact that there were laws governing their disposal activities, the organization did not experience strain because there was no source of strain, no agency to force it to comply with these laws. There was no motivation, or reason, for the weapons complex to adjust its behavior because organizational goals were being attained quite efficiently through the use of traditional means. Rather than stressing the role of an organization's motive for adapting to strain (Coleman, 1987; Kramer & Michalowski, 1990) for the weapons production complex, the salient issue is its motivation for sustaining its activities. Thus, motivation is indeed an important consideration, for it illustrates the important role organizational goals play in the etiology of organizational crime. However, its importance for explaining the crimes of the nuclear weapons production complex lies on a different plane.

There is no doubt that employing the organizational level of analysis, with a historical focus, can be extremely insightful when
analyzing the crimes of the weapons complex. Equally as valuable is the notion that organizational goals play a large role in organizational criminality. An atomistic level of explanation would preclude the consideration of the structural and institutional factors which contributed to the complex's criminality. Yet, the utility of the specific notions contained within the organizational perspective (strain and innovation) to explain the etiology of the weapons complex's crime is limited.

The Political Economy Perspective

The political economy perspective on organizational crime stresses the primacy of capitalistic structures as an inducement for organizations to enter into illegal activity. The primary assumption of this perspective is that the structure of corporate capitalism provides an incentive for organizations to use illegitimate means toward achieving profit, if legitimate means are blocked. This perspective extends the Mertonian rational goals blocked model offered by the organizational theorists by considering the dynamics of capitalism, and how this mode of production generates illegal activity.

The utility of the rational goals blocked version of the political economy approach to explain the crimes of the weapons production complex is limited. From the beginning of the atomic age, the United States government has made several different types of arrangements with corporations who actually produce nuclear weapons. Many of the facilities have been operated on a non-profit basis. Included in this category is the Savannah River Plant, a facility with one of the worst records of
environmental compliance. Thus, having no motive to accumulate capital or to supersede laws for the purposes of gaining organizational economic profit, the crimes committed by these facilities are not explainable by using the traditional political economy approach.

The Integrated Theoretical Perspectives

Coleman's (1987) theoretical explanation of organizational crime is grounded in the notion that individual psychological motivations and the structural dynamics of corporate capitalism are the two primary causes of organizational crime. In this chapter, we have already addressed the utility of the political economy and social-psychological perspectives to explain the weapons complex's criminal actions. The ability of the former perspective to explain the crimes of the weapons complex cannot be fully determined because of the limited amount of data collected concerning this level of analysis. We have also found that the political economy perspective cannot fully explain the environmental law violations.

Braithwaite's (1989) integrated theory of organizational crime is primarily based on a Mertonian rational goals blocked model and subculture theory. As we have seen, the Mertonian notion of innovation does not adequately explain the crimes of the weapons complex. The complex, it will be recalled, has never experienced strain, nor has it had any of its means considered illegitimate. Braithwaite's general theory maintains little capacity to shed theoretical insight into the causes of the crimes of the weapons complex. His idea of subcultures of resistance, however, has been reworked in this research to explain the
possibility that a noncompliant culture exists within the weapons complex. In this regard, Braithwaite's conceptualization of organizational crime is useful.

Kramer and Michalowski's (1990) integrated theory of organizational crime is perhaps the most comprehensive model that exists in the literature. This theory is based on the hypothesis that organizational crime results from a coincidence of appropriate motivation or performance pressure, absent effective social control.

As we have seen, the weapons complex has historically been pressured to meet production goals, and has experienced no real social control. Thus, on a general level, this research lends support to Kramer and Michalowski's hypothesis, especially on the structural and institutional level of analyses. This research has documented several times that the weapons complex has experienced little social control, but great pressure to meet production goals.

However, Kramer and Michalowski's model also rests largely on the Mertonian notion of strain, and the role of the distribution of legitimate and illegitimate means. This research has shown that the weapons complex has never experienced a measurable amount of strain—that, in fact, the complex has been virtually immune from agents which may cause strain. Thus, the data presented in this research lend support to Kramer and Michalowski's general hypothesis, but clearly do not support the rational goals blocked idea central to their theoretical model.

Because of the limitations of the data in this research, this study cannot verify the value of other notions contained in Kramer and Michalowski's (1990) theory. For example, this research cannot
determine the role that individual members of the organization play in the crimes of the complex. Indeed, the role that an individual's symbolic structure of goals, alternatives, and responsibility plays has not been measured in this research.
CHAPTER V

CONCLUSIONS

The three objectives of this research were:

1. To identify the characteristics of the environmental law violations committed during the production of nuclear weapons,

2. To identify the historical forces and events which have contributed to those violations, and

3. To use the illegal acts of the nuclear weapons production complex as a case study to help adjudicate between a number of competing explanations of the causes of organizational crime. This research has provided some answers to these central issues.

We have found that the environmental law violations committed by the nuclear weapons production complex are primarily the result of inadequate nuclear waste disposal practices. Nuclear waste is commonly dumped into ponds or basins which leak. Thus, not only does the soil surrounding the facilities become contaminated, but the groundwater as well. This method of disposal has been employed throughout the tenure of the weapons complex to dispose of unwanted waste generated from weapons production. The problem is so acute that contaminated groundwater at one facility has entered a large aquifer which provides a large portion of the drinking water to the south-eastern portion of the nation. These waste disposal activities violate several laws, especially the Resource Conservation and Recovery Act of 1976 which outlaws waste disposal practices which allow contaminants to enter the...
environment in excess of EPA standards.

This research has been conducted with a special interest in the history of the weapons production complex. We have seen that nuclear weapons have played an extremely important role in United States' military planning and operations. During the unstable political climate of the World War II and Cold War eras, the weapons production complex had experienced immense pressure from the federal government to produce weapons. This pressure resulted in the weapons complex decision to use the most efficient and effective means to achieve its goals. This research has also pointed to the lack of oversight over the complex's activities. The complex has never been officially regulated by any independent agency, nor has it ever been subject to the strict guidelines concerning nuclear waste disposal methods which govern the practices of civilian nuclear activities.

This research has found that the environmental law violations committed by the nuclear weapons production complex are a result of immense performance pressure, organizational goals, historical exigencies, poor management, and an absence of social control. These important factors in the etiology of the environmental crimes committed by the weapons complex have been juxtaposed to the general theoretical models on the causes of organizational crime.

The final objective of this research has been to evaluate the utility of the various theoretical perspectives on the causes of organizational crime to explain the crimes of the nuclear weapons production complex. Because of the limitations of the data, however, this objective has only been partially met. Few data were presented
in this research concerning the possible social-psychological motivations for individuals working within the weapons complex to engage in criminality. However, other theoretical models which lie on different levels of analyses have been evaluated.

The organizational perspective on organizational crime gives us some insight into the causal factors involved in the crimes of the weapons complex. We have found that the pressure placed on the weapons complex to achieve organizational goals has been immense, and that this pressure has resulted in the lack of concern for producing nuclear weapons in an environmentally sound manner. Additionally, the organizational perspective helps explain why the weapons complex selected certain avenues for achieving its production goals; they were simply the most effective and efficient. However, the utility of the organizational perspective to fully explain the crimes of the weapons complex is limited because the model is largely based on the Mertonian notions of strain and innovation.

The ability of the political economy theoretical position on organizational crime to explain the crimes of the weapons complex is limited. Because many of the operators of weapons production facilities do so under a non-profit arrangement with the DOE, there is no motivation for profit, a major cause of organizational crime according to the political economy approach advocates.

The integrated theoretical models on the organizational causes also possess limited faculties for explaining the causes of the crimes of the nuclear weapons complex. Because Coleman's (1987) and Braithwaite's (1989) models rely so heavily on either the social-psychological
level, or the political economy level of analysis, this research has either not found support, or been unable to test, their theories. However, this research has found support for Kramer and Michalowski's (1990) integrated theoretical model. While their basic hypothesis has been supported by this research, specific notions contained in their theory (Merton's innovation and the distribution of means), do not shed insight into the possible causes of the weapons complex's criminality.

Future Research

There are several ways that the understanding of the crimes of the weapons complex could be deepened. More research is needed which places a special focus on the micro-organizational level of analysis. For instance, this research, through a structural level of analysis, has pointed to the possibility that an organizational culture may exist within the complex. Important questions such as the precise effect of this organization's general operating procedure on the institution's workers or the role that alienation plays in the perpetuation of organizational criminality, have not been presented in this research. Neither has this study delved into the social-psychological motivation for the weapons complex workers to continue to engage in illegal activity. Future research needs to be directed on this more micro level of analysis in order for a full explanation of the weapons complex's criminality to surface.

Other issues have been raised by this research which should be explored in future research. For example, one could study the weapons production complex of the Soviet Union to determine what differences
exist between the two superpowers' operative agendas. There is also a need for research which examines the results of one federal agency overseeing the activities of another federal agency. Questions such as these could certainly deepen our understanding of the weapons complex's role in the totality of United States governmental operations.

Another direction that could be pursued in future research is through the use of a different paradigmatic approach. Using a social constructionist perspective, a scholar could begin to answer important questions such as the manner in which environmental laws are created. Additionally, a social constructionist perspective could offer deeper insights into the reasons why the weapons complex has evaded deviant labels. Clearly, the research questions of such phenomenological studies would be of a different nature than this research's objectives. However, using a multiple paradigmatic approach to the crimes of the weapons complex could provide a deeper understanding of environmental law and state-corporate crime.
The organizational theorists do not employ the notion of social control in the manner offered by Hirschi (1969). Rather, social control is considered to represent the external, independent oversight of organizational activities. It is in this sense that the notion of social control is used in this research.

Perdue (1989) has argued that the Department of Energy could be more appropriately referred to as the "Department of Nuclear Weapons."

RCRA's applicability to federal agencies is limited to the U.S. Department of Defense (DOD) and the U.S. Department of Energy. While the DOD did not contest the applicability of the law to its activities, the DOE did raise serious objections to the applicability of the law.

Facilities reviewed by the study were the Feeds Material Plant, Manford, Los Alamos, Mound, Oak Ridge, Rocky Flats, and the Savannah River Plant.

Although there have been no criminal charges filed against the Department of Energy, there have been two instances in which the organization has been sued by citizens allegedly stricken with cancer because of DOE operations at its weapons production facilities. Both lawsuits were dismissed at the district court level, on the grounds that the Department of Energy's nuclear production activities are protected under the government's right of "sovereign immunity" (Conner, 1990).

Although there has been some indication that the United States government and the DOE are allocating more resources to environmental protection, several instances point to the contrary. Most notably is the June 1991 decision to the United States Senate to take $108 million originally targeted for environmental clean-up and devote that money to warhead production (Gelb, 1991).

There is little question that the means employed by the weapons complex to achieve organizational goals can be considered socially injurious. Indeed, the contamination of the groundwater and air have caused severe environmental, health, and safety problems. Using a redefined notion of crime commonly offered by critical criminologists, one could apply the label of "crime" to these pre-1970 waste disposal practices. The actions of the complex, then, could be seen as crimes of omission, rather than of commission; i.e., safeguards were not created to contain the disastrous effects of warhead production. Given the fact that the post-1970 waste disposal practices of the complex are criminal in the legalistic sense, one could argue that the activities of the nuclear weapons production complex have been historically criminal.
The existence of an organizational "culture" within the weapons complex must be established empirically. However, because of the limitations of the data in this research, this study cannot provide empirical support for this idea. The following discussion, then, is an attempt to point to the possibility that a culture exists within the complex and how that culture could be characterized through additional research.

This discussion is not intended to evaluate the utility of Braithwaite's theory to explain the crimes of the weapons complex. Rather, the discussion is limited to the notion he has set forth concerning organizational subcultures of resistance. Braithwaite's integrated theory of organizational crime will be fully reviewed in the last section of this chapter.

The organizational theorists do not consider the possibility that an organization may create new goals and new means for achieving these goals. Indeed, the Manhattan scientists did create the goal of producing nuclear weapons and the practice for means for achieving that goal. Thus, it may seem reasonable to argue that Merton's notion of rebellion could be useful in interpreting the crimes of the complex. However, the Manhattan scientists did not eschew traditional goals and means; rather, they were created independently of society. Moreover, this research has shown that the nuclear weapons production complex has
Appendix A

Functions of the Department of Energy’s Nuclear Weapons Facilities
Functions of the Department of Energy's Nuclear Weapons Facilities


Appendix A--Continued

Appendix B

Additional Information on the Unstructured Interviews
Additional Information on the Unstructured Interviews

All of the individuals interviewed in this study, with the exception of Richard Emery, were asked one basic question: "In your opinion, what are the primary causes of the environmental crimes committed by the nuclear weapons production complex?" The interviewees were then asked to elaborate on their ideas concerning the causes of the crimes in question. If, during the process of the interview, the interviewee had not addressed any historical features of the complex which may have contributed to the environmental crimes, they were asked, "What historical events and policies, in your opinion, have played a significant role in the shaping of the nuclear weapons production complex's criminality?"

Richard Emery, the director of the Criminal Division of the U.S. Environmental Protection Agency, was asked one basic question: "Are you aware of any attempt by your department or of the U.S. Department of Justice to recommend the criminal prosecution of the Department of Energy or a DOE contractor for environmental crimes?"

Ultimately, the data gathered through these interviews did not shed insight into any new, or unexplored information, not already obtained through other data collection techniques. Rather, the data gathered from the interviews served to confirm already obtained ideas about the causes of the environmental crimes committed by the nuclear weapons production complex. This has had the effect of increasing the validity of this research.
Appendix B--Continued

Interviewee Names and Affiliations:

**Robert Alverez:** Researcher with the Committee on Governmental Affairs, U. S. Congress.

**Richard Emery:** Director of the Criminal Enforcement Division of the U. S. Environmental Protection Agency.

**Jeff Hodges:** Legislative Researcher and Assistant to Representative John Dingell, U. S. Congress.

**Jeff Krater:** Legislative Researcher and Assistant for Representative John Dingell, U. S. Congress.
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