CIVIL LIBERTIES AND NUCLEAR ENERGY SAFEGUARDS: THE INEVITABLE CONFLICT

John N. O'Brien

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THE INEVITABLE CONFLICT

JOHN N. O'BRIEN*

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I. INTRODUCTION

Nuclear fission as a method for generating electrical energy is a reality of modern American society. The issues surrounding the debate over the future of nuclear energy policy in the United States are complicated and cannot be reduced to a simple set of considerations. There are environmental, economic, social, and cultural costs involved in using any energy source. When viewed in a vacuum, these costs will appear unreasonable. Balanced against these costs, however, are the societal benefits which the use of that energy will yield. The nuclear energy debate has revealed that balancing these considerations is an enormous task. A formulation of an intelligent nuclear energy policy will require a thorough assessment of the various societal costs associated with this energy alternative.

One major concern is that the use of nuclear fission to generate electricity produces large quantities of highly toxic and poten-
tially hazardous nuclear materials. In the wrong hands, these materials could be fabricated into a crude nuclear weapon or dispersed as a powerful toxin. The possible catastrophic consequences which could result from the malevolent use of nuclear materials dictates that the industry adopt an almost infallible system of security. The need to maintain this system of strict security is an important consideration of this energy alternative. The potential curtailment of civil liberties that such a security system will entail must be considered as one of the costs of nuclear energy. History teaches that strong domestic security measures often engender violations of individuals' constitutionally protected rights and liberties.

The entire spectrum of measures used to control the use of and access to nuclear materials is gathered under the rubric of "nuclear safeguards." Increased public concern over the spectre of nuclear terrorism has been spurred by a worldwide increase in politically motivated violence. This has led to the consideration of various forms of intensified nuclear precautionary measures to prevent the theft or loss of nuclear materials, or the sabotage of nuclear facilities. This article will discuss current and prospective nuclear safeguards and evaluate their probable impact on civil liberties.

Nuclear safeguards touch many different constitutionally protected rights. The breadth of the problem makes a comprehensive constitutional analysis of each issue raised impossible for a short article. Rather than attempt such an analysis, this article seeks only to identify some of the potential problem areas, leaving a definitive legal analysis for other, more ambitious works. This article attempts to outline a basic framework within which a meaningful evaluation can occur in the scientific, legal, and political communities.

Many of the issues raised by the controversy over nuclear safeguards are related to the overall need for, and desirability of, nuclear energy as an alternative to fossil fuels. No attempt will be made here to comparatively evaluate alternative energy sources. A cursory review of the United States' energy problem will be presented, however, to establish a background for an analysis of the nuclear safeguards.

Overall, the energy problem may be the most difficult and complex problem faced in the twentieth century. Modern society has thrived on an abundantly available energy supply for many years. The industrial world has increased its consumption of energy as production has increased. The energy needs for production do not account for energy resource depletion or dependence on unsta-
ble supplies. The costs associated with energy have skyrocketed during the last seven years due mainly to OPEC's (Oil Producing Exporting Countries) price increases. Because our country has assumed that there will be a constant and abundant supply of energy for our production needs, we have designed our production to depend on an abundant supply.

The recognition that fossil fuel energy sources will be approaching depletion in the near future has forced scientists and politicians to earnestly seek alternative sources of energy. The energy alternative most heavily relied on by the policy-makers in the United States has been nuclear energy. Nuclear energy presently accounts for over ten percent of the nation's electrical production. This figure is expected to rise to over twenty percent by 1985. Certain regions in the United States are more dependent upon this energy alternative than others; New England, for example, produces over one third of its electrical energy by nuclear fission.

Nuclear energy critics have raised many issues about energy escalation ranging from the basic environmental and safety considerations to more subtle social and cultural effects of nuclear energy. This article is limited to an evaluation of how an industry security system may affect individual civil liberties. A general conclusion about the desirability and acceptability of nuclear energy is not offered. Neither are the relative civil liberties impact of other energy alternatives, including possible alternative nuclear reactor fuel cycles, considered.¹

A. Nuclear Energy Production

Security threats exist in all four phases of the nuclear energy industry: The production and transport of nuclear fuel; the nuclear energy generating process itself; the reclamation processes; and the storage and eventual disposal of spent fuel. Security problems fall into two categories: (1) The fear that nuclear materials will be exploited for the manufacturing of nuclear weapons and (2) the possibility that environmental contamination will occur. The level of security required at any facility depends on the type of reactor used and the type of nuclear materials present. Only certain nu-

¹ There is no reason to believe that alternative nuclear fuel cycles may not offer somewhat different security considerations. Some commentators have suggested that alternative nuclear fuel cycles may be preferable, from a safeguard standpoint, than the plutonium recycle system analyzed here. See Ferveson, Taylor, von Hippel & Williams, The Plutonium Economy: Why We Should Wait and Why We Can Wait, BULL. ATOM. SCIENTISTS, December 1976, at 10-14.
clear materials are suitable for manufacturing nuclear weapons, and these materials vary considerably in their potential for environmental contamination.

The fuel for all commercial reactors originates from naturally occurring uranium ore. This ore consists of varying amounts of two different kinds of uranium. The type of uranium in highest concentration is uranium-238 (U\(^{238}\)). Uranium-238 alone is insufficient to serve as fuel. It cannot be used to manufacture weapons, and it has little potential as a toxic health hazard. It is uranium-235 (U\(^{235}\)), however, that is the key element to nuclear power production. The fraction of uranium-235 occurring in natural ore is so small that no amount of natural uranium could be used to run a United States power plant or to manufacture a nuclear weapon.

1. **The Light Water Reactor (LWR)**

The United States nuclear power industry is firmly established around the Light Water Reactor (LWR). To fuel these reactors, natural uranium is enriched to 2-4 percent of uranium-235 from its naturally occurring concentration of 0.7 percent. This slightly enriched uranium cannot sustain a reaction which would produce a nuclear explosion and is, therefore, unlikely to represent a serious security threat or toxicological hazard. Enriched uranium is fabricated by using the weight difference of the atoms themselves. This is far more difficult than separating different chemical elements. It should be noted that “heavy water” is chemically the same as light water (natural water) but contains hydrogen-2 instead of hydrogen-1. This difference is analogous to uranium-238 being a heavier isotope of uranium than uranium-235.

2. Every chemical element occurs in more than one form. These forms, called isotopes, do not differ at all in their behavior relative to other chemical elements. The only difference in isotopes of the same chemical element is their weights. Isotopic separation can only be done by using the weight difference of the atoms themselves. This is far more difficult than separating different chemical elements. It should be noted that “heavy water” is chemically the same as light water (natural water) but contains hydrogen-2 instead of hydrogen-1. This difference is analogous to uranium-238 being a heavier isotope of uranium than uranium-235.

3. The Canadian designed, heavy water moderated CANDU reactor uses naturally occurring uranium but requires a large inventory of heavy water. Manufacturing heavy water entails very sophisticated techniques and extensive facilities not available without enormous investment due to the extremely difficult separation of the different isotopes of hydrogen which distinguish heavy water from light water.

4. **AD HOC WRITING GROUP OF THE SAFEGUARDS COMMITTEE, INSTITUTE OF NUCLEAR MATERIALS MANAGEMENT, ASSESSMENT OF DOMESTIC SAFEGUARDS FOR LOW-ENRICHED URANIUM (1976) (a special report appearing in NUCLEAR MATERIALS MANAGEMENT (August 1976)).**

Uranium must be enriched to high levels (50-90%) to be used in nuclear weapons. Uranium enrichment requires technologies and facilities currently available to only a few national governments. The development of new enrichment techniques reduces the difficulty of producing enriched uranium thereby enabling countries with limited resources to obtain nuclear weapon grade materials. Designing safeguards for control of nuclear materials becomes increasingly difficult as the enrichment technology changes. See Krass, *Laser Enrichment of Uranium: The Proliferation Connection*, 196 SCIENCE 721-31 (1977).
cated into a fuel assembly and reacted in the power plant. Spent fuel is currently stored for future placement in a federal waste depository.

Several methods have been developed for reprocessing spent fuel to recover and recycle any unreacted uranium-235. In addition, complex reprocessing schemes may be used to recover plutonium (Pu\textsuperscript{239}) which is produced in small quantities as a by-product of reactor operation. Plutonium-239 can be used in place of uranium-235 as a reactor fuel but can be more easily separated from new fuel than uranium-235. Because crude explosive devices can be manufactured from separated plutonium, plutonium recovery presents critical security considerations.\textsuperscript{5}

2. The Breeder Reactor

Since the supply of natural uranium is finite, the nuclear community has searched for more efficient uses of uranium resources. The nuclear industry and government regulators have considered development of a breeder reactor as one alternative. The breeder reactor uses the reaction of uranium-235 to convert the abundant but less useful uranium-238 into valuable plutonium-239. A liquid metal fast breeder reactor (LMFBR) produces plutonium-239 in greater quantity than the uranium-235 being exhausted. The plutonium-239 produced can then be used either as a reactor fuel in place of uranium-235, or in mixture with uranium-235 at LWR facilities. Since this method increases the efficiency of nuclear fuel use by a factor of approximately seventy, it is believed that a LWR/LMFBR fuel cycle combination will assure the United States a supply of nuclear fuel for hundreds of years.\textsuperscript{6}

3. Safeguard Concerns

Much of the general plan for implementing a LWR/LMFBR fuel cycle is not yet fully developed. The fuel in the present LWR fuel cycle is an inconsequential threat at the input side of the cycle. The spent fuel contains many dangerous fission products in ad-

\textsuperscript{5} Because plutonium is a different chemical than uranium, highly concentrated weapon grade plutonium can be derived from plutonium bearing fuel by relatively simple techniques in contrast to uranium slightly enriched in uranium-235. \textit{See note 2 supra.}

\textsuperscript{6} R. LAPP, \textit{The Nuclear Controversy} 17 (1974). Some have openly attacked this position. \textit{See generally T. COCHRAN, The Liquid Metal Fast Breeder Reactor, Resources for the Future} (1974). No attempt is made here to determine what the outcome of this debate will be. This study assumes use of LWR/LMFBR fuel cycle in the future.
dition to small quantities of plutonium, but it emits such a lethal amount of radioactivity that potential thieves are unlikely to be interested in stealing it.

Recycled plutonium-239 presents several potential security threats. Plutonium raises concern about existing safeguards because it can be used to manufacture fission bombs and is highly toxic. All reprocessing facilities where plutonium-239 is separated or stored must be subject to strict safeguards.

An individual need not steal spent fuel to cause damage. Wherever special nuclear material (SNM) is kept, and wherever a core meltdown at a reactor site could occur, there is a potential for sabotage. A well-placed, conventional explosive could disperse spent fuel in a manner that would greatly endanger lives and property.

B. Nuclear Safeguard Activities

The basic objective of nuclear safeguard strategy is to contain special nuclear material (SNM) in an authorized channel where it cannot be used malevolently and can be guarded against sabotage. Any SNM existing outside authorized channels represents a serious security breach. Thus, nuclear safeguard plans should concentrate on preventing theft or sabotage of SNM. Careful screening of employees and tight control over access to the special nuclear material are methods employed to physically protect the material from unauthorized use. Developing an advanced warning system to anticipate attempts to steal or harm the special nuclear material would serve a useful purpose should screening and access controls fail. If nuclear material is lost or stolen, the Nuclear Regulatory Commission must provide a plan for its speedy recovery.


8. If the nuclear fission reaction occurs too rapidly or the reactor cooling system fails or is insufficient to control the heat produced by the fission reaction, it is possible that a core meltdown could occur, creating severe toxicological hazard in the area.

9. A related safeguard activity is threat analysis. This involves the use of a domestic intelligence network to continuously gather information in an attempt to discover and deter a nuclear threat before the theft or sabotage occurs. While the general civil liberty problems associated with such threat analysis operations have become increasingly clear during the time of the Watergate and Ellsberg break-ins, it is beyond the scope of this article to deal with this aspect of nuclear safeguards. The use of increased domestic intelligence activity is tied to many considerations only one of which is nuclear safeguards.
Traditional safeguard activities can be categorized as follows:

1. **Access Control**

Physically controlling access to areas in which the special nuclear materials are kept involves using safes and vaults for storage of SNM, security guards in and around the storage area, and physical searches and surveillance of all persons entering and leaving the storage areas. If these access control methods were failsafe, there would be no need for other safeguards. As better access controls are developed, the need for other safeguards will decrease.

2. **Employee Screening**

To reduce the risk of theft or sabotage, attempts are made to carefully screen employees who are allowed access to secured areas. The objective of preemployment screening is early recognition of persons who are likely to pose a security threat. Screening techniques may include background investigations, polygraph tests, and psychological testing. Once an individual is employed, an ongoing security evaluation may be required to detect persons who may subsequently become a threat.

3. **Recovery Operation**

A recovery operation is designed to quickly locate and recover any nuclear material that has been lost or stolen. Once SNM is beyond authorized protective channels, it becomes a national security threat and a potential health hazard. Immediate, drastic measures are necessary once a theft or sabotage is discovered. This need for immediate action may result in infringements of civil liberties.

Since there have been no publicized major occurrences of theft or sabotage, existent recovery plans have never been implemented. The effectiveness of these plans, as well as their anticipated threat to civil liberties, remain largely hypothetical.

C. **The Nuclear Regulatory Acts**

Nuclear safeguard legislation is a part of congressional regulation of the nuclear energy field, and it has been the subject of public and congressional debate.\(^{10}\) In order to fully understand safe-

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guard regulations, it is necessary to consider the nuclear regulatory scheme.

Congress granted broad administrative power to the Nuclear Regulatory Commission (NRC) to promulgate regulations that carry the force of law. The only limitations on its rulemaking authority are those set by the enabling legislation (the Energy Reorganization Act and Atomic Energy Act) and the constitution. With regard to security, NRC is empowered to "develop . . . contingency plans for dealing with threats, thefts, and sabotage relating to special nuclear materials, high-level radioactive wastes and nuclear facilities resulting from all activities licensed under the Atomic Energy Act of 1954. . . ."11 This mandate includes "processing, transport, and handling of nuclear materials, including the provision and maintenance of safeguards against threats, thefts, and sabotage of licensed facilities, and materials. . . ."12 The safeguard regulations developed under this statutory authority are based on hypothetical threat situations rather than past experience. Consequently, the threat levels anticipated by NRC can be as much in controversy as the methods developed to meet those threats.

D. Civil Liberty Interests

The term "civil liberties" covers the entire spectrum of individual rights and freedoms guaranteed by our constitutional system of government. The term includes rights enumerated in the Bill of Rights, such as freedom of speech and freedom from unreasonable search and seizure, as well as personal interests which underlie various provisions of the Bill of Rights, such as rights of privacy and individual dignity.13

Nuclear safeguards may severely restrict these personal civil liberties. Evaluation of safeguard activities must transcend the question of what the courts would find constitutional. Clearly, if activities are unconstitutional they cannot be employed, but the fact that a particular safeguard activity would survive a constitutional challenge should not end consideration of the impacts on civil liberties. A constitutional activity may still be undesirable. Impor-

12. Id. at § 5844(b)(1).
tant civil liberty interests may be severely eroded by lawful as well as unlawful activities. The revelations of the late sixties and early seventies show conclusively that when the government perceives a compelling need to compromise civil liberties in a covert manner, the absence of ongoing and strict control often results in serious civil liberty violations.

The rights guaranteed by the Constitution are not interpreted by the United States Supreme Court as absolute and are often balanced against other public interests. The Supreme Court has repeatedly demonstrated its willingness to restrict civil liberties if sufficient public need is shown, or to strengthen traditional definitions of constitutional rights if unwarranted intrusions are perceived. An important aspect of the judicial balancing of civil liberty interests is the presumption that, when all things are equal, the civil liberty will stand untouched.

Nuclear safeguard techniques may affect first amendment rights of free speech and association, fifth amendment rights of due process and self-incrimination, and the fourth amendment right of freedom from unreasonable search and seizure. This article will analyze the civil liberties concern within the context of each particular safeguard activity.

The potential consequences of a nuclear safeguards breach are so catastrophic that the safeguards issue poses an urgency and significance that regulatory policymakers are unaccustomed to facing. The growing pressure to employ an effective safeguards strategy creates a danger of disregarding the civil liberties implications of that strategy. In a society which values political freedom and individual rights highly, it is essential to evaluate the potential impact of imposing prospective safeguard measures.

The assessment of potential civil liberty intrusions must include an examination of the doctrinal options available to accommodate the safeguard activity. Precedents are valuable, but not con-

14. *Id.* at 2-3.
15. Seizure without due process, for example, has been upheld in several instances upon showing a compelling state interest. Fahey v. Mallonee, 332 U.S. 245 (1946) (bank failure); North Am. Cold Storage Co. v. City of Chicago, 211 U.S. 306 (1908) (unwholesome food); Jacobson v. Massachusetts, 197 U.S. 11 (1905) (smallpox vaccination).
16. The United States Supreme Court held until 1967 that electronic surveillance was not a search as used in the fourth amendment's warrant requirement. *Olmstead v. United States*, 277 U.S. 438 (1928). The Court has since recognized that electronic surveillance is technologically capable of intruding anywhere and that the need to physically trespass to gain information was no longer required. *Katz v. United States*, 389 U.S. 347 (1967).
-exclusive. Many proposed safeguard activities are analogous to those already used in other areas of security.\textsuperscript{17} There are also a substantial number of activities, however, for which no precedents exist. In light of the unique nature of many proposed nuclear safeguard activities, comparison to existing precedents is, in many cases, difficult. It is impossible to predict accurately how a court may respond to a constitutional challenge to these activities. Where precedents are not well-established, all available options must be examined.

The purpose of this analysis is to provide a basis upon which debate can be initiated concerning civil liberty impacts of nuclear safeguards. Such a debate is necessary to clarify the issues so that NRC can respond appropriately if it is challenged. In light of the very broad delegation of power Congress has granted to NRC, it is clearly advantageous to fully air the issues of nuclear safeguard effects on constitutionally protected rights and the available doctrinal options in advance of rulemaking or litigation.

II. \textbf{Employee Screening}

A fundamental method of safeguarding SNM is to screen individuals who may be granted access to nuclear facilities. This security measure is designed to prevent the employment of individuals who might attempt to use their position to engage in the sabotage or theft of SNM. Since safeguard strategy dictates that those persons with access to sensitive positions in the nuclear industry be of trustworthy character, a preemployment screening process is essential. Two methods are primarily used to assess an individual’s trustworthiness: Investigation of the individual’s past activities and investigation of the individual’s contemporary status.\textsuperscript{18} Employee

\textsuperscript{17} For example, in employee screening, compulsory disclosure questionnaires have been used extensively in non-nuclear employment situations.

\textsuperscript{18} Presently employees of the nuclear energy industry are screened according to methods in the United States Nuclear Regulatory Commission Guide. Included in the screening activities is the suggestion that licensees screen their own employees. The standard suggested is that of the American National Standard Institute (ANSI). Regulatory guides are suggested methods for complying with regulations. At the bottom of each NRC guide, the NRC states:

\textit{Regulatory Guides are issued to describe and make available to the public methods acceptable to the NRC staff of implementing specific parts of the Commission’s regulations, to delineate techniques used by the staff in evaluating specific problems of postulated accidents, or to provide guidance to applicants. Regulatory Guides are not substitutes for regulations, and compliance with them is not required. Methods and solutions different from those set out in the guides will be acceptable if they provide a basis for the...}
screening security programs are not new. They are currently used for many sensitive governmental job positions in federal and state law enforcement agencies, the military, and national security agencies, such as the FBI and the CIA. Consideration must be given whether the extension of similar employee screening activities into the civilian nuclear power industry, under NRC guidelines, will merit constitutional justification.

A. Legal Authority for Employee Screening Programs

Current NRC security clearance procedures, promulgated mostly in the 1950’s, were originally designed for the protection of restricted data and national security information.19 These procedures do not address the security objective of preventing the loss or diversion of special nuclear material. With the growth of the nuclear industry and the increased need to protect that industry, it has become clear that new security rules must be promulgated. Concomitant with the desire to protect the industry is the need to protect the industry’s employees from the adverse effects of an overly intrusive security clearance program. Therefore, current and prospective security procedures must be carefully balanced be-

findings requisite to the issuance or continuance of a permit or license by the Commission.

UNITED STATES NUCLEAR REGULATORY COMMISSION, REGULATORY GUIDE 1.109 (1977) (an example of the editorial note on the front page of each issue).

ANSI standard 18.17 suggests procedures which are vague and applied somewhat inconsistently:

4.3 Employee Screening. Procedures shall be employed for making a determination of the acceptability of candidates for nuclear plant employment and the continuing acceptability of employees with regard to their trustworthiness. These procedures shall include, as a minimum, the following provisions:

(1) an investigation, either prior to employment or prior to assignment to a position allowing access without escort, to disclose adverse character traits that might bear on his abilities or motivation to discharge his duties in a responsible manner.

(2) examination by a licensed psychiatrist or physician, or other person professionally trained to identify aberrant behavior, either prior to employment or prior to assignment to a position allowing access without escort, for the purpose of observing and disqualifying persons displaying indications of emotional instability such that there is reasonable doubt the person could discharge his duties in a competent manner.

(3) continued observation of all employees and appropriate corrective measures by responsible supervisors for indications of aberrant behavior of personnel in the course of performance of their duties.


tween safeguard interests and intrusions upon personal civil liberties.

In 1974, Congress amended the Atomic Energy Act to authorize the Nuclear Regulatory Commission to establish employee screening programs for private companies with access to special nuclear materials.\textsuperscript{20} The very brief legislative history of the 1974 amendment to the Atomic Energy Act indicates that Congress was probably unaware that it was authorizing a nuclear industry security program of such potentially broad impact on constitutionally protected rights. The legislation was passed as part of a package of amendments described as "an AEC housekeeping bill." The only recorded House discussion was a brief remark that the security program was a "clarification and expansion of the Commission's authority with respect to licensing people who handle nuclear fuels. . . ."\textsuperscript{21} There was no recorded Senate debate on the provision.\textsuperscript{22}

1. Proposed Program

In 1977, NRC proposed changes in its employee screening regulations.\textsuperscript{23} These changes provide that nuclear industry employees in sensitive positions be required to obtain the equivalent of a top secret security clearance. This proposal is similar to the current program used for protection of classified information. Two lev-

\textsuperscript{20} The NRC may:
[P]rescribe such regulations or orders as it may deem necessary (1) to protect Restricted Data received by any person in connection with any activity authorized pursuant to this chapter, (2) to guard against the loss or diversion of any special nuclear material acquired by any person pursuant to section 2073 of this title or produced by any person in connection with any activity authorized pursuant to this chapter, to prevent any use or disposition thereof which the Commission may determine to be inimical to the common defense and security, including regulations or orders designating activities, involving quantities of special nuclear material which in the opinion of the Commission are important to the common defense and security, that may be conducted only by persons whose character, associations, and loyalty shall have been investigated under standards and specifications established by the Commission and as to whom the Commission shall have determined that permitting each such person to conduct the activity will not be inimical to the common defense and security, and (3) to govern any activity authorized pursuant to this chapter, including standards and restrictions governing the design, location, and operation of facilities used in the conduct of such activity, in order to protect health and to minimize danger to life or property.

\textsuperscript{22} Id. at 22879-81 (1974). For a general legislative history see Comment, Policing Plutonium: The Civil Liberties Fallout, 10 HARV. C.R.-C.L. L. REV. 369, 396 n.130 (1975).
els of security clearance are specified, "U" and "R." The "U" level clearance would be required for all employees in very sensitive positions, and the lower "R" clearance would be required for all other employees. It is estimated that two-thirds of all nuclear industry employees would need "U" clearances.

The higher "U" clearance requires an exhaustive pre-screening investigation including a full field investigation and a National Agency Check (NAC). The lower "R" clearance involves only the NAC. All employees would be expected to undergo security clearance procedures which had the same standards and criteria as the program used for granting access to classified material. The criteria should be used so that "careful application of . . . [the] . . . criteria could recognize the differences between access of SNM and access to classified information. . . ."24

The major concerns with the new screening program from a civil liberties standpoint involve the use of national security authority to justify the program, and the lack of tangible evidence demonstrating the need for, or probable success of, the new clearance program. No evidence has been advanced to support the contention that the characteristics of a nuclear saboteur or thief are the same as, or even similar to, those of an individual who compromises classified material. The mandate for "careful application" of criteria to account for different characteristics is vague in the absence of clear guidelines. Furthermore, current screening criteria have never been validated.

The Atomic Energy Act uses both "health, safety, and welfare" and "common defense and security" (national security) justifications for most delegations of authority to NRC. The amendment authorizing NRC to establish a personnel screening program makes no mention of health, safety, or welfare.25 Therefore, the program may be promulgated into law only if national security interests are at stake. The NRC assertion that nuclear reactors pose no serious threat to the health and safety of the American public does not harmonize with its contention that sabotage of a reactor justifies action of the government under its national security power. There is real doubt as to whether NRC can legitimately conduct personnel screening programs consistent with the Atomic Energy Act and the

24. UNITED STATES NUCLEAR REGULATORY COMMISSION, AUTHORITY FOR ACCESS TO OR CONTROL OVER SPECIAL NUCLEAR MATERIAL; HEARINGS ON 10 C.F.R. § 11, at 20 (1978) (NRC Doc. RM50-7) (testimony of NRC staff).
25. See note 20 supra.
federal government stance on the national security aspects of reactor sabotage. Furthermore, the new NRC guidelines are vague at best and fail to adequately address the distinction between access to restricted data and access to SNM.

2. Scope and Effectiveness of the Security Clearance Program

The magnitude of a nuclear safeguard screening program, which might be minor compared to the total federal personnel screening program, may appear insignificant when viewed in light of their objective—prevention of the theft of SNM or the sabotage of a reactor or facility containing SNM. Current screening programs are designed primarily for the protection of information and the denial of access to those individuals who may place foreign interests over those of the United States. The objectives of nuclear industry screening programs, however, must go beyond simple data protection. Safeguard screening activities must deny access to those who would conduct violent antisocial behavior in militant opposition to domestic policies and are, therefore, likely to be thieves or saboteurs. A safeguard screening program dealing with the physical aspect of nuclear protection must (1) guard against internal sabotage, (2) reduce the risk of employee theft of small quantities of SNM, and (3) reduce the threat that a group planning forcible theft could establish a link on the inside of a nuclear facility. While current clearance procedures are stringent, they have failed to fully protect classified information. In many respects, the loss of a significant quantity of SNM poses a more serious threat than loss of classified information. Because of the devastating consequences of a successful diversion of SNM, screening activities for purposes of material access will probably increase.

Employee screening currently involves the gathering of information about the job candidate to objectively evaluate his or her suitability for the position. The industry has available to it several different information gathering techniques. Each provides different levels of information, and involves a different level of personal intrusion.

27. See Comment, supra note 22, at 395-96.
29. Id.
B. Employee Screening Activities

1. Historical Techniques

Historical techniques are characterized by investigation and disclosure of an individual's "character, associations, and loyalty" to determine if they are such that allowing access to SNM would be "inimical to the common defense and security." These techniques include compulsory disclosure questionnaires, national agency checks, and full-field investigations.

a. Compulsory Disclosure Questionnaires

Compulsory disclosure is a requirement of all current screening programs aimed at controlling classified information. These programs have existed in the nuclear industry since the early 1950's when a screening program was established by the Atomic Energy Commission pursuant to the Atomic Energy Act. The technique involves mandatory disclosure of personal information considered relevant to evaluating suitability for the particular job classification.

b. National Agency Checks (NAC)

Various governmental and quasi-governmental agencies, including the Department of Defense, Department of Motor Vehicles, and federal and state police agencies, obtain and store personal information concerning individuals' associations, background, and past activities. A thorough security background investigation usually involves a check of all available governmental files.

c. Full-Field Investigations

Full-field investigations involve informational interviews with neighbors, friends, and associates of the prospective employee. In these interviews, detailed questions are asked regarding the applicant's background and lifestyle. This type of investigatory technique is clearly the most thorough form of background check short of direct personal surveillance.

2. Contemporary Techniques

Contemporary techniques, called Personal Reliability Assessment, are characterized by inquiry into an individual's mental

30. See note 20 supra.
32. Id. at 67.
33. J. BARTON, INTENSIFIED NUCLEAR SAFEGUARDS AND CIVIL LIBERTIES,
and emotional make-up at the time of employment to identify un­
stable personalities. The concern of the industry is that employees
with such personalities might, because of external or internal pres­
sure, undertake theft or sabotage of SNM.34

The objectives of this facet of personal screening programs go
beyond merely identifying potential mental illness. Criteria may be
promulgated to assess whether or not an individual's basic person­
ality and other behavioral traits make it advisable that he or she
have access to SNM.35 Personal Reliability Assessment techniques
include psychological testing and evaluation, polygraph tests, and
organic correlations to violent behavior.

C. Civil Liberty Infringements by Employee Screening Activities

The rights of civilian employees in the nuclear power industry
are directly affected by security clearance screening programs.
Since the guidelines for these screening programs are established
by the NRC pursuant to express Congressional authorization in the
Atomic Energy Act,36 some commentators have suggested that
these industry programs involve state action enabling employees to
constitutionally challenge the procedures.37 Regardless of the prob­
ability of success of such a constitutional challenge, proposed and
prospective screening activities have the potential to seriously in­
trude upon the personal civil liberty interests of individuals em­
ployed in the nuclear power industry. Many of the employee
screening activities herein considered may well be held to be le­
gally valid, despite the fact that they infringe to some degree upon
the individual's constitutional rights. The ensuing analysis seeks to
prospectively recognize how civil liberties may be eroded by such
activities.

Employee screening activities infringe on an individual's first
amendment rights of speech and association by excluding the indi­
vidual from the job market because of past or present associations

34. T. DYK, D. MARCUS, & W. KOLASKY, JR., supra note 13, at 55.
35. Id. The use of PRA's is not unprecedented. The Board of Appeals of the
United States Civil Service Commission has dismissed a challenge of the Federal
Aviation Agency's use of a personality test. The Board found that "the 16 PF test [a
performance test] is a valid measurement of traits necessary to the position of air traf­
cic control specialist," and that "the test deprived the Appellee of no constitutional
of App., April 16, 1974).
36. See note 20 supra.
37. See Comment, supra note 22, at 387.
with political or subversive groups. Exclusion based solely on an individual's organizational membership has been held to be violative of first amendment rights.\textsuperscript{38} The United States Supreme Court has determined that a guilt by association rationale does not justify denying an individual constitutionally guaranteed rights. An employee's past or present activities with a subversive organization, as opposed to his or her beliefs, may be considered in the determination of a security clearance.\textsuperscript{39} The Supreme Court has indicated that screening should be limited in scope to employees whose positions are vulnerable to diversion, inside collaboration with theft, or serious acts of sabotage.\textsuperscript{40} The criteria of even a narrowly drawn screening program must be implemented in a fair and objective manner. The problems of carefully narrowing the scope of any screening program do not end with the procedural guidelines. The industry must realize that the administrators of such programs must not curtail the applicant's first amendment rights by using an overbroad interpretative analysis of the employee's background data.

Each of the various screening mechanisms has the potential for inhibiting or curtailing the applicant's first amendment rights. Inhibition of constitutional rights is not determinative of validity; compulsory disclosure, for example, has been upheld by the courts. Yet the use and interpretation of overly broad questions may in-

\textsuperscript{38} United States v. Robel, 389 U.S. 258 (1967). The Supreme Court declared that membership in a communist action organization was not a sufficient basis to deny a machinist employment in a national defense shipyard. The appeal in \textit{Robel} involved the determination of whether Section 5(a)(1)(D) of the Subversive Activities Control Act of 1950, Pub. L. No. 81-831, 64 Stat. 987, by 50 U.S.C. § 784(a)(1)(D) (1976) was constitutional. Under the statute, the denial of employment was "an unconstitutional abridgement of the right of association protected by the First Amendment." 389 U.S. at 261.

\textsuperscript{39} Schneider v. Smith, 390 U.S. 17 (1968). The United States Supreme Court struck down a Coast Guard employment policy which required applicants for a merchant marine license to complete a disclosure questionnaire which included the compulsory listing of past organizational affiliations. Under the authority of the Magnuson Act, 50 U.S.C. § 194 (1976), President Truman promulgated regulations, 33 C.F.R. Pt. 6 (1950), which allowed the Commandant of the Coast Guard to withhold a permit unless the "character and habit of life of such person are such as to authorize the belief that the presence of the individual on board would not be inimical to the security of the United States," 390 U.S. at 19. In its ruling, the Court indicated that the witholding of employment could be justified on the basis of acts but not solely on beliefs. \textit{Id.} at 26. "No act of sabotage or espionage or act inimical to the security of the United States is raised or charged in the present case." \textit{Id. See} Law Students Civil Rights Research Council, Inc. v. Wadmond, 401 U.S. 154 (1971) (upholding the use of a compulsory disclosure questionnaire for admission to the bar).

\textsuperscript{40} Schneider v. Smith, 390 U.S. 17, 26-27 (1968).
trude upon an applicant's first amendment rights. Inquiry into an individual's background may constitute an invasion of privacy,\textsuperscript{41} where the investigator probes factors of limited or unrelated value to the issue of employee suitability. The individual may successfully challenge the particular investigatory mechanism on the basis of the commonly accepted notion that privacy requires some core of the personality be kept outside the notice of society.\textsuperscript{42}

Fifth amendment rights against self-incrimination may be infringed by employee screening programs that involve polygraphs. In the United States Supreme Court's view, results of a polygraph test may be testimonial in nature,\textsuperscript{43} so that requiring a person to submit to the polygraph is tantamount to requiring him or her to testify to personal aspects of his or her life. Since the right against self-incrimination is characterized as a fundamental right,\textsuperscript{44} only a compelling state interest may override it. Precluding employment by denying a security clearance amounts to a loss of liberty and property under the law.\textsuperscript{45} Therefore, due process requires that the screening criteria used by the industry must not be overly broad or vague.\textsuperscript{46} Further, the denial of the security clearance must be done in a manner in which the prospective employee is afforded a fair hearing.\textsuperscript{47}

According to present regulations, an individual may be denied


\textsuperscript{42} See Note, Privacy in the First Amendment, 82 YALE L. J. 1462, 1474 (1973).

\textsuperscript{43} The United States Supreme Court has stated:
Some tests seemingly directed to obtain “physical evidence,” for example, lie detector tests measuring changes in bodily functions during interrogation, may actually be directed to eliciting responses which are essentially testimonial. To compel a person to submit to testing in which an effort will be made to determine his guilt or innocence on the basis of physiological responses, whether willed or not, is to evoke the spirit and history of the Fifth Amendment.


\textsuperscript{44} Boyd v. United States, 116 U.S. 616 (1886).


\textsuperscript{46} Soglin v. Kauffman, 418 F.2d 163 (7th Cir. 1969).

\textsuperscript{47} “Fair Hearing” is a term usually used in connection with administrative proceedings and connotes a hearing in which safeguards are taken to comply with the fifth amendment's due process requirements.
clearance if he or she "has abused trust, has been dishonest, or has engaged in infamous, immoral or notoriously disgraceful conduct without adequate evidence of reformation." If an individual is excluded on any one of these reasons, without adequate notice and an opportunity to be heard, the exclusion from employment would violate the fifth amendment.

The mere fact that employee screening programs may be found to be constitutionally valid must not end the inquiry into their potential effects. Constitutionally authorized intrusions on civil liberties are, nonetheless, intrusions and represent a definite social cost of the nuclear energy alternative. The rapid growth of the nuclear power industry will bring an increasingly large portion of the civilian population within the industry. The increased number of employees, together with the enormous risks posed by the adoption of the breeder reactor fuel cycle, may result in a proportional increase in the intensity of pre-screening activities. An exaggerated response by the NRC to an actual theft or threat could lead to the imposition of even more onerous screening methods.

III. PHYSICAL ACCESS CONTROLS

Controlling physical access to areas that contain SNM is an essential objective of nuclear safeguards strategy. The Nuclear Regulatory Commission has issued regulations for the physical security of all facilities licensed to handle special nuclear materials. The NRC regulations call for establishment of a security organization to "provide physical protection against industrial sabotage and against theft of special nuclear material. . . ." Prior to gaining entry into a security area, the regulations require that all persons and packages be searched for weapons or explosives. Upon exit from a material access area, all persons and packages must again be searched for concealed nuclear material. In addition, individuals within the safeguarded area must be kept under constant observation.

Various methods of search and observation are available to the

49. 10 C.F.R. § 73.40 (1978). NRC also requires the establishment of a "security organization, including guards, to protect [the] facility against industrial sabotage and the special nuclear material in his possession against theft." Id. § 73.50(a)(1).
50. Id. § 73.40.
51. Id.
52. Id.
53. Id.
nuclear power industry. The relative intrusive effects of physical access control alternatives will be examined to evaluate their cost in terms of civil liberties infringements.

A. State Action

A threshold question concerning the effects of these safeguard activities on constitutionally protected rights is whether the activities of nuclear power company employees are subject to fourth amendment protections. The United States Supreme Court, in *Camara v. Municipal Court*54 interpreted the purpose of the fourth amendment as "to safeguard the privacy and security of individuals against arbitrary invasions by government officials."55 If a search is conducted by a private company primarily for its own interests, the search is outside fourth amendment requirements.56

Searches conducted pursuant to NRC regulation are analogous to those conducted by the airline industry at airports. Both are required by federal regulation in the interest of public safety.57 In several federal court decisions, Federal Aviation Administration (FAA) authorization has been held insufficient to characterize airline searches as government searches.58

In *United States v. Fannon*,59 however, the Court of Appeals for the Ninth Circuit ruled that airport searches are within the reach of the fourth amendment because there was sufficient governmental authorization and involvement to render the search governmental.60 Other courts are in conflict on this issue, however.

55. *Id.* at 528 (emphasis added).
57. 14 C.F.R. § 121.538 (1978) (requires airport searches); 14 C.F.R. § 107.4 (1978) (requires the presence of law enforcement officers at airports).
59. 556 F.2d 961 (9th Cir. 1977). *But compare* United States v. Kelly, 529 F.2d 1365, 1371 (8th Cir. 1976), and United States v. Newton, 510 F.2d 1149, 1153 (7th Cir. 1975), with United States v. Sherwin, 539 F.2d 1, 7 (9th Cir. 1976) (en banc). *See also* Burdeau v. McDowell, 256 U.S. 465 (1921).
60. 556 F.2d at 964-65. The overriding purpose of the regulations was to thwart "a real and demonstrable threat to the public safety which the public authorities, notably the police, have traditionally been relied upon to combat." *Id.* at 964. The
Some courts have held that airport searches conducted by airlines to prevent injury to customers and damage to property are non-governmental searches outside the fourth amendment. 61 Assuming, however, that the nuclear industry's physical security program is viewed as governmental, and therefore subject to fourth amendment requirements, an analysis of the program's impact on personal privacy is appropriate.

The major area of concern from a civil liberties viewpoint is the effect of access control activities on the physical privacy of employees and visitors to nuclear facilities. Physical privacy intrusions have traditionally been analyzed in terms of the fourth amendment guarantees. The fourth amendment provides that people have the right "to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures. . . ." 62 To protect this right, the fourth amendment requires that search warrants be issued only "upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized." 63

The courts have applied the fourth amendment by different standards when the search involved is considered administrative rather than criminal. A criminal search connotes hostility by the searching officer toward the individual whose privacy is invaded in that the ultimate goal of the search is a criminal prosecution.

The fourth amendment protection against unreasonable searches and seizures is also applicable to searches and inspections conducted by administrative and regulatory agencies, 64 even though

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61. The Court of Appeals for the Eighth Circuit has approached the issue from an opposite direction than the Ninth Circuit. Rather than measure the amount of governmental involvement in the search program, the court considered the primary purpose of the company in conducting the search. In United States v. Wilkerson, 478 F.2d 813 (8th Cir. 1973), the court stated, "[S]earches of luggage by airline employees are private searches that are invulnerable to fourth amendment attack so long as the searches are conducted by the carrier for its own purposes and without the instigation or participation of government officers." Id. at 815. See United States v. Freeland, 562 F.2d 383 (6th Cir.), cert. denied, 434 U.S. 957 (1977). See Note, The Constitutionality of Airport Searches, 72 MICH. L. REV. 128, 136 n.57 (1978); Ingram, Are Airport Searches Still Reasonable?, 44 J. AIR L. 131, 138 n.41 (1978).

62. U.S. CONST. amend. IV.

63. Id.

64. United States v. Biswell, 406 U.S. 311 (1972); Camara v. Municipal Court,
these intrusions are generally less hostile in nature than the typical police officer's search for the fruits or instrumentalities of crime. They are, however, deemed quasi-criminal because "most regulatory laws . . . are enforced by criminal processes." Although administrative searches are not aimed at seeking out criminal activities, cases dealing with civil searches are not void of suspect criminal activity.

While administrative searches are not required to meet the traditional fourth amendment requirement of probable cause, they must, nevertheless, be reasonable. The Supreme Court in *Camara* established the formula by which the reasonableness of an administrative search can be established without showing a probability that contraband will be produced in every search. The need to search and the interest of the government in regulating the particular activity, must be balanced against the invasion of privacy involved. Since the administrative search is considered only a minimal invasion of privacy, if the regulatory purpose for the inspection is deemed significant, the search will probably be held reasonable.

Airport searches have been considered within the context of administrative searches. In *United States v. Davis*, the Court of Appeals for the Ninth Circuit held that "searches conducted as part of a general regulatory scheme in furtherance of an administrative purpose, rather than as part of a criminal investigation . . . , may be permissible under the Fourth Amendment though not supported by a showing of probable cause. . . ." The *Camara* Court determined that civil searches fall within the warrant requirement. In *Colonnade Catering Corp. v. United

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65. 387 U.S. at 531.

66. Id. The Supreme Court in *Camara* recognized that administrative searches involved regulatory laws which "were enforced by the criminal processes." Id.

67. "[T]here can be no ready test for determining reasonableness other than by balancing the need to search against the invasion which the search entails." Id. at 536-37.

68. 482 F.2d 893 (9th Cir. 1973).

69. Id. at 908.

70. 387 U.S. at 531. The Court's primary concern in establishing a warrant requirement was to curb the unbridled discretion of the agent in the field. Id. at 532-33. *Camara* overruled *Frank v. Maryland*, 359 U.S. 360 (1959), which had held that administrative searches were not subject to the warrant requirement of the fourth amendment. The Court stated that the fourth amendment interests at stake in these inspection cases are not merely "peripheral." "It is surely anomalous to say that the individual and his private property are fully protected by the Fourth Amend-
States,71 the United States Supreme Court struck down an administrative search for failure to obtain a warrant. The Court stipulated that the enabling legislation in the Colonnade case did not provide for warrantless searches, but that "Congress [did have] broad power to design such powers of inspection . . . as it deems necessary to meet the evils at hand."72

In Marshall v. Barlow's, Inc.,73 the United States Supreme Court struck down enabling legislation that allowed warrantless searches. While it rejected warrantless searches that were authorized by the Occupational Safety and Health Act, the Court held that warrants required for certain administrative searches could be issued upon a lesser showing of probable cause than is required for criminal searches.74

The logic of these decisions would seem to place indiscriminate civil searches conducted at nuclear facilities into the category of administrative searches since they are part of a program designed to deter criminal activity rather than pursue criminal actions. Because the NRC regulations specifically authorize them, searches made pursuant to the regulations may be outside the warrant requirement. If the warrantless searches are held to be legitimate, any contraband discovered in a reasonable search is admissible as evidence.75

B. Physical Access Control Activities

The Nuclear Regulatory Commission requires its licensees to safeguard nuclear material in accordance with its regulations. The United States Nuclear Regulatory Commission Guides76 (NRC

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72. Id. at 76.
74. Id. at 320-21.
75. Reasonableness is determined by balancing the public interest in controlling unauthorized use of nuclear materials with the need to guard against sabotage to the nuclear industry while considering the privacy interests of those searched. If, on the other hand, warrants are required, courts may allow a Barlow's type of showing of probable cause to suffice.
76. Regulatory guides are issued to describe and make available to the public methods acceptable to the United States Nuclear Regulatory Commission (NRC) regulatory staff for implementing specific parts of the NRC's regulations, to delineate techniques used by the staff in evaluating specific problems or postulated accidents, or to provide guidance to applicants. Regulatory guides are not substitutes for regulations and compliance with them is not required. Methods and solutions different from those set forth in the regulatory guide will be acceptable if they provide a
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guides) contain descriptions of activities which will satisfy these requirements. The guides state:

One element of this protection is proper control of access of personnel to and from protected areas, vital areas, and material access areas. Searching persons and packages for firearms, explosives, and other devices which could aid in sabotage or theft of SNM is another element of physical protection.77

The guides address two rather distinct conditions under which access controls will operate: Usual day-to-day conditions and emergency conditions in which either an accident or emergency occurs, or a significant amount of SNM is discovered missing.

1. *Normal Day-to-Day Operation*

Normal operations call for searches of all entering and exiting personnel and visual surveillance of personnel within the facility. The guides suggest:

Searching of individuals can be carried out by means of hands-on search ("frisking"), or by means of devices which will detect the presence of weapons and explosives or SNM concealed on the individual, or by a combination of both. The search should be conducted in a manner which (1) provides assurance that firearms, explosives, and other such contraband are not being carried into the protected area and that SNM is not being transported out of a material access area and (2) minimized inconvenience to the individuals being searched. The use of equipment capable of detecting weapons, explosives, or SNM is usually the preferable form of searching, since the use of detection devices avoids the personal imposition of a hands-on search.78

The clear preference for avoiding the personal imposition of a physical search is most likely a response to judicial concerns that the "least onerous means" be used to achieve the safeguard objective. The guides go on to suggest the use of "airport type" weapons detectors, hand-held or passageway explosive detectors, and devices to monitor the presence of SNM.79 Standard access controls in nuclear facilities may include the use of mechanical "hands-off"

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77. UNITED STATES NUCLEAR REGULATORY COMMISSION, REGULATORY GUIDE 5.7A (1973).
78. Id. 5.7B.
79. Id.
detection devices, inspection of packages, use of change rooms, visual surveillance, pat-down body searches, and strip searches including body searches.

a. Mechanical "Hands-Off" Detection Devices

The courts have addressed the constitutional issues raised by the use of a magnetometer to search boarding passengers in airports. The use of this device has been upheld as an "absolutely minimal invasion in all respects of a passenger's privacy [when] weighed against the great threat to hundreds of persons if a hijacker is able to proceed . . . undetected. . . ." As justification for the intrusion, it has been noted that "the plane may become a weapon of mass destruction that no ordinary person would have any way of obtaining except through hijacking." The analogy that SNM is a weapon of mass destruction, and that no ordinary person would have any way of obtaining it except through illegal diversion, is apparent. The magnetometer search does not differ significantly from the use of other mechanical detection devices including explosive and SNM detectors.

Since the use of a magnetometer at airports to scan millions of travelers every year has been upheld, there is little doubt that the courts could easily and lawfully accommodate the use of mechanical detection devices in the far more limited scope of safeguarding nuclear facilities. Such an extension would require no fundamental change in case law; and the privacy intrusion involved would be minimal.

b. Inspection of Packages

The NRC guides state:

No individual should be allowed to directly hand carry any package, valise, tool box, or similar hand-carryable item into the protected area or out of a material access area. Such objects should be handed to an attendant guard or watchman who will check them and pass them into the protected area or out of the material access area.

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80. United States v. Albarado, 495 F.2d 799, 806 (2d Cir. 1974).
81. Id. at 802. The court described the use of magnetometers as an "absolutely minimal invasion . . . of . . . privacy. . . ." Id. at 806. "There is no detention at all; there is no 'probing into an individual's private life and thoughts. . . .' " Id. at 806 (citation omitted).
The courts have considered the search of carry-on luggage in the airport situation a reasonable search.\textsuperscript{83} Similarly, the protection of government personnel and property has been held to outweigh the privacy intrusion involved in searching individuals entering courthouses.\textsuperscript{84} Since these inspection techniques have been upheld in airport and courthouse contexts, the way is clear for courts to view as "reasonable" the inspection of packages and parcels in the much more limited context of access to facilities containing SNM.

c. Pat-Down Body Searches

Once the mechanical search has indicated that an individual may possess concealed contraband, the focus of the search becomes much more personal, hostile, and generally intrusive. The search then exceeds the limits of an administrative search and becomes more like a criminal search. Courts combine aspects of administrative and criminal standards to satisfy fourth amendment guarantees when these more intensive searches are required in the context of an airport search. The initial mechanical search is upheld as a reasonable administrative search. The affirmative results of this search provide the requisite level of suspicion necessary to conduct the closer criminal search. In the airport search context, the statistical probability that weapons will be found in only five percent of the body searches conducted was, nevertheless, held sufficient to justify the invasion when balanced against the danger at stake.\textsuperscript{85} The

\textsuperscript{83} United States v. Davis, 482 F.2d 893, 910 (9th Cir. 1973).

\textsuperscript{84} Barrett v. Kunzig, 331 F. Supp. 266, 274 (1971). "When the interest in protection of the government property and personnel from destruction is balanced against any invasion to the entrant's personal dignity, privacy, and constitutional rights, the government's substantial interest in conducting the cursory inspection outweighs the personal inconvenience suffered by the individual." Id. The Barrett court relied on the non-accusatory nature of the search to minimize the intrusion: The persons whose packages are inspected generally fall within a morally neutral class. Because everyone carrying the enumerated parcels is required to have them inspected, the inspection is not accusative in nature and the degree of insult to the entrant's dignity is minimal. Thus, it cannot be said that a finger of suspicion is unfairly or arbitrarily being pointed at an individual as falling within a "highly selective or suspect" group.

\textsuperscript{85} United States v. Lopez, 328 F. Supp. 1077 (E.D.N.Y. 1971) (five percent danger of weapons justified a frisk); People v. Dooley, 64 Cal. App. 3d 502, 512, 134 Cal. Rptr. 573, 579 (1976) ("probability of the reported bomb . . . was but 1 out of 150, or 1,500, or whatever figure, the odds might nevertheless reasonably . . ." justify the frisks).
same analysis appears applicable to the nuclear facility searches.

The pat-down body search, called a “frisk,” is a significant intrusion upon an individual’s privacy. The United States Supreme Court rejected the claim that a frisk is only a “petty indignity” for in a proper frisk, the “officer must feel with sensitive fingers every portion of the prisoner’s body. A thorough search must be made of the prisoner’s arms and armpits, waistline and back, the groin area about the testicles, and entire surface of the legs down to the feet.”

86 The airport frisk has been held to be “less noxious than a frisk on the street,”

87 due to the fact that airport frisks frequently occur. The intrusion “is lessened by being one of the crowd.”

88 The courts have made clear that “[t]he frisk . . . is to be used only in the last instance.”

89 The inspection must first “exhaust the other efficient and available means, if any, . . . before utilizing the frisk.”

90 The scope of the frisk and inspection is also limited by the consideration of reasonableness. The search is reasonable only if it is limited to those places “which may reasonably be deemed to conceal a weapon or explosive. Reasonableness, in this context, is a matter of the probabilities.”

91 The appropriate procedures, as suggested by the courts, include repeating a magnetometer search after the subject has removed what he believes to have set off the alarm. If repetition does not correct the detector’s warning, it will provide the reasonable suspicion to search more closely. The court would probably not allow pat-down searches to be a normal prerequisite to entry into a nuclear facility unless it can be clearly shown that no other means exist to allow adequate access controls. If they are used, the entrant should be allowed to remove whatever objects he or she believes are setting off a detection device and try to pass through again. Current case law accommodating airport passenger screening indicates that if the pat-down search is conducted only after all available mechanical detection equipment has continued to indicate the presence of contraband, it will most

87. United States v. Albarado, 495 F.2d 799, 807 (2d Cir. 1974).
88. Id.
89. Id. at 809.
90. Id. at 808.
91. Id. at 810 (the examination of a small parcel wrapped in aluminum foil violated the legitimate scope of an airport search); United States v. Knoll, 481 F.2d 884, 886 (8th Cir. 1973).
likely be held to be valid and reasonable in the nuclear safeguards context.\textsuperscript{92}

d. Use of Change Rooms

The NRC guides state:

Unless exit is into a contiguous material access area, all individuals should exit from a material access area, other than a vault, only via the change rooms and should be required to deposit all work clothing in the inner change room, walk through a passageway, and dress in street clothing in the outer change room. . . . A guard or watchman need not be attendant except when personnel are exiting from the material access area.\textsuperscript{93}

This requirement can be categorized as a health measure since clothing which has been exposed to nuclear materials may itself be hazardous. Furthermore, if a radiation detector signaled that the employee was emitting excess radiation on his or her body or clothing, it is clearly in the best interest of the employee to find the source.

Civil liberties objections may arise when visual surveillance of employees undressing is required. The privacy interest affected depends on the employee's own expectation of privacy.\textsuperscript{94} If surveillance activities in change rooms were conducted openly, there would be little reason for an individual to expect privacy. Even

\textsuperscript{92} Procedures have been designed which will take these considerations into account:

Upon annunciation of an alarm from explosive or weapon detection equipment located at a protected area access point attended by a lone guard or watchman, a guard should be dispatched immediately to the access point originating the alarm. If the access point is unattended, two guards should be sent to the access point. At the access point the guard or watchman should request that the individual's pockets be emptied and that the individual pass again through the detection equipment. If the individual complies and the alarms do not register, the individual may be allowed to pass into the protected area after the contents of the individual's pockets have been examined verifying that no attempt has been made to pass explosives or firearms into the protected area. If, however, an alarm continues to register, the individual should be physically searched by an unarmed security individual, while at least one guard or armed patrol watchman observes, to verify that no firearms or explosives are yet concealed by the individual. If the individual refuses to comply with the request for further searching, or if a weapon or explosives are found, the individual should be denied access.

\textbf{United States Nuclear Regulatory Commission, Regulatory Guides 5.7D-5a (1973).}

\textsuperscript{93} \textit{Id.} at 5.7D-2a.

\textsuperscript{94} \textit{Katz v. United States}, 389 U.S. 347 (1967).
when open and announced surveillance is taking place, however, NRC must still demonstrate that the surveillance is absolutely necessary and not merely auxiliary.

The constant thread running through the NRC guides is the requirement that no individual be left alone or unobserved while in a material access area.95 The obtrusiveness of constant surveillance must be balanced against the need to insure safety and the danger from non-observation. The use of change and observation rooms must be made coextensive with this need. Prior warning should be given and the surveillance should be made as impersonal as possible. The use of change rooms must be required of all personnel entering or leaving a controlled area to avoid arbitrary imposition. If surveillance is used in the change room, separate rooms should be provided for men and women with observers being of the same sex as those observed. The use of change and observation rooms, so long as their obtrusiveness is minimized, would seem justified when balanced against the responsibility of the nuclear industry for the safety and welfare of its employees and the public.

2. Response to Emergency

The NRC guides stipulate simply, in the event of an emergency, "[A]ll individuals should be searched for concealed SNM before being released from the protected area or collection area."96 No stance is taken by NRC concerning the scope of the search. A search could involve use of a mechanical detector and perhaps a strip search and body cavity examination. Nowhere in the regulations or guides is interrogation mentioned as a response to a shortage or theft. Substantial pressure for detention, search, and interrogation of employees would certainly result if a successful theft occurred.

a. Search and Seizure

Although the parameters of the inspection zone are expanded in an emergency situation, the administrative character of the search remains. The primary goal is to secure the material and protect the public, rather than capture the criminals.97 The statutory

95. See United States Nuclear Regulatory Commission, Regulatory Guide 5.7 (1973).
96. Id. at 5.7D-6a.
97. This is analogous to the Biswell ruling, where the administrative nature of the search was upheld even though the individual found to have violated the regulation had committed a criminal act. U.S. v. Biswell, 406 U.S. 311 (1972). Clearly there
authorization to search continues; the urgency of the situation pro-
vides the exigent circumstances necessary for a warrantless search.
The searches are "reasonable" administrative searches because the
interest in containing the potentially dangerous material far out-
weighs the minor intrusion of a blanket search with a mechanical
detector.

The expanded procedures for searches in an emergency situa-
tion are defensible on the same grounds as searches in a normal
situation. It is reasonable to increase the scope of the intrusion to a
larger area and a greater number of individuals since the countervail-
ing public danger is imminent.

b. Arrest and Detention

In an emergency, two concerns arise with respect to employ-
ees. One is that an employee's health may be jeopardized; the
other is that an employee may be the perpetrator of an SNM theft
or sabotage.98 Arrest and detention powers have been upheld
when the arrest and detention are performed "to further the social
interest in public health. . . ."99 As one author notes, "That power
must, of necessity, include the power to detain and confine persons
suspected of having contracted or been exposed to an infectious
disease; without need to resort to judicial proceedings."100

A worker who is carrying even a minute amount of plutonium
represents a substantial health hazard not only to himself or her-
self, but also to others who share any space with him or her. There
is a great similarity between toxicity and disease in this context. If
detention or arrest is pursuant to the possibility of unintentional
transport of SNM by an individual or group, then current case law
upholding quarantines as a health measure may be applicable.

If arrest or detention results from suspicion that the individual
has stolen the nuclear material, the fourth and fifth amendment re-
quirements incident to criminal arrest must be observed since the

98. Portal monitors at exits to nuclear material access areas were first used to
protect the employees' health. Safeguards concern developed subsequent to this.
This progression is important in that health inspections are not aimed at finding pos-
sible criminal activities, whereas conducting exactly the same search for stolen SNM
is quasi-criminal. In absence of intent to uncover criminal activity, an administrative
search is not likely to be looked upon negatively by the courts.

99. UNITED STATES NUCLEAR REGULATORY COMMISSION, REGULATORY GUIDE
5.7 (1973).

100. B. SCHWARTZ, ADMINISTRATIVE LAW 78 (1976).
detention is in relation to suspected criminal activity. It has been held that statements obtained during the "custodial interrogation" of a criminal defendant are inadmissible unless certain procedural safeguards are employed to insure the individual's privilege against self-incrimination.\textsuperscript{101} The critical issue is whether an interrogation at a nuclear facility is a "custodial interrogation" within the meaning of \textit{Miranda v. Arizona}.\textsuperscript{102} The United States Supreme Court has stated that "the Miranda ... warnings were required when the person being interrogated was 'in custody ... or otherwise deprived of his freedom of action in any significant way.'"\textsuperscript{103} It is not clear whether the courts would find a safeguards-related interrogation to be a "custodial interrogation." Since the employee would not be free to leave the facility on his or her own volition, the \textit{Miranda} safeguards might be applicable. If the \textit{Miranda} requirements are ignored, conviction in a subsequent criminal proceeding would be jeopardized. It should be remembered, however, that recovery of the missing SNM, rather than criminal conviction, is the prime objective here. The interrogators would clearly be under pressure to ignore \textit{Miranda} requirements in order to more efficiently locate the stolen material.

\textbf{IV. Recovery Operations}

In the event of a successful theft of SNM, strategies may be implemented to recover quickly the stolen material before it can be used destructively or become a health hazard. The Department of Energy has devised specific plans to locate and recover lost or stolen radioactive materials, but because this information is confidential, it cannot be referred to in this article. Nevertheless, there are practical and legal reasons for undertaking a comprehensive examination of possible recovery operations.\textsuperscript{104}

Recovery measures could include area-wide and perimeter searches, electronic surveillance of suspected terrorists, detention and interrogation with or without counsel, traffic and population control, silencing news coverage, and imposition of martial law. Implementation of these recovery procedures would clearly entail suppression of civil liberties.

Recovery activities pose perhaps the most serious civil

\textsuperscript{102} Id.
liberties threats of all nuclear safeguards. The catastrophic threats posed by a clandestinely developed nuclear device mandate that law enforcement agencies undertake the most effective and expedient means available to recover stolen SNM. An efficient recovery operation is crucial to minimizing the catastrophe arising from an unauthorized diversion of SNM. Potential thieves might be dissuaded if it were common knowledge that the government had prepared effective recovery procedures.

The FBI investigates all incidents, including nuclear threats, which involve suspected or actual violations of federal laws. That agency would be primarily responsible for directing and coordinating the federal government's recovery efforts. To aid the FBI, the Department of Energy could locate and identify radiation-producing materials.

A. Legal Authority

Recovery operations would undoubtedly be perceived by the public and the courts as essential to preserving society's welfare, even though suppression of some constitutional rights would inevitably occur. The government could rely on several legal doctrines to justify the intrusions. Recovery operation activities could be based on the necessity to uphold national security, to undertake a criminal investigation, or to act with expediency to an emergency situation that poses imminent danger to the general welfare. Judicial acceptance of recovery operation procedures will depend upon the government's ability to justify its actions under one of these legal theories.

Serious national security problems would arise if a foreign nation attempted to subvert our government through a diversion of SNM. If SNM was stolen by a foreign agent or a person collaborating with a foreign power, the usual requirement of obtaining a warrant prior to the search might be eliminated.105

Recovery operations might also be justified as an ordinary criminal investigation. Under this rationale, the United States Supreme Court has established constitutional guidelines for conducting searches during a criminal investigation that would apply to searches for SNM. The fourth amendment requires that all criminal searches be reasonable. The purpose of a search must always be balanced against the invasion which it entails. Officials might be required to show that other recovery techniques could not achieve

equally acceptable results. The reasonableness of a search will depend on the facts and circumstances of the particular case.

The fourth amendment also requires that a search warrant describe with particularity the place to be searched and the persons or things to be seized. The Supreme Court has held that a warrant must be particular enough to allow the officer, "with reasonable effort to ascertain and identify the place intended." The Court, however, would probably not allow the particularity requirement to preclude a reasonable search for stolen SNM. Some commentators have concluded that the Court would be willing to sacrifice the particularity requirement, to a degree, to maintain judicial control over the search. It might easily justify a relaxation of the particularity requirement on the grave dangers that would result if SNM were used destructively.

B. Elements of Recovery of SNM

The procedures used in searching for stolen SNM necessarily entail civil liberty intrusions. Persons may be detained by officers, interrogated, frisked, or have their homes or vehicles searched. Officers might also use electronic surveillance without informing the person being investigated.

Recovery activities can be broken down into three broad categories. First, there are activities designed to secure stolen materials. These involve area and perimeter searches of pedestrians and vehicles. Next, there are steps taken to identify perpetrators. These include detention and interrogation, with and without counsel, and electronic and physical surveillance of suspected terrorists. Finally, there are activities meant to protect the public against explosion or radioactivity. These encompass forced evacuations, traffic and population control, and possible press censorship to mitigate panic. Individual attention to each of these recovery activities provides insight to the extent of potential intrusions.

106. U.S. CONST. amend. IV.
108. See Comment, supra note 22, at 420.
109. For instance, the Supreme Court has made it clear that domestic security surveillance programs were overbroad relative to the dangers they sought to avert. This attitude may not extend to clear cut cases of extreme emergency. United States v. United States Dist. Court, 407 U.S. 297, 323-24 (E.D. Mich. 1971).
1. Activities to Secure Stolen SNM

a. Area Searches

In the absence of new legislation or rulemaking specifically addressing recovery operation activities, the judiciary is likely to respond to area search techniques in one of several ways. A court could declare the search unconstitutional and attempt to define certain circumstances or statutes which might make the recovery search acceptable; it could expand the emergency exception to allow for warrantless searches in emergency situations involving the risk of a nuclear incident; or it could relax both the probable cause and particularity requirement for issuance of a search warrant.

The implications of these options are far-reaching. If the emergency exception was expanded, warrantless searches might later be justified on this expanded rationale in other emergency situations potentially less dangerous than a nuclear safeguards breach. If particularity and probable cause requirements for search warrants were relaxed, a constitutional requirement explicitly condemning such general searches would be directly contravened. Either option requires a fundamental change in the law of search and seizure and directly impairs civil liberties interests. The extreme urgency of a recovery operation, coupled with the complete lack of precedent for such actions, makes the area search an activity which is wholly unpredictable in impact. The impact of an area search could be lessened if NRC established rules for treating evidence recovered and specifically designated a government official to be in control.

b. Perimeter Searches of Pedestrians and Vehicles

Authorities might feel compelled to search pedestrians and vehicles entering or leaving areas where they suspect stolen SNM is located in order to isolate the material. Portable mechanical detectors, similar to the magnetometers used to search persons at airports, could be used for routine searches with a minimal amount of intrusion. If time precluded obtaining these mechanical detection devices during an emergency, officials might be required to resort to hand searches of individuals and vehicles. The extraordinary "need to search" for stolen SNM would presumably justify physical searches of all nearby pedestrians. Clearly, courts would oppose searches that were conducted arbitrarily and without uniformity, or not confined to the object sought. The situations which permit warrantless searches could easily be expanded to include SNM re-
covery because the emergency nature of the situation might realistically preclude issuance of a warrant.

A warrantless vehicle search might also be lawfully extended to nuclear recovery activity under current case law and statutes. It is often impractical to secure a warrant because of the mobile nature of a vehicle. The existing exception to the warrant requirement for automobile searches would clearly apply here and might be further broadened by relaxing the probable cause requirement. These changes would not be overly intrusive since the civil liberty implications of a vehicle search are slight, and the general welfare implications of a successful recovery operation are great.

2. Activities to Identify Perpetrators

If SNM were diverted or stolen, great pressure would exist to detain and interrogate all persons suspected of having knowledge of the location of the materials or the perpetrators of the theft. Detention and interrogation on less than probable cause has been recognized by Congress and the judiciary. It is not clear whether a nuclear safeguards breach would justify creating an exception. Law enforcement officials, under severe pressure to recover the missing SNM, might be forced to resort to custodial interrogations regardless of constitutional limitations. The best alternative would be for courts to allow detention and custodial interrogation of persons suspected of having inside knowledge of nuclear incidents. The threat of a nuclear catastrophe would justify the civil liberties intrusions.

3. Activities to Protect the Public

a. Generally

The agency conducting the recovery operation of stolen SNM would need broad powers to control citizens who might obstruct the recovery. The agency might want to discourage and punish anyone who interfered with its operations, to evacuate areas where the health hazard was great, and to deal with individuals who might commit other crimes while disorder prevailed.

Measures employed to recover stolen SNM would vary according to the perceived severity of the threat. If the threat appeared to be limited, such as theft of less than one kilogram of uranium-235, the recovery operation would include only ordinary investigative techniques. If, however, greater quantities were in-

volved, the recovery operation might include imposition of martial law and a general suspension of constitutional rights. The President could also summon federal troops to control the population during a recovery operation. Curfews might have to be imposed. Curfews have been successfully used in urban riot situations to thin traffic and reduce ordinary crime.

b. Press Censorship

The analysis thus far has specifically addressed legal questions concerning the mechanics of the recovery operation. Another pertinent legal concern is whether news organizations could be required by the government not to publicize the recovery operation. A desire for the free flow of information militates in favor of publicizing the recovery operation. If, however, information provided to the public was misleading or sensationalized, widespread panic could result. General panic might be avoided if the recovery operation was kept secret. An unpublicized recovery operation might frustrate terrorists who steal SNM to gain access to the public eye. Civil liberties would be severely affected if the government forced news organizations to suppress information prior to publication.

111. The Constitution provides that the President insure that the laws are faithfully executed. U.S. CONST. art. 2, § 2. The federal government is obliged to guarantee a republican form of government to the states and protect them from invasion. Id. art. 4, § 4. Congress has the power to call out the militia to execute federal laws, suppress insurrections, and repel invasions. Id. art. 1, § 8.

The President by statute has the power to suppress insurrections against state governments upon request of the state governor or legislature. 10 U.S.C. § 331 (1976). However, the term "insurrection" has been narrowly construed as a threat to the existence of the government. See Pan Am. World Airways, Inc. v. Aetna Cas. & Sur. Co., 505 F.2d 989 (2d Cir. 1974). The President could also rely upon statute giving him power to use federal troops to enforce federal laws whenever "unlawful obstructions, combinations, or assemblages, or rebellions against the authority of the United States makes it impracticable to enforce the laws of the United States in any State or Territory by the ordinary course of judicial proceedings...." 10 U.S.C. § 332 (1976). Courts have also been reluctant to disturb decisions to use federal troops during times of great domestic violence. See Note, Riot Control and the Use of Federal Troops, 81 HARV. L. REV. 638 (1968); Engdahl, Soldiers Riots and Revolutions: The Law and History of Military Troops in Civil Disorders, 57 IOWA L. REV. 1 (1971). Federal soldiers employed in a recovery operation would be enforcing federal law and should be given status as a law enforcement officer. See Murray, Civil Disturbance, Justifiable Homicide and Military Law, 54 MIL. L. REV. 129, 144-45 (1971).

V. Conclusion

This article has attempted to identify some of the potential civil liberty costs associated with the nuclear energy alternative. From the preceding discussion, it should be apparent that implementation of a comprehensive nuclear safeguard strategy will directly conflict with many constitutionally protected rights. Nevertheless, increased public and industry awareness of the tremendous risks involved will inevitably demand that such a strategy be employed. It is, therefore, essential that a well-reasoned strategy be developed to effectively accomplish safeguard objectives and, at the same time, minimize adverse societal impacts.

The NRC should provide specific guidance to the nuclear industry on particular safeguard techniques. A regulatory guide should be developed for licensees to follow in the event of a shortage or loss of SNM at a nuclear facility. This guide should specify acceptable procedures to be used in the search, detention, and interrogation of persons in the area. It is essential that the methods used in such activities be debated and agreed upon before actual implementation is needed. Since nuclear safeguards are a matter of federal law and are of national concern, these decisions should not be left to the local industry. Similar guidance is necessary regarding preemployment screening procedures. NRC should sanction specific methods of information gathering and specifically direct how the information obtained shall be interpreted and used in a security determination. Again, in the interests of uniformity and efficiency, it is necessary that these issues be debated and resolved prospectively.

113. The guide might provide that when detention and/or interrogation occurs, the individual being detained should be informed of his Miranda rights. The information turned over during such an interrogation may or may not be given on the basis of immunity from criminal prosecution. Immunity could be debated, at least initially, by NRC in developing the guide. The guide might further provide that prior notice be given to all employees that detention and/or interrogation may follow a shortage, loss or sabotage attempt. In addition, it would be efficacious to have an attorney or legal representative present at all interrogations to make clear on the record that NRC has considered and accepted a particular legal posture (i.e., custodial or non-custodial) which has been adhered to during the interrogation.

114. It is recommended that for the material access screening program currently under consideration by the NRC, protected information be made inadmissible as evidence in a screening determination. This could be stated briefly in the purpose and scope section of the proposed Part II of Title 10 of the Code of Federal Regulations. NRC gives nothing up in doing this because the Privacy Act precludes the dissemination or retention of such information in any event. 5 U.S.C. § 552(b)(6) (1976). Such a statement would narrow the scope of judicial review, if litigation occurs.
The organization and implementation of an effective recovery operation also demands advance consideration by the NRC. Presently, it is unclear which government agency would have controlling authority and ultimate responsibility in a recovery operation. The NRC and the FBI should negotiate a memorandum of understanding concerning the relationship, authority, and responsibilities of each during a recovery operation. Such advance consideration would mitigate confusion and panic if a substantial nuclear theft occurred.\textsuperscript{115}

Advance legislative initiative could also resolve the open-ended conjecture which surrounds the implications of a nuclear safeguard breach. It would be both feasible and prudent for Congress to enact an emergency statute to cover any nuclear safeguard breach which substantially endangers the public.\textsuperscript{116} The statute could delegate emergency authority to a particular executive officer such as the United States Attorney General or the President.\textsuperscript{117} It could specify standards for proper investigatory procedures\textsuperscript{118} which are designed to minimize personal intrusions.\textsuperscript{119}

NRC has been designated by Congress as the expert body which makes determinations concerning nuclear safeguards. The enabling legislation grants NRC broad discretion to promulgate

\textsuperscript{115} It might be well for NRC to adopt the position that where the techniques of ordinary law enforcement can be used in performing recovery operation investigations, they should be used preferentially over national security authority. Authority to invoke national security powers should not come from NRC unless it is the result of a determination by a joint NRC/FBI committee. Relying on national security only when no other legal rationale will adequately address a situation, would be totally consistent with NRC's duty to minimize the societal impacts of nuclear energy.

\textsuperscript{116} Congressional willingness to adopt the Price-Anderson Act protecting the economic interests of the nuclear energy industry and its insurers in the event of an emergency indicates congressional willingness to enact legislation designed to deal with the special problems posed by nuclear power. Price-Anderson Act, Pub. L. No. 85-256, 71 Stat. 576 (1957).

\textsuperscript{117} This same officer could also be given responsibility for the release of all news information concerning the emergency. See note 116 supra.

\textsuperscript{118} To facilitate a recovery operation search the statute might specify an investigatory standard to be the function equivalent of probable cause. This standard might be an articulated and reasonable belief that the contraband SNM is contained in a specific area. See notes 116-117 supra.

\textsuperscript{119} Instructions should be included that, when possible, a perimeter search and area quarantine should be initiated to allow time for effective and less intrusive mechanical search of the area suspected of containing contraband SNM. When possible, individuals desiring to leave the area should be given the option to remain in the suspect area until a mechanical body search is possible. Further difficulties could be avoided by providing that any contraband found during a recovery operation which is not related to the purpose of the search could be confiscated, but would not be admissible as evidence in criminal prosecutions.
regulations. Its decisions, however, must be well-reasoned and based on a substantial record, or they may be overturned on judicial review. NRC can minimize the potential for negative judicial review by holding open, formal hearings to solicit public input and by maintaining an adequate record to justify its rulemaking decisions. Although NRC is empowered to make the initial decisions in this area, the courts will determine the ultimate validity of regulations that affect civil liberty interests. NRC should undertake an honest and vigorous campaign to formulate a nuclear safeguard strategy. It must openly debate all relevant arguments prior to rulemaking so that the validity of its decisions can be effectively evaluated on the record as a whole. It should actively seek input from all interested parties and welcome judicial review of its resulting decisions. It is only through the interplay of open administrative decisionmaking and effective judicial review that a safe and efficient nuclear safeguard strategy can be developed.

Many of the factors pushing the United States toward increased domestic security measures are independent of the nuclear energy controversy. The issues raised by nuclear safeguards are just some of the many novel problems resulting from rapid, advanced technological development. Current United States nuclear policy has primarily focused on the threat of worldwide nuclear weapons proliferation rather than the safeguarding of nuclear generating facilities. The recent near-disaster at the Three-Mile Island Nuclear Facility in Pennsylvania, however, has shocked the public into awareness of the threats posed by even the peaceful use of nuclear energy. Undoubtedly, the government will be increasingly pressured to effectively and safely regulate the civilian nuclear power industry. One can only hope that rationality will prevail in the ensuing debate about whether individual constitutional rights should be maintained in the face of increasing technological impediments.

120. See notes 11-12 supra.
122. See, e.g., Now Comes the Fallout: Back from the Brink; aftermath of the Three Mile Island Incident, TIME, April 16, 1979, at 22; Now for Operation Teakettle; Cooldown at Three Mile Island, TIME, April 30, 1979, at 60; Nuclear Tapes: Transcripts of NRC Emergency Meeting concerning Three Mile Island Accident, NEWSWEEK, April 23, 1979, at 30.