

# GENERIC ADVERSARY CHARACTERISTICS SUMMARY REPORT

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Office of Nuclear Material Safety and Safeguards  
U. S. Nuclear Regulatory Commission

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**Division of Safeguards  
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## TABLE OF CONTENTS

<u>Part</u>	<u>Page</u>
PREFACE.....	ii
I. INTRODUCTION.....	1
A. Purpose and Scope of Study.....	1
B. Background.....	4
C. Threat Assessment Process.....	5
1. Background Considerations.....	5
2. Constraints.....	7
D. Study Methodology.....	8
1. Analogs.....	9
2. Adversary Characteristics Matrix - Framework for Analysis.....	11
3. Development of Matrix Cell Data.....	12
II. ANALYSIS OF GENERIC ADVERSARY CHARACTERISTICS.....	13
A. Introduction.....	13
B. Adversary Characteristics Matrix.....	15
C. Intra-Group Analysis.....	16
1. Terrorists.....	16
2. Organized/Sophisticated Criminals.....	19
3. Extremist Protestors.....	21
4. Disoriented Persons.....	24
5. Disgruntled Employees.....	27
6. Miscellaneous Criminals.....	30
7. Critical Characteristics.....	33
D. Inter-Group Analysis.....	39
1. Common Characteristics.....	39
2. Group Size.....	41
3. Weapons/Equipment Usage.....	42
4. The Use of "Insiders".....	44
5. Disutility of "High Level" Composite.....	46
III. CONCLUSIONS.....	47
APPENDIX.....	53
Glossary of Terms.....	53

## PREFACE

This study was undertaken in response to guidance issued to the Office of Nuclear Material Safety and Safeguards by Secretary memorandum of June 30, 1977, "Staff Guidance on Action Plan on Recommendations of Report of Task Force on Allegations by James H. Conran."

Information used in the preparation of this study was obtained from a review of over 650 articles, studies, books, abstracts, NRC reports and memoranda and other material. In addition, discussions regarding the characteristics of various generic adversary groups were held with a number of representatives of various federal agencies, as well as criminologists, psychiatrists, social scientists, and other experts in areas of interest to the study.

The study group wishes to acknowledge the valuable guidance and technical assistance provided throughout the research and writing process by Mr. Joseph Yardumian, Chief, Special Projects Section, Contingency Planning Branch. Additionally, the group wants to thank Messrs. Thomas F. Carter, Jr., Deputy Director, Division of Safeguards and Bernard J. Snyder, Assistant Director for Policy Review, Office of Policy Evaluation, for their support and encouragement. The group also thanks Miss Kathy Jordan who served as chief secretary for the study, whose hard work was much appreciated, and members of CRESS and others who provided typing and administrative support. Finally, the group owes a debt of gratitude to those, too numerous to mention, within the Division of Safeguards and other NRC offices who participated in the review process for the final study.

## I. INTRODUCTION

### A. Purpose and Scope of Study

The purpose of this study is to determine, as logically and systematically as possible, the characteristics of potential adversaries who might pose a threat to nuclear programs so that more effective safeguards systems can be designed to protect the industry against the malevolent acts of such adversaries if ever attempted. The study is intended as an initial effort at threat definition.\*

The scope of this study entails an analysis of characteristics associated with subnational conventional crimes and terrorist actions that could be analogous to potential nuclear events. The study addresses six generic types of potential adversaries constituting the perceived range of possible

\*For the purpose of this study, the term "threat" has two important and distinct points of reference. First, a "safeguards threat" refers to those malevolent acts or potential acts which, if successfully perpetrated, would result in the unauthorized possession or use of significant quantities of nuclear materials through theft or diversion; or sabotage of nuclear facilities, the intended effect or result of which would cause radiological release into the environment. The second important point of reference in the use of the term threat is the "low-level threat." A "low-level threat" includes all criminal acts directed at the nuclear industry that are not likely to result in either theft of significant quantities of SNM or sabotage resulting in radiological release (e.g., intrusions, vandalism, arson, weapons discharges, theft of radioactive but non-SNM material, etc.). This study recognizes the current threat to involve at least such low order crime for which there is a recent and continuing history within the commercial nuclear industry. Unless referred to specifically as "safeguard threat," the term "threat" is used to refer to the spectrum of threats, whether actual or potential, in such a general sense.

threats of current interest to the licensed nuclear industry. They are: (1) terrorists, (2) organized/sophisticated criminals, (3) extremist protestors, (4) disoriented persons, (5) disgruntled employees, and (6) miscellaneous criminals.

The study analyzes adversary characteristics strictly from a criminal standpoint; that is, from the context of incidents wherein laws were broken by groups and/or individuals or in which criminal purpose or intent was obvious. It does not, for example, evaluate the characteristics of individuals involved in administrative or accounting discrepancies or irregularities unless such instances were also of a criminal nature (i.e., proof that a crime existed). Events arising from the occurrence of nuclear material inventory differences (IDs) are not included. The AEC-Regulatory or NRC investigations of all large IDs that have occurred since 1968\* have not established that special nuclear material has been stolen or diverted. (On the other hand, uncertainties in the material control and accounting techniques are such that possible successful theft or diversion in those instances cannot be conclusively ruled out.)

\*Prior to 1968, licensed special nuclear material (SNM) was under the cognizance of that part of the AEC which has remained in the Department of Energy. In 1968, Safeguards cognizance of licensed SNM was transferred to AEC's Regulatory office, the predecessor of the NRC.



The study excluded potential threats from nation-state adversaries, to include any group or individual (up through top-level management personnel) who might be solicited or unsolicited agents of a foreign government. It should be noted, however, that the characteristics findings with respect to the terrorist and organized/sophisticated crime adversaries overlap to some degree the presumed characteristics of nation-state adversaries (e.g., recruitment, training, tactics, etc.).

To accomplish the study's aims, data reflective of actual, demonstrable adversary characteristics were gathered and assimilated. The research process concentrated solely on information descriptive of known characteristics of contemporary, real-world adversaries.

Presentation of these data emphasizes a systematic framework whereby complex socio-political and behavioral attributes are analyzed from a standardized point of reference. The report relies on a matrix framework and analog method. This approach permits easy, periodic assimilation of additional input and is well-suited to the dynamic nature of the subject.

A study of this type can never be finalized because changes in potential adversary behavior, characteristics, and targets will inevitably occur, as will changes in motivating influences such as the marketability of stolen nuclear material. This study is, however, an important step in the dynamic process of determining adversary characteristics.

## B. Background

Historically, opinion has varied among NRC, the nuclear community, intervenors, and the public on what constitutes adequate levels of safeguards.\* Confusion and disagreement have attended this subject because the controversial question, "How much safeguards are enough?" leads directly to the equally controversial question, "Against what threat?"

Within NRC, perceptions of existing threat levels have evolved piecemeal from limited analyses based on diversified techniques. In the early years of safeguards development, the technically oriented staff tended to insist that threat levels be defined in a quantifiable sense so that "benchmarks" for evaluation and inspection programs could be established. Because the organizational, operational, and behavioral characteristics of the potential adversary (e.g., motivation, dedication, planning, etc.) are inherently difficult to quantify, NRC emphasis was traditionally placed on quantifiable characteristics such as group size, weapons, and equipment. This study suggests that although quantifiable characteristics are important, they appear less important in terms of adversary success than some of the behavioral characteristics that were studied.

\*As used here, the term "safeguards" refers to the security measures undertaken by a licensee to protect strategic special nuclear material (SSNM) from loss, theft, or diversion and to prevent sabotage of a licensee's facilities or activities. SSNM includes uranium-235 (contained in uranium enriched to 20% or more in the U-235 isotope), uranium-233, or plutonium alone or in any combination in a quantity of 5,000 grams or more computed by the formula: grams = (grams contained U-235) + 2.5 (grams U-233 + grams plutonium). See NRC Memorandum and Order, In the Matter of Licensees Authorized to Possess or Transport Strategic Quantities of Special Nuclear Material, January 21, 1977.

### C. Threat Assessment Process

Under the Energy Reorganization Act of 1974, NRC was directed to provide safeguards against theft and sabotage for licensed nuclear facilities and special nuclear materials (SNM). Implicit in such responsibility is an emphasis on threat assessment.

#### 1. Background Considerations

In the classic intelligence sense, threat assessment is simply a matter of first determining a given adversary's capabilities\* and then establishing his intentions as to malevolent actions against the target being protected. Once the capabilities of the adversary have been determined and his likely intentions postulated, the threat analyst is in the most advantageous position to estimate the level of risk involved relative to the event of concern.

In the real world, however, much information concerning the adversary's actual intentions and capabilities is often missing. As a general rule, threat analysts have to work with misleading and inaccurate information, a situation that seemingly supports the contention that threat estimation is a subjective and imprecise art. This generalization underestimates

\*Military strategists normally consider the following characteristics of a potential adversary as being the important variables in determining the adversary's capabilities: weapons, equipment, training, force size, leadership, force dedication, discipline and morale, logistics, and supply. The preferred military term "capabilities" may in fact be used interchangeably when speaking of the attributes of an adversary. Throughout this study, then, the two terms "characteristics" and "capabilities" will be considered synonymous.

the potential value of threat assessment. When organized in a systematic and disciplined manner and performed by experienced analysts, the threat assessment process has proven to be an important aid to decision-makers and crisis managers.

Even with a sophisticated and professional threat assessment capability, it is not unusual to find analysts and experts disagreeing on the significance of commonly observed behavioral phenomena. The variability, imprecision, and subjective nature of adversary behavior and intentions engender differences of opinion. An example of such disagreement within the nuclear arena is the assessment of future terrorist intentions to acquire a nuclear capability. Some experts feel that escalation to nuclear violence is a logical extension of current terrorist modus operandi, given their fanatical motivation and seemingly irrational behavior. Opponents of this "doomsday" assessment point to terrorists' apparent recognition of the self-defeating nature of such action and to their historical preference to avoid mass destruction tactics as evidence that they will not seek a nuclear capability. As corroboration for their view, these same experts note that contemporary conventional explosives, which offer the means for mass killing, have been available to terrorists for some time, yet there are few recorded incidents in the past 50 years of terrorists killing more than 150 people.

This disagreement and discussion continues because experts attribute different intentions to the adversary. It should be noted here that, as

a matter of procedure, NRC does not base its safeguards policies on assumptions about adversary intentions. Rather, it assesses potential adversary characteristics and then establishes safeguards strategies and policies designed to thwart adversary incursions to steal SNM, sabotage a licensed facility, or acquire a nuclear capability if attempted.

## 2. Constraints

Threat determination and subsequent establishment of safeguards protection levels are complicated by two important sociological constraints. First, the potential threat to the domestic nuclear industry is a multi-dimensional entity which cannot be described or reduced to simple decision variables. Potential adversaries fall into various generic groups, e.g., terrorists, professional criminals, etc., each of which has its own set of adversary characteristics that comprises its unique "threat profile."

Second, rarely are terrorism and other such adversarial phenomena wholly of one character. They may contain elements of nationalism, religious or political protest, separatism, or any combination of such genres. The rise and fall of such groups, the ever-changing nature of their ideologies, programs and ideals, and their increasing propensity to resort to violence to obtain their goals indicate the dynamic nature of safeguards and the problem of determining what level of safeguards is adequate. This dynamism and the traditional ingenuity of the criminal mind render injudicious any

assumptions about lack of interest in nuclear targets or perceived abilities to deter malevolent actions. When properly motivated, the criminal, politically inspired, or mentally imbalanced adversary has historically proven dedicated, resourceful, and well-equipped to handle whatever illegal tasks he has undertaken.

In order to cope with the multi-dimensional nature of the threat to nuclear programs, this study puts the adversary under a microscope (in a generic sense) and notes, in as much detail as possible, his organizational, operational, behavioral, and resource characteristics.

#### D. Study Methodology

Threat analysts have traditionally relied on four basic methods with varying degrees of utility to threat assessment: (1) historical extrapolation, (2) analysis of analogous events, (3) mathematical techniques, and (4) analysis of intelligence information. These methods provide the basis for examining the scope and nature of adversary characteristics, intentions, and general threat, and should provide the data for determining safeguards requirements.

While any complete effort at threat assessment or adversary definition must utilize a multi-disciplinary approach, the current study is aimed at determining adversary characteristics in generic categories; it does not address adversary intentions. From this perspective, then, the study used primarily the historical extrapolation and analog methodologies.

## 1. Analogs

Certain assumptions concerning the capabilities of potential adversaries of nuclear programs are necessary in order to design adequate safeguards systems. These assumptions may be arbitrary or they may be based on actual data. Since serious adversary actions directed against nuclear facilities have been too few to provide a framework for historical analysis, an analog methodology was developed to examine the characteristics of potential nuclear adversaries. Adversary actions directed against nuclear facilities have been generally limited to a handful of overseas events and a number of low-level domestic actions and harassments such as intrusions, hoax bomb threats, vandalism, arson, radiopharmaceutical thefts, and several accidental and unexplained firearms discharges.\*

\*As previously indicated, events arising from the occurrence of material inventory differences (IDs) have not been addressed in this nuclear-related history of criminal malevolency. Although all large IDs that have occurred since 1968 have been investigated by AEC-Regulatory or NRC, the investigations have not established that special nuclear material has been stolen or diverted. (On the other hand, uncertainties in the material control and accounting techniques are such that possible successful theft or diversion in these instances cannot be conclusively ruled out.) For additional information on IDs, see "Report on Strategic Special Nuclear Material Inventory Differences," Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, NUREG-0350, Vol. 1, No. 1, August 1977; and, "Licensed Fuel Facility Status Report," Office of Inspection and Enforcement, U.S. Nuclear Regulatory Commission, NUREG-0430, Vol. 1, No. 1, May 1978. Note that in no case is there conclusive evidence that a significant diversion of special nuclear material has occurred.

In contrast to the small number of significant nuclear-related crimes that have occurred, there is a fairly rich history of sophisticated crimes, terrorist actions, and political violence that might be representative of potential crimes against nuclear facilities. The explicit assumption is that a study of these analogies can provide insights into the characteristics of various types of potential adversaries to nuclear programs. Penetration of a nuclear facility or hijacking a shipment of SNM, for example, would require a competent criminal or terrorist group to invest significant time in planning and organizing the mission and in mobilizing the necessary human and material resources, as in "analogous" sophisticated crimes.

Through the study of adversary characteristics in analogous crimes, knowledge of potential adversary's general objectives, modus operandi, and other attributes can be gained that might be critical in containing or defeating future malevolent behavior should nuclear facilities become targets of terrorist and/or criminal elements. The study of analogous terrorist, criminal, and other malevolent events, then, is the basic methodology used in this report to determine generic adversary characteristics.

When extrapolating characteristics of nuclear adversaries from the analog data, the reader should remember two things. First, the data resulted from analysis of generic rather than specific groups. Such an examination



created the need to generalize and deal in ranges of characteristics. Second, the more serious events that have been analyzed are strictly analogs; none has as yet involved nuclear targets. It is possible that nuclear targets might attract qualitatively different adversaries. For planning purposes, however, such an assumption appears to involve unacceptable risks considering the potential consequences to society should reactor sabotage or theft of strategic nuclear material be initiated by some adversary.

## 2. Adversary Characteristics Matrix--Framework for Analysis

A matrix typology was developed as the framework for systematically organizing, collating, and documenting the analog generic adversary characteristics data elements. This typology permits detailed analysis of both inter-group and intra-group characteristics.

Six generic adversary groups were identified. These six groups represent the perceived population of potential subnational threats to the domestic nuclear industry from an analog perspective at this point in time.\* The spectrum of threats represented by these six generic groups reflects NRC concern both with more serious potential threats, such as terrorism, and with less serious low-level threats, such as petty crime. The six groups are: (1) terrorist groups, (2) organized/sophisticated criminal groups, (3) extremist protest groups, (4) disoriented persons, (5) disgruntled

\*As previously noted, this assumption excludes threats from nation-state adversaries (See I.A., "Purpose and Scope of Study").

employees, and (6) miscellaneous criminals. These terms have specialized meanings for the purposes of this study. Precise definitions of the meaning ascribed to the terms are contained in the Appendix, "Glossary of Terms," which should be consulted by the reader prior to reading the body of this summary report.

### 3. Development of Matrix Cell Data

Information used to fill in the cells for the matrix came from a variety of sources including studies, reports, and expert testimony. This summary report presents an analysis of the detailed data findings and some conclusions. The summary matrix on page 15 presents a picture of our current knowledge of adversary characteristics in a generic sense.

Again it is emphasized that the characteristics data are not reflective of largely speculative future intentions of adversaries. Rather, they are descriptive of observed current and immediate past characteristics. Additionally, the study procedure does not allow for accurate statistical profiles, and no attempt is made to assign numerical probabilities or confidence intervals to the events studied. However, the data is considered representative of the groups and events studied. The data is felt adequate for deriving comparative judgments about the characteristics within and among the groups. The data is also useful in examining the likelihood of certain kinds of adversary behavior. It does not, however, provide any information about the probability of occurrence.

## II. ANALYSIS OF GENERIC ADVERSARY CHARACTERISTICS

### A. Introduction

Each adversary group is now examined in turn. While brief, the analysis should give the reader some appreciation for the differences, as well as the similarities, of characteristics among the groups. The analysis is divided into a discussion of intra-group and inter-group characteristics. The first item presented following this introduction is a one-page, fold-out "Adversary Characteristics Matrix" that provides the reader information on the population of characteristics in an overview fashion.

Following the matrix display is the intra-group analysis which begins by presenting six generic adversary composites. These composites are profiles of the characteristics of the six groups studied based upon historic, observed adversary actions and behavior. One should recognize that these composites do not represent the upper limits of generic adversary characteristics. Rather, the characteristics are those commonly found in successful criminal, terrorist, extremist protest, etc., groups and individuals. These profiles, then, can be considered representative of the characteristics which might be exhibited by such generic adversary groups should they target nuclear activities in the immediate future. Also within the intra-group analysis section is a discussion of the "critical characteristics" that adversaries rely upon to ensure success in their illegal endeavors.

The inter-group analysis follows next. First in this section is an examination of characteristics found to be common to all six adversary groups. Next is an analysis of adversary group size as a function of modus operandi. Finally, this section considers the importance and use of weapons and equipment among the various groups, their use of and reliance on "insiders" to assist them in criminal actions, and the disutility of aggregating "high level" characteristics across generic groups in a composite sense and creating a "super adversary" for "design basis modeling."

# ADVERSARY CHARACTERISTICS MATRIX

GROUPS BY GENERIC ADVERSARY CATEGORIES	A Terrorist Groups	B Organized/Sophisticated Criminal Groups	C Extremist/Protest Groups	D Disoriented Persons	E Disgruntled Employees	F Miscellaneous Criminals
<b>ORGANIZATIONAL CHARACTERISTICS</b>						
<b>1. Organization</b>	Well organized, hierarchical, hierarchical, specialization common, compartmentalization practices.	Efficient, hierarchical, bureaucratic (IOC). No specific organization (ICC & CC).	"Name" of organizations structure (no formal organization) (ICC & CC).	Little or no formal organization except for the psychotic cult. Anti-socials may belong to some organized criminal entity.	Little or no formal organization with the recruitment of organized strike violence.	Little or no formal organizations.
<b>2. Recruitment</b>	Universities, prisons, vocational training centers, refugee camps and ethnic population centers.	Self-corrupted (Blackmail) Criminal Recruitment (ICC)	High schools, universities, prisons.	Psychotics and neurotics exhibit no propensity to recruit others - they operate alone.	Normally operate alone and do not recruit others. Recruitment may occur within labor groups during organized strike violence.	Often act alone. If others are recruited, they normally are associated with street criminal "clan."
<b>3. Financing</b>	Criminal activities: robbery, kidnapping/sex, violation. Donations by: foreign consulates, intelligence agencies, other terrorist groups, private citizens.	Criminal activities: begging, drug sales, loan sharking (TR), legitimate business investments (IOC). No sustained financing other than Blackmail (ICC & CC).	Criminal activities: robbery, fraudulent loans, parental assistance, donations.	Anti-socials often recruit others for criminal activity.	Use of persons (such as necessary). No significant degree of financing required.	Criminal activities as appropriate. An significant degree of financing required.
<b>4. International Connections</b>	"Very High" - training, political support and financing from many third world and Communist states. Extensive contacts between groups.	"High" - Worldwide (IOC) "Very Low" - None determined (ICC & CC)	"High" for Western European groups. "Low" for domestic groups.	Use of persons (such as necessary). Normally, no financing required. Drug addicted commit crimes to finance habit.	"Very Low" - none determined.	"Very Low" - none determined.
<b>OPERATIONAL CHARACTERISTICS</b>						
<b>5. Planning</b>	"High" - Normally involves some intelligence gathering, routine, and careful preparation.	"Very High" - Detailed preparation to include casing and rehearsal.	"Unknown" - Planning detail not known for most domestic groups. Western European extremists exhibited careful planning.	"Range" of planning. Acts often spontaneous and involve no planning; other times detailed preparation.	"Low" - little evidence of extensive or long term planning.	"Very Low" - little or no planning.
<b>6. Timing</b>	Function of political, symbolic and operational objectives and requirements.	Timed to minimize risk of discovery - most "operationally expedient moment."	Function of political, symbolic and operational objectives and requirements.	"Constant" timing effect for psychotics. No other discernible timing pattern - individual unique.	Most acts timed to minimize risk of discovery - most "operationally expedient moment."	Often spontaneous and unpredictable. Maximize "operational" chances of success.
<b>7. Tactics</b>	Bombing most common. Also, assassination, armed attacks, kidnapping, skyjacking.	Reception, diversion and crimes (Blackmail, extortion, kidnapping, bribery, corruption, bombing).	Bombing most common. Violent demonstrations, property destruction, sabotage.	Bombing, arson, skyjacking, hostage taking, multiple homicide, sabotage, fraud.	Bombing, sabotage, theft, intrusion, property destruction, vandalism.	Burglary, theft, assault, drug sales, forgery, bombing.
<b>8. Collusion (Insider)</b>	"Very Low"	"High" - Insider assistance frequently sought (IOC) "Very High" - most often are insiders (ICC & CC)	"Very Low"	"Moderate" - individuals may in fact be insiders.	"Very High" - most often are insiders.	"Low" - however, inside information is frequently sought. As opposed to using individual insiders.
<b>BEHAVIORAL CHARACTERISTICS</b>						
<b>9. Motivation</b>	Political and ideological hatred of society (initiators)	Financial gain and increased personal power.	Politically centered and issue oriented. Often result of frustration, discontent, anger, etc.	Wide "range." Is a function of the individual's mental disorder.	Range of employment - related problems (e.g., being fired, passed over for promotion, etc.)	Financial gain. Desire for drugs and alcohol.
<b>10. Dedication/</b>						
						"Moderate"/"High" (IOC)

BEHAVIORAL CHARACTERISTICS																					
9. Motivation	Political and Ideological hatred of society (individuals)	Fingertal gain and increased personal power.	Politically centered and class-oriented. (i.e., result of frustration, discontent, anger, etc.)	Wide "range." Is a function of the individual's mental disorder.	Range of equipment - related to crime (i.e., knives, explosives, etc.) based on need for promotion, etc.	Flings gain (i.e., gain for drugs and alcohol).															
10. Dedication/Discipline	"Very High"/"Moderate"	"Moderate"/"High" (TOC)	"Moderate"/"Moderate"	"Very High"/"Very High" (psychotic); "High" (neurotic); "Low"/"Low" (anti-social)	"Low"/"Low"	"Low"/"Low"															
11. Willingness To Kill	"Very High"	"Moderate" (TOC) "Very Low" (MCC & CC)	"Low"	"Very High" (asphyctic) "High" (neurotic) "High" (anti-social)	"Low"	"Moderate"															
12. Willingness To Give Up Life	"High" - not generally suicidal but willing to give up lives for cause if required.	"Low" (TOC) "Very Low" (MCC & CC)	"Very Low"	"High" (psychotic) "High" (neurotic) "Very Low" (anti-social)	"Very Low"	"Low"															
RESOURCE CHARACTERISTICS																					
13. Training/Skills	"High" levels of training in weapons use, tactics, etc.; high motivation, energy, code, security, etc.	"High" levels of training in criminal experience (i.e., high levels of college and technical training (MCC & CC))	Domestically, a range of informal group training and use of criminal experience.	Wide "range." Is a function of adversary's background, training and experience.	Wide "range." Is a function of individual's background, training and experience.	"Low" level of formal training. "Street-wise" criminal experience.															
14. Personnel Technical Sophistication	Typically "Moderate" Explosive device technical knowledge "High"	"Very High" with high levels of immunity and improvisation	"Moderate"	Wide "range." Is a function of individual's background, training and experience.	Wide "range." Is a function of individual's background, training and experience.	"Low"															
15. Group Size	Typically 1-6	Typically 1-6	1-4 covert crimes up to 30,000 mass/violent demonstrations (Western Europe)	Psychotics and Neurotics typically operate alone. Anti-social operates alone or part of criminal group (size indeterminate).	Typically 1-2 or more in strike-related crime.	Typically operate alone. Occasionally in groups of 2-5.															
16. Weapons	Handguns, rifles, shotguns, automatic weapons, explosives, knives, knives, pistols, chemicals and poisons.	Handguns, rifles, shotguns, automatic weapons and explosives (TOC) None documented (MCC & CC)	Handguns, rifles, shotguns, explosives and incendiaries	Handguns and other small arms, explosives and incendiaries, objects of convenience.	Handguns and other small arms, explosives and incendiaries, objects of convenience.	Handguns and other small arms.															
17. Equipment	Simple tools for barrier penetration False documentation Communication equipment	Sophisticated security system brass and physical barrier breaching equipment Other sophisticated (unrecognized) equipment	Protective helmets, gas masks, wire and belt cutters, basic communications equipment, etc. for distribution demonstrations Simple breaking and entering equipment and false ID for surveillance.	"Range" of equipment. Is a function of individual's background, training, and experience.	"Range" of equipment. Is a function of individual's background, training, and experience.	Simple breaking and entering equipment. Low level explosives for penetration.															
18. Transportation	Private and leased vehicles, stolen vehicles, commercial aircraft, railway, small boats, motorcycles, on-foot	Private or leased vehicles, stolen vehicles, public transportation, privately owned aircraft	Privately owned vehicles, public transportation, motorcycles, on-foot, hitchhiking	Privately owned vehicles, public transportation, aircraft, on-foot.	Privately owned vehicles, public transportation, aircraft, on-foot.	Privately owned and stolen vehicles, public transportation, motorcycles, on-foot.															

**SCALE:**

Very Low - Low - Moderate - High - Very High

\* TOC - Traditional Organized Crime  
 \*\* WCC & CC - Simple White Collar Crime and Computer Crime

A. Examples include Beader-Meinhof Gang, Red Army Faction, PLO, Red Brigades, IRA, SLA, FALN, Anti-Castro Cubans, etc.  
 B. Examples include (a) traditional "family" oriented groups (e.g., Mafia in Chicago); (b) ethnic "family" oriented groups (c) mafia oriented groups; (d) one-time operating groups (e.g., Brinks and Purcator robberies); (e) computer crimes; (f) other sophisticated crimes/espionage.  
 C. Politically motivated, issue oriented acts of violence or criminality - normally of symbolic nature. Differentiated from terrorist acts in that violence is generally low level. Terror is not an objective.  
 D. Psychotics, neurotics and personality disorders to include drug/alcohol influenced, etc.  
 E. This group also includes [TOC] employees.  
 F. The crimes committed by elements of this generic adversary group generally fall into categories of violent personal crimes, public order crimes and commonplace crimes.

## C. Intra-Group Analysis

### 1. Terrorists

The largest terrorist groups are almost bureaucratic in organization with job tasks assigned to all members. Terrorist groups are normally composed of (1) hard core, action cadre and (2) part-time support elements.

Compartmentalization is practiced for security. Large universities are a primary recruiting ground for operational cadre. Terrorists finance their activities through extortions, bank robberies, kidnappings and donations by foreign governments, other terrorist groups, and private citizens. There is an abundance of information establishing the extent of terrorist connections internationally with various other terrorist groups as well as national governments. International terrorist networks are centered in Buenos Aires, Paris, and Cyprus.

In general, terrorists are careful, circumspect, and serious planners, leaving very little to chance. They may spend months casing potential targets in preparation for an action. Marginally defended targets are normally selected; heavily defended targets are avoided. Terrorists time their crimes systematically for (1) operational, (2) political, or (3) symbolic purposes, or combinations thereof. The operational exigency is the most important timing element. Bombing is the preferred terrorist tactic. Other common tactics include assassination, kidnapping, and skyjacking. Terrorists rarely enlist "insider" assistance to carry off a job.





Terrorists are motivated to commit violent acts because they seek institutional change and are impatient and frustrated with existing change or lack of such. They often resort to violence or seek revenge for some perceived wrong or inequity. Their frustration may be politically or ideologically motivated. Terrorists are also highly dedicated, goal-oriented, and motivated by values of a political and/or ideological nature. This personal commitment sometimes verges on fanaticism. Discipline, on the other hand, is individual or group dependent. Terrorists are often compulsive, action-prone, and independent-minded and can be hard to control. The true terrorist is willing to give up his life for "the cause," but he does not actively court his own death. Terrorists seek large audiences and are in the business of scaring, not killing people. Although indiscriminate violence is generally avoided, for some terrorists the ultimate act is martyrdom. The willingness to kill or be killed is a strong bond of commitment among terrorists and is a powerful psycho-social influence on their behavior.

Very few terrorist recruits have had formal training in the art of warfare; hence, technology transfer between international groups is important and many terrorists attend training camps in Asia, the Middle East, and Latin America. Most terrorist acts perpetrated to date have not required any real degree of technical sophistication. Some new members have been drawn from technical trade schools, however, and terrorists are adept at keeping current on technological advances in explosive devices. Those

terrorist groups that have taken on targets requiring some limited technical knowledge often have trained their people to perform the technical job necessary to accomplish the mission.

With respect to group size, there are approximately 50 active terrorist groups, both international and national, with a total action cadre of from 1,000 to 3,000 persons. There are some eight to twelve international terrorist groups with a total membership in the hundreds. However, about 95% of all terrorist actions have involved six or fewer active participants. Thus, the terrorist group size appears to be determined more by operational requirements than by any resource limitations. Most terrorist crimes are carried out by groups that had more people available than were actually used in the given operation. Most terrorist acts have relied on bombs and guns, the traditional tools of the terrorist trade. Approximately 50% of terrorist activity involves the use of explosives or incendiary devices. When firearms are used, they range from simple and even improvised handguns and rifles to conventional yet more sophisticated military weapons (e.g., automatic weapons, light anti-tank weapons, and surface-to-air missiles).

Terrorists have a wide variety of equipment available to them, but its use is limited by necessary maintenance, logistics, training requirements, and operation needs. In most bombings, explosives (including incendiary devices) were the only "tools" employed. Also in widespread use are various types

of false documentation including identity cards and passports. Other than explosives, rarely have terrorists employed tools in criminal actions. Communications equipment has been used. The primary mode of travel for international terrorists is by air. On the ground, the terrorist relies on public transportation, rental cars leased by intermediaries, and rail transportation. Boats have been used in some cases.

### 3. Organized/Sophisticated Criminals

The activities of the organized/sophisticated criminal group are mostly pragmatic in nature. Their goal is to maximize profit with a minimum of investment and risk. The activities are almost always directed against property and not people. Organizationally, this group may have a complex, efficient, hierarchical structure (traditional organized crime), or it may be as simple as the single insider operating alone (computer/white-collar crime). Recruitment of members is a function of the trade-off between maximizing reward and minimizing risk and acquiring individuals with necessary specialized skills. Some individuals may volunteer, some are corrupted, and others find themselves in the right place at the right time. Traditional organized criminal groups finance their operations through their criminal acts (e.g., narcotics, gambling, loan-sharking) and through legitimate business investments. Some traditional organized crime elements have international connections.

From an operational standpoint, these groups have demonstrated the capability and patience to engage in very long periods of reconnaissance and planning. For a majority of operations there has been direct evidence of casing the intended target. In some instances this activity was coupled with rehearsal. Tactics used are commensurate with the target requirements and the incentive to succeed, and include clandestine or covert operations in some instances. Theft, fraud, extortion, corruption (in the public and private sector), patronage, racketeering, criminal monopoly, homicide, kidnapping, bombing, and arson are all examples of crimes that have been used as tactics either individually or in concert to further the goals of traditional organized crime elements. Additionally, this adversary relies upon deception and ruse as a tactic to bypass or neutralize security forces and systems. Some type of inside assistance is preferred when it does not escalate the risk.

The primary motivation for elements of organized crime and most computer crime is individual financial gain and increased personal power. Moderate levels of dedication and discipline are present, and the extent to which they are present is independent of trade-offs between risk and payoff. Care is taken to avoid violent confrontation in the conduct of operations, but there is a willingness to kill when the situation dictates. No desire to inflict injury, however, has been demonstrated by white-collar or computer criminals.

The resources used include individuals with high skill levels and training, especially in the area of bypassing sophisticated security systems. Ingenuity and talent for improvisation have been demonstrated. The group size typically ranges from two to six. For white-collar crimes, the number is less important than the nature of the individual's position and level of responsibility/authority. The group, if armed at all, is usually armed at a level sufficient to overcome anticipated security forces having handguns and shotguns. Equipment includes tools, explosives, and specialized equipment to defeat security systems and penetrate physical barriers. All surface modes of transportation may be used as well as airplanes and sea-going vessels.

### 3. Extremist Protestors

A range of organizational structure characterizes extremist protest groups. The better organized groups are established on a collective basis under a tight bureaucratic chain of command. More casual groups lack a formal organizational structure. Domestic extremist protest groups often recruit their cadre from high schools and colleges. Some groups have arrangements with criminal organizations and actively recruit criminals for their skills and experience. Finances are not a critical factor to U.S. extremist protest groups since their operating expenses are minimal. Credit card frauds, passing bad checks, stealing from parents, and other petty crime serves their nominal money needs. Student loans, parental assistance, and legitimate jobs are also means for securing

financing. Radical U.S. groups had extensive international connections during the anti-Vietnam war years and travelled to North Vietnam, Cambodia, Cuba, Canada, and the Middle East to meet with other leftists. There is no conclusive evidence today of such international connections outside of some political extremists' contacts with Cuba and contacts between American and European radicals.

Little is known about this potential adversary's planning characteristics. The planning characteristics for domestic extremist groups are thought to be significantly less detailed than those exhibited by anti-Vietnam war groups and contemporary European radical groups. The timing of extremist protest acts of violence is a function of political, symbolic, and operational requirements. Criminal actions are also sometimes timed for "revenge" because of some police or other establishment action. A variety of tactics have been used by extremist protest groups in their illegal acts. Such groups have relied primarily on symbolic bombings against unguarded or relatively insecure targets of opportunity. The mass violent demonstration is also a popular overt tactic. Other traditional tactics include propaganda, building takeovers, expropriations from banks and food stores, symbolic strikes, and general vandalism. Domestic extremist protest groups rarely seek out or utilize the services of so-called insiders in the perpetration of their criminal acts.

Extremist protest groups are dissatisfied with the pace of some institutional change; they are frustrated and angered as a result, and consequently resort to illegal, extremist tactics to further their goals. They are thus primarily politically motivated. Such motivation is quite often issue-oriented; e.g., lower utility costs for the poor, nationalization of a given industry, anti-war, etc. Their level of dedication and discipline is not always commensurate with their motivation. They feel insulated from retribution when acting as members of a mass demonstration and often see group leaders as likely targets for police retaliation. Their covert acts, such as symbolic bombings, are usually low-risk nighttime undertakings against unprotected targets.

Generally, extremist protest groups take extra measures to avoid endangering human life. Telephone calls are often placed to warn occupants of planted bombs to allow time to evacuate targeted buildings. Killing or injuring private citizens or even government officials is not likely to appeal to groups whose primary enunciated concern is quality of life issues. With this generic adversary's low to moderate degree of dedication, it is not surprising to find that he has little to no propensity for the ultimate sacrifice, giving up his life for "the cause." Some U.S. extremist protest groups were given professional training in weapons and guerrilla tactics in Cuba during the 1960's and early 1970's. Today's American political extremist gains his training from underground textbooks; collective indoctrination sessions in tactics, demonstration strategy,

medical aid, explosives fabrication and communication; instruction by criminals; and from street experience. Contemporary domestic extremist protest groups generally possess no significant degree of technical sophistication beyond explosive and incendiary device fabrication, and theoretic knowledge gained from college education.

The group size in covert actions is normally no more than three or four persons. Many such actions involve only one or two individuals. Violent protest actions of an overt nature such as demonstrations may involve several thousand or more people. Typical weapons used by this adversary have been: pistols, rifles, bombs, explosive and incendiary devices, shotguns, grenades, axes, rocks, and truncheons. Traditional equipment used by extremist protest groups during overt demonstrations includes: protective helmets, grappling hooks, communication equipment, face masks, hand-held shields, wire cutters, and ladders. Covert actions by small groups have not shown any significant use of equipment beyond crude breaking and entering devices and basic communications gear. Normal surface modes of transportation are used.

#### 4. Disoriented Persons\*

There is no formal structural organization with respect to this generic adversary. With the exception of the antisocial personality and the

\*Disorientation describes those individuals whose mental capabilities have been impaired, regardless of the origin of the disorder or malfunction. See Appendix, "Glossary of Terms," for a clearer explanation of the three general categories of disoriented persons which were analyzed for "characteristics" patterns; (1) the neurotic, (2) the psychotic, and (3) those with personality disorders (the antisocial personality).



psychotic cult, most disoriented persons function alone. Neurotics and psychotics are by nature untrusting and suspicious of outsiders. For this reason they do not form alliances or recruit others for illegal acts. Conversely, the antisocial gains stimulation from power and manipulation. He often seeks out others to assist him in his crimes. Recruitment within psychotic cults is passive, directed only toward others of similar "psycho-social" vein. Disoriented persons tend not to require any significant monetary resources. They tend to operate with whatever finances are at hand. There is no information to suggest that this generic adversary relies upon or develops international connections for the purpose of supporting or assisting in the commission of criminal acts.

The disoriented person's planning characteristics cover the spectrum from nonexistent (i.e., acts of impulse) to highly organized and premeditated crimes requiring a significant degree of preparation. The timing of his violent acts remains a little-known characteristic. What precisely activates or provokes a psychotic attack is known only within the distorted mind of the perpetrator. Although, in general, the disoriented person's behavior may be divorced from external realities, there is strong evidence for the "contagion" effect of psychotic violence as a timing mechanism. The antisocial person uses his outgoing personality, his "con" ability, as a tactic to gain whatever illegal objectives he contemplates. Psychotics' acts result in a variety of types of abnormal conduct (e.g., arson,

skyjacking, bombing, hostage-taking, mass murder, assassination, etc.). Disorientation as a disease can strike anyone at any time. Therefore, the disoriented person operating as an "insider" has a critical advantage should he choose to perpetrate some malevolent act. Such an insider who is also goal-oriented, motivated, and technically sophisticated has the capacity to inflict serious damage.

The disoriented person is motivated to commit his acts of crime by intrapsychic phenomena inherent in his individual psychiatric disorder. Delusions of persecution and other paranoia motivate this adversary to violence. There is a spectrum of dedication and discipline involved. The antisocial person is the least dedicated and limits his acts and involvement by the degree of risk involved. He co-opts others to do his dirty work. The psychotic, however, is totally dedicated to the task at hand. He is obsessed with accomplishing whatever goals he has established within his troubled mind. The psychotic is also most prone to killing or laying down his own life. Neurotics also share a high suicide rate. While the antisocial person does not hesitate to kill others to accomplish his objectives, he is not willing to risk his own life.

The level of training and skills manifested by the disoriented adversary covers a range of capacities. The level of training and technical sophistication can be of the highest or lowest order and is consistent with the background, training, and experience of the individual adversary.

As to group size, the disoriented person tends to operate alone. The antisocial person, although psychologically a "loner," may engage in crime as an individual or as a member of a group. The psychotic cult also involves group sizes of varying numbers. The weapons and equipment the disoriented person uses suggests no discernible pattern other than that their use appears closely related to the individual's personal background, training, education, and experience. Weapons used have included handguns, high-powered rifles, explosive devices of various kinds, hand grenades, etc. This adversary also uses whatever transportation is available. Examples include automobiles, trains, aircraft, on foot, subways, buses, leased vehicles, cycles, etc.

#### 5. Disgruntled Employees

With the exception of violence that may occur during an organized strike, the disgruntled employee operates without a formalized organizational structure. Most acts of crime by this adversary are spontaneous and impulsive and require no organizational mechanism. Similarly, the disgruntled employee rarely recruits others to assist him. Recruitment has at times occurred, however, with respect to labor groups seeking employees to participate in some malevolent activity, usually in protest against poor working conditions or in support of higher wages and fringe benefits. No significant degree of financing was found necessary to perpetrate destructive or malicious acts by the disgruntled employee. No incidence of international connections was noted in this generic group.

Most acts of criminality and destruction are the result of anger or frustration directed toward the employer or work environment. There is little evidence of any extensive planning or preparation prior to the crime. There is a small percentage of destructive acts, i.e., certain clandestine bombings and arsons, which are intended to cause large scale damage and require a higher degree of prearrangement and planning. Destructive acts by disgruntled employees are timed to minimize the chance of personal discovery. Most individual acts of crime follow a period of personal frustration and dissatisfaction with some facet of the job. Events which might signal trouble include drinking problems, job layoffs, promotion passovers, and personal problems with management. Although most low-level acts of destruction occur during working hours, more serious actions such as bombings normally occur under the cover of darkness. Criminal acts by disgruntled employees can often be anticipated prior to workers going out on strike and during a strike. The use of explosives and incendiary devices is a popular tactic. Vandalism, however, is the tactic of convenience. Other tactics have included the release of sensitive or compromising material to damage a company's business position, computer crime, bomb hoaxes, riots and violent strikes, work slowdowns, and theft. One of the most significant characteristics of this adversary is his typical inside access. He may have knowledge of sensitive files and equipment, security measures, facility vulnerabilities, and other useful "inside" information. His "disgruntled" mental framework and inside position make him a prime target for recruitment by other adversaries such as criminals, political extremists, and terrorists.

A wide range of motivational factors influence the disgruntled employee's behavior. Common grievances include inadequate salary; unfair or inconsistent policies; inordinately severe disciplinary action; substandard working conditions; loss of job; and job-related accidents, injuries, or the death of co-workers. Less tangible factors include employee personality conflicts, marital or financial difficulties, and damaging employee attitudes such as over-aggressiveness or pronounced passivity. The disgruntled employee lacks any real sense of discipline. His crime is largely symbolic, and he seeks risk-free methods for achieving his objective. Therefore, his level of dedication is low. Although extreme cases of violence wherein lives were actually lost can be cited, the disgruntled employee rarely seeks to kill others. His objective is more properly destruction of property, not loss of life. Correspondingly, he has no desire to risk his own life.

This adversary normally uses no special skills or training in the commission of his crime other than those typically associated with his background, education, and experience. This range of skills, however, can be wide. He uses whatever technical sophistication he naturally possesses. As to group size, other than labor-related crime, the disgruntled employee operates alone or at most generally with only one other person. Weapons are not normally used. Arson, bombing, and sabotage involve the use of various explosive and incendiary devices. Various contrivances, tools, and equipment have been used to sabotage machinery. Many convenient

small items are available which, when introduced into the moving gears of industrial machinery, can disrupt or stop the equipment. No significant pattern was noted in the disgruntled employee's selection of transportation. Standard forms of public and private transportation prevail.

#### 6. Miscellaneous Criminals

Most miscellaneous criminal actions involve little or no degree of organization in that most of these crimes are committed by a single individual operating alone. Even those crimes in which two or more perpetrators act together do not involve any significant degree of formal organizational structure. There is very little active recruitment by miscellaneous criminals. Rather, they are clannish by nature and rarely venture outside their immediate societal associations. The crimes committed by this generic adversary generally require no significant degree of financing. Contrary to the assumption that a thief's illicit profits grow with his experience, his average take is generally only a few thousand dollars a year. No evidence was developed of any international connections by the miscellaneous criminal adversary.

Criminals in this category do not normally plan and prepare for their crimes. Pre-crime planning, if any, is generally limited to visiting the target location and, less often, staking it out. Miscellaneous criminals select easy targets not requiring penetration of guarded facilities. The timing of a miscellaneous criminal action is normally operation dependent

and perpetrated during periods of least risk (night, weekends, etc.). Petty and general criminals are often motivated by irrational reasoning resulting from the use of drugs or alcohol, and therefore the timing of their crime does not always follow a consistent pattern. This generic adversary uses a variety of tactics in the commission of his crimes. Some common examples include grand theft, robbery, burglary, aggravated assault, forgery, drug use/sale, auto theft, and rape. Nuclear related miscellaneous crime, from a tactics standpoint, has included radiopharmaceutical thefts, firearms discharges, intrusions, illegal demonstrations, and hoax bomb threats. This generic adversary is often successful because of either direct or indirect access to inside information. When the criminal lacks direct access or the collusive assistance of an insider to gain facility intelligence, he commonly uses ruse or guile to compensate. Criminals have an unusual ability to "con" and to develop the inside information necessary to carry out a given crime.

A large percentage of general crime offenders have a history of drug involvement, and as high as 50 to 60 percent of such crimes are committed under the influence of drugs or alcohol. The desire for money to buy drugs is the single most frequently cited motivator for committing such crimes. Peer influence often directs the criminal behavior of juvenile criminals. Personal gain or greed is the most obvious and recognizable motivational factor. As a group, miscellaneous criminals have a low level of discipline and dedication. Their attention span is short, and

they are easily distracted from primary objectives. Their self-centered, greed-oriented value system contributes to their lack of dedication and discipline. Miscellaneous criminals do not normally kill unless provoked. If provoked they kill readily. The criminal disregards other people's right to live safely and, if called upon, kills without remorse or concern for his victims. The miscellaneous criminal is, however, unwilling to give up his own life in the commission of a crime. Criminals exhibit extreme fearfulness and are frightened of physical injury and death. This adversary is "violence avoidant."

The level of training demonstrated by the typical miscellaneous criminal is generally low. He has less than a high school education. His only skills are normally gained from military service, trade schools, and "street wise" experience. For the most part, this adversary relies on relatively simple and unsophisticated techniques to perpetrate his crimes.

This generic adversary prefers to work alone. This is particularly true as his career advances. In fact, the careful criminal works alone because he is unwilling to share profits or risk betrayal. He generally uses only handguns and other small arms as weapons. The criminal does have access to more sophisticated blackmarket and stolen military weapons, but has no need for such weapons to successfully perpetrate his crimes. The miscellaneous criminal's level of equipment sophistication and use is rather crude. Other than simple breaking and entering tools, explosives



for penetration, and similar devices, he uses no significant equipment. This adversary uses traditional modes of transportation such as privately owned, leased, or stolen vehicles, public transportation, motorcycles and on foot.

#### 7. Critical Characteristics

In an effort to determine what single characteristic or set of characteristics the generic adversary relies upon to insure success in his criminal endeavors, "critical characteristics" are identified and examined with respect to their importance to "success/failure." The objective is to identify the single characteristic or set of characteristics that signal the adversary's potential failure threshold, i.e., the point at which his chances of failure increase significantly.

Real-world adversaries exhibit certain characteristics to a high degree and others to a lesser or non-existent degree. Although the following discussion of "critical characteristics" is necessarily subjective, as these characteristics thresholds were not quantitatively determined, it is nevertheless based on a careful analysis of the data collected in this study. The discussion is merely intended to provoke some thought and dialogue by suggesting that the success of adversary groups and individuals may be dependent on the degree to which they possess certain predetermined characteristics.

The group size of potential adversaries has received an inordinate amount of attention over the past years by security planners. Group size is a critical parameter in many of the "design basis threat models" that were constructed to test and evaluate safeguards adequacy for nuclear facilities. One conclusion that can be drawn from the present study with respect to terrorist, organized crime, and extremist protest groups is that, given adequate available resources, force size was more a function of the requirements of the task at hand than some operational limitation. In many cases, small groups of skilled, highly dedicated, well-trained adversaries were more suitable for criminal engagements than larger, more powerful groups. The implication is important from a safeguards design standpoint. Defense capabilities established to some index of (x) number of postulated adversaries might be misleading and inappropriate.

Weapons, explosives, and various types of sophisticated equipment are available internationally and in the United States. Adversary groups were found to have little difficulty in acquiring such items as they deemed necessary to accomplish their criminal goals. Weapons may be bought legally on the open market, purchased illegally, fabricated or improvised, or stolen from citizens, police, or military forces. Likewise, the availability of specialized tools and equipment to such groups is well documented. In general, the adversary groups appear to have the capability to obtain whatever human and physical resources are needed for any operation.

The adversary's limitations then do not appear to reside with his resource characteristics, but rather with less precise behavioral factors such as motivation, training, dedication, discipline, technical skills, pre-attack planning, etc., and various combinations thereof. The research process uncovered no single generic adversary, specific group, or individual adversary who possessed to a high degree all these behavioral characteristics. Whether a nuclear facility or special nuclear material is a target sufficiently attractive to cause would-be adversaries to surpass all levels of previously exhibited capabilities depends on the anticipated payoff and the adversary's estimation of the risk involved.

Terrorist, organized criminal, and extremist protest groups all generally avoid external assaults against well-guarded facilities. In the vast majority of cases, these generic groups avoid armed confrontations with security guards. They shun such confrontations by resorting to deceit, ruse, guile, or covert actions to circumvent security forces (as in the case of organized and white-collar crimes), or they bypass hardened targets for softer targets. Extremist protest and terrorist groups are easily discouraged from external assaults by target hardening. A frontal assault on a facility's defenses is an uncommon method of operation for all generic groups studied.

The critical characteristic of the disoriented person, white-collar criminal, and disgruntled employee is that they tend to operate as

"insiders." These adversaries possess no other identifiable critical characteristic. The miscellaneous criminal, too, relies upon this characteristic to some extent. Organized and professional criminals often try to recruit persons working within targeted facilities to provide them some form of assistance. Such insider aid is frequently essential to the success of many organized and professional crime operations. Terrorists and extremist protest groups, on the other hand, rarely resort to recruitment of insiders.

Considering the importance of the "inside assistance" characteristic to four of six generic adversary groups studied, developing procedures and means for identifying such individuals, whether operating alone or in collusion with others, should be of critical concern to security administrators. Profiles of potential or actual criminal behavior, management oversight of facility operations from a human reliability standpoint, a sound program of checks and balances to minimize the opportunity for crime should malevolent intentions develop, and examination of the motivations for criminal behavior are several possible strategies to cope with insider-assisted/initiated crime.

Physical danger appears to have some deterrent effect on all generic adversaries with the exception of the psychotic. Professional as well as miscellaneous criminals are risk avoiders who will not, as a rule, undertake criminal acts that require them to risk their lives. They prefer

undefended or easily subverted targets. In spite of their reputation for recklessness and fanaticism, terrorists, too, avoid hardened targets and seem to prefer undefended targets such as airports, school buildings, churches and synagogues, private homes and citizens, and airplanes. Therefore, target hardening and guard forces would appear to be effective strategies to deter some of these adversaries.

Terrorists and psychotics depend upon a high degree of personal motivation to elicit the daring and willingness to kill or be killed necessary to take on high-risk assignments. Such motivation is either politically or ideologically inspired in the case of terrorists (and a small percentage of political extremists) or the result of mental impairment in the case of psychotics. Although terrorists generally plan their actions carefully with full intentions of returning alive, a sufficient history of martyrdom, suicidal attacks and stands, and high-risk missions exist to warrant concern for this behavioral characteristic.

Professional criminals, many terrorist groups, some extremist protest groups, and certain disoriented persons plan carefully and thoughtfully before initiating a given criminal mission. Many of these adversaries will abort planned encounters when security or other interruptions occur. Changing guard force routines, alternating time schedules, using the two-man rule, and employing other tactics to vary security procedures are all strategies to prevent an adversary from planning for a predictable pattern of security behavior.

The following tentative list is a summarization of those adversary characteristics perceived to be very important, perhaps "critical," to the ultimate success of the six generic groups' criminal endeavors.

GENERIC ADVERSARY "CRITICAL CHARACTERISTICS"

TERRORIST GROUPS - motivation (political and/or ideological), dedication (bordering on fanaticism), training, use of surprise, planning (includes gathering target intelligence), willingness to kill or be killed, organizational emphasis on secrecy (security feature), international connections (for training, finances, "safe havens")

ORGANIZED CRIME GROUPS - training (includes criminal "experience"), planning (target "casing"), use of deception and inside access, personnel technical sophistication (ingenuity and improvisation)

EXTREMIST PROTEST GROUPS - motivation (political, usually issue-oriented), tactics (almost always symbolic bombings or similar acts of destruction and protest demonstrations)

DISORIENTED PERSONS - inside access, motivation, planning (important to some disoriented person types), willingness to kill or be killed (psychotic)

DISGRUNTLED EMPLOYEES - inside access, motivation (work grievance, frustration), tactics (sabotage)

MISCELLANEOUS CRIMINALS - inside access (normally gained through ruse, guile, or deceit)

#### D. Inter-Group Analysis

##### 1. Common Characteristics

An examination of characteristics found to be common to all six adversary groups would be useful to security designers and planners who must anticipate malevolent behavior. The objective of this section, then, is to examine the study results in search of common patterns.

Timing. There is direct evidence of systematic timing of criminal actions by all the groups examined. The reasons for which they time their actions may differ, but no group routinely times its acts indiscriminately or arbitrarily. All generally attempt to carry out their acts at the moment that maximizes the chance for success. This is the "operational exigency" approach to timing.

Transportation. All adversary groups use a range of normal means of transportation. Private and leased vehicles, public transportation, air travel, taxis, cycles, on foot and hitchhiking were noted as forms of transportation common to all generic groups.

Tactics. Although a wide range of tactics was observed in use among the groups, one tactic was common to all--clandestine bombings. Explosive and incendiary devices were fabricated and used to create a variety of effects, e.g., property destruction attracting public attention, disruption of operations and activities, etc.. Bombings involve little technical knowledge, are relatively risk-free and inexpensive, can be perpetrated by one or more people, and can be used for both purely destructive as well as symbolic purposes.

A tactic significant by its absence is the external assault. Many assumptions have been made concerning the possibilities of external attacks on nuclear facilities. An interesting determination of this study was that no historical basis exists for the use of "external attack" as a normal method of operation against well-guarded facilities by any of the generic adversary groups analyzed.

Motivation. No commonality was observed within this characteristic; however, it is useful to note that all adversary acts observed were prompted by one or a combination of the following four motivators: personal gain (greed), political expression, revenge, and disorientation (mental imbalance).

Planning. A degree of commonality in planning was observed in the area of target selection in that all groups normally selected targets that



were vulnerable and relatively insecure. This observation suggests that all adversary groups are to some degree "risk avoiders." Determination of the point at which potential payoff outweighs risk cannot be made. This threshold varied from group to group.

## 2. Group Size

The number of adversaries involved in a given criminal act most frequently ranged from one to six persons. Those crimes that involved some instances in which more than six persons participated were organized crime capers, labor disorders, mass/violent demonstrations of a political protest nature, and overseas terrorist incidents. No upper limit was observed on the number of participants in either a violent labor disorder or an extremist protest demonstration. Approximately 95% of all terrorist incidents involved six or fewer action cadre. Almost all incidents of terrorism in which more than six perpetrators were involved occurred outside the United States, generally in Latin America, the Middle East, and Europe. In most incidents carried out by members of traditional organized crime groups, the number of individuals involved ranged from two to six.

The small number of individuals involved in the more serious covert acts of criminality appears to have been determined more by operational requirements than by group resource limitations. Most of the acts of political terrorism and organized crime were carried out by groups that had greater

human resources available than were used. It would appear that such adversaries determined group size for a given action based upon their perception of the number required to optimize the chance of success, consistent with security requirements and payoff. No evidence indicated an attempt to organize the "largest" group possible for an external attack or other criminal act. Adversaries apparently do not correlate larger numbers of perpetrators with mission success.

### 3. Weapons/Equipment Usage

The weapon most commonly used in all adversary actions observed is the explosive or incendiary device. This does not mean that the perpetrators in bombing incidents were unarmed, but rather that there was no evidence of the use of other weapons.

The potential pool of weapons available to traditional terrorist and criminal groups was found to be large. Handguns, rifles, shotguns, and material to fabricate explosive and incendiary devices were noted available on the commercial market to all generic groups. More sophisticated automatic and other weapons are easily obtained by terrorists and professional criminals through blackmarket connections or stolen from police or military sources. Terrorist and organized criminal groups usually armed themselves at levels adequate to defeat expected police and security forces. Typical weapons used included handguns, shotguns, rifles, automatic weapons, and explosives. The only group noted to have used high technology military weapons systems was terrorists. Specific weapons

systems used were surface-to-air missiles (SAM's) and light anti-tank weapons (LAW's). Disgruntled employees, disoriented persons, extremist protest groups, and miscellaneous criminals frequently committed their criminal acts without the use of weapons. Explosives and incendiary devices were their mainstay destructive instruments.

Little evidence of sophisticated equipment usage was noted. Most groups relied upon crude breaking and entering devices, some communications equipment, the use of fraudulent identification documents, improvised devices to perpetrate destructive acts, and similar unsophisticated items as "tools of their trade." The organized and professional criminal group was the only generic adversary seen to possess any significant degree of technical equipment sophistication. Such groups often used specialized equipment and techniques to bypass sophisticated security systems and to penetrate physical barriers.

A common pattern observed with respect to disoriented persons, disgruntled employees, and to a lesser extent miscellaneous criminals and extremist protestors, was reliance only on handguns, rifles, explosives, and lesser weapons when armament was used. They also used only simple and unsophisticated equipment. Whatever weapons and equipment were used, however, appeared closely related to the individual adversary's personal background, training, education, and experience.

Since sophisticated weapons and equipment are available to terrorist and organized criminal groups, it must be assumed that the possession of such weapons and equipment is limited only by the operational needs and desires of the adversary. Well-organized and dedicated criminal and terrorist groups that have not used such weaponry and equipment appear to have so refrained for operational reasons, not because of any resource limitations. Therefore, any security system should be prepared to deal with a well-armed and equipped adversary.

#### 4. The Use of "Insiders"

A range of behavior was observed among the six generic adversary groups with respect to their use of and reliance upon insider(s) to assist in criminal activity. It was found that terrorists and extremist protestors rarely seek out or utilize the services of insiders in their criminal endeavors. Organized and professional criminals, however, frequently try to recruit persons working within targeted activities to provide them some form of assistance. Such criminal elements use corruption, extortion, blackmail, and physical intimidation to entice inside cooperation. Insider assistance is frequently essential to the success of many organized and professional crime operations. As to white-collar crime or fraud, this adversary is most likely to be an insider.

The disoriented person and disgruntled employee generic adversaries are of primary safeguards concern because of their inside position. The

goal-oriented, technically sophisticated disoriented person, particularly the psychotic, is perhaps one of the most dangerous of the generic adversaries. Both the disoriented person and disgruntled employee may have inside access to restricted areas, files, and sensitive security information. They are also privy to shop and loose talk and often have knowledge of critical and vulnerable areas of facility operation.

The miscellaneous criminal rarely recruits the assistance of insiders. While he may occasionally operate as an insider within a facility, the miscellaneous criminal generally operates as an outsider, gaining access or inside information by ruse, guile, and deception rather than through recruitment of those working within the plant. Through his cleverness and deceit he may enlist the unwitting aid of insiders.

Collusion or conspiracies of two or more insiders/outsideers working together for criminal purpose have mainly occurred in the white-collar crime (fraud), organized and professional crime, and espionage areas.\* White-collar criminals operating in collusion have executed complex and multifaceted schemes that could not have been accomplished without collusive "inside" assistance. Disgruntled employees normally operate alone except in organized labor violence where groups of six or more are not uncommon. The disgruntled employee is, however, a prime target for

\*This study has specifically excluded threats from hostile intelligence services or nation-state actions; therefore, insider characteristics with respect to espionage have not been addressed.

recruitment by other, more serious adversaries, particularly the professional criminal. The disoriented person normally is distrustful of others and, with the exception of the antisocial or sociopath, almost always operates alone. Organized crime often has a network of informants or insiders throughout government (primarily at the local and state levels), business, industry, etc., who operate independently of one another in the service of criminal bosses.

Some common types of crime in which criminal conspiracy by insiders in concert with each other or outsiders occurs include the following: insurance fraud, trucking industry thefts/hijackings, computer fraud, labor strikes, theft of high value items (e.g., art works, precious metals, gem stones), bank embezzlement, securities fraud, labor racketeering, espionage, theft of trade secrets (industrial espionage), other frauds, and corruption of public officials.

##### 5. Disutility of "High Level" Composite

Some individuals have suggested that the "maximum credible threat" is a "super" adversary who aggregates the highest level of characteristics observed in real-world malevolent incidents. The data in this study suggest that no such "high level" composite adversary has been observed in the real world. Rather, the data support the original assumption that there are six distinct generic adversary groups with some common characteristics but in general with their own unique characteristics combinations and profiles.

It is important to emphasize that the six generic groups studied have unique patterns of behavior. They have their individual "codes of conduct." Their motivations, attitudes, and even values vary. The so-called potential threat to nuclear programs, then, is neither monolithic nor easily (or fairly) synopsised in a snap-shot "high-level composite." The potential threat is multi-dimensional and should be so characterized. Six threat characterizations instead of a single "super characterization" would be more realistic, practical, and useful to managers and planners who work with contemporary threat issues.

### III. CONCLUSIONS

The adversaries studied were found to be complex, often unpredictable, and dynamic. The following conclusions are interrelated and must not be considered singularly or taken out of context. To suggest that any single conclusion or group of conclusions adequately represents their nature would be wrong.

Further, the adversary typically goes through a complex decision-making process between the time a potential target is identified and the moment the decision to act is made. This process may include such variables as potential payoff, political value of the malevolent act, group resources and dedication, access to inside intelligence, expected resistance, socio-political ramifications, etc. The important point is that adversary behavior is the product of a variety of influences. This study has

analyzed one set of such influences, i.e., adversary characteristics. Beyond these, the adversary is influenced by a range of target and environmental factors which were only incidentally referenced. It is important to realize that a relationship between environmental, target, and adversary factors is always involved in criminal behavior and that important interdependencies between these systems elements exist.

At the end of each conclusion there are page references that serve as logic path guides from the conclusions to those parts of the Summary Report which address the subject thought. These page references are provided to facilitate review of the conclusions with respect to the supporting analysis.

1. One of the least likely methods of attack is an overt armed assault. Professional criminals, political extremists, and saboteurs (of whatever genre) are interested in avoiding armed combat. Even highly dedicated, well-trained terrorists choose to approach their targets without resorting to arms, preferring only to display firepower once inside and in control of a facility. Disoriented persons, disgruntled employees, and miscellaneous criminals rarely if ever engage in frontal assaults. In those instances where mentally imbalanced adversaries resorted to such attacks, they lacked the capability to inflict significant damage. Although frontal assault should not be ignored as an attack method, safeguards planners should avoid preoccupation with this tactic. (Reference: pages 16, 20, 22-23, 26, 28, 30-31, 35-37, 40)



2. Terrorists and psychotics depend upon a high degree of personal dedication. This characteristic serves to elicit the daring and willingness to kill or be killed necessary to take on high-risk assignments. Although not all terrorists act this way, there is a sufficient history of martyrdom, suicidal attacks and stands, and high risk missions to warrant concern for this behavioral characteristic. (Reference: pages 17, 26, 37)

3. No single generic adversary group or individual exhibits strength in every characteristic. Rather, each generic group possesses its own unique set of characteristics in differing degrees of strength. (Reference: pages 16-33, 46-47)

4. Physical danger appears to have some deterrent effect on all adversaries with the exception of the psychotic. Professional as well as miscellaneous criminals are risk avoiders who will not, as a rule, undertake criminal acts that require them to risk their lives. Terrorists, too, avoid hardened targets and typically prefer lightly defended or undefended targets. (Reference: pages 36-37, 40-41)

5. Organized and professional criminals often try to recruit persons who work inside target facilities to provide them with some form of assistance. Observation of internal security procedures, access to privileged information, and intelligence on important time schedules and

internal routines are all important to the professional criminal hoping to gain covert access to protected facilities. (Reference: pages 20, 36, 44-46)

6. The critical characteristic of disoriented persons, white-collar criminals, and disgruntled employees is that they tend to operate as insiders. These adversaries possess no other identifiable critical characteristic. In addition to strengthening the pre-employment clearance program, safeguards planners should consider instituting a dynamic and on-going program aimed at identifying and coping with such individuals already in the work environment. (Reference: pages 26, 28, 31, 35-36, 44-46)

7. Professional criminals, many terrorist groups, some extremist protest groups, and certain disoriented persons plan carefully before initiating a given criminal mission. Certain planning techniques such as target casing, recruitment of insiders, facility reconnaissance to include both overt and covert intelligence collection, pre-engagement rehearsal, and other measures increase adversary vulnerability for detection. Police and security personnel should be familiar with such typical terrorist, professional criminal, and political extremist planning techniques so as to recognize and report suspicious activity when it occurs. (Reference: pages 16, 20, 22, 37)

8. The organized crime and miscellaneous criminal adversaries rely upon deception and ruse as tactics to bypass or neutralize security forces and systems. (Reference: pages 20, 31, 36)

9. Given that terrorists or organized criminals have chosen to commit a particular crime, the resources (i.e., men, weapons, and equipment) they deploy will be a function of their perception of the operational requirements of the crime. However, their decision to act is dependent upon many variables, difficult to assess, such as target security posture, group dedication, payoff expectations, etc. (Reference: pages 18, 21, 34, 41-44)

10. The nature of "threat," in general, is dynamic; adversary behavior and capability appear to be related to prevailing political, economic, and social conditions. As these conditions change, the types and capabilities of potential adversaries and even their targets could also change. (Reference: pages 6-7)



## APPENDIX

### GLOSSARY OF TERMS

1. adversary - an individual or group whose actions constitute a perceived present or future threat to domestic licensed nuclear facilities. Such a threat is generalized only to the extent that it is of a criminal or illegal nature.
  
2. adversary characteristics matrix - a systematic display which facilitates the analysis of the characteristics of the various generic adversary groups (see matrix on page 15).
  
3. antisocial personality (AKA: sociopath) - the antisocial personality is one of the least understood diagnostic groups in the field of abnormal psychology. There is disagreement, even among the experts, as to what constitutes an antisocial personality. As determined in the Diagnostic and Statistical Manual of Mental Disorders, second edition, these individuals are basically unsociable, and their behavior pattern brings them repeatedly into conflict with society. The antisocial types are incapable of significant loyalty to individuals, groups, or social values. By nature they are selfish, callous, irresponsible, impulsive, and unable to feel guilt or learn from experience or punishment. Authorities estimate there are between four and ten million antisocials in the U.S.

4. attributes - (see characteristics)
5. capabilities - (see characteristics)
6. characteristics - the distinctive features, traits, or qualities that distinguish one generic adversary from the others. For the purpose of this study, the following eighteen key adversary traits were considered: organization, recruitment, financing, international connections, planning, timing, tactics, collusion (insider), motivation, dedication/discipline, willingness to kill, willingness to give up life, training/skills, personnel/technical sophistication, group size, weapons, equipment, and transportation.
7. composite - a narrative description of the capabilities and operating characteristics of a specific generic adversary group. For this study the following six generic adversary composites were created: terrorist groups, organized/sophisticated criminal groups, extremist protest groups, disoriented persons, disgruntled employees and miscellaneous criminals.
8. critical characteristics - the single generic adversary trait or characteristic, or set of such characteristics, suggested to be critical or essential to the successful perpetration of a given criminal act by the adversary.

9. disgruntled employee composite - the term disgruntled employee refers to an individual who either alone or in collusion with others engages in vindictive or malicious acts of a criminal nature against his place of employment. These acts may be directed against the facility's physical property, critical support facilities, or against its personnel. In that the disgruntled employee primarily is motivated by anger and frustration at his inability to solve either work-related problems or problems of a personal nature, he seeks his revenge through the willful disruption of the normal processes and functions at the facility in which he is currently employed or has been previously employed.
10. disoriented person composite - disorientation describes those individuals whose mental capabilities have been impaired, regardless of the origin of the disorder or malfunction. The typology of this generic adversary is not limited to the classic psychiatric definition of disorientation, i.e., "failure to be oriented in time, place, or function," but includes the total spectrum of psychic estrangement. The three general categories of disorientation analyzed in terms of characteristics patterns are, (1) the neurotic, (2) the psychotic, and (3) those with personality disorders (the antisocial personality or sociopath and the drug dependent personality).

11. event - an occurrence of safeguards concern including, but not limited to, actual or attempted radiological sabotage and theft/diversion of nuclear material, or threats relating to either of these.
  
12. extremist protest composite - extremist protestors are individuals or organizations who/which resort to extreme forms of protest activity of an illegal and often violent nature, generally to demonstrate political dissatisfaction. Extremist protestors may be left-wing radicals seeking to provoke some desired socio-economic or political change or right-wing reactionary groups intent upon maintaining the status quo and resisting change. This study only analyzes left-wing extremist protest groups as an adversary analog in that right-wing protest groups traditionally have not attacked so-called establishment targets, of which the domestic nuclear industry is a visible example. Both terrorists and extremist protestors perpetrate criminal acts for political effect, i.e., to draw public attention to their causes. The illegal actions of the extremist protest group, however, are usually symbolic gestures and not attempts to cause widespread destruction, to inflict injuries, or to incite general fear and alarm in the population (as are the objectives of the terrorist).
  
13. generic adversary - six general groups of actual or potential adversaries for which "characteristics" data was collected and presented in composite form (see also, composite).



14. incident - any occurrence which, by itself or its consequences, poses an actual or potential hazard to public health and safety, property or the environment; or an actual or potential threat to the safeguards of licensed facilities or materials that requires immediate NRC response.
  
15. insider - an employee of a targeted facility or organization who has current access and/or knowledge which is considered useful by a potential adversary.
  
16. international terrorism - terrorist incidents in which the perpetrators go outside of their host country to carry out their acts, or deliberately select domestic targets that have connections with a foreign power in order to gain international publicity or greater political leverage over the local government, or attack lines of international commerce, or create international incidents by other means. Such acts must be politically motivated for the purpose of this study.
  
17. miscellaneous criminal composite - the crimes committed by elements of this generic adversary group generally fall into categories of violent personal crime, public order crime, or commonplace crime. While the criminal actions of this generic adversary overlap to some degree with the crimes committed by members of the organized/

sophisticated group, significant differences exist. Crimes committed by criminals in the miscellaneous group are less organized and involve less planning than those presented in the organized/sophisticated crime composite. The individuals themselves have lower material expectations and are less goal directed and motivated than their "organized crime" counterparts.

18. neurotic - the neurotic responds to life stress with persistent anxiety and other behavior representing attempts to control the anxiety. The neurotic recognizes the undesirable and sometimes disabling nature of his symptoms; however, his critical characterization is that he has no break with reality. The most common of all neurotic conditions is anxiety neurosis--a pattern of behavior in which the physiological symptoms of anxiety become so intense that they interfere with personal and social activities. When anxiety becomes attached to a specific object or situation, the individual suffers from a phobia--an overwhelming and irrational fear.
  
19. organized/sophisticated criminal composite - the organized/ sophisticated criminal generic adversary covers a range of subgroups to include (1) traditional "family" oriented groups (e.g., Mafia); (2) ethnic "family" oriented groups; (3) matrix oriented groups (e.g., Dixie Mafia); (4) one-time operating groups (e.g., Brinks and Purloator robberies); (5) computer crimes; and (6) other sophisticated crimes/ capers (e.g., jailbreaks, bank robberies, art thefts, cargo thefts).

20. potential adversary - an individual or group that has no history of attempting or executing malevolent acts involving nuclear materials or plants but whose capability could be directed against nuclear objectives if they were to become so motivated.
  
21. psychotic - mental disorder in which there is a serious form of personality disturbance. The persons affected show periodic or prolonged loss of contact with the world of reality. Psychosis reflects disturbances of cognitive, emotional, and personal/interpersonal behavior. In some cases, the psychosis is clearly related to organic disturbances of the brain (tumors, encephalitis, diffuse brain damage); others are of a psychogenic, biochemical or genetic origin. Schizophrenia, for example, refers to a group of psychotic reactions marked by disturbances in reality relationships and manifested, at least intermittently, by delusions and hallucinations.
  
22. psychotic cult - a group of individuals who share common goals, values, and objectives generally recognized by society as "imbalanced". The Charles Manson cult is perhaps the most well-known example.
  
23. radiological sabotage - any deliberate act directed against nuclear materials or plants that could directly or indirectly endanger the public health and safety by exposure to radiation, other than such acts by an enemy of the United States, whether foreign government or other person.

24. sabotage - any act which maliciously destroys property or disrupts the operation of a facility.
25. safeguards - a collective term that comprises those measures designed to guard against radiological sabotage and the theft or diversion of material such as source and special nuclear material from uses permitted by law, and to give timely indication of possible diversion or credible assurance that no diversion has occurred.
26. tactics - the types of activities used by the various adversaries to gain advantages or to succeed in their operations. These include such activities as impersonation or use of diversionary maneuvers as well as such criminal acts as arson, sabotage, homicide, fraud, theft, etc.
27. terrorist composite - for the purpose of this study, terrorism is defined as violence or threat of violence (perpetrated for political effect) calculated to gain widespread attention by its inherent

drama and to create an atmosphere of fear and alarm, which in turn causes people to exaggerate the strength of the terrorists and the importance of their cause.

28. theft - the stealing (of nuclear material) by someone other than the owner or person responsible. (Compare "diversion", which can be done by the owner or responsible person.) (WASH-1173)
  
29. threat - an expression of intention to harm or damage.



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