



The Nuclear Safety Smokescreen

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Summary and Recommendations

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As the United States participates in negotiations for a Comprehensive Test Ban treaty in Geneva, it is simultaneously putting into place a program to enhance the capabilities of its nuclear weapons design laboratories. The U.S. Department of Energy's Science Based Stockpile Stewardship (SBSS) program would build new experimental facilities to study the nuclear components of the United States nuclear arsenal, as well as a large scale computing initiative in order to more accurately model nuclear weapons. The implementation of the SBSS program is currently a part of the U.S. position to support a Comprehensive Test Ban treaty under which no nuclear explosions would be permitted (the "zero yield" CTB). Officially, the purpose of the SBSS program is to maintain the safety and reliability of the nuclear arsenal in the absence of nuclear testing. The Department of Energy (DOE) has argued that, as the nuclear arsenal ages, it will be an increasingly complex task to maintain the level of safety and reliability necessary without nuclear testing. The SBSS program is supposed to aid in this endeavor by providing information on the basic physical processes of nuclear weapons in order to create more accurate computer models, in essence to be able to conduct "virtual tests."

The purpose of this report is to examine DOE's statements regarding the safety and reliability of the nuclear arsenal and to assess the usefulness of the SBSS program in addressing the relevant issues. Our analysis of historical data regarding problems with nuclear warheads leads us to conclude that the SBSS program would provide little aid in maintaining the safety of the existing arsenal. Indeed, DOE's own data show that there have been no aging-related nuclear safety problems in warheads.

While the SBSS program's claims in regard to improving safety of the arsenal appear dubious at best, it has a clear relationship to increasing U.S. capability to design new warheads and to design major modifications to existing ones. The new SBSS facilities are of the types used previously as part of the weapons design program. One of the main goals of the program is to retain and attract new weapons designers. Furthermore, various official documents indicate that the ability to maintain weapons design capabilities is a priority of the DOE. Another purpose appears to be to maintain the reliability of the nuclear arsenal at extremely high levels. Such high levels of reliability may be necessary only if the United States pursues a strategy of first strike against opponents with large nuclear arsenals rather than retaliatory nuclear deterrence. However, the data that we have are too limited to enable us to arrive at a definitive conclusion in this regard.

The SBSS program is coupled with other problematic provisions in the U.S. position on the CTB. [\[1\]](#)
Specifically, the U.S. government wants to:

- maintain the Nevada Test Site in a state of permanent readiness to resume full scale testing;
- have a provision that would allow withdrawal from the CTB for reasons of "supreme national interest."



The design capabilities inherent in existing and new SBSS facilities will provide the opportunity for the DOE to bring new weapons or modifications to existing weapons to a stage of near completion, in the same manner that a complex machine such as the Boeing 777 was largely designed using computers and wind tunnels. The SBSS program is likely to create pork-barrel driven pressures to withdraw from the CTB in times of crisis. The enormous financial advantages that the U.S. enjoys over Russia and China in the matter of military expenditures, despite recent reductions in the U.S. military budget, could contribute to reluctance on the part of other powers to engage in nuclear arms reductions.

This analysis leads us to the conclusion that a large SBSS program which includes expensive new experimental facilities with weapons design capabilities, could lead to dangerous international instabilities. It could have profound negative repercussions on the functioning of both the Nuclear Non-Proliferation Treaty (NPT) and the upcoming Comprehensive Test Ban treaty (CTB).

Recommendations

1. DOE should demonstrate, in light of its own historical data on nuclear safety, why new experimental and computational capabilities are relevant to the safety of the existing U.S. nuclear arsenal.
2. The U.S. should adopt a policy of dismantling warheads whose primaries are deemed to be unsafe, instead of a policy that would make changes to the “physics package,” which is the nuclear portion of warheads. This appears more prudent from the point of view of safety. It would also be in keeping with the spirit of the commitments of the nuclear weapons states under Article VI of the Non-Proliferation Treaty.
3. The U.S. government, including the DOE and DoD, should address specifically how the SBSS program is relevant to a strategy of retaliatory deterrence as distinct from a first use and first strike nuclear strategy. The option of first use of nuclear weapons has historically been part of U.S. nuclear strategy.
4. The U.S. government should clearly and unambiguously renounce nuclear weapons design and development, and invite international verification of this policy. It should also use the leverage created by the unilateral adoption of such a policy to pressure the other nuclear powers to follow suit.
5. Before embarking on the SBSS program, the DOE and DoD should examine carefully the ways in which it could create dangerous new international instabilities, including in U.S. relations with Russia, China, and the undeclared nuclear weapons states, Israel, India, and Pakistan.
6. Before embarking on the SBSS program, the DOE should examine carefully the non-proliferation consequences of the SBSS program. This examination should include the possible relation of the SBSS program to the potential for the U.S. or other countries breaking out of the CTB, and the potential for a breakdown in the CTB altogether.
7. In order to further the possibility of achieving a CTB in 1996 in a manner that could lead to greater security and greater confidence that the nuclear powers intend to create a path to nuclear disarmament and eventually abide by the spirit of Article VI of the NPT, the U.S. should:
 - Permanently close down the Nevada Test Site and focus on clean-up and conversion.
 - Use the leverage gained by shutting down the Nevada Test Site to pressure other nuclear powers to permanently shut down their nuclear test sites.
 - Cancel all underground sub-critical experiments.
 - Halt construction of new facilities under the SBSS program and on that basis urge the



other nuclear weapons states to halt construction of similar facilities.

- Participate with other countries to create a treaty against the first use of nuclear weapons in any conflict and against any threat of use of nuclear weapons against non-nuclear weapons states.

Notes:

1. As noted in the preface, the other nuclear weapons states are pursuing similar policies. [? Return](#)