Summary Overview

of the AuCoin-Synar

NUCLEAR WEAPON MATERIAL PRODUCTION TERMINATION ACT

What does the act do?

Production of tritium, plutonium, and highly enriched uranium for weapons is prohibited.

Production for other purposes, including research, **is permitted.**

Money saved by not producing weapons materials **is targeted to cleaning up contamination at Hanford and elsewhere** caused by previous production of these materials.

Procedures are established to **re-examine the question at five-year intervals.**

What are each of these materials, and what do they do?

Highly enriched uranium consists of 92% or higher concentration of U-235, vs. 0.7% found in nature. This is the fissionable material which undergoes the nuclear fission chain reaction which makes an atomic explosion. It does not emit lethal radiation, but it is chemically toxic. For practical purposes, it lasts indefinitely.

Plutonium is not found in nature, and can only be made in a nuclear reactor. It functions in the same way as highly enriched uranium, but is more efficient. It provides about ten times as much "bang per pound", but is much more difficult and dangerous to store or handle. Even the most minute amount is fatal if inhaled or ingested. Like highly enriched uranium, for practical purposes plutonium lasts indefinitely.

Tritium is an isotope of hydrogen, the "H" in an H-bomb. It boosts the yield of a nuclear fission explosion more than ten times. It does not occur in nature, and half of it inexorably decays about every twelve years.

What is the present status of production of these materials and how will the bill affect them?

Uranium production for weapons was shut down in 1964 because no more was needed. Since there is no interest in re-opening uranium production, the bill is consistent with present policy on uranium. Excess highly enriched uranium can be "burned up" in the reactors that power U.S. Navy submarines, or it can be "diluted" for use in civilian electric power reactors.

Plutonium production was shut down in 1988 because of production safety problems. While the Administration insisted resumed plutonium production was essential only two years ago, now the

Department of Energy and Brent Scowcroft favor making the shutdown permanent and formal, on the grounds that no more plutonium is or will be needed. President Bush was reported close to announcing the shutdown, but has held off because of Secretary Cheney. Thus the bill is consistent with, and locks in, the Administration's current de facto plutonium policy. No satisfactory way to dispose of the excess plutonium on hand has yet been devised.

Tritium production was also shut down in 1988 because of safety problems. Tritium is an isotope of hydrogen, the "H" in an H-bomb. It boosts the yield of a nuclear fission explosion. It does not occur in nature. It has always been made in nuclear reactors, although new technology may make available other means of producing small amounts of it.

Since half of any amount of tritium inexorably decays about every twelve years, it must be replenished if a constant supply is to be maintained. This bill says that in the world of the 1990s we do not need a constant supply.

The Department of Energy is considering resumption of tritium production, at two existing reactors and at one new installation. The Department's decision, originally scheduled for next month, has now been delayed two years pending re-examination of our national tritium needs. Present ongoing Administration plans are limited to re-starting one existing reactor. **Today the Administration has no tritium policy as it seeks how to adjust to the new world situation. The purpose of this bill is to mandate a tritium policy appropriate to the world as it is, not as it was.**

How much money is at stake?

Operation of **the single existing reactor would cost about a half billion dollars per year. The Administration's plan, now on hold,** to operate both existing reactors and then phase in the new reactor **would cost about $30 billion over the next 20 years. But these figures are certainly understated,** in that cost overruns of several hundred percent are the industry norm.

What is the connection between stopping tritium production and cleaning up Hanford and the other sites contaminated by previous production of nuclear weapon materials?

Cost of cleaning up radioactive and chemical contamination at Department of Energy weapons plants has been estimated by the General Accounting Office at $100 billion, of which about half would be at Hanford. Here too, nuclear cleanup costs, like nuclear construction costs, have been historically understated. As a first cut estimate **not producing tritium will save enough to fund about one third of the cost of cleanup.**

No bill can force future Congresses to spend money on any particular program. But **this bill puts Congress on record that it intends the savings from canceling tritium production to be directed toward Department of Energy weapons sites cleanup.**

What will be the bill's impact on national security?

Tritium stocks can safely be reduced by large amounts due to recent world political changes. Tactical (short-range) nuclear weapons, which account for two thirds of the superpower arsenals, no

longer have a mission, even if breakaway Soviet republics retain locally-based nuclear forces. These tactical weapons can safely be scrapped, and strategic nuclear weapons can be radically reduced.

Since tritium from retired warheads can be "mined" for use in the remaining warheads, no further tritium production is needed for at least twenty years. At that time resumption of production may or may not be advisable; because of smaller scale and new technology, it will be available at far lower cost than is the case today.

The in-depth backgrounder which follows discusses the national security ramifications of the bill more fully. But for a capsule comment on the decreasing significance of weapons of mass destruction (this term includes chemical, biological, and nuclear weapons), consider this statement by Gen. Colin Powell:

"(Saddam) had available in January and February weapons of mass destruction in the form of biological and chemical agents. They did not deter us ....because what they hope to do militarily with weapons of mass destruction..., I can increasingly do with conventional weapons and far more effectively."

In-Depth Backgrounder

on the AuCoin-Synar

NUCLEAR WEAPON MATERIAL PRODUCTION TERMINATION ACT

What strategic (long-range) deterrence mission remains for American nuclear weapons?

Given the immense remaining destructive power in the Soviet strategic arsenal and the possibility that some future right-wing coup might succeed there, prudence requires that we maintain an effective counter-Soviet nuclear deterrent. Nuclear deterrence against China is also desirable.

Nuclear deterrence is created by the ability to destroy the target nation as a modern industrial power. This can certainly be accomplished by three thousand strategic nuclear weapons, very probably by one thousand or even fewer. This has always been the case, but the new political environment makes reality easier to recognize.

The much larger nuclear forces we now possess (about eleven thousand on each side before START) have been created solely to serve irrational "counterforce" war-game strategies which are now being abandoned by both sides.

The new Strategic Arms Reduction Treaty (START) is advertised as cutting strategic forces in half over a seven year period. It doesn't really go that far. But in the current international climate we can expect within the next decade or two to see strategic forces cut in half (to six thousand warheads), then cut in half again and possibly a third time. Thus, **reducing tritium by half every twelve years fits the probable course of arms control; planning for the reduction ahead of time allows us to avoid spending money for tritium we won't need.**

What military mission remains for American nuclear weapons for tactical (short-range local) combat in the 1990s and beyond?

Can tactical nuclear weapons continue to augment conventional forces, taking the initiative and doing things conventional weapons cannot do? This is the traditional tactical nuclear mission. It no longer exists.

I recently asked General Colin Powell about the significance of Saddam Hussein's possible future access to nuclear weapons. His response ran dramatically counter to the popular view of these devices:

"(Saddam) had available in January and February weapons of mass destruction in the form of biological and chemical agents. They did not deter us politically from what we had to do and they were never brought into play during the course of the war.

"I think there is far less utility to these weapons than some Third World countries think there is, and they are wasting a lot of money, because what they hope to do militarily with

weapons of mass destruction..., I can increasingly do with conventional weapons and far more effectively so it is sad to see these Third World countries wasting their resources chasing these weapons that have an enormous psychological and political impact, but in terms of military impact, we have to work about them, but there are better ways to spend your moneys if you are looking for means by which to undertake military aggression."

We were not, of course, discussing the U.S.-Soviet standoff in which both sides have strategic weapons of mass destruction in massive numbers, with delivery systems to match. But outside of that context, Gen. Powell is telling us that nuclear weapons have no modern military utility. In large part, this is due to the immense recent advances in precision-guided conventional weapons.

Historically, the probability of a conventional weapon hitting its target has been a fraction -- sometimes a very small fraction -- of one percent. So the only economical way to destroy large numbers of targets seemed to be to use a nuclear weapon with its much larger destructive area.

Nevertheless, we've never used tactical nuclear weapons, for two reasons:

1) If you use tactical nuclear weapons against a nuclear-armed enemy, he will surely use them against you. The inevitable cycle of escalation would be cataclysmic.

2) If you use tactical nuclear weapons against a non-nuclear power, you will take a terrific political and diplomatic loss, including destruction of the nuclear firebreak. In past situations the military gain has never seemed sufficient to outweigh that loss, but there was always the possibility that sometime in the future it might.

The key military fact of the 1990s is that the possible gain from using tactical nuclear weapons is now gone forever. In Desert Storm, the overall probability of a conventional weapon hitting its target rose more than a hundred times, to an astounding and unprecedented level, about 40%. Ten years further down the road, 80% seems entirely feasible but it's not critical; the revolutionary advance in precision-guided conventional warfare has already been made and demonstrated successfully in real combat. Tactical nuclear weapons are now totally useless.

Can tactical nuclear weapons significantly contribute to nuclear retaliation against a Third World dictator who uses nuclear weapons against our troops? America has already faced a real-life situation essentially identical to this, and the answer from the military command has been a resounding "No."

The consensus among our Desert Storm command was that Saddam would use chemical weapons against our troops once the ground invasion began. Gen. Schwarzkopf and his colleagues considered retaliating with chemicals of our own but decided there just wasn't any point in it. To paraphrase Gen. Powell, what anyone hopes to do militarily with weapons of mass destruction, we can do far more effectively with conventional weapons.

Can tactical nuclear weapons significantly contribute to deterrence of a Third World dictator considering use of nuclear weapons against our troops? In deterrence as in retaliation, the Desert Storm experience tells us we don't need weapons of mass destruction to deter their use by others.

We successfully deterred Saddam's chemicals not by threat of chemical retaliation, but by the far more effective implicit threat that if he used chemicals we would take his country away from him, and do it with the conventional might that is a United States exclusive and likely to remain so for a very long time even under a steeply reduced defense budget.

Can tactical nuclear weapons inhibit aggression by a nuclear-armed breakaway Soviet republic?

Nuclear weapons in the non-Russian republics fall into two categories:

First, there are the strategic weapons: primarily ICBMs that can reach anywhere in the Northern Hemisphere. These very potent weapons all incorporate undefeatable electronic interlocks that enable the warheads to detonate only if they have received codes which are held in Moscow. Mere physical possession of these missiles therefore confers no military capability at all. They are weapons only in the hands of the central government.

Second, there are the short-range tactical weapons, which in many cases lack interlocks. If a breakaway republic were to seize and use these weapons against Russia, against its neighbor republics, or against internal opposition this would be cause for great concern, but certainly not for application of American military force. Even if we hypothesize some future Desert Storm-type conflict against a breakaway republic, our nuclear requirement would be no greater than as discussed above against a Saddam-type threat.

So what is the bottom line on tactical nuclear weapons?

The bottom line on tactical nuclear weapons is that they have no bottom line.

Both Bush and Gorbachev have already set about retiring all land-based and sea-based tactical nuclear weapons.

Not all of these are yet scheduled for dismantlement, and air-launched tactical nuclear weapons remain deployed. But this is surely a transition phase that will not last long. There is no better case to be made for air-launched tactical nuclear weapons than for weapons launched in any other way. Within a very few years they will all be dismantled because, other than mental inertia, there is simply no reason to keep them.

What nuclear weapons do we need to deter nuclear terrorism?

There is reason for most serious concern that a Khaddaffi might some day smuggle a nuclear weapon into an American city.

The best way to prevent this is arms control: nuclear proliferation backed by massive economic sanctions.

If sanctions fail, the second best answer is military pre-emption: the use of conventional forces, if possible in co-ordination with the Soviets and/or the United Nations, to destroy the nuclear

capability before it can be used.

If pre-emption fails, the third best answer is defense: Anti-smuggling operations similar to those we now use against narcotics. Unfortunately, this is not an answer in which we can have much confidence.

If defense fails, our only recourse will be threat of retaliation. Such retaliation can be, and for political and diplomatic reasons should be, non-nuclear. But if for some unforeseeable reason a nuclear response seems essential, it requires no dedicated forces; we will have sufficient retaliatory capability in a small part of our strategic force.

In sum, deterrence of nuclear terrorism requires no nuclear weapons we wouldn't already have for other purposes.

How large a nuclear force do we need to maintain political and psychological supremacy?

This comes free, as a fringe benefit of the strategic forces needed to deter the Soviets. One to three thousand nuclear weapons, with appropriate delivery systems, would constitute a mass destruction force so much greater than that of any other nation that further nuclear weapons are politically superfluous.

What is the total nuclear reduction we can anticipate?

Even assuming no further strategic reductions, START plus tactical nuclear warhead elimination will probably reduce the number of U.S. and Soviet nuclear warheads from the present levels of about twenty-five thousand per side down to about eight thousand per side within the next decade. Further reductions to between one and three thousand warheads are prudent and probable although not yet negotiated.

How long will our present tritium supply support that number of warheads?

Unclassified calculations by strategic analyst Christopher Paine (202-624-9350) of the Natural Resources Defense Council suggest that, without further tritium production, by the year 2010 our tritium stock will be more than enough to support a strategic deterrent force of about 2500 warheads.

What will we do after that?

The answer will depend on the international situation. Here are some possibilities:

Reduction to one thousand warheads would let our tritium supply carry us well past the year 2020.

Reduction of tritium content per warhead would allow us to strike the same number of targets but with smaller although still large lethal radius. If we plan we plan for this now, we can save a substantial amount of money. For example, the number of 470-kiloton warheads planned for the

remaining buy of Trident submarines is equal to the number of 100-kiloton warheads on older submarines scheduled for retirement under START. Instead of buying expensive new warheads, we can simply re-use the old ones, maintaining their tritium by "mining" the warheads we retire.

Resumption of tritium production in the next century could be done far more economically than under present plans because of the smaller production requirement we will then face, and also because we would be able to take advantage of new cost-effective technologies including the linear accelerator.