

Originally Processed With FOIA(s):
2005-0336-F

FOIA Number:
2005-0336-F

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**This is not a textual record. This is used as an
administrative marker by the George Bush Presidential
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Record Group/Collection: George H.W. Bush Presidential Records
Collection/Office of Origin: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: National Security Files

OA/ID Number: 62071
Folder ID Number: 62071-003

Folder Title:
National Security: General [1 of 3] [1991]

Stack:

Row:

Section:

Shelf:

Position:

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"Document Control"

TYPE: INFORMATION

DOCUMENT NUMBER: 9125050

ORIGINATOR: 02

STATUS C

DIRECTORATE STATUS

FROM: STOUT, Herb: NATIONAL ASSOCIATION OF COUNTIES

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 12/03/91

SUBJECT: RE: THE GLOBAL POSITIONING SYSTEM AND DOD'S THREAT
TO SELECTIVE AVAILABILITY ON THE SYSTEM WHERE AND
WHEN IT CHOOSES.

DIRECTORATE STAFF
ASSIGNED: ASSIGNED:

ACTION STAFF
REQUIRED: ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley
NATIONAL SECURITY
PHYSICAL SCIENCES

WHITE HOUSE TRACKING #: CONTACT PERSON:
REMARKS: PHONE: EXT:

OSTP RECEIVED: 12/06/91 DEPT RECEIVED:
FILE: P-NATIONAL SECURITY
CENTRAL FILES:

5050

**NATIONAL
ASSOCIATION
of
COUNTIES**

440 First St. NW, Washington, DC 20001
202/393-6226

91 DEC 6 AID: 31
OSTP
MAIL ROOM
December 3, 1991

Dr. Allan Bromley
Assistant to the President
for Science & Technology
Old Executive Office Building
Washington, DC 20503

Dear Dr. Bromley:

In our reference to our discussions in North Carolina, I neglected to mention that the Global Positioning System is also a critical issue to counties as well as those in the GIS and aviation industries. The G.P.S. potential for counties is enormous and cost savings by its effective utilization substantial.

The threat by the Department of Defense to use selective availability on the system when and where it chooses, is causing added expenditure of research funds. The private sector is making strong research efforts to develop an overriding mechanism to defeat selective availability. As in most cases, this added development cost will be passed on by them, to us their users, at levels of government. Here we have a clear case of the taxpayer paying for the unnecessary development of the technology.

Should the President rescind the D.O.D. selective availability policy and guarantee maximum accuracy from this vital system for its governmental users, this would save all of us in government substantial dollars.

We request that you bring this to the President's attention.

Sincerely,

Herb

Herb Stout, Chair
NACo Research & Technology
Focus Group

Charlie B.

"Document Control"

TYPE: ACTION DOCUMENT NUMBER: 9125017
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS

FROM: STICKNEY, Wallace E.: FEDERAL EMERGENCY MANAGEMENT AGENCY

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 11/27/91

SUBJECT: HE IS PROVIDING DR. BROMLEY WITH A DRAFT OF A
FEDERAL PREPAREDNESS CIRCULAR ENTITLED "DESIGNATION
OF FEDERAL DEPARTMENT AND AGENCY EMERGENCY
COORDINATORS" FOR HIS REVIEW.

DIRECTORATE STAFF
ASSIGNED: NATIONAL SECURITY ASSIGNED:

ACTION STAFF
REQUIRED: DIRECT REPLY ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: 12/18/91 STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley

WHITE HOUSE TRACKING #: CONTACT PERSON:
REMARKS: PHONE: EXT:

No Action Required John O'Neil 1/24/92

OSTP RECEIVED: 12/04/91 DEPT RECEIVED:
FILE: P-NATIONAL SECURITY
CENTRAL FILES:





Federal Emergency Management Agency

Washington, D.C. 20472

NOV 27 1991

91 DEC 4 A 9:44

DSTP
MAIL ROOM

The Honorable D. Allan Bromley
Science Advisor to the President
Office of Science and Technology
Policy
Old Executive Office Building
Washington, DC 20506

Dear Dr. Bromley:

The enclosed Federal Preparedness Circular (FPC) draft, entitled "Designation of Federal Department and Agency Emergency Coordinators," revises a 1980 document on the same subject. This draft reflects a change in definition for this position as conveyed by Executive Order 12656.

We appreciate your reviews of drafts of similar documents as we update the Federal Preparedness Guidance Document System and provide information about national security emergency preparedness (NSEP) planning. Written comments should be submitted within 30 days of the date of this letter to: The Honorable Antonio Lopez, Associate Director, National Preparedness Directorate, FEMA, 500 C Street, SW, Room 524, Washington, DC 20472.

Sincerely,

A handwritten signature in cursive script that reads "Wallace E. Stickney".

Wallace E. Stickney
Director

Enclosure

cc: Emergency Coordinator
NSEP point of contact

DRAFT



FEDERAL PREPAREDNESS CIRCULAR

Federal Emergency Management Agency
Washington, D.C. 20472

FPC 10

TO: Heads of Federal Departments and Agencies

SUBJECT: Designation of Federal Department and Agency
Emergency Coordinators

1. Purpose. This Federal Preparedness Circular (FPC) revises policy guidance to Federal departments and agencies regarding the designation and role of senior policy officials as their Emergency Coordinators.

2. Summary. This FPC outlines the policy pertaining to designation and responsibilities of the Federal department and agency Emergency Coordinators.

3. Supersession. This FPC supersedes FPC 10, Designation of Federal Department and Agency Emergency Coordinators, issued April 9, 1980.

4. Applicability and Scope. The provisions of this FPC apply to all Federal departments and agencies with national security emergency preparedness (NSEP) responsibilities as outlined in Executive Order (EO) 12656.

5. Authorities.

a. EO 12656 of November 18, 1988, Assignment of Emergency Preparedness Responsibilities, 3 CFR, 1988 Comp., p. 585.

b. EO 12148 of July 20, 1979, Federal Emergency Management Agency, 3 CFR, 1979 Comp., p. 412.

c. National Security Act of 1947, as amended, Sections 103 & 303, 50 U.S.C. App. 2251 Note.

d. Federal Civil Defense Act of 1950, 50 U.S.C. App. 2251, et seq.

e. The Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law (PL) 93-288, as amended by PL 100-707, 42 U.S.C. 5121, et seq.

6. Reference. Federal Preparedness Guide (FPG) 6.101, Contact Guide: National Security Emergency Preparedness, issued April 1991, FOR OFFICIAL USE ONLY. This document contains the names of

Distribution:

DRAFT

DRAFT

FPC 10

Federal department and agency senior policy officials (Emergency Coordinators) and NSEP points of contact (POC's).

7. Definitions.

a. Emergency Coordinator. A senior policy official, generally a political appointee, with the policy and budgetary responsibility for the NSEP program of the Federal department or agency. This title need not correspond with the individual's official title within the organization.

b. National Security Emergency Preparedness (NSEP) Planning. NSEP refers to policies, programs and procedures implementing the responsibilities assigned in EO 12656. Sec. 101(b) of EO 12656 states that "Effective NSEP planning requires: identification of functions that would have to be performed during such an emergency; development of plans for performing these functions; and development of the capability to execute those plans."

c. National Security Emergency Preparedness (NSEP) Point of Contact (POC). The NSEP POC should be a senior emergency planner who is designated by the Emergency Coordinator to: provide program support to the Emergency Coordinator and coordinate the development and maintenance of the department's or agency's multi-year NSEP plan and day-to-day operations of programs supporting that plan.

8. Background.

a. Requirements. In EO 12656 Sec. 201(3) states that the head of each Federal department and agency shall "Appoint a senior policy official as Emergency Coordinator, responsible for developing and maintaining a multi-year, national security emergency preparedness plan for the department or agency to include objectives, programs, and budgetary requirements."

b. Change in Definition. Prior to EO 12656 requirements, some Federal department and agency heads designated, as "emergency coordinators," senior emergency planners who did not have the authority to speak for the agency on major policy matters nor to commit money to emergency programs. The intent of EO 12656 was to establish, as Emergency Coordinator at the headquarters of a Federal department or agency, a senior policy official, generally a political appointee, possessing sufficient level and scope of authority to have policy and budgetary influence throughout the organization.

9. Responsibilities. The responsibilities outlined below pertain to Emergency Coordinators and NSEP POC's who function at the headquarters level of a Federal department or agency. Counterpart organizations may exist or should be established at the regional or subregional level where appropriate.

DRAFT

a. The Emergency Coordinator should be responsible, within each department's or agency's legal and administrative constraints, for the following activities:

(1) Development and maintenance of the department or agency NSEP multi-year plan, including objectives, programs and budgetary requirements;

(2) Supporting the head of the department or agency in accomplishment of responsibilities assigned in EO 12656;

(3) Designation of department or agency primary and alternate NSEP POC's and guidance of their activities;

(4) Development of department or agency emergency plans and procedures;

(5) Commitment of department or agency equipment, personnel and resources to support NSEP functions and policies;

(6) Assurance of the designation of internal leadership, rostering of staff, and logistic support for emergency response teams;

(7) Designation of department or agency regional and subregional emergency planning officials and guidance of their NSEP program activities; and

(8) Support of NSEP Federal programs of other Federal departments and agencies.

b. The NSEP POC for a Federal department or agency at the headquarters level should function as the senior emergency planner and be responsible for the following:

(1) Coordinate the department or agency NSEP plan and programs on a day-to-day basis;

(2) Participate in interagency NSEP activities, training, and exercises;

(3) Maintain current rosters of department or agency emergency personnel for appropriate emergency response teams;

(4) Contribute, as required, to the development and maintenance of a multi-year NSEP plan for the department or agency;

(5) Inform the Emergency Coordinator of NSEP activities in the Federal emergency planning community;

(6) Assist in the development and promulgation of policy and guidance to department or agency regional and

DRAFT

FPC 10

subregional elements for their emergency response planning efforts;

(7) Assist the department's or agency's Emergency Coordinator in planning and supporting tests and exercises, including updating emergency personnel rosters and department or agency plans; and

(8) Provide support, when appropriate, to joint Federal, State and local response activities.

10. Reporting Requirements. All Federal departments and agencies covered by the provisions of this FPC should inform the FEMA NSEP POC, National Preparedness Directorate, of changes, as they occur, in the names, official mailing addresses, and office and after-hours telephone numbers of Emergency Coordinators and NSEP POC's at the national level. Regional or subregional counterparts should keep the appropriate FEMA Regional Directors advised of similar information.

11. Distribution. This FPC is distributed to the heads of Federal departments and agencies, Emergency Coordinators, emergency planners, and other interested parties.

Wallace E. Stickney
Director

"Document Control"

TYPE: INFORMATION DOCUMENT NUMBER: 9125102
ORIGINATOR: 02 STATUS C DIRECTORATE STATUS

FROM: ST. MARTIN, Ron and TADEMY, Dudley: SAIC INC.

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 11/26/91

SUBJECT: THEY ARE PROVIDING DR. BROMLEY WITH THE RESULTS OF
THEIR FUTURE ORIENTED SEMINAR GAMES FOR NORTHROP
CORPORATION, WHICH TESTED THE EFFECTIVENESS OF THE
BASE FORCE IN SELECTED CONTINGENCIES.

DIRECTORATE STAFF
ASSIGNED: ASSIGNED:

ACTION STAFF
REQUIRED: ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley
NATIONAL SECURITY
INTERNATIONAL/POLICY

WHITE HOUSE TRACKING #: CONTACT PERSON:
REMARKS: PHONE: EXT:

OSTP RECEIVED: 12/13/91 DEPT RECEIVED:
FILE: P-NATIONAL SECURITY
CENTRAL FILES:

5102 I

SAIC
Science Applications International Corporation
An Employee-Owned Company

RECEIVED
91 DEC 13 AM 10

26 November 1991

MAIL ROOM

Dr. D. Allan Bromley
Assistant to the President
for Science Technology
358 Old Executive Office Building
Washington, DC 20506

Dear Dr. Bromley:

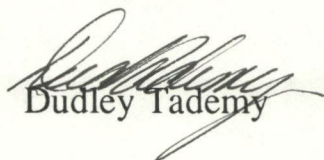
SAIC recently completed a series of future-oriented seminar games for Northrop Corporation in which we tested the effectiveness of the Base Force in selected contingencies projected into the next century. We found the seminar games interesting and enlightening and attempted to outline the results in the attached Executive Summary.

Together with Northrop, we developed a list of people we thought would be interested in the results. If you should have further questions, or need more information, call either Ron St. Martin at (703) 448-6410 or Dudley Tademy at (703) 556-7359.

Sincerely,



Ron St. Martin


Dudley Tademy

Enclosure

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01. Report	Contingency Force Planning Game (4 pp.)	11/26/91	(b)(1)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: National Security Files
WHORM Cat.:
File Location: National Security: General [1 of 3] [1991]

Date Closed: 5/12/2010	OA/ID Number: 62071-003
FOIA/SYS Case #: 2005-0336-F	Appeal Case #:
Re-review Case #:	Appeal Disposition:
P-2/P-5 Review Case #:	Disposition Date:
AR Case #:	MR Case #:
AR Disposition:	MR Disposition:
AR Disposition Date:	MR Disposition Date:

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
(b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
(b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

"Document Control"

TYPE: INFORMATION DOCUMENT NUMBER: 9124674
ORIGINATOR: 02 STATUS C DIRECTORATE STATUS

FROM: WEST, Togo D.: NORTHROP CORPORATION

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 10/31/91

SUBJECT: RE: REPORTING AND CONJECTURE ABOUT THE B-2 BOMBER.

DIRECTORATE STAFF
ASSIGNED: ASSIGNED:

ACTION STAFF
REQUIRED: ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley
NATIONAL SECURITY
PHYSICAL SCIENCES

WHITE HOUSE TRACKING #: CONTACT PERSON:
REMARKS: PHONE: EXT:

OSTP RECEIVED: 11/06/91 DEPT RECEIVED:
FILE: P-NATIONAL SECURITY
CENTRAL FILES:

NORTHROP

4674
RECEIVED
Togo D. West, Jr.
Senior Vice President
Government Relations

Northrop Corporation

Washington Office
1000 Wilson Boulevard, Suite 2300
Arlington, Virginia 22209
Telephone 703 525-6767

91 NOV 6 1991

October 31, 1991

OFFICE OF THE
DIRECTOR

Dr. D. Allan Bromley
Assistant to the President for Science &
Technology
358 Old Executive Office Building
Washington, DC 20506

Dear Dr. Bromley:

Since I last wrote to you about the B-2, there has been much reporting and conjecture in the press concerning the ramifications of low observable testing results on the bomber. Also, some very recent articles have indicated that members of the Administration have reduced the total number of aircraft they advocate for the B-2 program. I am enclosing for your information copies of two recent items addressing these issues which I believe you will find of interest.

The first enclosure is an October 25 press release by the Office of the Chairman of the Joint Chiefs of Staff, Gen. Colin Powell. It reiterates his full support for the 75-bomber program requested by the President.

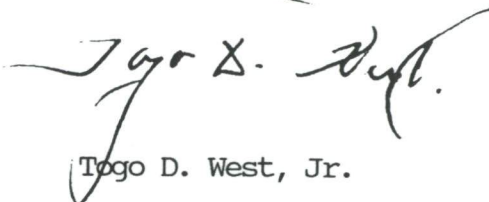
The second enclosure is a letter to the Secretary of Defense from Dr. John Foster, Chairman of the Defense Science Board (DSB), regarding the review by a DSB task force of the B-2 low observable testing results. Foster states:

"We believe the B-2 has continued to make excellent progress in achieving signature reductions in most areas of the spectrum. There is, however, one area that needs additional work."

"We believe the Air Force and its contractors are proceeding with a well structured program to apply available technology and in working with other industry sources on this subject. We also believe there is still time to pursue this further without jeopardizing the program schedule."

Please feel free to contact me if you have questions or would like additional information regarding the B-2.

Sincerely,


Togo D. West, Jr.

Enclosures



OFFICE OF THE CHAIRMAN
THE JOINT CHIEFS OF STAFF
WASHINGTON, D.C. 20315-0001

October 28, 1991

Dear Member of Congress,

In response to media inquiries regarding the B-2 bomber, the Chairman, Joint Chiefs of Staff has approved the attached press release. The release outlines General Powell's support of the President's request for seventy-five B-2's.

This release may be helpful to you during conference. Thank you for your support.

Sincerely,

PAUL V. KELLY
Colonel, USMC
Legislative Assistant to
the Chairman, JCS

Attachment

PRESS RELEASE: 25 OCT 91

General Powell fully supports the President's request for seventy-five B-2 bombers. Contrary to press reports, the Chairman has not indicated to any member of congress, support for a lower number; nor has he recommended or advocated a lower number within the Pentagon.

General Powell testified most recently in support of the B-2 at his reconfirmation hearing on 27 September 1991: "I believe there is solid administration support for the B-2, including the commander-in-chief, the President, Secretary Cheney, all of the senior advisers to the President and Secretary of Defense, from the Chairman of the Joint Chiefs of Staff--myself--and from the Joint Chiefs of Staff as well as the affected Commanders-in-Chief, and the commander, Strategic Air Command. So I think there is a united front.

"With respect to your hypothetical question of how many we would like to buy, I think 75 is still a proper number. It was a number selected to make sure that we had a real capability and not just a small number of planes that wouldn't constitute a real set of units, that would have, you know, utility. So, I solidly believe that we should try to achieve the President's program of 75 B-2s."

UNCLASSIFIED

MEMORANDUM

TO: Secretary Defense
FROM: Dr. John Foster, Chairman
REF: Interim Report Defense Science Board B-2 Review
DATE: 28 October 1991

The B-2 task force met today to review the results of the Blue Ribbon Committee and receive an update on Low Observable test results. As the B-2 is receiving increased press coverage, I thought it useful to provide you with an update of the Defense Science Board's findings.

Our last report to you is attached. The findings of that report have not changed as a result of the most recent data we have received.

We believe the B-2 has continued to make excellent progress in achieving signature reductions in most areas of the spectrum. There is, however, one area that needs additional work. While the desired results can probably be achieved by alternate means, (i.e., the original baseline plan), we do not recommend commitment to this alternate approach at this time. This recommendation is based upon a combination of factors: 1) the cost and complexity of the alternate approach, and 2) the promise to obtain further signature reductions (if not the full specification) with identified existing technology.

We believe the Air Force and its contractors are proceeding with a well structured program to apply available technology and in working with other industry sources on this subject. We also believe there is still time to pursue this further without jeopardizing the program schedule.

The Air Force is simultaneously conducting analyses of the signature requirements in expected future missions, with near term emphasis on conventional missions. The analysis will be invaluable in allowing improved trade-offs to be conducted against the signature requirements.

signed

John Foster, Chairman

UNCLASSIFIED

"Document Control"

TYPE: INFORMATION

DOCUMENT NUMBER: 9124405

ORIGINATOR: 02

STATUS C

DIRECTORATE STATUS

FROM: MILLER, William H.: UNIVERSITY OF MISSOURI, COLUMBIA

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 10/07/91

SUBJECT: RE: A LETTER TO ADMIRAL WATKINS REGARDING THE NEXT
GENERATION OF PRODUCTION REACTORS, AND THE PROPOSAL
TO LINK WEAPONS PRODUCTION WITH CIVILIAN ELECTRICAL
PRODUCTION.

DIRECTORATE STAFF
ASSIGNED: ASSIGNED:

ACTION STAFF
REQUIRED: ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: PHYSICAL SCIENCES
NATIONAL SECURITY
D. Allan Bromley

WHITE HOUSE TRACKING #: CONTACT PERSON:
REMARKS: PHONE: EXT:

OSTP RECEIVED: 10/15/91
FILE: P-NATIONAL SECURITY

DEPT RECEIVED:



UNIVERSITY OF MISSOURI-COLUMBIA

RECEIVED

91 OCT 15 AM 11:32

OFFICE OF THE
DIRECTOR

4405
College of Engineering

Nuclear Engineering

333 Electrical Engr. Bldg.
Columbia, Missouri 65211
Telephone (314) 882-3550
FAX [314] 882-0397

October 7, 1991

Admiral James D. Watkins
Secretary
7A-257 Forrestal Building
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20585

Dear Mr. Secretary:

I have been following some of the discussion concerning the next generation of production reactors. I am very concerned about the proposal to link weapons production with civilian electrical production, utilizing the same facility.

For years, many of us supporting the use of nuclear power have struggled with the public perception that nuclear weapons and nuclear power are the same entity, much less casually linked through the utilization of nuclear fission. Most headlines in the evening paper that use the word "nuclear" are confusing, and the reader must read the following article carefully to even understand which "nuclear" is being talked about.

This U.S. public perception issues is important, but even more important is our international posture on this issue. We are counseling other nations to forego a nuclear weapons program, or at least to separate their defense and civilian nuclear programs. How can we, at the same time, advocate a weapons facility that makes civilian electricity?

Please keep any new production reactor programs separated from the nuclear power industry.

Sincerely,

William H. Miller
Professor

cc: Honorable D. Allan Bromley, Assistant to the President on Science and Technology, and White House Office of Science
Honorable Les Aspin, Chairman and Members of the House Armed Services Committee
Honorable Tom Bevill, Chairman and Members of the House Appropriations Subcommittee on Energy and Water Development
Honorable George Brown, Chairman and Members of the House Science, Space and Technology Committee
Honorable Ivan Selin, Chairman and Members of the Nuclear Regulatory Commission
Honorable J. Bennett Johnston, Chairman and Members of the Senate Appropriations Subcommittee on Energy and Water Development, and Chairman and Members of the Senate Energy and Natural Resources Committee
Honorable Sam Nunn, Chairman and Members of the Senate Armed Services Committee
Honorable Ike Skelton, Representative of the House Armed Services Committee

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

DATE: 9-20-91

TO:
ADDRESS:

Dr Victor Reis

TELEPHONE NUMBER:

FAX NUMBER:

103 / 696 - 2209

FROM:

TELEPHONE NUMBER:

456-7116

FAX NUMBER:

(202)395-3261

NUMBER OF PAGES, INCLUDING COVER SHEET _____

TRANSMISSION REPORT

THIS DOCUMENT (REDUCED SAMPLE ABOVE)
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**** COUNT ****
2

*** SEND ***

NO	REMOTE STATION I. D.	START TIME	DURATION	#PAGES	COMMENT
1		9-20-91 5:38	0'50"	2	ERROR CORRECT MODE

TOTAL 0:00'50" 2

XEROX TELECOPIER 7021

*9/20 - original letter hand-carried by
Eugene Wong to DARPA*

THE WHITE HOUSE
WASHINGTON

September 18, 1991

Dear Victor:

I want to extend my sincerest congratulations and best wishes to you and to the entire staff of DARPA on the occasion of your move to new quarters. DARPA has truly been one of the federal government's great success stories. For 33 years the agency has been pushing back the frontiers of technological achievement, with spectacular results in defense technologies and very significant effects in the civilian realm as well. In information technologies, in materials science and engineering, in aviation, and in a host of related areas, DARPA has demonstrated exceptional foresight, determination, and success.

The future is going to bring even greater technological challenges, and we are all fortunate that DARPA will be helping this country to meet those challenges. If the agency continue to be as successful as you have been in the past -- and I am sure that it will -- then we can look forward to many great achievements.

Sincerely yours,

A handwritten signature in black ink, appearing to read "D. Allan Bromley". The signature is fluid and cursive, with the first name "D. Allan" and last name "Bromley" clearly distinguishable.

D. Allan Bromley
The Assistant to the President
for
Science and Technology

Dr. Victor Reis
Director
Defense Advanced Research Projects Agency
3701 N. Fairfax Drive
Arlington, Va. 22203-1714

THE WHITE HOUSE
WASHINGTON

September 18, 1991

Dear Victor:

I want to extend my sincerest congratulations and best wishes to you and to the entire staff of DARPA on the occasion of your move to new quarters. DARPA has truly been one of the federal government's great success stories. For 33 years the agency has been pushing back the frontiers of technological achievement, with spectacular results in defense technologies and very significant effects in the civilian realm as well. In information technologies, in materials science and engineering, in aviation, and in a host of related areas, DARPA has demonstrated exceptional foresight, determination, and success.

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Sincerely yours,

A handwritten signature in black ink, appearing to read "D. Allan Bromley". The signature is fluid and cursive, with a large, stylized "D" and "B".

D. Allan Bromley
The Assistant to the President
for
Science and Technology

Dr. Victor Reis
Director
Defense Advanced Research Projects Agency
3701 N. Fairfax Drive
Arlington, Va. 22203-1714

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

Dr. Bromley,

Sept. 18

Gene asked me to put together the attached letter of congratulations for a ceremony being held at DARPA this Friday to commemorate their move to a new building in Arlington. He has seen and approved the letter.

Steve

Marian,
Please fax this
letter to DARPA
once signed. The
fax number is
703-696-2209.

9/19

3:40p

Dr. Wong,

When Jan of Dr. Reis's office called to find out the disposition of a Presidential letter re. DARPA dedication I decided to take it upon myself to tell her that the policy of the Ofc. of Presidential Messages under WH Correspondence is to issue Presidential messages for church dedications only.

I did tell her, however, that it may be that you have something else in mind and that may be why you had not yet contacted them.

She said that Dr. Reis will be over @ the Pgon most of tomorrow but that when you (or I, if you want me to relay a message) call back, you can speak to Ron Register, Dep Dir for Management. 703 696 2400

A letter from Dr. Bromley
SS has been sent (FAX ?)
Pls. verify w. S. Alsua
& inform DARPA

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

September 11, 1991

MEMORANDUM FOR LINDA DEHART
PRESIDENTIAL MESSAGES

FROM: *Lisa*
LISA COLDWELL X 6272

SUBJECT: DEDICATION CEREMONY FOR THE DEFENSE ADVANCED
RESEARCH PROJECTS AGENCY

Dr. Eugene Wong, Dr. Bromley's Associate Director for Physical Sciences and Engineering, would be pleased if a Presidential Message could be arranged for the dedication of the new Defense Advanced Research Projects Agency. The dedication is on Friday, September 20.

Please let me know if you need any further information. A short draft is attached.

Thanks again, Linda!

*Shirley -
OK to request
dedication of
new building
I guess, altho
JB and Darman are
big supporters of
DARPA's tech.
development.*

*Sally/Dr. Wong:
I'm afraid that policy allows
for Messages only for Church
dedications - no others.
But, Shirley Green's
indicated OB's support
can't override policy -
I'm sorry.
Lisa*

**EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY**

WASHINGTON, D.C. 20506

September 11, 1991

Lisa Coldwell

Re. Presidential Letter to DARPA

Dr. Wong would appreciate your effecting a request for a Presidential letter to the DARPA, congratulating it on its dedication. Apparently, DARPA was slow in making this request of OSTP, and Dr. Wong would like to rely on you to accomplish such a feat in time for dedication of DARPA's new facilities on Friday, September 20. Thank you!

A suggested draft is attached.

A handwritten signature in dark ink, appearing to be "J. Lee" or similar, with a long, sweeping tail extending to the right.

Dear Dr. Ries:

On the occasion of the dedication of the new DARPA facilities, I want to congratulate the men and women of DARPA on a job well done. Over the last twenty years, DARPA has become a unique resource for the Nation. As our success in the Desert Storm so clearly demonstrated, technology is more important than ever to the Nation's defense, and DARPA's role in the development of the technology has been critical.

Please convey to the members of DARPA my thanks and my best wishes.

Dr. Victor Ries

Director, Defense Advanced Research Projects Agency

3701 North Fairfax Drive

Arlington, Virginia 22203

Dr. Victor Ries

Director, Defense Advanced Projects ~~Agency~~
Research Projects Agency

Dear Dr. Ries:

On the occasion of the dedication of the new DARPA facilities, I want to congratulate the men and women of DARPA on a job well done. Over the last twenty years, DARPA has become a unique resource for the nation. ~~its~~ ~~contributions to the~~ As our success in the Desert Storm ~~has~~ so clearly demonstrated, technology is ~~more~~ important than ever to the Nation's defense and DARPA's role in the development of ~~the~~ the technology has been critical.

Please convey to the ~~members~~ ^{member} of DARPA my thanks and my best wishes.

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

September 11, 1991

MEMORANDUM FOR LINDA DEHART
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FROM: *Lisa*
LISA COLDWELL

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Dr. Eugene Wong, Dr. Bromley's Associate Director for Physical Sciences and Engineering, would be pleased if a Presidential Message could be arranged for the dedication of the new Defense Advanced Research Projects Agency. The dedication is on Friday, September 20.

Please let me know if you need any further information. A short draft is attached.

Thanks again, Linda!

9-11
copy for Dr. Wong —
hand-carried to Linda
today.

"Document Control"

TYPE: INFORMATION DOCUMENT NUMBER: 9124290
ORIGINATOR: 02 STATUS C DIRECTORATE STATUS

FROM: RAYMOND, Richard

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 09/28/91

SUBJECT: COMMENT LETTER REGARDING PRESIDENT BUSH'S
ANNOUNCEMENT OF NUCLEAR WEAPONS.

DIRECTORATE STAFF
ASSIGNED: NO ASSIGNMENT ASSIGNED:

ACTION STAFF
REQUIRED: ACTION:

SENDER'S DUE DATE: STAFF DUE DATE
OSTP DUE DATE: DATE COMPLETED/DEPT:
DATE COMPLETED:

COPIES TO:

WHITE HOUSE TRACKING #: CONTACT PERSON:
REMARKS: PHONE: EXT:

OSTP RECEIVED: 10/04/91 DEPT RECEIVED:
FILE: P-NATIONAL SECURITY

4290

Richard C. Raymond
300 Hot Springs Road #129
Santa Barbara CA 93108-2032
(805)969-8383

RECEIVED

91 OCT 4 A 9:26

28 September 1991

OFFICE OF THE
DIRECTOR

The Honorable D. Allan Bromley
Old Executive Office Building
Washington DC 20506

Dear Dr. Bromley:

I enclose a copy of my letter to President Bush. His announcement yesterday was very welcome, but we can do even better.

We can immediately, safely, in the best interest of every living thing, reduce our nuclear forces to a few hundred mobile, second strike missiles of strategic range, no matter what Mr. Gorbachev or his successors may decide to do. You can help the President to make us all safer, and save us a ton of money doing so.

Yours for *uncommon* sense,

Richard C. Raymond

Richard C. Raymond
300 Hot Springs Road #129
Santa Barbara CA 93108-2032
(805)969-8383

28 September 1991

President George Bush
The White House
Washington DC 20500

Dear Mr. President:

Thank you for your leadership in ridding the Earth of the unnecessary peril of short range nuclear weapons. Now let us finish the job.

We have known for several years that the least risky number of nuclear weapons for any nation is about five hundred, no matter how many any other nation may have. A force of five hundred second strike strategic weapons is big enough to cause an aggressor to contemplate suicide in planning a first strike, but not big enough to threaten a first strike against a nation with nuclear arms. Such a force eliminates the risks of blackmail and of accidental war. It balances the risk of an enemy first strike against the risk of theft or sabotage.

Some of your other positions can be improved without much effort.

"Stealth" aircraft can easily be detected at long ranges by the type of radar which the British used to win the Battle of Britain fifty years ago. The B-2 is far too costly for any foreseeable mission.

The SDI program has very little chance of providing any real defense. The technology of a deployed system will always be a few years behind that of the offense. Proposals to deny safe travel through a region of space with a minefield of "brilliant pebbles" are outrageous.

The bomb which will prevent long term peace in the Middle East is not nuclear. It is population. With Islamic numbers growing at 3% per year, and with governments dominated by feudal theocracies, there is no way to prevent the rise of military dictators. You should buy Cuba at its forthcoming bankruptcy sale, and move Israel there.

At the very least, you should stop letting your feelings about abortion distort our policy on support of family planning.

Yours for *uncommon* sense,

Mary Suit

"CORRESPONDENCE TRACKING"

TYPE: MEETING REQUEST DOCUMENT NUMBER: 9124107
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS

FROM: KENDALL, Henry W.: UNION OF CONCERNED SCIENTISTS

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 09/18/91

SUBJECT: REQUEST TO MEET AND DISCUSS THE ENCLOSED LETTER TO
PRESIDENT BUSH AND ACCOMPANYING REPORT OUTLINING
THEIR RECOMMENDATIONS FOR A NEW ARMS CONTROL AGENDA.

DIRECTORATE STAFF
ASSIGNED: NATIONAL SECURITY ASSIGNED:

ACTION STAFF
REQUIRED: FOR DAB'S SIGNATURE ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: 10/04/91 STAFF DUE DATE
DATE COMPLETED: 9/26/91 DATE COMPLETED/DEPT: *National Security*

COPIES TO: D. Allan Bromley

WHITE HOUSE TRACKING #: CONTACT PERSON:
PHONE: EXT:

REMARKS:
*Copy of Mickell's letter and OSTP staffing sheet,
indicating Dr. Bromley concurrence, is attached.*

OSTP RECEIVED: 09/20/91 FILE: P-NATIONAL SECURITY
DEPT RECEIVED:

OSTP STAFFING SHEET

SUBJECT: Union of Concerned Scientists proposal "Nuclear Security in a Transformed World."

ORIGINATOR: Michelle K. Van Cleave PHONE: X7326

DATE ORIGINATED: 9/24/91 DATE DUE 10/4/91 CORR TRACKING NO: 9124107

EXTERNAL COORDINATION: _____

		COMMENTS	DATE
X	DIRECTOR	Draft for your approval.	
	CHIEF OF STAFF	<i>Ky concur</i>	<i>9-26-91</i>
X	GENERAL COUNSEL	<i>Walt</i> Have prepared letter for my signature to Dr. Kendall, in response to your rather pointed note.	9/24/91
	EXEC. ASST.		

ACTION REQUESTED:

Please return to National Security.

DAB says
great - end of

[illegible]

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY

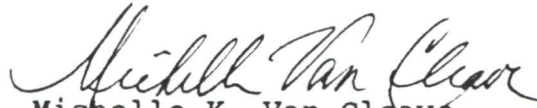
WASHINGTON, D.C. 20506

September 24, 1991

Dear Dr. Kendall,

On behalf of Dr. Allan Bromley, I want to thank you for your letter of September 18, and for sending us a copy of the Union of Concerned Scientists' proposal on "Nuclear Security in a Transformed World." The extraordinary changes in the Soviet Union clearly will have profound and far-reaching implications for arms control, as well as for other dimensions of US-Soviet/Republic relations. For example, it seems to me that the nuclear command and control and proliferation concerns you cite lend new urgency to the President's Strategic Defense Initiative; accordingly, I find the Union of Concerned Scientists position on this issue, in particular, rather puzzling. But we do appreciate receiving your report and hope that you will keep us informed as your thinking on these critical issues and new opportunities evolves.

Sincerely,



Michelle K. Van Cleave

Assistant Director

for

National Security Affairs

Dr. Henry W. Kendall
Chairman
Union of Concerned Scientists
26 Church Street
Cambridge, MA 02238

MKVan Cleave:jw:9/26/91 9124107

4107

RECEIVED
**UNION OF
CONCERNED
SCIENTISTS**

91 SEP 20 A 9:33

OFFICE OF THE
DIRECTOR

September 18, 1991

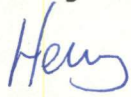
Honorable D. Allan Bromley
Assistant to the President for Science and Technology
Suite 358
Old Executive Office Building
Washington, DC 20500

Dear Allan:

I wish to call your attention to the enclosed letter to President Bush and accompanying report outlining our recommendations for a new arms control agenda. Hans Bethe, Glenn Seaborg, and Ken Wilson have joined me in this appeal.

As a scientist, I am sure you can appreciate our concerns regarding the continuing risks of inadvertent launch and other issues. We would be pleased to meet with you at your convenience.

Best regards:



Henry W. Kendall
Chairman

enc

UNION OF CONCERNED SCIENTISTS

September 18, 1991

President George Bush
The White House
Washington, DC

Dear Mr. President:

The Union of Concerned Scientists, and the scientific community as a whole, have for some time been concerned that political chaos in the Soviet Union might lead to a catastrophic breakdown in Soviet nuclear command and control. Recent events have made millions of Americans aware that this risk is real, and lead them to hope that your administration will act to deal with it.

There is growing recognition that the Soviet and American nuclear postures and their immense nuclear arsenals are not simply relics of a bygone Cold War, but actually amplify the nuclear danger posed by Soviet instability. This amplification stems from the requirement on both sides for rapid response to warning of attack - a requirement imposed by the size and lethality of the forces, their high level of peacetime readiness, and the vulnerability of their commands.

The breakup of the Soviet Union also represents a long-term proliferation threat. Many Republics now intend to be nuclear-free zones. Nevertheless, nuclear physicists and nuclear facilities are located throughout the Soviet Union and constitute a potential weapon capability that exceeds that of the great majority of Third World states.

National and global security therefore demand a profound change in nuclear postures and policies, as profound as the one that has already taken place on the world's political stage. The opportunity to effect this change is at hand and must be seized. The crucial steps, in our view, would be:

- a deep and swift cut to 1000-2000 strategic *and* tactical warheads per side, fashioned in a manner to make both sides' forces and commands effectively invulnerable and to eliminate the current emphasis by both nations on prompt response to warning of attack; and
- a comprehensive control regime that would not only insure Soviet compliance with such an agreement, but would at the same time create maximum leverage for a strengthened effort by the United States to prevent further nuclear proliferation in whatever becomes of the Soviet Union and the world at large. Among the measures that would serve this purpose are the destruction of decommissioned warheads, a cut-off in production of weapons-grade fissionable materials, and a phase-out of underground testing.

We urge you to give serious consideration to committing the United States to these objectives, and to initiating negotiations with the Soviets to that end. This step should, we believe, be taken now, and not await ratification of the START Treaty, even though START is a prerequisite to the program we are advocating.

26 Church Street Cambridge, MA 02238 617-547-5552 FAX: 617-864-9405

Washington Office: 1616 P Street, NW Suite 310 Washington, DC 20036 202-332-0900 FAX: 202-332-0905

President George Bush
September 18, 1991
Page Two

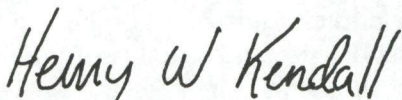
There is an alternative to acting now: to stand back and let matters in the Soviet Union gradually assume some recognizable pattern of stability. But that course will be dangerous and long. Moreover, experience shows that dealing with new nuclear powers, declared or undeclared, is far more difficult than preventing their emergence. There is reason to hope that the Republics would at this time back Presidents Gorbachev and Yeltsin if they undertook the program we urge.

We have made appeals along similar lines to the Soviet Congress of People's Deputies, President Mikhail Gorbachev, and to President Boris Yeltsin, which are enclosed.

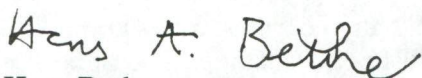
The whole world looks to you at this crucial juncture. No nation other than the United States is in a position to lead the way, and no one but the President himself can provide the leadership required.

I am joined in this appeal by the undersigned Nobel Laureates.

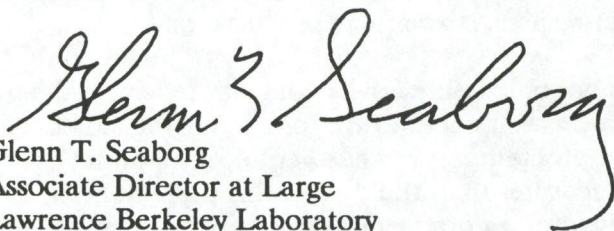
Sincerely,



Henry W. Kendall
Chairman, Union of Concerned Scientists
Professor of Physics, MIT
1990 Nobel Prize in Physics



Hans Bethe
Professor of Physics
Cornell University
1967 Nobel Prize in Physics



Glenn T. Seaborg
Associate Director at Large
Lawrence Berkeley Laboratory
1951 Nobel Prize in Chemistry



Ken Wilson
Professor of Physics
Ohio State University
1982 Nobel Prize in Physics

UNION OF CONCERNED SCIENTISTS

September 5, 1991

President Mikhail S. Gorbachev
The Kremlin
Moscow
USSR

Dear Mr. President:

American scientists - the whole American people - have followed with intense interest the recent dramatic developments in your country. We are relieved that tragedy was averted and that legal government has been restored. We admire the courage that you and many thousands of citizens showed in successfully resisting the conspiracy.

Despite this good news, our members - like millions of Americans - are troubled that control over Soviet nuclear weapons may for a time have fallen into the hands of the conspirators. We also understand that questions have arisen about future control of these weapons as new relationships emerge among the Soviet Republics.

We have long been concerned by the fragile nuclear posture of both the Soviet Union and the United States. Even if the START Treaty is promptly ratified and implemented, as we strongly hope, both countries will still have nuclear forces that are far too large. Too many weapons stand on alert. Both sides remain poised for instant response in the event of attack or presumed attack. The risk of accidental nuclear war, especially in unsettled political circumstances, is unacceptably high.

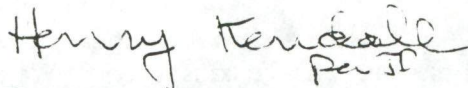
Rapid action should be taken to reduce these dangers. We recommend that both countries commit themselves now to reduce beyond START to a minimum deterrent of 1000-2000 warheads. This reduction should be implemented under a program that provides for a verified phase-down of fissile material production and of nuclear testing, and for the verified destruction of decommissioned warheads. All nuclear facilities - civilian and military - in both countries should be placed under a verification program with both bilateral and multilateral components. Such a program is necessary if a stronger non-proliferation regime is to be created throughout the world. We hope that the Soviet government will dismantle some nuclear weapons on its own initiative in order to meet international concerns and to demonstrate the seriousness of its intentions in this matter.

President Gorbachev
September 5, 1991
Page Two

The recent historic events in your country have resulted in an entirely new international situation. This has made it both possible and necessary for the Soviet government and that of the United States to enter into negotiations aimed at a swift and deep reduction of their nuclear forces to an agreed minimum level. Your commitment to reduction of international tensions through arms control and other forms of cooperation has been clearly demonstrated by your courageous policies over the last several years. These efforts have provided a solid foundation, in terms of improved relations between our countries as well as in terms of concrete agreements, for this new and crucial step in reducing the risk of nuclear war. We hope you will take a personal interest in adopting the program we urge, which is very much in conformity with your own past actions and proposals on nuclear arms control.

The hopes and sympathies of people everywhere are closely tied to developments in your country. We wish you success in your difficult work.

Sincerely,

A handwritten signature in dark ink, appearing to read "Henry W. Kendall". Below the signature, the words "Per IT" are written in a smaller, cursive script.

Henry W. Kendall
Chairman

UNION OF CONCERNED SCIENTISTS

September 5, 1991

President Boris N. Yeltsin
Russian Parliament
Moscow
USSR

Dear Mr. President:

American scientists - the whole American people - have followed with intense interest the recent dramatic developments in your country. We are relieved that tragedy was averted and that legal government has been restored. We admire the courage that you, your close colleagues, and many thousands of citizens showed in successfully resisting the conspiracy.

Despite this good news, our members - like millions of Americans - are troubled that control over Soviet nuclear weapons may for a time have fallen into the hands of the conspirators. We also understand that questions have arisen about future control of these weapons as new relationships emerge among the Soviet Republics.

We have long been concerned by the fragile nuclear posture of both the Soviet Union and the United States. Even if the START Treaty is promptly ratified and implemented, as we strongly hope, both countries will still have nuclear forces that are far too large. Too many weapons stand on alert. Both sides remain poised for instant response in the event of attack or presumed attack. The risk of accidental nuclear war, especially in unsettled political circumstances, is unacceptably high.

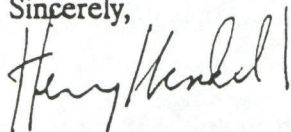
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President Yeltsin
September 5, 1991
Page Two

The historic events in which you are playing so large a role have resulted in an entirely new international situation. This has made it both possible and necessary for the Soviet government and that of the United States to enter into negotiations aimed at a swift and deep reduction of their nuclear forces to an agreed minimum level. We hope that you will take a personal interest in seeing to it that the opportunity you have done so much to create is vigorously exploited. Since the bulk of Soviet nuclear forces and its command infrastructure are located in the Russian Republic, your own government will surely have a large voice in deciding your country's future nuclear policy.

The hopes and sympathies of people everywhere are closely tied to developments in your country. We wish you success in your difficult work.

Sincerely,

A handwritten signature in dark ink, appearing to read "Henry W. Kendall", with a stylized flourish at the end.

Henry W. Kendall
Chairman

CC: President Mikhail S. Gorbachev

UNION OF CONCERNED SCIENTISTS

August 28, 1991

An Open Letter to the USSR Congress of Peoples Deputies from the Union of Concerned Scientists, USA.

Dear Friends:

American scientists -- the whole American people -- have followed with intense interest the recent dramatic developments in your country. We are relieved for the sake of all that a tragedy has been averted and that legal government has been restored. We admire the courage shown by the Soviet people, and in particular by the government of the Russian Federation, in successfully resisting the conspiracy.

Despite this good news, our members, dedicated to reducing the risks of nuclear weapons everywhere, are -- like many Americans -- troubled that control over Soviet nuclear weapons may for a time have been in the hands of the conspirators and to hear that there are questions about control of these weapons as new relationships emerge among the Soviet Republics.

We have long been concerned by the fragile nuclear posture of the Soviet Union and the United States. Even if, as we strongly hope, the START Treaty is promptly ratified and implemented, both countries will still have nuclear forces that are far too large. Too many weapons are on alert status. Both sides remain poised for instant response in the event of attack or presumed attack. The risk of accidental war, especially in unsettled political circumstances, is unacceptably large.

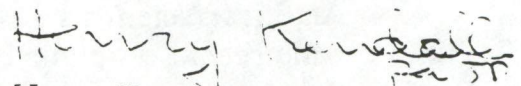
Rapid action should be taken to reduce these dangers. We recommend that both countries plan now to go beyond START to a minimum deterrent of 1000-2000 warheads under a program that provides also for the verified phase-down of fissile material production and nuclear testing, and for the verified destruction of decommissioned warheads. All nuclear facilities -- civilian and military -- in both countries should be placed under a verification program with both bilateral and multilateral components as the crucial step towards far stronger implementation of the Non-Proliferation Treaty throughout the world.

Our organization is calling on the United States and the Soviet Union to move away from their traditional nuclear postures. We hope that your government can

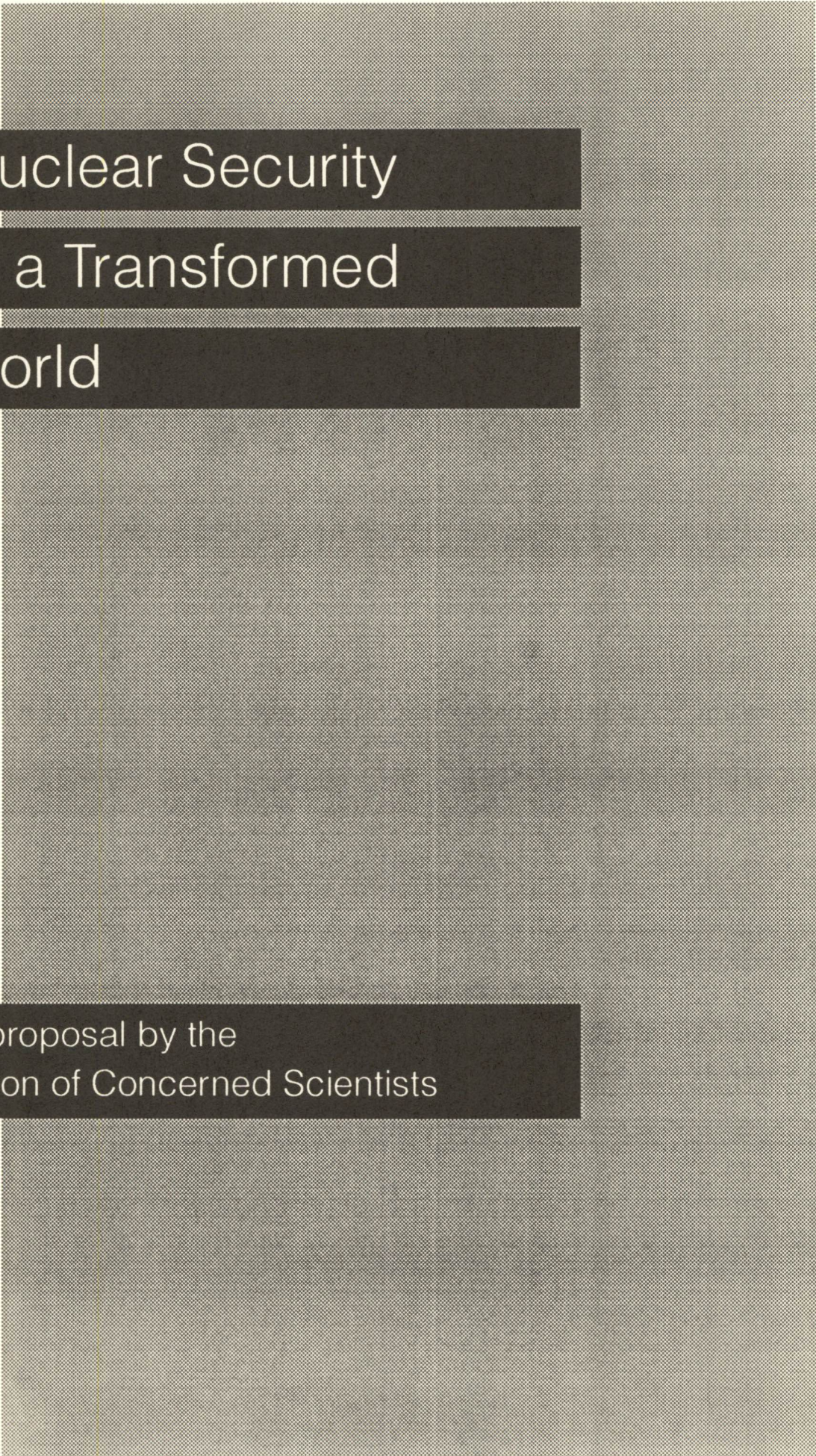
announce the goal of moving to a minimum nuclear deterrent and that it will take the initial step of dismantling some nuclear weapons on its own in order to meet international concerns over Soviet nuclear weapons and to demonstrate the seriousness of its intentions in this matter.

We believe the new circumstances created by the historic events in your country make it necessary that the Soviet government and that of the United States enter into negotiations aimed at a swift and deep reduction of their nuclear forces to an agreed minimum level.

The hopes and sympathies of people everywhere are closely tied with developments in your country. We wish you success in your difficult work.

A handwritten signature in dark ink, appearing to read "Henry Kendall". The signature is fluid and cursive, with a horizontal line drawn through the middle of the name.

Henry Kendall, Chairman
Union of Concerned Scientists



Nuclear Security

In a Transformed

World

A proposal by the
Union of Concerned Scientists

Nuclear Security In a Transformed World

by Jonathan Dean
and Kurt Gottfried

September 1991

A proposal by the
Union of Concerned Scientists

26 Church Street

Cambridge, MA 02238

Jonathan Dean is arms control adviser to the Union of Concerned Scientists and was the US representative to the NATO–Warsaw Pact force-reduction negotiations from 1978 to 1981. He is the author of several books on East-West security, including *Meeting Gorbachev's Challenge* (1989) and *Watershed in Europe* (1987).

Kurt Gottfried is chairman of the physics department at Cornell University and a member of the board of directors of the Union of Concerned Scientists. He is coeditor of *Reforging European Security* (1990) and *Crisis Stability and Nuclear War* (1988).

The authors are grateful to Michael Brower for a detailed critique of the manuscript and for numerous helpful suggestions. This project was funded in part by a grant from the W. Alton Jones Foundation.

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The Union of Concerned Scientists is a nonprofit organization of scientists and other citizens concerned about the impact of advanced technology on society. UCS conducts independent research and advocacy on national energy policy, nuclear arms control, and nuclear power safety.

Printed on recycled paper.

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Executive Summary

In the wake of the failed coup attempt in the Soviet Union, the world stands hopeful that a new era of international peace and cooperation lies ahead. Yet the continued presence of 27,000 nuclear weapons throughout the Soviet republics and the temporary loss of central command during the coup serve as stark reminders that the danger of nuclear catastrophe has not disappeared. The United States must act quickly to take advantage of the unprecedented opportunity at hand to reduce further the risk of nuclear conflict and establish a new, more effective international framework for the long-term control of nuclear weapons, materials, and technology.

Although a deliberate attack by the Soviet Union against the United States or Europe is now almost inconceivable, nuclear weapons continue to pose significant threats to US security and world peace. These threats fall into three broad categories:

- Both the Soviet and US nuclear forces remain in a high state of readiness, which in practice leads to a heavy emphasis on the option to launch on warning of an attack. This posture amplifies the dangers posed by Soviet political instability, resulting in a potentially serious risk of accidental or unauthorized missile launches against the United States.

- There is a continued risk of regional nuclear war involving countries other than the Soviet Union that are already in possession of nuclear weapons or are capable of building them. In

addition to China, the principal regions of concern are the Indian subcontinent, the Korean peninsula, and the Middle East. A human tragedy in itself, the use of nuclear weapons in regional conflicts could also harm US citizens and military forces overseas.

- Nuclear weapons are spreading to other countries, and as the Iraqi experience demonstrates, current international controls are inadequate to stop this proliferation. The impending breakup of the Soviet Union may accelerate this trend, as some republics may be tempted to export nuclear materials, components, and expertise to other countries, or even to develop weapons of their own.

In this period of transition from old security relationships to new ones, the policies and actions of the United States will make a crucial difference. First and foremost, the United States must recognize that the concepts and assumptions that have guided its security policy throughout the Cold War have become largely obsolete. A large nuclear arsenal no longer enhances US security, and nuclear deterrence itself, once the cornerstone of US efforts to contain Soviet expansion, is of declining relevance to the threats we face. Thus, the key question is no longer *What is required to deter Soviet aggression?* but rather *How can the world's nuclear arsenals be sensibly controlled to minimize the risks to the United States and other countries?*

Stated this way, the answer is clear. The United States must immediately take actions to put into place an effective

system of international controls on nuclear weapons, materials, and technology. Three key steps must be taken:

- Reduce dramatically Soviet and US nuclear arsenals, leading by the end of this decade to a "reserve nuclear force" on each side numbering no more than 1,000-2,000 strategic *and* tactical weapons.
- Negotiate restrictions on the arsenals of other nuclear powers, both declared and undeclared.
- Strengthen the nuclear nonproliferation regime through expanded controls on nuclear materials and components and the creation of new, international enforcement mechanisms.

Recent events have created an unprecedented—though perhaps only temporary—opportunity for the United States to achieve these goals by working in partnership with the new leadership of the Soviet Union. The path we recommend is difficult, but the potential benefits for the United States and the world community at large are very great. Many steps are required. Below we describe one practical, two-phase approach, which we believe could be fully implemented by the end of the 1990s. The first phase contains steps that could be achieved relatively easily within existing diplomatic frameworks, whereas the second phase contains more ambitious steps—such as bringing nuclear powers other than the Soviet Union under arms control restrictions—that will take more time, political will, and diplomatic skill to achieve.

Phase 1 (1992-1995)

- Institute confidence-building and other measures to prevent misunderstandings between the Soviet Union and the United States and to

minimize the risk of accidental or unauthorized launches of nuclear weapons. The measures should include a relaxation of current alert levels; cooperative efforts to tighten command and control; installation of permissive action links (coded locks) on naval nuclear weapons; and installation of command-destruct devices on inter-continental ballistic missiles (ICBMs) to permit their destruction if launched without authorization.

- Reach agreement to reduce Soviet and US strategic (long-range) nuclear arms to 3,000-4,000, representing a 60-70 percent cut below projected START I levels and a 70-80 percent cut below current levels. This is probably the largest reduction that could be achieved without involving other declared nuclear powers (currently Britain, France, and China). The agreement should require that all decommissioned warheads be dismantled and the nuclear materials contained in them placed in secure storage to prevent their later use. Under the proposed reductions, US and Soviet nuclear forces would be restructured to maximize survivability and minimize pressures to launch on warning of an attack. For example, this would mean eliminating multiple warheads on ICBMs.

- Reach agreement to ban all Soviet and US tactical (short-range) nuclear weapons, with the possible exception of a small number of air-delivered bombs, whose function would be to reassure US allies (particularly Germany, Japan, and South Korea) facing potential regional nuclear threats and thus discourage them from acquiring nuclear weapons of their own.

- Reach additional agreements between the United States and Soviet Union to halt testing of all nuclear weapons; halt production of plutonium

and weapons-grade uranium; constrain tests of new missiles posing a particular threat to command-and-control; and ban testing and deployment of antisatellite weapons.

- Strengthen the existing nuclear nonproliferation regime through expanded controls on weapon-related materials and components and the creation of enforcement mechanisms (following the precedent set in Iraq). Among other steps, the United Nations Security Council should require that any country buying nuclear materials submit to inspection of all its nuclear facilities, and that suspected violators of the Non-Proliferation Treaty (NPT) submit to "on-demand" inspections of declared and undeclared facilities. In addition, the informal suppliers' club for nuclear weapon and missile components should be strengthened through more formal agreements to restrict exports, and a UN registry of arms sales and purchases should be established with a commitment by weapons exporters to cut their exports by 5 percent per year for the next 10 years.

Phase 2 (1995-2000)

- Reach agreement on further reductions in Soviet and US nuclear arms to no more than 1,000-2,000 strategic and tactical weapons on each side, representing a 90-95 percent cut below current levels. At this stage, it would be necessary to include other declared nuclear powers in the negotiations; a reasonable ceiling for these countries would be 500-700 weapons each. Such deep reductions would require further restructuring of US and Soviet nuclear forces to maximize survivability.

- Reach agreement by all nuclear powers to rule out the first use of nuclear weapons under any circumstances. This

step would in effect delegitimize the possession of nuclear weapons for any purpose other than to deter nuclear attacks by others. The declaration of no first use should be backed by a UN Security Council resolution pledging joint action against those who violate the agreement.

- Move the UN Security Council to require that all nations accept minimum controls on their commercial and military nuclear installations in the interest of world security. Minimum controls could mean several measures, including becoming a signatory to the strengthened NPT; acceptance of bilateral or multilateral inspections like those between Brazil and Argentina; or participation in a regional nuclear-weapons-free zone. Nations that do not comply should be subject to UN-enforced sanctions.

Benefits of the Proposed Program

If the program we recommend is implemented and proves effective, then the possibility may emerge that the world can move towards eliminating nuclear weapons altogether. Until the new regime has been in operation for several years, however, no realistic assessment of this possibility can be made. Yet even if global nuclear disarmament proves impractical, the phased approach would have several direct and immediate benefits for the United States.

First, it would result in a far smaller Soviet nuclear force. This would, in turn, make it far more difficult for a future authoritarian Soviet regime to mount a credible threat to the West, while at the same time leaving the United States with a sufficient reserve nuclear force to deter any threat that might arise. In addition, smaller arsenals would compel both the Soviet Union and the United States to

adopt targeting and response strategies that would be much less likely to result in catastrophe during a crisis.

Second, the system of international controls we recommend would for the first time restrain and monitor the nuclear programs of all nuclear-capable states and would more effectively impede efforts of other states to acquire nuclear weapons. Just as important, by creating comprehensive mechanisms to verify compliance with the controls, it would provide the United States and the world community with ample warning if countries attempted to circumvent them.

Third, the proposed program would lead to substantial savings for the US defense budget by reducing nuclear weapons expenditures and eliminating the need for new fissile material and warhead production facilities. We estimate these savings to be in the range of \$20 billion to \$30 billion per year. Moreover, by fostering increased international cooperation and a stronger role for the United Nations (including greater possibilities for multilateral peacekeeping), the approach could also lead to reduced requirements for conventional forces, with potentially even larger savings.

* * *

For the first time in 40 years, the opportunity exists to put the nuclear genie largely, if not wholly, back into the bottle. We call on President Bush to seize this opportunity by adopting and promoting a policy along the lines we describe. Only the United States is in a position to effect such profound changes in the global political system; only President Bush can provide the leadership such an effort requires. If the program we propose were to be achieved,

then the United States, its allies, and the world community would reap the benefits of much greater nuclear security for generations to come.

Introduction

In just two years, the global political scene has undergone dramatic change. The collapse of Soviet power in Central Europe removed the military threat to Western Europe that was one root cause of the Cold War. The other root cause was the ideology and objectives of the Communist Party of the Soviet Union. The Party is now destroyed; the centrally controlled empire that was its base of operations is falling apart. As a consequence, the danger of a global nuclear war triggered by conflict in Europe or by Soviet aggression elsewhere has largely disappeared.

Nevertheless, nuclear weapons continue to pose an unacceptable threat to US security and world peace. One perilous relic of the Cold War survives largely untouched, inimical to Western interests and to global security: the Soviet nuclear force, equipped with some 27,000 warheads. Although there have been many positive developments, the Soviet political scene is still in turmoil and instability is likely to persist for a prolonged period. Such turbulence entails some risk of loss of command and control over Soviet nuclear weapons.

In addition, the effort by various states to acquire nuclear weapons and sophisticated means of delivery continues to pose real danger to international security. The recent events in the Soviet Union have substantially increased the dimensions of this threat. Large numbers of competent nuclear physicists and sophisticated nuclear facilities are spread across the Soviet Union. These provide individual republics with a considerable

potential capability for producing nuclear weapons or exporting the knowledge and equipment to do so.

Thus, while the basic concerns on which US nuclear arms policy has been constructed for four decades have receded or even disappeared, other concerns—less awesome to be sure, but nonetheless grave—demand our attention. Fortunately, relations between the West and the Russians have become constructive for the first time since 1945, and thus the opportunity now exists to effect profound changes in global security relations. This opportunity may not last and must be seized now by the United States, the only state in a position to do so.

The new nuclear arms policy we advocate has three central elements. First, we call for swift and deep reductions in the Soviet and US nuclear arsenals far below the levels mandated by the Strategic Arms Reduction Treaty (START I). Such reductions would, in one stroke, make it far more difficult for a future Soviet regime with aggressive intentions to mount a credible threat to the West, compel both the Soviets and the United States to adopt nuclear strategies that would be much less likely to lead to catastrophe in a severe crisis, and therefore sharply diminish the chance that Soviet instability could lead to inadvertent nuclear war.

Second, we call for negotiations to reduce and restrict the arsenals of other nuclear powers, declared and undeclared. For decades, there has been no attempt to include these countries under arms

control limits, largely because of the dominance of the US-Soviet confrontation. In the future, however, there is at least as great a chance that nuclear war will arise because of conflicts involving one or more of these nations as that it will be sparked by a crisis in US-Soviet relations.

Third, we call for a strengthening of controls on nuclear proliferation and the creation of comprehensive mechanisms to enforce these controls. A precedent for enforcement has already been set by UN Security Council actions in the wake of the US-led campaign to liberate Kuwait from Iraqi occupation.

These elements depend on each other for their success. For example, truly deep reductions in Soviet and US nuclear arsenals down to the level we envision—perhaps 1,000-2,000 weapons—probably cannot be achieved without involving other nuclear powers—notably China—in negotiations to reduce or constrain their arsenals. At the same time, a commitment by the major powers to reduce their arsenals dramatically is essential if measures to prevent further nuclear proliferation are to be effective.

This report describes a comprehensive agenda for achieving these three goals before the end of this decade. The first section analyzes the major remaining nuclear threats facing the United States and other countries. The next argues for a profound reassessment of the roles of nuclear weapons in US security policy and presents a new security concept to guide this policy in the future. Finally, the report describes in detail the steps required to implement this new concept in a phased approach that is designed to reach the desired goal by the year 2000.

The Continued Nuclear Threat

Today three types of nuclear threats face the United States and other countries. The first arises from the continued possession by the Soviet Union and the United States of thousands of strategic (long-range) weapons poised to strike one another. The second involves other countries that already have nuclear weapons or are in a position to build them. The third lies in the prospect that still more countries may acquire nuclear weapons, possibly increasing the risk of regional nuclear war. Different policies are needed to cope with each of these threats.

The Soviet-US Nuclear Standoff: A Dangerous Cold War Relic

Both the Soviet and US strategic nuclear arsenals are currently in a high state of readiness, which in practice leads to a heavy emphasis on the option to launch on warning of an attack. This condition is the direct result of the vulnerability of each side's forces, and particularly command-and-control systems, to being severely damaged or destroyed in a missile attack. Thus, it is an inherent property of existing Soviet and US forces—a condition that cannot be wished away by political statements or by arms control agreements that do not fundamentally alter the character of these forces.

The high state of readiness of Soviet and US nuclear forces creates at least the theoretical risk that false warning of a missile attack—arising, for example, from a technical malfunction in an early-warning sensor—could lead to a mistaken

retaliation. Under normal peacetime conditions, the chance that this would occur is probably quite low, because commanders would naturally seek to verify unusual sensor readings by all means available. But of considerable concern is the possibility that some form of false warning, or a false order to launch, might be received in the midst of a crisis, when commanders would be more willing to accept that an attack was under way, and when pressures to respond quickly could lead to inadequate confirmation.

In light of these circumstances, the political instability of the Soviet Union is deeply troubling. This instability might at some point lead either to a reversion to authoritarian government or to the utter collapse of central authority. In either case, there could be chaos, violence, perhaps even civil war. Under these circumstances, it is possible that Soviet military commanders could acquire the authority—normally held by their civilian superiors—to launch weapons. If the domestic crisis coincided with an international crisis, perhaps involving a confrontation over Eastern Europe, then there might well be a significant risk of unauthorized or inadvertent missile launches against the United States. This concern has now been heightened because a substantial portion of the Soviet early warning radar network is located outside the Russian Republic.

Although such an attack is by no means likely, its consequences for the United States would be so severe that the risk cannot lightly be dismissed. Given

the structure of Soviet missile forces and the large number of warheads on each missile, any launch could well involve dozens, if not hundreds, of warheads. Since political instability in the Soviet Union may be prolonged, a priority for the United States must be to reach agreement with the Soviet leadership on cooperative measures to mitigate these risks.

Dangers Involving Other Nuclear Powers

The arsenals of the three other declared nuclear powers—Britain, France, and China—as well as those of the undeclared nuclear powers—India, Pakistan, Israel, and possibly North Korea—are not subject to any controls. Their existence creates other possible pathways by which nuclear war could occur. Five regions are of particular concern:

China. Long-simmering border disputes between the Soviet Union and China have been kept in check by mutual deterrence. However, the threatened breakup of the Soviet Union and possible instability within China itself—where a weakening of central authority could lead to regional control over nuclear weapons—could disrupt this relationship, possibly leading to border conflicts that could escalate to the nuclear level.

Korean peninsula. Recently, it has been reported that North Korea is close to acquiring nuclear weapons, if it has not already. Although the US commitment to defend South Korea should continue to deter North Korean aggression, the acquisition of nuclear weapons by North Korea could exacerbate tensions and raise the stakes in a conflict.

Indian subcontinent. India has had the capability to build nuclear weapons since the 1970s. In recent years,

Pakistan's nuclear program has advanced to the point that it, too, may be nuclear capable. The long-standing animosity between these two countries carries a clear risk of nuclear war.

Middle East. Still the most volatile region in the world, the Middle East contains the seeds of nuclear conflict in Israel's undeclared arsenal of 100-200 weapons and the suspected nuclear aspirations of Libya, Syria, and Iraq. Although the Iraqi threat has been eliminated for the time being, the expertise to rebuild Iraq's nuclear program has not, and thus continued international vigilance will be required.

In none of these regions is there serious risk of nuclear attack on the United States, although nuclear terrorism cannot be ruled out. Nevertheless, there are strong reasons for the United States to take an interest in reducing regional tensions and negotiating controls on declared and undeclared arsenals. The use of nuclear weapons anywhere would be an unmitigated human tragedy, not only because of the death and destruction it would cause, but also because it would set a precedent that could lead to repeated use elsewhere. Furthermore, the United States has powerful economic and military interests in several of the regions affected, and thus the use of nuclear weapons could cause direct harm. For example, US forces overseas could be subject to nuclear attack in a conflict in the Middle East or the Korean peninsula, and Middle Eastern oil fields could be destroyed, causing price increases and shortages that could shatter the world economy.

The Growing Threat of Proliferation

All of these dangers would be exacerbated if even more countries acquired nuclear weapons. In fact, the

world has been fortunate that only a few nations have thus far chosen to join the nuclear club, either publicly or in secret. In some measure this circumstance can be traced to the Cold War, which, while creating dangers of its own, helped to discourage proliferation by providing a security umbrella for countries aligned with the superpowers. The collapse of Soviet power has removed this restraint. Whether greater proliferation will ensue depends on whether new security arrangements—in the form of regional peace settlements, new military alliances, or international safeguards—can be put into place.

What should be abundantly clear after experience with Iraq's nuclear program is that current controls on nuclear materials and components, as well as national intelligence means for monitoring the nuclear programs of other states, are inadequate to stop proliferation. Although a signatory of the Non-Proliferation Treaty (NPT), Iraq managed to build fissile material enrichment facilities without the knowledge of the international community. Today, realization of what it could have meant if Iraq had already acquired nuclear weapons before the invasion of Kuwait has led to growing recognition that tougher measures are required.

Unless steps are taken soon, the proliferation danger may grow. The rapidly expanding autonomy of the Soviet republics threatens to create a new source of proliferation. While at least some non-Russian republics have declared their intention to be nuclear weapons free, their position could be reversed should relations with other republics or with China turn sour. In that case, several of the republics would find themselves in a strong position to acquire

nuclear weapons, as they already possess a large infrastructure of materials, facilities, and expertise. There is also the possibility that in a situation of widespread unrest, partisan or terrorist groups could gain control of nuclear weapons and threaten to use them unless their demands are met. In addition, some cash-starved republics might export nuclear technology to other countries.

Towards a New US Nuclear Policy

Current US security policy is unprepared to deal with the present dangers of nuclear conflict. The pace of global political change has been so rapid and the nature of the changes so profound that US policy simply has not had time to adapt. In particular, the United States remains officially committed to the Cold War policy of maintaining a large and ever more capable nuclear arsenal to deter Soviet aggression. This commitment can be seen in continuing programs to develop and deploy new strategic weapon systems such as the Trident submarine, the B-2 bomber, and the earth-penetrating weapon. Yet the Cold War threat for which these weapons were designed has disappeared. All that remains is a relic of that threat, the Soviet nuclear arsenal itself.

Under this circumstance, the United States urgently needs a new security policy that will address the nuclear threats that remain. The immediate objectives of this policy should be twofold:

- to create Soviet and US "reserve nuclear forces" that, by virtue of their small size and inherent invulnerability to attack, pose little risk of accidental use and generate no pressures to launch promptly in a crisis
- to develop, in cooperation with the Soviet Union and other countries, a comprehensive system of international controls over weapons held by other nuclear powers (declared and undeclared) and over nuclear facilities, materials, and components that could be used to produce nuclear weapons.

Moving to a Reserve Nuclear Force

To mitigate the risks inherent in the existing US-Soviet nuclear relationship, we propose that the Soviet Union and the United States each move to a reserve nuclear force that is far smaller and less vulnerable than the existing forces. These two properties would compel military planners to create a spectrum of contingency plans very different in character from current war plans.¹ The latter create the certainty of enormous loss of civilian life because they dictate prompt, massive response on warning of attack. With a reserve nuclear force, in contrast, neither side would have forces of a type or size that could destroy or severely damage the other's strategic forces and command systems.

Consequently, both sides would have time to ride out an attack and respond only after its scope and intent had been fully assessed. This would virtually eliminate the chance of war caused by erroneous warning or miscalculation. In addition, should a nuclear exchange actually take place, the magnitude of destruction on both sides would be greatly reduced.

To possess these properties, the reserve nuclear force would have to be considerably smaller than the 4,000-5,000 strategic weapons envisioned under some proposals for "START II." Several detailed studies have shown that a force of about 4,000 warheads could implement war plans similar in scope and character to those of today.² It follows that unless deeper reductions are achieved, the basic nuclear posture of each side will not change. Below, we propose a reserve

force level of no more than 1,000-2,000 strategic *and* tactical warheads.

Among the specific requirements for the reserve nuclear force are the elimination of multiple warheads from silo-based intercontinental ballistic missiles (ICBMs); a mix of submarine-launched ballistic missiles (SLBMs), ICBMs, and bombers that would preclude the simultaneous destruction of each side's fixed launchers (including bombers on the ground); sufficient redundancy in missile submarines to reduce the risk that a breakthrough in antisubmarine warfare could suddenly threaten their survival; tight constraints on strategic defenses; a ban on testing of missiles, particularly depressed-trajectory SLBMs, that pose a special threat to command and control; and adequate measures to verify compliance with the agreements and to discourage cheating.

Besides a radical reduction in force levels, the reserve nuclear force concept entails a far-reaching change in the roles of nuclear weapons, particularly with regard to the United States. It drops the notion that nuclear weapons are useful for deterring a wide range of aggressive behavior other than nuclear attack. Instead, the object of having nuclear weapons would be narrow and specific: to deter their use by other countries while retaining the capacity to respond if attacked. The new concept also implies the end of "extended deterrence," the US commitment to use nuclear weapons to defend its allies against conventional attack. Extended deterrence has been at the heart of NATO defense policy since the early 1950s, but the collapse of the Warsaw Pact has radically altered the military balance in Europe, rendering the role of this commitment obsolete. Nevertheless, the withdrawal of the US nuclear umbrella from Western Europe

and East Asia could have profound political repercussions if new security arrangements are not already in place.

Moving towards Comprehensive Control over Nuclear Weapons

Nuclear proliferation will be difficult to prevent if states have an interest in acquiring nuclear weapons to protect their security and perceive them to be legitimate instruments of military power. Regional instability thus tends to encourage proliferation, as does the maintenance of large nuclear arsenals by the United States, the Soviet Union, and other countries. In addition, the existing double standard between declared nuclear weapon states and other states that have signed the NPT creates tensions which undermine efforts to prevent proliferation. At present, the NPT imposes no restrictions whatsoever on the production of nuclear materials for military purposes by declared nuclear powers, while it imposes tight constraints on even the civilian nuclear activities of states that have agreed not to acquire nuclear weapons.

Thus, a priority for the United States (and the world community) must be to help defuse regional conflicts. Equally important, the nuclear weapon states, and the United States in particular, must take steps to reduce dramatically their reliance on nuclear weapons and agree to submit a significant portion of their military nuclear activities to international controls. Hence, US-Soviet arms reductions are of crucial importance to fostering nonproliferation—indeed, they are an explicit requirement of the Non-Proliferation Treaty. Even more important are steps to control and reduce the nuclear arsenals of other states, whether declared or not. In some cases—for example, Britain and

France—this task could be relatively easy, but in other cases it could be immensely difficult. China has indicated a willingness to sign the NPT, but controls on the nuclear capabilities of Israel, India, and Pakistan may have to await lasting political solutions to their regional disputes.

Beyond these measures, however, there would be clear benefits to strengthening controls on the export of nuclear materials and components. At present, members of the NPT are under no obligation to accept inspection of facilities not officially acknowledged to be nuclear related, and of course, nonmembers are not required to submit to any inspections at all. Moreover, there is no effective institutional mechanism to enforce the NPT. The policy we propose would seek to correct these problems through a number of measures described in more detail later.

A Framework for Negotiations

The new policy we propose is as different from previous US nuclear policy as the present global political climate is different from the Cold War. But while it has taken a surprisingly short time to free Eastern Europe from Soviet domination and cripple the Soviet Communist Party, it will not be possible to negotiate, let alone implement, the recommended changes in less than several years. Given the magnitude of the undertaking advocated here, it is likely that the process will have to proceed in phases. We propose two phases, the first containing steps that could be achieved relatively easily within existing diplomatic frameworks, the second containing more ambitious actions—such as bringing nuclear powers other than the Soviet Union into arms control limitations and organizing tougher UN sanctions against proliferation—that will take time, political will, and diplomatic skill to achieve. We envision that Phase 1 could be completed within three years (that is, by 1995) and Phase 2 within five years after that.

Phase 1 (1992-1995)

START I will leave the Soviet Union and the United States with about 8,000 and 9,000 strategic warheads, respectively, representing approximately a 30-percent reduction over existing force levels. The basic characteristics of the forces will not change, however. They will continue to be vulnerable to attack by the other side and consequently will continue to be poised for rapid launch on warning of attack. Therefore, as an immediate priority, the United States and

the Soviet Union must implement cooperative measures to mitigate these problems, along the following lines.

- Confidence-building measures: reduced peacetime readiness of bombers and missile submarines; discussions between military authorities on warning systems and alert procedures, possibly leading to improvements in the existing Hot Line and Risk Reduction Center and to some linkage between the early-warning systems of each country; and zones centered on Washington and Moscow within which missile submarines could not operate, so as to reduce the possibility of a surprise attack.³

- Installation of postlaunch command-destruct devices on ICBMs and of permissive action links (coded locks) on naval nuclear weapons, particularly sea-launched cruise missiles (SLCMs) and SLBMs, as further safeguards against unauthorized or accidental launches.

- Constraints on missile flight tests to stem the development of new MIRVed missiles, maneuvering reentry vehicles (MARVs), depressed-trajectory SLBMs, and earth-penetrating warheads.

- A ban on flight tests of antisatellite weapons, which could threaten communications and intelligence satellites.

In addition to these measures, the United States and the Soviet Union should take the first step towards reaching a reserve nuclear force by negotiating interim reductions to a level of about 3,000-4,000 weapons (START II). START I provides a framework within which these additional reductions

could easily be negotiated. START II negotiations should begin as soon as START I is ratified, and not await its implementation. The new agreement should include counting rules that, in contrast to START I, take air-launched cruise missiles and air-delivered bombs fully into account, and it should require the elimination of multiple warheads on ICBMs.

In Phase 1, several actions should also be taken to move towards an effective system of international control over nuclear weapons. This objective is broader than the specific aim of the Non-Proliferation Treaty, because it covers measures designed to reduce the risk of circumvention of arms reduction agreements and draw other declared and undeclared nuclear powers into a regime of nuclear controls. The measures include the following:

- The UN Security Council should adopt a resolution mandating "full-scope" safeguards for sales of nuclear materials or components by signatories of the NPT. Full-scope means that no sale would be allowed unless the country purchasing the materials agreed to inspection of all of its nuclear facilities by the International Atomic Energy Agency (IAEA).

- The UN Security Council should in practice make itself the enforcement arm in the area of nonproliferation. In the event of actual or suspected circumvention of the NPT, the Council should order IAEA to carry out special, "go anywhere" inspections of suspect sites, invoking the precedent set in Iraq. This would require a commensurate increase in the IAEA budget.

- The informal suppliers' club for nuclear weapon and missile components should be strengthened through more formal agreements to restrict exports, and a UN registry of arms sales and purchases

should be established, with a commitment by the weapons exporters to cut their exports by 5 percent per year for the next 10 years.

- The United States and the Soviet Union should agree to halt the production of plutonium and weapons-grade uranium, subject to bilateral and IAEA monitoring. In practice, this measure would require that all US and Soviet nuclear plants (military and civilian) be placed under some form of IAEA safeguard. This measure would at the same time reduce the risk of Soviet breakout from START II and encourage nonnuclear countries to agree to tighten the nonproliferation regime. The United States would also save large sums by not restarting fissile-material production, which is currently stopped because of environmental and safety problems.

- The United States and the Soviet Union should agree to a phased implementation of a Comprehensive Test Ban, beginning with a yield threshold some 10 times lower than the current one of 150 kilotons and an annual limit of about five tests, and followed after about five years by a cessation of all tests.

- The United States and the Soviet Union should agree to dismantle warheads eliminated in START I and START II, with the weapons' fissile material placed in storage under international supervision to prevent its later use. START I requires no warhead dismantlement.

- The other three declared nuclear powers should agree to no-increase ceilings on their nuclear forces and a halt in production of fissile materials for weapons, with all their nuclear facilities coming under IAEA control, as in the case of the United States and the USSR.

The initial US-Soviet arms reductions we propose here meet long-

standing French and British requirements for joining an international system of controls over nuclear weapons. However, while prospects for cooperating in such an initiative with the Soviet Union, Britain, and France look promising, China's position is unclear. It is vital that the other nuclear powers put sustained pressure on China to enter into collaborative arms control efforts.

Throughout Phase 1, the United States could elect to maintain a degree of extended deterrence—if asked by allies—not only through the targeting of its strategic forces but also by maintaining nuclear-equipped, theater-range aircraft either in Britain or in the United States. Some continuation of extended deterrence might be desirable to discourage any incipient desire by some countries, particularly Germany, Japan, and South Korea, to acquire nuclear weapons.

Phase 2 (1995-2000)

Phase 2 would be the final move to a reserve nuclear force by the United States and the Soviet Union. Negotiations to lay this framework should begin immediately; the talks would go into high gear after completion of START II. The negotiations would be facilitated by the nature of the reductions already mandated by START II and the verification regime for monitoring these reductions; the agreement to stop production of weapons-grade fissile materials; the prior agreement by the other nuclear powers to participate in this final stage; the strengthening of political and technical means for stemming proliferation; and, of overriding importance, the political atmosphere that these measures would have created.

This Phase 2 negotiation would of necessity be both bilateral and

multilateral and should have the following objectives:

- Agreement to reduce all nuclear warheads held by the nuclear powers, including tactical warheads, to ceilings in the range of 1,000-2,000 for the United States and the Soviet Union and to a level of 500-700 warheads each for Britain, France, and China, with decommissioned warheads dismantled under international control.

- Agreement to remove from naval vessels all nuclear weapons and delivery systems, including nuclear-armed SLCMs, except for a controlled number of SLBMs.

- Acceptance by all the nuclear powers of a Comprehensive Test Ban treaty.

- A phased, worldwide ban on the commercial as well as military production of plutonium and weapons-grade uranium, starting with a ban on the production of fissile material for weapons.

- IAEA inspection of all nuclear power plants in all member countries.

These last two points would be incorporated in a new treaty supplementing the present Non-Proliferation Treaty, which would be renewed for an indefinite period.

Enforcement Action by the UN Security Council. Actions by the UN Security Council would be a key part of the move to comprehensive control over nuclear weapons. The steps described here are intended as the final component of a tightened nuclear control regime covering undeclared and would-be nuclear powers. We are assuming that the cooperation of the five permanent members of the UN Security Council in Phase 1 of our program would also have brought about practical cooperation in peacekeeping, and that material progress would by then have been made toward a

political settlement between Israel and the Arab states. The measures we propose are as follows.

- The UN Security Council, considering nuclear weapons by far the most devastating instruments of mass destruction, would resolve that the use or threat of use of nuclear weapons by a terrorist or nongovernmental group, or the threat of use or first use of nuclear weapons by any state in an armed conflict, be considered an offense against world peace.

- The Security Council would state that until progress is made toward eliminating nuclear weapons, it considers that the only acceptable grounds for possessing nuclear weapons is to deter their use by others and that the only acceptable use of these weapons is in response to the first use of nuclear weapons by others. Accordingly, those member states that possess nuclear weapons would pledge themselves not to make first use of these weapons.

- The Security Council would pledge to take joint action against anyone who makes first use of nuclear weapons, drawing on the entire range of possibilities contained in the Charter.

- The Security Council would also decide that, in light of all the actions undertaken by the community of nations to bring nuclear weapons under effective control, the failure of any state to accept minimum controls on its national nuclear installations would be an unacceptable threat to international peace and security. "Minimum controls" would consist of a wide range of possible actions, including signing the strengthened NPT, acceptance of bilateral or multilateral inspections like those between Brazil and Argentina, or participation in a verifiable nuclear-weapons-free zone.

- The Security Council would

declare its readiness to act against noncomplying countries, drawing on the entire range of possibilities contained in the UN Charter, including economic sanctions and expulsion from UN membership.

The first three UN Security Council measures described here are aimed at undeclared nuclear states, as well as at the possibility of seizure of nuclear weapons by terrorists or a political group. They are intended as a deterrent to first use by putting a possible offending state or group on notice that it could expect a punitive response from the United Nations. At the same time, they replace earlier pledges of assistance to the victims of nuclear attack by the declared nuclear powers with a stronger pledge of joint UN action against the attacker.

The last measure—Security Council action against states that refuse to accept any outside controls on their nuclear installations—is also aimed at undeclared nuclear powers, as well as those that might in the future wish to develop nuclear weapons. In light of all the actions taken earlier by both nuclear and nonnuclear states, it would be dangerous and politically unacceptable simply to permit any state that so desired to remain completely outside the extensive regime of controls accepted by the overwhelming majority of the world's states.

The proposed action of the UN Security Council would not be rigid. It would in practice confront undeclared nuclear powers with a fairly wide range of choices: (1) relinquishing their nuclear weapons and signing the NPT as a nonnuclear state; (2) accepting some bilateral or multilateral control, like a nuclear-free zone, outside the NPT; or (3) declaring themselves a nuclear weapons power, while also accepting the full range of limitations already agreed to

by the declared nuclear powers, including international control of their nuclear facilities, close-down of fissile-material production plants, and a test ban. All of these options would be kept open only for a specified grace period before Security Council action was taken.

The Role of Strategic Defense

The continuing interest in strategic defense in the United States poses difficult problems for achieving the goals we propose, or for that matter, even more modest nuclear arms reductions. On the one hand, most of the traditional arguments against US-Soviet deployment of nationwide missile defenses—arguments that led to the ABM treaty—remain valid. As we have pointed out, the prospect of a return to a hostile, authoritarian regime in the Soviet Union cannot be ruled out. At least for the next several years—until Phase 2 has been completed and in operation for several years—an offensive nuclear capability will continue to be the best insurance against such a resurgent threat. Moreover, if the United States deployed missile defenses in violation of the ABM treaty, the result might well be to block reductions in Soviet nuclear arms, thus leaving a large arsenal in place with which to threaten the United States should a hostile government emerge. In a crisis, the combination of strategic offensive and defensive forces could also exacerbate pressures for prompt launch because of uncertainty about the performance of defenses.

Even a cooperative deployment of defenses by the Soviet Union and the United States could prevent China, Britain, and France from participating in negotiations to limit the size of their nuclear forces and thereby block the way to reaching low levels of forces on all sides. In addition, it could create tensions between the United States and its allies not covered by defenses and further

widen the gap between nuclear “have” and “have not” nations.

On the other hand, the proliferation of nuclear weapons and ballistic-missile technology, coupled with the fear of an accidental Soviet launch, have led some people to propose US deployment of a “limited” defense against “small” missile attacks. Indeed, the US Senate has voted to deploy a ground-based system at Grand Forks, South Dakota, the one legal ABM site, by 1996. But this and other proposals fail to address the question of whether defenses are the most effective—not to mention cost-effective—means of countering the perceived threats.

While a limited defense system might be able to stop the accidental launch of a small number of Soviet ballistic missiles, the risk of such a launch can be more quickly, effectively, and cheaply addressed through a combination of cooperative measures such as we have described, including postlaunch command-destruct systems for ICBMs and permissive action links for naval weapons. At the same time, a ballistic-missile defense is unlikely to reduce substantially the risks posed by covert development of nuclear weapons. For one thing, the United States has ample means, even without resorting to nuclear weapons, to retaliate against smaller nations that engage in nuclear blackmail. As Iraq’s experience demonstrated, US conventional firepower is sufficient virtually to destroy even a relatively well-armed Third World nation. It is, moreover, most unlikely that small states or terrorist groups would choose to attack the United States with a ballistic

missile; plenty of cheaper, less-sophisticated, and less-traceable means are available. Indeed, missile defenses would be more likely to encourage potential enemies to use other options for nuclear attack, rather than reduce the overall probability of an attack.

Thus, it is doubtful whether the additional margin of security that missile defenses might bring would be worth their high cost and the obstacles they would create to arms reductions. To a degree, there is a trade-off here between two kinds of security. The first is the apparent security stemming from exclusive reliance on one's own defenses—a kind of Fortress America. This approach has some psychological attraction but also many defects, including diversion of scarce resources from more generally useful conventional forces. The second kind of security results from a combination of one's own weapons and cooperative measures with other states. Under this more outward-reaching approach, the United States would not hide behind a shield of unproven effectiveness but would go after nuclear threats directly through a combination of political and, if need be, military means. Even under this second approach, the United States, as the world's strongest military power, would not, in the last analysis, be dependent for its security on the successful cooperation of other states.

In view of these points and the general objectives we have set forth, US policy regarding strategic missile defenses should be along the following lines.

- Missile-defense research and development should be pursued in strict conformity with the traditional interpretation of the ABM treaty.

- There should be no deployment of ground-based defenses, although treaty-compliant research on such

defenses should continue as a hedge against the possible expansion of existing Soviet defenses and against possible deployments by other countries.

- The development and deployment of space-based interceptors (but not sensors) should be opposed as part of any future "thin" ABM system, because of their relative vulnerability, high cost, and susceptibility to countermeasures.

- The United States should call on the Soviet Union to dismantle its defense system around Moscow. This confidence-building measure would improve the prospects for deep reductions in the Soviet and US strategic arsenals.

- The dividing line between defenses against tactical ballistic missiles, which are permitted by the ABM treaty, and defenses against intercontinental missiles, which are forbidden, should be more clearly defined in consultation with the Soviet Union. Agreement should also be reached on more precise definitions of what testing is allowed or forbidden by the treaty.

Benefits of the Proposed Program

Adoption of the policy we recommend, though a radical departure from past policies, should not be confused with unilateral disarmament. What is advocated here is anything but unilateral, and the immediate objective is not total disarmament, but the creation of a stable nuclear regime at much lower levels of forces. Moreover, the United States would continue to be the only state with the ability to project power globally, and its nuclear forces would still be vastly more powerful than those of any state other than the Soviet Union.

If the program we recommend is implemented and proves effective, then the possibility may emerge that the world can move towards eliminating nuclear weapons altogether. Until the new regime has been in operation for several years, however, no realistic assessment of this possibility can be made. Yet even if global nuclear disarmament proves impractical, the phased approach would have several direct and immediate benefits for the United States.

First, it would result in a far smaller Soviet nuclear force. This would, in turn, make it far more difficult for a future authoritarian Soviet regime to mount a credible threat to the West, while at the same time leaving the United States with a sufficient reserve nuclear force to deter any threat that might arise. In addition, smaller arsenals would compel both the Soviet Union and the United States to adopt targeting and response strategies that would be much less likely to result in catastrophe during a crisis.

Second, the system of international

controls we recommend would for the first time restrain and monitor the nuclear programs of all nuclear-capable states and would more effectively impede efforts of other states to acquire nuclear weapons. Just as important, by creating comprehensive mechanisms to verify compliance with the controls, it would provide the United States and the world community with ample warning if countries attempted to circumvent them.

Third, the proposed program would lead to substantial savings for the US defense budget. The United States would be closing all of its nuclear weapons productions facilities, with the probable exception of one assembly and maintenance facility. It could forgo production of several new weapon systems—including the B-2 bomber—and reduce deployments of others. Missile-defense research expenditures could be cut by perhaps 50 percent, resulting in annual savings of about \$2 billion. Operating and support expenditures for all nuclear forces would also be reduced. We estimate the total savings to be in the range of \$20 billion to \$30 billion per year. Moreover, by fostering increased international cooperation and a stronger role for the United Nations (including greater possibilities for multilateral peacekeeping), our approach could lead to reduced requirements for conventional forces, with potentially even larger savings.

For the first time in 40 years, the opportunity exists to put the nuclear genie largely, if not wholly, back into the bottle. We call on President Bush to

seize this opportunity by adopting and promoting a policy along the lines we describe. Only the United States is in a position to effect such profound changes in the global political system; only President Bush can provide the leadership such an effort requires. If the program we propose were to be achieved, then the United States, its allies, and the world community would reap the benefits of greater nuclear security for generations to come.

Notes

1. According to knowledgeable analysts, Soviet war plans are roughly similar to those of the United States. See in particular William T. Lee, "Soviet Nuclear Targeting Strategy," in Desmond Ball and Jeffrey Richelson (eds.), *Strategic Nuclear Targeting* (Ithaca, NY: Cornell University Press, 1986), pp. 84-108.
2. See Michael M. May, George F. Bing, and John D. Steinbruner, "Strategic Arsenals after START: The Implications of Deep Cuts," *International Security*, Vol. 13, No. 1 (Summer 1988), pp. 90-133; and Harold A. Feiveson and Frank Von Hippel, "Beyond START: How to Make Much Deeper Cuts," *International Security*, Vol. 15, No. 1 (Summer 1990), pp. 154-180.
3. A scheme for monitoring submarine keep-out zones through challenge inspections is described in Kurt Gottfried and Bruce Blair (eds.), *Crisis Stability and Nuclear War* (New York: Oxford University Press, 1988), pp. 302-6.

"CORRESPONDENCE TRACKING"

TYPE: INFORMATION DOCUMENT NUMBER: 9124057
ORIGINATOR: 02 STATUS C DIRECTORATE STATUS

FROM: FIORITO, J.F.: BELLCORE

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 09/12/91

SUBJECT: RE: THE DATES OF THE SOFTWARE CHANGES TO THE
AFFECTED STPs PER YOUR REQUEST.

DIRECTORATE STAFF
ASSIGNED: ASSIGNED:

ACTION STAFF
REQUIRED: ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley
NATIONAL SECURITY

WHITE HOUSE TRACKING #: CONTACT PERSON:
REMARKS: PHONE: EXT:

OSTP RECEIVED: 09/17/91
DEPT RECEIVED:

FILE: P-NATIONAL SECURITY

Bellcore

Bell Communications Research

RECEIVED

91 SEP 17 P 1:42

4057
J. F. (Jack) Fiorito

Assistant Vice President
NSEP

September 12, 1991

OFFICE OF THE
DIRECTOR

Dr. D. Allan Bromley
Assistant to the President
for Science & Technology
Executive Office of the President
Washington, DC 20506

Dear Dr. Bromley:

At the conclusion of our briefing to the Joint Telecommunications Resource Board on the SS7 failures, you asked me to provide to you the dates of the software changes to the affected STPs. Attached is a chart showing the affected STPs, the date of the outages, and the date that each STP was loaded with the faulty software. I remember your concern was the fact that the software changes commenced in April, yet the failures did not take place until June. You will see from the attachment that, for the most part, the failures took place in STPs that were loaded in the May-June time frame. Also, the faulty software, in itself, did not cause the STPs to fail. They must have a trigger event, such as those mentioned on the attachment, to cause the outage to occur.

I want to thank you for allowing John O'Rourke and me to attend the JTRB meeting and discuss this issue with you. I assure you that both Bellcore and the affected regional companies are continuing to work on this problem to assure these types of failures do not occur again.

If we can be of further help to you, or if you would like a follow-up briefing on our final report on this issue, please call and we will be happy to assist you in any way we can.

Sincerely,



JFF/psc

Attachment

Faulty Software Patch Loading Date

Date of Outage	STP Sites Involved	Faulty Patch Loading Date
6/10/91	Sherman Oaks STP	6/7/91
	Anaheim STP	not loaded
	Gardena STP	6/8/91
6/26/91	Los Angeles STP	not loaded
	Anaheim STP	not loaded
	Sherman Oaks STP	6/7/91
	Gardena STP	6/8/91
6/26/91	Baltimore STP	5/3/91
	Pikesville STP	5/3/91
	Hyattsville STP	5/17/91
	Washington STP	5/3/91
7/1/91	Pittsburgh STP	6/6/91
	Oakland STP	5/14/91
7/1/91	San Francisco STP	6/8/91
7/2/91	San Francisco STP	6/8/91
	Walnut Creek STP	5/24/91
7/2/91	Pittsburgh STP	6/6/91
	Oakland STP	5/14/91

According to Bell Atlantic and Pacific Bell, the software patch that had the error was loaded into the STPs at the above dates, respectively.

However, loading this software patch did not immediately cause these CCS network outages because of the absence of certain triggers that can cause the STP to experience some congestion conditions. These triggers include multiple links out of service, routing table errors, common control subsystem failure, and possibly others.

"CORRESPONDENCE TRACKING"

TYPE: INFORMATION DOCUMENT NUMBER: 9123618
ORIGINATOR: 02 STATUS C DIRECTORATE STATUS

FROM: GRAY, Leven B.: NASA

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 08/23/91

SUBJECT: RE: ROUTINE NOTIFICATION OF THEIR PLANNED USE OF
RADIOACTIVE MATERIALS.

DIRECTORATE STAFF
ASSIGNED: ASSIGNED:

ACTION STAFF
REQUIRED: ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley
NATIONAL SECURITY
PHYSICAL SCIENCES

WHITE HOUSE TRACKING #: CONTACT PERSON:
REMARKS: PHONE: 453-1158 EXT:

OSTP RECEIVED: 08/28/91
DEPT RECEIVED:

FILE: P-NATIONAL SECURITY



National Aeronautics and
Space Administration

Washington, D.C.
20546

3618
RECEIVED

91 AUG 28 A 9:19

AUG 23 1991

Reply to Attn of: QS

OFFICE OF THE
DIRECTOR

The Honorable Allan Bromley
Assistant to the President for
Science and Technology Policy
Old Executive Office Building - Room 358
17th and Pennsylvania Avenue, NW
Washington, DC 20506

Dear Dr. Bromley:

This is a routine notification of our planned use of radioactive materials. The enclosed list of sources to be used on NASA Spacecraft updates previous lists. The proposed small radionuclide sources for subject launches have been reviewed by the NASA Interagency Nuclear Safety Review Panel (INSRP) Coordinator and, in total, determined to be Category "B" or "C" per NASC Document "Nuclear Safety Review and Approval Procedures for Minor Radioactive Sources in Space Operations" dated June 16, 1970.

After review, these sources have been determined to be sufficiently safe for launch.

If you have any questions concerning this information or desire any background concerning the use of the sources, please call me on 453-1158.

Sincerely,


Leven B. Gray
NASA Interagency Nuclear Safety
Review Panel Coordinator

Enclosure

CC:
Small Source Distribution

QUARTERLY REPORT

September 1, 1991 - November 30, 1991

MINOR RADIOACTIVE SOURCES

SPACECRAFT	LAUNCH DATE	LAUNCH SITE	NO. OF SOURCES	ISOTOPE	TOTAL ACTIVITY mCi	RADIO TOXICITY CATEGORY GROUP	REMARKS (ORBIT DURATION, ETC.)
<u>Oribiter</u>							
STS-48	9/91	KSC	18	AM241	0.00612	I/B	9 Fire Detectors(6 Mid deck, 3Flt deck) with two 0.34 microcurie each
STS-44	11/91	KSC	18	AM241	0.00612	I/B	" " " " " " " "
<u>Payload</u>							
STS-48	9/91	KSC	2	EU152	0.002	III/B	UARS/HRDL
			6	TH232	0.00024	III/B	" " "
			4	SR90	0.4	II/B	UARS/WIND II
			4	Y88	0.4	III/B	" " (Dual Isotope Source)
			4	AM241	0.000003	I/C	UARS/PEM/HEPS
			1	Y88	0.00333	III/B	SAM
			1	SN113	0.00333	IV/C	" (Combined Isotope Source)
			1	ZN65	0.00333	IV/C	" (Combined Isotope Source)
STS-44	11/91	KSC	1	Y88	0.00333	III/B	SAM
			1	SN113	0.00333	IV/C	" (Combined Isotope Source)
			1	ZN65	0.00333	IV/C	" " " "

"CORRESPONDENCE TRACKING"

TYPE: MEETING REQUEST DOCUMENT NUMBER: 9123522
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS

FROM: NALL, JULIAN C.: PROGRAM DIRECTOR, INSTITUTE FOR DEFENSE ANALYSIS

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 08/15/91

SUBJECT: WOULD LIKE TO ARRANGE A MEETING WITH DR. BROMLEY TO DISCUSS THE DEFENSE SCIENCE STUDY GROUP PROGRAM AND TO SEEK DR. BROMLEY'S ADVICE AND COUNSEL.

DIRECTORATE STAFF
ASSIGNED: NATIONAL SECURITY ASSIGNED:

ACTION
REQUIRED: REVIEW FOR DAB'S PARTIC STAFF
ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: 09/03/91 STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT: August 26, 1991
National Security

COPIES TO: D. Allan Bromley
Charles Herzfeld

WHITE HOUSE TRACKING #: CONTACT PERSON:
PHONE: EXT:
REMARKS:

I recommend DAB agree to this meeting. (Until recently, Julian Wall was the S&T director at DIA, and was very supportive of DIA). This is a meritorious program, and as you can see from the syllabus, has high level support & participation.

OSTP RECEIVED: 08/19/91
DEPT RECEIVED:

FILE: NATIONAL SECURITY

PS to Marion - Pls let me know if/when the meeting is scheduled -



DEFENSE SCIENCE
STUDY GROUP

INSTITUTE FOR DEFENSE ANALYSES
1801 N. Beauregard Street, Alexandria, Virginia 22311-1772 • Telephone (703) 845-2000

15 August 1991

The Honorable Allan D. Bromley
Assistant to the President
for Science and Technology
Room 358, Old Executive Office Building
Washington, D.C. 20506

Dear Dr. Bromley,

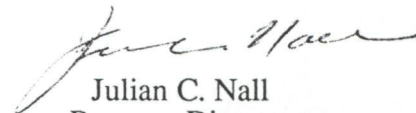
I want to remind you of a special program known as the Defense Science Study Group (DSSG) that I believe will be of interest to you. The program identifies about 15 of the most promising young academic scientists, engineers and mathematicians in the country.

The purpose of the program is to build a bridge of understanding between these outstanding young academics and the national security community through briefings and visits for approximately 40 days over a two-year period. The participants are given the opportunity to meet with key persons in the DoD, the intelligence community, industry and other organizations concerned with national security. The DSSG is sponsored by DARPA and is managed by the Institute for Defense Analyses (IDA). The attached material will give you more details about the program and gives the names of alumni, current participants, and mentors. I have also included the agenda of the most recent session which will give you an idea of the quality of the program.

In recent conversations with Michelle Van Cleave and Charley Herzfeld, who briefed the DSSG in May, we agreed that you might well want to know more about this program. With this in mind, I request that General William Y. Smith, who recently retired as president of IDA, and I meet with you at your convenience to discuss the program and to seek your advice and counsel.

If you agree with my request, I will talk with Marion to arrange a suitable time for General Smith and me to meet with you.

Yours sincerely



Julian C. Nall
Program Director

cc Charles Herzfeld
Michelle Van Cleave



DEFENSE SCIENCE STUDY GROUP (DSSG)

The Defense Science Study Group (DSSG) is a program of education and study. It was established in October 1985 by the Institute for Defense Analyses (IDA) and supported by the Director of the Defense Advanced Research Projects Agency (DARPA). The goal of this program is to foster a long term interest in national defense issues among the future leaders of science and technology, which would lead to participation in various advisory groups and continuing involvement in programs of research of importance to the Department of Defense (DoD). The objectives of the program are to identify some of the most talented young scientists and engineers, primarily in academia, convey to them an understanding and appreciation for the technical complexities of national defense issues, and solicit from them new insights on select defense problems.

The DSSG is guided by a group of mentors who have had distinguished careers in defense, industry or academia. Mentors advise IDA and DARPA on the conduct of the program, suggest problems of importance to study, help identify candidates, and review the technical work accomplished.

Participants are generally faculty members in the physical sciences, engineering or mathematics. They commit at least 20 days per year to this two-year program of education and study, for which they are paid \$10,000 per year plus expenses. Since a security clearance is required, participants must be U.S. citizens.

The first year is devoted primarily to education. The participants are given a broad appreciation of national security issues, defense policy, advanced research, manufacturing technology, defense-related industrial R&D, and the systems, missions, operations and technical problems of the military services. An understanding of the defense environment is provided through visits to defense and industrial facilities and presentations given by DoD program managers, technical specialists, and defense and industrial authorities.

During the second year the educational part of the program continues but is augmented by individual or group study projects or preparation of "thought pieces" on important defense-related areas to which they have been exposed. In some cases a participant might serve on a panel, task force or study group of a DoD advisory group.

The DSSG participants receive briefings on such diverse topics as submarine laser communications, acoustic and nonacoustic ASW, IR detectors, space debris, verification and arms control, relocatable targets, and strategic bomber penetration. Visits are made to places such as, defense laboratories, the Strategic Air Command (SAC), the North American Aerospace Defense Command (NORAD), and bases responsible for satellite, missile, air defense, and submarine operations and training. Site visits also include industrial facilities to gain a perspective on design and manufacturing technology of current and future systems.

IDA conducts a rigorous process of nomination and referrals before selecting the participants. Candidates are identified from suggestions made by senior academics at major colleges and universities; by organizations such as DARPA; the National Science Foundation (NSF); the Office of Science and Technology Policy (OSTP); the Sloan Foundation; and by the DSSG alumni, current participants and mentors. The nominees are faculty members whose ages range from the late 20s to about 40. The selection of approximately 15 candidates who are invited to participate is made by IDA after an extensive reference process, and assuring candidate interest.

Since this program is an investment in the future, DARPA and IDA make every effort to assure that the alumni are offered opportunities for involvement in areas of their choosing. Opportunities for involvement would include serving as advisors, consultants or study group members to agencies, study boards or committees of the DoD associated with key technical problems of national level importance.

DEFENSE SCIENCE STUDY GROUP
CURRENT PARTICIPANTS

STEPHEN P. BOYD	Department of Electrical Engineering, Stanford University
STEPHEN A. CAMPBELL	Department of Electrical Engineering, University of Minnesota
SUSAN N. COPPERSMITH	Physics, AT&T Bell Laboratories
WERNER J.A. DAHM	Department of Aerospace Engineering, University of Michigan
ROBERT H. DAVIS	Department of Chemical Engineering, University of Colorado
JOSEPH S. FRANCISCO	Department of Chemistry, Wayne State University
STEVEN M. GEORGE	Department of Chemistry, Stanford University
JAMES M. HOWE	Department of Materials Science, University of Virginia
DANIEL M. NOSENCHUCK	Department of Mechanical and Aerospace Engineering, Princeton University
ANTHONY T. PATERA	Department of Mechanical Engineering, Massachusetts Institute of Technology
THOMAS A. PRINCE	Division of Physics, Mathematics and Astronomy, California Institute of Technology
STEPHEN W. SEMMES	Department of Mathematics, Rice University
THEODORE A. SLAMAN	Department of Mathematics, University of Chicago
ROBERT L. WHETTEN	Department of Chemistry and Biochemistry, University of California, Los Angeles

DEFENSE SCIENCE STUDY GROUP
FORMER PARTICIPANTS

RUSSEL E. CAFLISCH	Department of Mathematics, University of California, Los Angeles
STEVEN K. CASE	Department of Electrical Engineering, University of Minnesota
VICKI L. CHANDLER	Institute of Molecular Biology, University of Oregon
KATHERINE T. FABER	Department of Materials Science and Engineering, Northwestern University
BRUCE HAJEK	Department of Electrical and Computer Engineering, University of Illinois
DEBORAH A. JOSEPH	Department of Computer Science, University of Wisconsin
RANDY H. KATZ	Department of Electrical Engineering and Computer Science, University of California, Berkeley
STEVEN E. KOONIN	Physics, W.K. Kellogg Radiation Laboratory, California Institute of Technology
FREDERICK K. LAMB	Department of Physics, University of Illinois
NATHAN S. LEWIS	Department of Chemistry, California Institute of Technology
PHILIP S. MARCUS	Department of Mechanical Engineering, University of California, Berkeley
THOMAS F. ROSENBAUM	Physics, James Franck Institute, University of Chicago
STEVEN J. SIBENER	Chemistry, James Franck Institute, University of Chicago
DANIEL L. STEIN	Department of Physics, University of Arizona
WARREN S. WARREN	Department of Chemistry, Princeton University
R. STANLEY WILLIAMS	Department of Chemistry and Biochemistry, University of California, Los Angeles
W. HUGH WOODIN	Department of Mathematics, University of California, Berkeley

DEFENSE SCIENCE STUDY GROUP
MENTORS

DANIEL ALPERT	Director, Program in Science, Technology and Society, University of Illinois
R. STEPHEN BERRY	Professor of Chemistry, University of Chicago
SOLOMON J. BUCHSBAUM	Senior Vice President, Technology Systems, AT&T Bell Laboratories
RUTH DAVIS	President, Pymatuning Group, Inc.
RUSSELL E. DOUGHERTY	General, U.S. Air Force, Retired
ALEXANDER H. FLAX	President Emeritus, Institute for Defense Analyses
ANDREW J. GOODPASTER	General, U.S. Army, Retired; President Emeritus, Institute for Defense Analyses
PAUL F. GORMAN	General, U.S. Army , Retired; President, Cardinal Point, Inc.
ISAAC C. KIDD, JR	Admiral, U.S. Navy, Retired
MARTHA KREBS	Associate Director for Plannning and Development, Lawrence Berkeley Laboratories
STANFORD S. PENNER	Director, Center for Energy and Combustion Research, University of California, San Diego
DAVID PINES	Professor of Physics, University of Illinois
ROBERT E. ROBERTS	Vice President-Research, Institute for Defense Analyses
WILLIAM Y. SMITH	General, U.S. Air Force, Retired; President Emeritus, Institute for Defense Analyses
HARRY D. TRAIN, III	Admiral, U.S. Navy, Retired
LARRY D. WELCH	General, U.S. Air Force, Retired; President, Institute for Defense Analyses
HERBERT YORK	Director, Science, Technology and Public Affairs, University of California, San Diego

DEFENSE SCIENCE STUDY GROUP

SESSION I

May 28 - June 7, 1991



INSTITUTE FOR DEFENSE ANALYSES

DEFENSE SCIENCE STUDY GROUP

SESSION I

MAY 28 - JUNE 7, 1991

ITINERARY

MAY 28	IDA, ALEXANDRIA, VA MARTIN-MARIETTA, BETHESDA, MD
MAY 29	IDA, ALEXANDRIA, VA SDIO, PENTAGON
MAY 30	NSA, FT. GEORGE MEADE, MD
MAY 31	CIA, LANGLEY, VA
JUNE 1 - 2	IDA, ALEXANDRIA, VA
JUNE 3	SIKORSKY AIRCRAFT, STRATFORD, CT PRATT & WHITNEY, EAST HARTFORD, CT
JUNE 4	DRAPER LABORATORY, CAMBRIDGE, MA
JUNE 5	RAYTHEON, LEXINGTON & ANDOVER, MA
JUNE 6	MARTIN - MARIETTA, ORLANDO, FL
JUNE 7	IBM, MANASSAS, VA

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AGENDA	3

POINTS OF CONTACT

May 27 - June 2

Lodging:

room rate: \$97 per night (including tax)

Radisson Mark Plaza Hotel
5000 Seminary Road
Alexandria, VA 22311
(703) 845-1010

Institute for Defense Analyses
1801 N. Beauregard Street
Alexandria, VA 22311
(703) 578-2879
Nancy Licato

June 2 - 3

Lodging:

room rate: \$71 per night (including tax)

Trumbull Marriott
180 Hawley Lane
Merritt Parkway
Trumbull, CT 06611
(203) 378-1400

June 2

a.m.

Sikorsky Aircraft
6900 Main Street
Stratford, CT 06601-1381
Ray Leoni
(203) 386-7460

p.m.

Pratt & Whitney
400 Main Street
East Hatford, CT 06108
Larry Churchill
(203) 565-4009

June 3 - 5

Lodging:

room rate: \$115 per night (including tax)

Guest Quarters Suite Hotel
400 Soldiers Field Road
Boston, Ma 02134
(617) 783-0090

June 4

Charles Stark Draper Laboratory
555 Technology Square
Cambridge, MA 02139-3562
(617) 258-4169
Ginny Fonseca

June 5

Raytheon
141 Spring Street
Lexington, MA 02173
(617) 860-2173
Patrick Coulter

June 5 - 6

Lodging:
room rate: \$58 per night (including tax)

Guest Quarters Suite Hotel
7550 Augusta National Drive
Orlando, FL 32822
(407) 240-5555

June 6

Martin-Marietta
Orlando, FL
(407) 356-3811
Susanne Carsten

June 6 - 7

Lodging:
room rate: \$97 per night (including tax)

Radisson Mark Plaza Hotel
5000 Seminary Road
Alexandria, VA 22311
(703) 845-1010

June 7:

IBM Corporation
Federal Sector Division
9500 Goodwin Drive
Manassas, VA 22110
(703) 367-5258
Maury Gerson

**DEFENSE SCIENCE STUDY GROUP
SESSION I
MAY 28 - JUNE 7, 1991**

AGENDA

TUESDAY, MAY 28

BOARD ROOM

8:00 a. m.	Continental Breakfast	
8:30	Introductory Remarks	General Larry Welch President, IDA
8:45	DSSG	General W.Y. Smith Chairman, DSSG
9:00	Plans for DSSG	Julian Nall Program Director, DSSG
9:15	Break	
9:30	Minibus departs IDA for Martin-Marietta	
10:30	<u>Martin-Marietta</u> , Bethesda	
	Manufacturing Technology	Robert Polutchko Senior Vice President Technical Operations
11:30	Remarks	Norman Augustine Chairman and CEO
12:15 p. m.	Lunch at Martin-Marietta	
1:15	Return to IDA	
1:45	Arrive at IDA	
2:15	Future Defense Problems	Charles Herzfeld
3:00	Discussion	
3:30	Navy Basic Research Investment Strategy	Fred Saalfeld Director, ONR
4:00	Discussion	
4:15	Break	
4:30	Desert Storm	General Larry Welch
5:30	Reception	

WEDNESDAY, MAY 29

	Breakfast at leisure	
8:30 a. m.	Minibus departs IDA for SDIO at Pentagon	
9:00	<u>Strategic Defense Initiative Organization</u>	
	Introductory Remarks	Ambassador Henry Cooper Director
	Overview of GPALS	MG Malcolm O'Neill Deputy Director
11:00	Return to IDA	
11:15	Arrive at IDA	BOARD ROOM
11:30	DARPA Overview	Victor Reis Director, DARPA
12:30 p. m.	Lunch	
1:30	Defense Science Board	John Foster Chairman, DSB
2:30	High Performance Computing	Stephen Squires, Director for Computing Systems Technology Office, DARPA
3:00	Discussion	
3:15	Break	
3:30	Synthetic Environment	Col. Jack Thorpe Special Assistant for Simulation, DARPA
4:00	Discussion	
4:15	DARPA Support to Desert Storm	Col. Doc Dougherty Technical Assistant, DARPA
4:45	Discussion	

THURSDAY, MAY 30

	Breakfast at leisure	
7:45 a.m.	Minibus departs IDA for <u>National Security Agency</u>	
9:00	Arrive NSA	
9:15	Welcoming Remarks	William Crowell, Chief of Staff
9:30	NSA Overview	John Pafford, J8
10:15	NCRDEF Overview	David McManis
10:45	Break	
10:55	Information Security Briefings	Richard Proto, A/DDI (T)
12:00 p.m.	Lunch	
12:45	Telecommunications and Computer Services Briefings	
2:00	Signal Trends of the Future	David Kelley, W31
2:30	Break	
2:40	Research and Engineering Briefings	
3:00	Director's Remarks	VAdm. W. O. Studeman
3:15	Research and Engineering Briefings (Continued)	
4:10	Closing Remarks	George R. Cotter, Chief Scientist
4:15	Return to IDA	

FRIDAY, MAY 31

	Breakfast at leisure
9:30 a. m.	Depart for <u>Central Intelligence Agency</u>
10:00	Arrive CIA
10:15	Arrive DCI Conference Room
10:30	Welcome Joseph DeTrani Director of Public Affairs
10:45	James Hirsch Deputy Director of Science and Technology
11:30	Richard Kerr Deputy Director of Central Intelligence
12:00 p.m.	Luncheon hosted by: Deputy Director of Science and Technology
1:15	Jack Ingley Director, Office of Imagery Analysis
2:00	Break
2:15	Acting Deputy Chief, National Collection Division
3:00	Gordon Oehler NIO for Science, Technology, and Proliferation
4:00	Return to IDA

SATURDAY, JUNE 1

Informal meetings by participants at IDA

SUNDAY, JUNE 2

Check out of hotel

Approximately
2:00 p. m. Radisson Hotel van to National Airport

Travel to Connecticut USAir 4393
Leave National Airport 3:15 p. m.
Arrive White Plains, NY 4:35 p. m.

Board Peter Pan Bus
Travel to: Trumbull Marriott
 180 Hawley Lane
 Merritt Parkway
 Trumbull, CT

MONDAY, JUNE 3

Check out of hotel
Breakfast at leisure

7:30 a. m. Peter Pan Bus departs

7:45 Arrive Sikorsky Aircraft, Stratford, CT
8:00 - Welcome and Overview
 - Critical Technologies
 - Evolving Design Methodology
 - Anti-Submarine Warfare
 - Avionics Systems Integration
 - Systems Integration/Simulation Lab
 - Manufacturing Tour

11:30 Depart Sikorsky for Pratt & Whitney

12:30 p.m. Arrive Pratt & Whitney, East Hartford, CT
 - Welcome and Overview (working lunch)
 - Advanced Technologies
 - Engine Assembly
 - Engine Test
 - Development Operations
 - Discussion

5:00 Bus departs for Guest Quarters Suite Hotel
 400 Soldiers Field Road
 Boston, MA

TUESDAY, JUNE 4

	Breakfast at leisure	
8:25 a.m.	Hotel van departs for Charles Stark Draper Laboratory	
8:45	Arrive Draper Lab., Cambridge, MA	
9:00	Opening Remarks	R. Jacobson
9:15	Lab Overview	W. Stanton
9:45	IR&D In a Non-Profit Lab - Return on Investment Without Production - Connection to DoD Critical Technologies	H. Flickinger
10:15	Break	
10:30	Inertial Technology - Next Generation Guidance - Micromechanical	J. Elwell
11:15	Advanced Electronics - Electronic/Electro-Optics - MCM	D. Jones
11:45	Lunch	
1:15 p. m.	Lab Tour	W. Stanton
2:45	Break	
3:00	Autonomous Systems - Minehunting - Advanced Computing	W. Henrickson
3:30	Information Systems - Hypermedia	S. Serben
4:00	Adjourn	
4:15	Depart via hotel van	

WEDNESDAY, JUNE 5

	Check out of hotel	
	Breakfast at leisure	
7:45 a. m.	Peter Pan Bus departs hotel	
8:30	Arrive Raytheon, Lexington, MA	
8:45	Welcome	
9:00	Missile Systems briefing	
10:00	Question and Answer	
10:20	Break	
10:30	Equipment Systems Division Briefing	
11:30	Question and Answer	
12:00 p. m.	Lunch	
1:00	Depart for Raytheon, Andover	
1:45	Tour plant	
3:00	Depart Raytheon for Logan Airport, Boston	
	Travel to Orlando, FLA	Delta 1564
	Leave Boston	5:45 p. m.
	Arrive Orlando	8:35 p. m.
	Board Guest Quarters airport shuttle bus	
	Travel to: Guest Quarters Suite Hotel	
	7550 Augusta National Drive	
	Orlando, FL 32822	

THURSDAY, JUNE 6

	Breakfast at leisure Check out of hotel	
7:50 a. m.	Martin-Marietta minibus departs hotel for Electronic Systems Center	
8:15	Badging at Electronic Systems Company Commons Lobby	
8:25	Escort to Conference Room	
8:30	Welcome and Introductions	
8:35	Overview of Corporation	
9:00	Electronic Systems - Overview and Product Lines - Technology Base - Production Capabilities	
11:00	LANTIRN Production Area Tour	
12:00 p. m.	Transport to Sand Lake Road Center in company minibus	
12:45	Working lunch	
1:00	Missile Systems - Overview and Product Lines - Technology Base - Production Capabilities	
3:00	Tour Selected Facilities	
4:00	Recap and Open Discussion	
5:00	Bus departs Martin-Marietta for airport	
	Travel to Washington, D. C.	United 1400
	Leave Orlando	6:40 p.m.
	Arrive Dulles Airport	8:47 p.m.
	Board Minibus Limousine Service to Radisson Hotel	

FRIDAY, JUNE 7

	Breakfast at leisure	
	Check out of hotel	
8:15 a.m.	Minibus Limousine Service departs IDA for IBM	
9:00	Arrive IBM, Building 400, Room 1M27 Badging and Refreshments	Maury Gerson
9:15	Welcome/ Overview	Paul Kossler
9:30	VLSI Technology	David Meyer
10:15	Superconducting Magnetic Sensors	Audrey Cohen
11:00	Break	
11:15	Use of Color to Enhance Signal Detection	Mike Witlin
12:00 p.m.	Lunch - Discussion	
1:00	Minibus departs for IDA	
NOTE:	Tour of VLSI Line will be scheduled if time permits	