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Nuclear Weapons Proliferation - The State Threat and the Non-State Adversary

by

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March 2, 1977

With the assistance of J. Gustave Speth

In our view it is of utmost importance and urgency to unequivocally reject the idea of reprocessing nuclear fuel at any time in the foreseeable future either here or abroad. This conclusion is based on our concerns over the proliferation of nuclear weapons to both non-weapons states and non-state adversaries.

Proliferation - The State Threat

The United States is confronting the most important arms control decision since the inauguration of the Atoms for Peace program two decades ago. In an action that will have far-reaching implications for the proliferation of nuclear weapons, the U.S. must decide quickly whether to approve the use of plutonium as a separated fuel.

A cornerstone of the Atoms for Peace program was the theory that a workable distinction could be made between peaceful and military uses of nuclear energy. The theory held that non-nuclear nations would be enticed to forego the development of nuclear weapons if they were assured of assistance and cooperation in the development of peaceful nuclear programs. The 1974 explosion of a "nuclear device" by India shattered this theory. India's atom bomb, and those now reported to be in Israel's possession, were made from plutonium extracted from the used fuel of "peaceful" nuclear reactors.

India and Israel force upon us the harsh reality that essentially any nation with a nuclear reactor has the capability of developing nuclear weapons. There are now about 18 such nations, in addition to the five established nuclear weapons states,

that have plutonium for at least 3-6 nuclear weapons.

According to Arms Control and Disarmament Agency estimates about 5 additional nations will have accumulated this amount of plutonium by 1980.

There is almost universal agreement that the international safeguards regime - - the Nuclear Non-Proliferation Treaty (NPT), the International Atomic Energy Agency (IAEA), the Suppliers Consultations, the bilateral and multinational agreements - - are clearly inadequate to prevent the world-wide spread of nuclear weapons. The catalogue of limitations, loopholes, and deficiencies is long. I will cite but a few examples.

NPT prohibits nuclear explosions, peaceful or otherwise by non-nuclear weapons states, and it designates the IAEA to administer safeguards needed to "detect and thereby deter" the diversion of nuclear materials for weapons purposes. Three of six nuclear weapons states, however, have not ratified NPT (France, China and India), and some 20 non-nuclear weapons nations are outside the Treaty including several insecure or unstable nations which are suspected of having weapons intentions (Pakistan, Brazil, Argentina, Taiwan, South Africa, Egypt, and Spain). Half of the nations which presently have enough plutonium in their spent fuel to produce one or more atomic bombs have not taken the NPT pledge against developing their own nuclear explosives. Israel has not ratified NPT. We sell the French enriched uranium so they can use their own small enrichment facility for weapons purposes.

Individual nuclear exports to non-NPT nations are now covered by IAEA safeguards, but these safeguards are less rigorous

than those applied to NPT nations. IAEA safeguards apply only to declared nuclear facilities as opposed to the full fuel cycle safeguards of the NPT. This permits a non-NPT state to operate an indigenous, undeclared nuclear facility without IAEA safeguards. The Indian nuclear facilities used to produce the plutonium in their first nuclear test were not under IAEA safeguards, although other Indian facilities are under IAEA. India's bomb was made with Canadian and U.S. aid. Canadians furnished the reactor, the U.S. furnished heavy water. IAEA safeguards do not cover India's reprocessing plant, South Africa's uranium enrichment plant, or reactors in Spain and Israel.

The IAEA is not legally authorized to address the problem of the non-state adversary - - the terrorists, criminals and lunatics - - nor of course the question of vertical proliferation. These functions are reserved to the states. The IAEA does not have police powers and it therefore cannot prevent the diversion of nuclear materials. Its authority is only to detect diversion once it occurs. The IAEA statute is silent on the problem of physical security and has no authority even to make recommendations in this area. It also does not address the problem of detection of clandestine facilities.

IAEA safeguards are limited by the fact that it is based on national nuclear materials accounting systems. IAEA inspectors take crude measurements to verify the plutonium and uranium inventories kept by the nations themselves. As of last year, there were only 43 inspectors to monitor 60 major facilities in 60 countries - - only 3 were U.S. citizens. The inspectors tend to be from less-advanced nuclear nations and to lack the sophis-

tication of the nuclear experts whose activities they have to monitor. Many countries have refused to accept as inspectors nationals from other countries because of language or political consideration.

The IAEA in agreement with the member states places emphasis on reducing to a minimum the number, intensity, duration, and timing of routine inspections consistent with effective implementation of safeguards. This means that they do not have inspectors on site full time at reprocessing and other key facilities. Reprocessing plants are inspected only 4 times per year. Access is limited to strategic points. Safeguards are to avoid hampering with a State's economic or technological development.

Regardless of one's judgments concerning the link between proliferation and U.S. domestic nuclear policy, and the relative efficiency of various non-proliferation strategies, there is general agreement on several points. Proliferation is bad and it is a serious problem. The proliferation problem should be attacked by a combination of policies designed to a) weaken the incentives toward proliferation (e.g. reduce the prestige attached to nuclear weapons, resolve international disputes, strengthen the security of potential Nth countries); b) strengthen the disincentives of potential Nth countries (e.g. increase the political cost of going nuclear, strengthen domestic non-proliferation forces, use sanctions) and c) strengthen the international safeguards regime by closing the loopholes, removing limitations and deficiencies.

The proliferation problem posed by existing reactors that

do not rely on reprocessing and the recycling of plutonium is grave but perhaps not impossible. Containment will hinge on the success of policies on each front mentioned above; policies that in some cases have only been broadly identified.

Controlling nuclear proliferation will certainly become impossible, however, if the nuclear industry here and abroad launches nuclear fuel reprocessing and plutonium recycle. Reprocessing and reactors that rely on highly enriched uranium or plutonium (e.g. the breeder reactor) would allow non-weapons states to recover and stockpile plutonium - seemingly for peaceful purposes. Without violating any agreements of the international safeguards regime, they could move to a point of being as little as hours away from having nuclear weapons, perhaps needing only to cast the plutonium and place it in the weapon. The non-weapons state in such an event would have both its options open. Like Israel, it could declare itself a non-weapons state, yet, at any time, it would be only moments away from having a weapons option. Under these conditions, the international safeguards regime serves nothing more than a cover for nascent weapons states, concealing the signs of critical changes taking place prior to the actual diversion.

Furthermore, once reprocessing large flows of recovered plutonium, and plutonium stockpiles become a worldwide reality, the shortest road to a weapons option is no longer the time-consuming and obvious construction of dedicated facilities. Instead, the preferred route would be through the civilian nuclear power program, through the peaceful atom.

The U.S. must adopt a policy to encourage the banning of reprocessing and plutonium as an article of commerce. The

urgency cannot be overstressed. Already about 12 non-nuclear weapons states -- including Brazil, Argentina, Pakistan, Taiwan and Iran -- have plans for developing national fuel reprocessing facilities. From these will come your next nascent weapons states. (See Attachment A) There are pending sales of reprocessing facilities to Brazil by West Germany, and to Pakistan by France. It is noteworthy in gauging the intent of these 12 countries that most have not signed the Non-Proliferation Treaty, that most are in areas of intense regional rivalries, and that there are presently no significant economic incentives to fuel reprocessing and plutonium use.

The possibility of multinational ownership of fuel reprocessing facilities has been suggested as a means to curb their proliferation potential. In fact this concept offers little, even if it would be shown to be workable. Multinational facilities would legitimize the argument of non-participating countries that their national plutonium facilities and stockpiles are peaceful. They would supply participating non-weapons states with large amounts of usable plutonium in the form of fresh fuel. They would speed rather than contain the spread and transfer of reprocessing and other sensitive technology. They would provide opportunities for the clandestine diversion of plutonium and targets for expropriation.

We should unequivocally reject the idea that plutonium in reactor fuel should ever be reprocessed and thereby removed from the protection of the intensely radioactive waste. The U.S. cannot expect other nations to forego plutonium recycle if we act as though it were an indispensable component of our own national energy policy. Our decision would legitimize the

argument of the nascent nuclear weapons state that its plutonium recycle program and stockpile are peaceful. With one stroke, a decision authorizing plutonium recycle domestically would both eliminate the only force - - a strong and vigorous U.S. policy - - that might correct the tragic fallacy of Atoms for Peace and also strengthen the hand of the multinational corporations that want to market plutonium here and abroad. The possible spread of reprocessing is the fundamental problem beside which all others are insignificant.

An argument advanced by the nuclear industry in this country is that other nations are developing and exporting nuclear technology and if we don't someone else will. This argument fails in several respects. First it implies that the U.S. should not exercise its moral leadership if there is a chance other countries will not follow us. Second, it implies that other countries will not recognize and seek the benefits inherent in the U.S. policy. Third, it overlooks the numerous political and economic incentives and disincentives the U.S. could use to influence the non-proliferation policies of other countries, for example, trade and economic assistance policies, and measures to enhance regional stability. And finally, it neglects the fact that nuclear power is questioned as vigorously abroad as here. There are large opposition groups in all countries in Western Europe, in Japan, Australia and New Zealand. If the U.S. turns its back to plutonium recycle, the action would have a catalytic effect on world opinion.

The Non-State Adversary

The danger of a nuclear-proliferated world is only partially attributed to nations. There exists the equally serious threat of plutonium theft and construction of nuclear bombs by the non-state adversary -- the terrorists, blackmailers, fanatical groups, criminals and lunatics. The task of fashioning a crude nuclear device is generally conceded to be within the capability of a small group of people, none of whom have ever had access to the classified literature. It is certainly within the capability of increasingly sophisticated and well-organized terrorist and criminal organizations, assuming they can obtain the required amounts of plutonium or enriched uranium.

If the present trend toward reprocessing is allowed to continue, the increasing amounts of plutonium in dispersed facilities serves to increase the vulnerability of the world nuclear power industry to terrorist acts. It will be impossible to prevent the diversion of small quantities of plutonium from the hundreds of tons that would be generated by, and recycled into nuclear reactors annually by the 1980's if plutonium recycle is permitted. If a worldwide plutonium industry is permitted, such theft and even the development of an international plutonium black market seems likely. By necessity, safeguards aimed at preventing nuclear theft and terrorism will involve a significant increase in police powers and a concomitant decrease in civil liberties and individual privacy.

There is little known about the details of the physical security programs in other countries, and even less confidence of their adequacy. This is particularly true with regard to the less developed countries. We can gauge the adequacy of

these programs by examining what should be the best program - that of the U.S.

During 1973 and 1974 a number of reports were published that were highly critical of the existing U.S. domestic safeguards. Prominent among these were two GAO reports, the book by Willrich and Taylor, and the AEC's Special Safeguards Study known as the Rosenbaum Report.^{1-4/}

Prodded by these reports the AEC modified its safeguard regulations in 1974. However, the Rosenbaum Report, published after the regulations were changed, concluded with the following:

Even though safeguard regulations have just been revised and strengthened, we feel that [the] new regulations are inadequate and that immediate steps should be taken to greatly strengthen the protection of special nuclear materials. We hope that this paper will contribute in a positive way to the speedy implementation of such steps.

The Rosenbaum Report shook up some people in the AEC, so they had the staff review it. The staff concurred with the report.

In an expression of its concern, the U.S. Congress, in the Energy Reorganization Act of 1974, mandated that the newly created Nuclear Regulatory Commission undertake a one year study of safeguards, called the Security Agency Study.

1/ U.S. General Accounting Office, "Improvements Needed in the Program for the Protection of Special Nuclear Material," (Nov. 7, 1973).

2/ U.S. General Accounting Office, "Protecting Special Nuclear Material in Transit: Improvements Made and Existing Problems," (April 12, 1974).

3/ Willrich and Taylor, "Nuclear Theft: Risks and Safeguards," (1974).

4/ U.S. Atomic Energy Commission, "Special Safeguards Study ("Rosenbaum Report"), (April 29, 1974).

In conjunction with this study and the ongoing revision of generic environmental impact statements on plutonium recycle in LWRs, the reports of numerous NRC safeguards consultants have been made public during the past 18 months. Many of these reports are highly critical of existing domestic safeguards and have served to heighten our concern over existing domestic safeguards. It is abundantly clear from these reports that plutonium or other similar materials now held by companies under NRC licenses can be stolen and fabricated into a nuclear bomb without great difficulty.

Terrorist activity and other forms of antisocial violence are an almost daily occurrence. In an age of organized crime, of terrorist bombings, the risks of nuclear theft, blackmail and terrorism cannot be dismissed. From 1968 through 1975 there were 99 reported threats and acts of violence directed against licensed nuclear facilities in the U.S.^{5/}, 76 threats and acts of violence directed against unlicensed nuclear facilities, and 28 threats and acts of violence involving nuclear materials.^{6/}

Today some 10 private companies (operating 13 facilities) around the country are licensed to, and do, possess plutonium and other nuclear bomb materials in significant amounts. Four transportation companies hold NRC approved transportation plans for shipping these materials. Most of the facilities are tied to national defense. Most produce highly enriched uranium fuel for naval reactors. Some are fabricating plutonium fuel for the breeder program.

^{5/} Letter to James M. Cubie, Public Citizen, dated January 19, 1976, from John G. Davis, U.S. Nuclear Regulatory Commission.

^{6/} Letter to James M. Cubie, Public Citizen, dated January 26, 1976, from H.E. Lyon, U.S. Energy Research and Development Administration.

In January 1976, the NRC began a special review of the safeguards maintained by fuel cycle licensees who possess significant amounts of high enriched uranium and plutonium. In the latter part of that same month NRDC was provided with two previously unreleased documents. One of these was a memorandum, dated January 19, 1976, by Carl H. Builder, Director of the NRC's Division of Safeguards. In it, Builder conceded that he was "not in a position to judge current safeguards [against nuclear theft] as adequate or inadequate." The Builder memorandum went much further, however. It stated:

I am concerned that some or even many of our currently licensed facilities may not have safeguards which are adequate against the lowest levels of design threat we are considering in GESMO (which are, for an internal [employee] threat, one person and, for an external threat, three persons).

In short, the then head of the NRC's safeguards program was stating that he doubted that the safeguards employed at some or even many licensed facilities were adequate to prevent plutonium or similar materials from being stolen even when only small efforts are involved, such as a theft attempt by one employee or three armed intruders. This small threat of 1 to 3 individuals must be compared with the credible threat or more prudently the maximum credible threat. These threats are discussed in the other NRC document, the Draft Executive Summary of the Security Agency Study:

Congressional concern for adequate safeguards was heightened as a result of a special safeguards study done for the Atomic Energy Commission in 1974. That study, by David Rosenbaum and others, . . . expressed concern about the adequacy of protection afforded SNM by the private industrial security systems of licensees. One aspect of concern was the level of threat to facilities and SNM. The authors postulated a maximum credible threat consisting of 15 highly trained men, three of whom might be "insiders", employed by the licensee target firm.

* * *

To estimate the credible threat, the office of Nuclear Materials Safety and Safeguards researched 19 relevant studies and conducted 9 interviews with individuals and groups of professional analysts from the FBI, the intelligence community, the Department of Defense and State and local law enforcement agencies.

What emerged from this was a consensus estimate that an external threat group will probably number about 6-8 persons and very likely not exceed 12 persons.

. . .

[A] credible internal threat, for safeguards purposes, is estimated to consist of 2-3 persons in collusion.

It is perhaps worth noting here that the adversaries, the external threat, are conceded to have any of the following equipment: hand guns, semi-automatic and automatic rifles, shotguns, sub-machine guns, machine guns up to 50 caliber, hand grenades, dynamite, plastic explosives, shaped charges, light mortars, light anti-tank weapons, hand-held air-defense weapons, tear gas, mace, special purpose vehicles, fixed wing aircraft, helicopters, two-way radios (walkie-talkies) and citizens band radios.

Based on these and other data, the NRDC one year ago today petitioned the NRC to either immediately implement emergency safeguards measures or revoke the licenses, except where national defense considerations are overriding.

In March of 1976 ERDA joined in the safeguards review that NRC had begun in January. A joint ERDA-NRC Task Force was formed and charged with developing an action plan to assure confident control and protection of significant amounts of strategic special nuclear materials (SSNM) under government regulations and controls. The

joint task force was directed by Mr. Builder. The ongoing NRC review was expanded to include three representative ERDA facilities to assure the parity of safeguards between NRC-licensed and ERDA-licensed exempt facilities.

One week after this joint task force was formed, the NRC staff denied the NRDC petition concluding that the requested emergency action was "unnecessary" and failed to "take into account the competing interest of the licensees and the broad public interest involved."

The Joint Task Force completed its facility reviews in May 1976.^{7/} According to its Final Report, with respect to the NRC licensees

The results of the reviews indicated that improvements in physical protection and material control (containment measures and access controls as opposed to material accountability) would be needed at each facility in order to counter the threat level use defined for the evaluation. 8/

The threat levels used here were an internal threat of one employee or an external threat comprised of three well-armed (with legally obtainable weapons^{8a/}), well-trained individuals, including the possibilities of inside knowledge or assistance of one insider.

Similarly, according to the Joint Task Force the three ERDA facilities could not counter with a high degree of assurance the external threat if inside knowledge or assistance was assumed, and one of the three could not prevent with a high degree of assurance the diversion by one insider.

7/ An unclassified version "Joint ERDA-NRC Task Force on Safeguards (U) Final Report, NUREG-0095/ERDA 77-34, July 1976.

8/ Ibid., pp. 9-10

8a/ In other words, hand guns, shot guns and rifles only.

In summary, although the fixed-facility licensees were found to have safeguards programs which were generally in compliance with existing regulations, nearly all the facilities were unable to defeat this minimum level of design threat.

After upgrading the safeguards somewhat, a second round of onsite reviews were conducted in September and October of last year. This time the review teams concluded that

...all facilities visited have the capability of meeting the postulated threat. However, as to several facilities, the site reviews have suggested that the level of assurance underlying that judgment was not as great as for the remaining facilities. ^{9/}

On January 21, 1977 the Commission itself ruled on the NRDC petition. The Commission's Order has the ring of bureaucratic doublespeak, designed to protect the licensees. Emergency action they concluded was a "drastic procedure",^{10/} that "could have had an unwarranted and severe impact on the operations of our licensees",^{11/} what was required was "prompt remedial action",^{12/} or an "orderly approach".^{13/} These conclusions were based on the findings of the Joint ERDA-NRC Task Force.

With regard to the transportation of strategic materials, the Commission did not conclude that they could meet an external threat of three attackers with military training and skills, one

^{9/} Nuclear Regulatory Commission, in the matter of LICENSEES AUTHORIZED TO POSSESS OR TRANSPORT STRATEGIC QUANTITIES OF SPECIAL NUCLEAR MATERIALS, Memorandum and Order, January 21, 1977, pg. 9.

^{10/} Ibid., p. 15.

^{11/} Ibid., p. 11

^{12/} Ibid., p. 10

^{13/} Ibid., p. 11

of whom could be an insider, only that the staff reviews have led to improvements in the nature of increased escort guards, training and instruction and the installation of citizen band radios.

The NRC has decided to conduct a public rulemaking to consider upgrading safeguards requirements and determine what the appropriate level of safeguards protection should be.

In summary, the Commission in effect acknowledges that it does not have a high level of confidence that the existing licensed facilities can prevent the theft or diversion of strategic quantities of special nuclear material by a lowest level of threat considered credible. The Commission is slowly upgrading safeguards passing through the 3 + 1 threat level, but as the Joint Task Force notes, following normal, routine regulatory procedures, it could take up to four years to upgrade safeguards to protect against an internal threat defined as a conspiracy and an external defined as a determined violent assault. This total time according to the Task Force could be reduced to approximately two years by an extraordinary effort. Thus, the Commission is playing Russian roulette with public safety, relying in the intervening years on the hope that the safeguards will not be tested by a real threat larger than the minimum level now considered credible.

Besides inadequate numbers of guards relative to the threat, the Executive Summary of the Security Agency Study, the various consultant reports and the Joint ERDA-NRC Task Force point out other serious problems. For example, one of the consultant reports, that of the U.S. Marshals' Service, begins with this statement:^{14/}

^{14/} U.S. Marshals' Service, "Security of Special Nuclear Materials," (October, 1975)

'The image of security is all that's wanted.' This quotation from a study entitled Private Security and the Public Interest effectively illustrates one problem with guard forces employed by the private sector of the nuclear industry throughout the United States: too often the image has little substance behind it.

This is no idle statement, because the Marshals' report also states:

[T]he writers of this report have only considered private guards in nuclear facilities. The generalizations are based upon research, extensive discussions with private security executives, and actual on-site observation of guards at selected nuclear facilities.

Another consultant, Mr. Charles Brennan, former Assistant Director of the FBI for Domestic Intelligence, recently stated: ^{15/}

The safeguards are a joke. The companies involved are interested mostly in saving money. They're doing only the bare minimum of security required by the Nuclear Regulatory Commission.

These conclusions by Brennan and the U.S. Marshals were borne out by the revelation that the workers handling bomb-grade uranium in a plant in Erwin, Tennessee, worked under an "honor system," and were not searched when leaving the working areas where the uranium was kept. ^{16/}

If one postulates an attack force of about a dozen well armed men requires at least a 2 to 1 ratio of guards to intruders for each guard watch, assumes the attack force is armed with equipment readily obtainable from a military arsenal, it is apparent that an adequate domestic safeguards system is impossible short of turning nuclear facilities into heavily armed camps.

^{15/} U.S. News and World Report, February 16, 1976, p. 50

^{16/} John F. Fialka, Washington Star, February 24, 1976, p.1. Based on a report by Barbara Newman, National Public Radio.

The Joint Task Force recognizes the importance of this problem, stating

If the protection against external threats is expanded to include armed assaults by either (or both) larger group sizes or heavier arms, several important issues arise. A fundamental issue is whether the industry safeguards posture should be extended to encompass the threat of determined violent assaults. There is considerable reluctance expressed by some in industry to accept this responsibility, since it is beyond the scope of normal industrial security. Several licensees profess to be sufficiently concerned to consider withdrawing from activities involving SSNM. If the industry safeguards posture must be upgraded against the threat of determined violent assaults, then it is evident that there is some level of force beyond which high-confidence protection cannot be provided by any practical means within current institutional arrangements. With group sizes substantially in excess of about six persons and with arms much beyond automatic rifles, almost any entity in the nation may be considered susceptible to a determined violent assault.

Insuring the protection of facilities against determined violent assaults with automatic small arms and explosives for breaching barriers will require substantial changes in the current industrial facilities. These would include greatly enlarged and better armed and trained guard forces, additional barriers, alarms and protected guard positions. Such additions would involve substantial capital and operating costs; alter the appearance of the plants toward that of military reservations; and would elevate concerns over a number of legal or policy issues concerning the rights, duties, and liabilities of guards. 17/

17/ Joint ERDA-NRC Task Force Report, op. cit. pp. vii-viii.

But more importantly, the proposed response by the industry and the NRC to the threat of nuclear terrorism goes far beyond simply providing more physical security. The nature of the proposed safeguards is a drastic increase in police powers and a concomitant decrease in civil liberties and personal privacy.

We would like to highlight just a few of the civil liberty, privacy and right-to-work issues that are covered in a Harvard Civil Liberties Law Review article by Russel Ayres. First the safeguards program contemplates security clearances for the employees of the nuclear industry. At best, such clearances infringe upon the privacy of the individual being cleared and his family and friends; at the worst, they are instruments of suppression and reprisal. In addition to these security clearances, it is also proposed that the employees be given yearly psychological profile tests. Such tests are as insidious as security clearances and a recent report of the Congressional Committee on Government Operations recommended:^{18/}

. . . that the use of polygraphs and similar devices be discontinued by all Government agencies for all purposes.

. . . stating the committee finds that the inherent chilling effect upon individuals subjected to such examinations clearly outweighs any purported benefit to the investigative function of the agency.

The safeguards plans also call for intelligence gathering to determine potential terrorists and terrorist groups and it was reported a couple of years ago that the Texas State Police were collecting dossiers on anti-nuclear individuals and groups in that state, supposedly for this reason. Such intimidation

^{18/} Committee on Government Operations, "The Use of Polygraphs and Similar Devices by Federal Agencies," House Report No. 94-795, January 28, 1976. p. 46.

has a stifling effect on dissent and debate which are essential in a free society. How much governmental investigation into the private lives of its citizens can a free society tolerate? The actions of the Texas State Police and the recent congressional investigations concerning Watergate and the CIA, FBI and IRS demonstrate that, even at their present level, these investigative powers are abused. Another example that illustrates that these considerations are not hypothetical is the case of the prominent West German nuclear physicist whose home was bugged and who was subsequently fired from his job involving fast breeder reactor research because he was suspected of actively supporting a terrorist. (See Attachment B)

Because of the threat posed by stolen plutonium, recovery operations can be expected to be severe and involve no-knock search, search without warrant, area search, and preventative detention, harsh interrogation without warrant, press censorship and community evacuation. In the presence of a nuclear blackmail threat, martial law seems likely.

All of this must inevitably be put under the direction and control of a central agency which would maintain close liaison with state and local law enforcement agencies and those of foreign nations. The FBI has just suspended its plans for a regional computer center whose purpose was to expedite the exchange of information among state and local law enforcement agencies. The reason given was that this would be close to the creation of a federal police force. This central agency would be a federal police force and one with expanded powers.

While today we can contemplate putting checks and restraints on federal investigative agencies, banning polygraphs and holding firm against a federal police force, it is important to realize that in the presence of nuclear blackmail and terrorism these restraints would have to be removed and these breaches of our civil liberties would become essential.

The Federal Government has a "Federal Response Plan for Peacetime Nuclear Emergencies". In the event of an emergency involving a serious dispersal of radioactive contamination or a nuclear detonation, the plan calls for every effort to be made to:

a) Minimize, both in scope and duration, any restrictions, as required by the circumstances, of the exercise of constitutional or other basic rights and liberties;

b) Preserve and/or reconstitute as soon as possible, representative constitutional government;

In summary, our reservations regarding the effectiveness of future safeguards stem from the unprecedented and ultimately unworkable demands that will be placed on any future safeguards system and the people working within it. This system would have to operate on a vast, worldwide basis, yet there is no reason to believe that international cooperation on the scale required is possible. (Just look at the UN.) The system would have to protect against both theft and sabotage both at fixed sites and in interstate and international transportation. It would have to be essentially infallible, maintaining what Alvin Weinberg has called "unaccustomed vigilance" and "meticulous attention

to detail". And it would have to do so for long periods and in the face of -- not a machine -- but a determined, intelligent and well-financed opposition. Yet we know that our human institutions and those who act within them are far from infallible.

Clearly the marginal economic benefits of plutonium recycle -- and I believe the net economic benefits are negative -- are not worth these social costs of plutonium recycle.

Conclusion

The evidence is now in. The theory behind the Atoms for Peace program has proven untenable, at least in the present world. For two decades the U.S. has promoted atomic power around the globe. Now our policy must be one of containment and reversing the harm that has been done. President Carter has advocated using nuclear energy as a last resort. That is a start in the right direction. We must now seek to establish international control of the plutonium that has been produced in the reactors that are already operating abroad, for example in India. We should commit ourselves to help other nations develop appropriate non-fission means of meeting their energy needs. And we should unequivocally reject the idea that plutonium in reactor fuel should ever be reprocessed and thereby removed from the protection of the intensely radio-active waste.

Taiwan Develops Nuclear Industry, Weapons Capacity

By Melinda Liu

Special to The Washington Post

TAIPEI, Taiwan — Behind barbed wire and guarded gates, teams of Western-trained scientists are quietly but relentlessly nudging Taiwan into the nuclear arena.

Anxious eyes in both the East and the West are watching the Institute of Nuclear Energy Research, a sprawling concrete complex southwest of Taipei that shelters Taiwan's nuclear pursuits. Established in 1970, the government-supported institute is a branch of Taiwan's Atomic Energy Council. Here, the Nationalist Chinese have assembled all the facilities needed to reprocess spent nuclear fuel and produce plutonium that can be used to develop nuclear arms.

Enshrined in the Taiwan institute is a 40-megawatt Canadian-supplied research reactor closely resembling the reactor that was instrumental in

India's 1974 development of its first nuclear device.

Although they have the required paraphernalia, the Nationalist Chinese periodically repeat their vow not to manufacture nuclear weapons, thus reminding the world that they can do so if they want to.

President Carter's Jan. 23 statement favoring elimination of all nuclear testing was followed by a statement of support from Taiwan Premier Chiang Ching-kuo. Chiang added that "although the Nationalist Chinese government has the capability of developing nuclear arms, it will never engage in the production of such weapons."

In 1975, the premier said his country would never develop nuclear weapons because the prospect of unleashing nuclear fury against "Chinese patriots on the mainland" was unthinkable.

The Nationalist Chinese face other pragmatic considerations. A survey

conducted by the International Institute for Strategic Studies in London estimated that the People's Republic of China has a stockpile of 200 to 300 atom and hydrogen bombs. Said one Taiwanese official, "What good is it if we have 10 bombs when the aggressor has 100?"

Another analyst said that although Taiwan has the expertise to develop a nuclear device, the Nationalists have not yet perfected an effective delivery system. "At this point," he said, "if Taiwan stockpiled plutonium or even detonated a nuclear test device, it would be like playing with gunpowder without a gun. And you can't throw gunpowder all the way to Peking."

This last point may not remain a consideration for long. Taiwan's Institute of Nuclear Energy Research is conveniently adjoined by the top-secret Chung Shan Military Research Institute, believed to be supported by Taiwan's Ministry of National Defense.

An informed source said that the Chung Shan Institute specializes in programs involving projectile guidance systems, missile design and tracking, rocket fuels, and nuclear warhead research.

Prof. Victor Cheng, secretary general of Taiwan's Atomic Energy Council, said, however, that the Chung Shan Institute's highly classified research is for "defense purposes only" and that the institute is not dealing with nuclear warheads.

Nonetheless, the Institute of Nuclear Energy Research and the Chung Shan Institute cooperate on some projects and share some common facilities, including a library and an advanced-design computer. In 1975 a news magazine report quoted a U.S. expert on Taiwan's nuclear developments as saying that Taiwan's nuclear warhead delivery research program was being conducted by "programming experiments on computers—the way the Israelis do."

As they progress toward that final nuclear step, however, the Nationalist Chinese are restrained by the fact that their budding but commercial nuclear power generation program is dependent on U.S. hardware.

The state-owned Taiwan Power Co. has embarked on a multibillion-dollar program to reduce dependence on imported oil by constructing three nuclear-power plants. They would double Taiwan's present installed power capacity by 1985. The company's first commercial reactor is to begin operation this year. Each of the three plants will house two reactor-generator units and their combined power capacity will be 5,142 megawatts. All major equipment and most fuel for the units has or will come from the United States.

Taiwan also relies on the United States for crucial fuel enrichment services that are insured by a 20-year contract between the Taiwan Power

Co. and the U.S. Energy Research and Development Administration.

The United States also supplies massive loans to Taiwan Power Co. Construction cost alone for the three nuclear plants is estimated at more than \$2.7 billion. Of this sum, \$1 billion reportedly has been lent by U.S. banking institutions. The largest source of funds is the U.S. Export-Import Bank, which has lent the power company more than \$900 million for nuclear and other projects. The Taiwan Power Co. is the bank's biggest single loan customer.

These factors have no doubt discouraged Taiwan from nuclear-weapon work. Although the Nationalist Chinese intended originally to reprocess spent nuclear fuel and even constructed a reprocessing laboratory, Premier Chiang's recent "no reprocessing" vow implies that the facility will never be used. The nuclear processing lab was completed in 1975.

Top West German Atomic Physicist Tied by Bonn to Known Terrorist

By CRAIG R. WHITNEY

Special to The New York Times

BONN, Feb. 28—One of West Germany's most prominent nuclear physicists had frequent contacts with an internationally-sought terrorist over a period of at least six months in 1975-76, the Government in Bonn has charged.

Fearing the nightmare of a band of terrorists armed with an atomic bomb, Minister of the Interior Werner Maihofer has acknowledged that he had authorized secret agents to break into the home of Dr. Klaus R. Traube and plant a bug in his desk on New Year's Day 1976.

The bug apparently turned up no concrete evidence that Dr. Traube, who was then manager of the Interatom Company's fast breeder reactor research program, had given any kind of active support to his terrorist acquaintance, according to the news magazine Der Spiegel, which reported the affair today.

Denies Knowledge About Terrorists

Dr. Traube maintains that he knew nothing about any terrorist activities. He was dismissed last February by Interatom after West German intelligence officials informed the company of the suspicions against him, a spokesman for Interatom said today. The reactors he was experimenting with produce large quantities of plutonium, the main ingredient of atomic bombs, but the company asserted he had no way of obtaining any.

Der Spiegel charged that the break-in was illegal and reported Dr. Traube's statement that he had been exonerated, but both assertions were disputed by Mr. Maihofer's ministry today. The affair will come before a parliamentary committee tomorrow.

Dr. Traube is 49 years old and lives in Overath, a suburb of Cologne.

The Government has said that through his friendship with Inge Hornischer, a Communist lawyer in Frankfurt, Dr. Traube had met in July 1975 a young man named Hans-Joachim Klein, had let Mr. Klein use his home and had gone on a vacation with Mr. Klein and Mr. Hornischer in August 1975. Government security agencies then began tapping Dr. Traube's telephone and kept him under surveillance.

Mr. Klein was among the group of terrorists who shot their way into the headquarters of the Organization of Petroleum Exporting Countries in Vienna on Dec. 21, 1975, killing three people and kidnapping several oil ministers.

Mr. Maihofer's justification for calling on the country's security agencies to spy on one of its own citizens was the possi-

bility of an international nuclear catastrophe.

Three nuclear power plants in France had been bombed the previous summer, all apparently by terrorist groups with German connections, Mr. Maihofer said in a statement yesterday: "the nuclear physicist Traube had access to all blueprints for nuclear power plants in operation in West Germany. He could have given instructions for attacks from the outside as well for penetration by terrorists, and unleashed the potential dangers of nuclear energy against the public."

On Jan. 1, 1976, West German security agents planted the bug in Dr. Traube's home, in an operation known as "Garbage." The operation was ended on Feb. 29, 1976, Mr. Maihofer said, "when it was clear that Traube would be leaving the Interatom Company."

Discharged for 'Health Reasons'

Interatom is wholly owned by the Kraftwerk Union, a subsidiary of the giant Siemens A. G. Joachim Hospe, a spokesman for Kraftwerk said today that the board of directors had been informed of the suspicions about Dr. Traube by the West German security services. "it was thought best to sever our relationship with Dr. Traube," Mr. Hospe said. "In order not to hurt his chances of finding a new job, it was agreed with him to explain his departure as a matter of his health."

Dr. Traube said that he was "enraged" but did not protest.

He asserts that he then went to the attorney-general's office in Karlsruhe and asked to be heard in his own defense.

He said he had been given a letter from that office on July 6, 1976, explaining the antiterrorist investigations undertaken about Hans-Joachim Klein after the attack in Vienna.

Dr. Traube said the letter read: "The assumption that you have been or are accused or suspected in this connection could only be a misunderstanding."

"I am sure," Dr. Traube said, "that there are thousands of people in West Germany who would be better able than I am to tell terrorists how to make bombs. I am well known both here and in America, and I want to do all I can to clear up this case."

But Mr. Maihofer also said that Dr. Traube had contacts with a left-wing Iranian extremist leader, Medhi Khanbaba-Thcherani, and had invited him to his home. "The name Medhi is completely unknown to me," Dr. Traube said on the telephone tonight.