

J109(A80)

J109(A80)

Proposal Abstract J109(A80)

1. Arms Control Problem:

Nuclear weapons - fissionable material "cutoff"

2. Verification Type:

(a) Remote sensors

(b) On-site inspection - selective
- IAEA safeguards

(c) Complaints procedure - consultative commission

3. Source:

Epstein, William, "A Ban on the Production of Fissionable Material for Weapons". Scientific American 243, no. 1 (July 1980): 43-51.

4. Summary:

The author contends that given the progress made in the past two decades in satellite surveillance and other national technical means, verification of a ban on production of fissionable materials for nuclear weapons no longer presents the same problems in terms of both effectiveness and intrusiveness as was true during the sixties. Modern verification techniques would ensure that large facilities needed to produce significant quantities of enriched uranium and plutonium could not escape detection. Secret diversion of fissionable material to clandestine facilities for production of nuclear weapons would not create any serious instability in the nuclear balance between the superpowers given the magnitude of existing American and Russian stockpiles. Hence, the verification system need not be 100 percent reliable to be effective.

Special attention concerning verification would have to be given to plutonium production particularly if the world moves towards a plutonium economy involving widespread use of plutonium and breeder reactors for the generation of electricity.

One solution to this verification problem would be to stop the move toward a plutonium economy. A more feasible approach would be to place all plutonium under IAEA safeguards and all plutonium stockpiles in IAEA custody. This would require strengthening of IAEA safeguards and establishment of special stockpiling facilities. Similar safeguards would be needed for highly enriched uranium produced for special non-explosive purposes. Full use would also be made of national technical means of verification and of consultative commissions to deal with ambiguous situations.

Agreement on a successful verification system in the context of a "cutoff" could lead to significant reduction in tensions between the US and the USSR and would provide a demonstration of international verification useful in other arms control contexts. Once production