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FROM: (Name, Office, Extension) [redacted] DOE/OAC/[redacted]

Subject of Message: Nuclear Initiative Issue Papers Numbers Five and Six

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Department of Energy Declassification Review
1st Review Date: 10-10-13 Reviewer
Authority: ☐ DC ☒ DD
Derived From:
Declassify On:
2nd Review Date: 9/16/13
Manger?
Authority: DD Reviewer
Determination: [Circle Number(s)]
1. Classification Retained
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3. Contains No DOE Classified Info
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5. Declassified
6. Classified Info Bracketed
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ANNEX 1 BACKGROUND NOTES ON TOPICS PROPOSED AS FIRST STEPS

A. Nuclear Weapons Management

o Roles and Responsibilites of DoD, DOE, Nuclear Weapons Council

U.S. nuclear weapons are in the custody of either DoD or DOE. The Atomic Energy Act, as amended, includes a dual agency responsibility for conducting the nuclear weapons program in such a way that the public's health and safety are protected. Both Departments take steps to assure nuclear weapons safety at all stages of a weapon's lifetime.

Each Department has its own safety process. The safety processes contain provisions for review and oversight to guarantee that safety matters are not subordinated to operational issues. Some parts are conducted separately; others are conducted jointly. DoD and DOE safety standards are used to evaluate all weapons systems and weapons respectively. These standards have many similarities. The Nuclear Weapons Council is a high level, joint body that advises the two Secretaries on nuclear weapons matters, with safety as a primary concern.

The purpose of this topic would be to inform the Soviets of how our safety system works, what factors are considered, how operational and safety conflicts are addressed and resolved, how restrictive procedures are invoked to compensate for design shortfalls, and what requirements exist for continued review of weapons and weapons systems to assure safety. In return, the Soviets would describe their process. Strengths, weaknesses, similarities and differences in the structuring of the respective processes could be discussed.

o Key Surety Groups/Committees

The intent here is to discuss in detail how the U.S. weapon safety process is implemented. The process involves several safety groups. Their functions include: (1) developing the safety requirements in a weapon's design; (2) certifying that the weapon design satisfies the safety requirements; (3) providing safety rules for all operations including testing, assembly, disassembly, transportation, maintenance, and fielding; (4) continual review of the safety rules and their application to assure maximum safety consistent with operational requirements; (5) evaluating the efficacy of current safety policies and identifying policy needs; and (6) general oversight of the safety process.

The desired return from the Soviets is the same as above.

o Primary U.S. Guidance on Nuclear Weapon Safety and Security

The proposal is to explain the DoD and DOE safety standards that provide for nuclear detonation safety, plutonium dispersal safety (DOE only), use control, and adequate security. The safety of every weapon (DOE) and weapon system (DoD) is evaluated against the appropriate set of standards, i.e., DoD or DOE. In some cases, quantitative criteria





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exist to support the standards; these would also be explained. The key safety groups mentioned above use these standards in their evaluations of weapon safety.

The desired return from the Soviets is the same as above.

B. Safe Storage and Transportation

o General Transport and Handling Safety Policies and Criteria

The U.S. has expended great effort to create a system of standards and criteria, with associated safety evaluations, to maximize transportation, handling and storage safety for nuclear weapons in the custody of either DoD or DOE. The proposed information exchanges can provide needed information about each side's safety standards, design philosophies, evaluation and risk assessment methodologies, and emergency preparedness.

Unclassified topics for discussion include: general security philosophy (i.e., the layered approach); organizational structure and responsibilities for transportation and storage; standards with associated qualitative/quantitative criteria; design guidance for storage sites, vehicles and related equipment; risk assessment and safety compliance evaluation methods; definition and evaluation of hazards and threats; and emergency preparedness.

For example, orders exist that regulate the methods of transportation both within and outside of the U.S., the quantity of weapons or amount of material per shipment, the length of storage at specific sites and the configuration of the weapon during storage time, other systems and materials that can or cannot be stored with nuclear weapons, and methods to evaluate the risks associated with shipments or storage. A specific example is the different transportation requirements for nuclear weapons with conventional versus insensitive high explosives.

o Methods of Transportation (helicopter, fixed wing aircraft, ship, rail, ground)

Helicopter transport of nuclear weapons is generally used in the European Theater to minimize accessibility to terrorist threat. The Air Force and Army transport nuclear weapons to and from the U.S. and overseas bases by fixed wing aircraft, while the Navy transports by ship. We no longer use rail transport of weapons. Ground transport via Safe Secure Trailers (SSTs) is used between DOE locations and between DOE and DoD locations. Transport between DoD locations within the U.S. is generally by fixed-wing aircraft or by ground vehicles. The general rules for transport modes are all flexible, and are applied on a case-by-case basis.

The U.S. has had 32 accidents to date involving nuclear weapons. Most of these occurred during transport of some kind, the general details of these incidents are unclassified, and they provide valuable lessons. We will likely withhold an exchange of accident histories until later discussions, but there are several timely efforts focused on evaluation of transportation risks and on accident modeling and mitigation techniques. One such evaluation is the DoD/DOE Transportation Safety

Study Group work, which analyzed ground nuclear weapon movements in Europe. The techniques used in such assessments, as well as the general insights, are possible areas for valuable exchange.

General areas of discussion include: transportation "ownership" and decisionmaking structure; safety standards and criteria; risk assessment methodologies and results; stockpile-to-target environments that are considered normal as well as those abnormal environments that are considered credible; emergency preparedness; related support equipment and tiedowns; accident mitigation philosophies and equipment; testing and evaluation of shipping containers; and safe vehicle design features and procedures.

o Training Requirements and Personnel Assurance Program

The selection, training and evaluation of personnel who have access to nuclear weapons is of paramount importance to both safety and security. The U.S. criteria for selection, training, evaluation and requalification of personnel having access to nuclear weapons or associated components are spelled out in such documents as DOE Order 5610.13, which is unclassified.

The U.S. could describe its techniques for evaluating personnel for nuclear weapon access, program evaluation standards and responsibilities, personnel training and requalification programs, two-man control strategy, and other general personnel assurance program information.

The gain of such an exchange would be twofold: (1) allow for mutual understanding of each side's practices, which could increase mutual confidence; and (2) provide ideas that could improve Soviet safety and security practices in this area.

o Storage Safety

As both sides begin to draw down the weapons that are on active alert, safe and secure storage becomes even more important than ever. Weapons will be placed in storage for future deployment or storage for disassembly and destruction, or they will be disassembled and the weapon components will be stored for future use in another system.

Information of primary interest relates to safe storage configurations, criteria for limits on hazardous materials in storage locations, regulations and criteria on location and design of storage sites, safety evaluation programs, environmental safety and health concerns, accident mitigation techniques, environmental threat definition and quantitative standards, and consequence modeling.

C. Safety and Safety Features

o Safety Risk Assessment Methodology as Used by DOE

DOE safety policy was changed recently to reorient the safety program to be based on risk assessment. Risk assessment includes identification of accident scenarios, accident consequences, and steps to reduce the risk of an adverse consequence. The purpose is to





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provide a more useful tool to decision makers so that it will be clear what risks are associated with given operations, what the primary contributors to that risk are, where additional positive safety measures could be most effective, and what safety benefit is obtained for a given cost and operational impact. In this manner, the safety evaluation is made more quantitative and objective and less qualitative and subjective.

A risk assessment-based program permits the establishment of meaningful criteria for determining what constitutes acceptable risk. It is the intent of DOE to use such an approach, where feasible, in all aspects of the weapons safety process. For example, when the NESSG evaluates an operation in the future, the goal is to provide it with a risk assessment for analysis. Before approving an operation, decision makers will also have access to the assessment and the NESSG-developed safety rules and will be able to judge whether the primary risks are being addressed satisfactorily.

This methodology was incorporated by the Nuclear Regulatory Commission for reactor applications, particularly after Three Mile Island. The broad application to nuclear weapons safety is new and still evolving. The Soviets may not be aware of the role risk assessment plays in the U.S. program and its value in identifying risks and specifying which are the relatively high risks requiring attention and mitigation.

o Safety Assurance Provided by Modern Weapons Safety Features

Weapons safety features are designed to prevent inadvertent or accidental nuclear detonation or dispersal of radioactive materials such as plutonium. One point safety and modern electrical safety systems provide a predictably safe weapon response in accidents, e.g., fires. Insensitive high explosives and fire resistant pits are plutonium dispersal safety features.

The purpose of this topic would be to explain to the Soviets, in a generic fashion, what these features provide, how they are tested to assure reliability, and their role in weapon performance. The discussion should also include compensating, restrictive procedures (e.g., prohibition of air transport) that are taken for weapons that do not have these features.

In return, information should be sought on Soviet safety design philosophy and design features, testing and design assurance measures, and compensating procedures for weapons with safety design shortfalls. This discussion could lay the groundwork for possible follow-on talks on advanced safety design features.

o Environmental Impact Statement/Environmental Assessment Process at DOE Facilities

This discussion would complement the weapons risk assessment talks, demonstrating how the weapons program is conducted in an environmentally responsible manner. The relative depth of EIS vs EA could be explained, along with the methodology used, what factors are





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considered, what constitutes adequate protection for the environment, the role of public and local government input, and how remedial actions are determined.

There is very little the U.S. is likely to gain from the Soviets in this area, but discussions could give them ideas for addressing their own environmental concerns.

ANNEX 2 SAFETY AND SECURITY GUIDANCE

The primary U.S. guidance on nuclear weapon safety (and security) are the four DoD nuclear weapon system safety standards from DoD Directive 3150.2 (1984). These are:

1. There shall be positive measures to prevent nuclear weapons involved in accidents or incidents, or jettisoned weapons, from producing a nuclear yield.

2. There shall be positive measures to prevent DELIBERATE prearming, arming, launching, firing, or releasing of nuclear weapons, except upon execution of emergency war orders or when directed by competent authority.

3. There shall be positive measures to prevent INADVERTENT prearming, arming, launching, firing, or releasing of nuclear weapons in all normal and credible abnormal environments.

4. There shall be positive measures to ensure adequate security of nuclear weapons, pursuant to DoD Directive 5210.41 (sent under separate cover).

Additionally, the DOE has a fifth safety standard for which there is no direct DoD parallel:

5. There shall be positive measures to prevent accidental, inadvertent, or deliberate unauthorized dispersal of plutonium to the environment.

(The term "positive measures to prevent" is accomplished by design features, safety or security devices, or procedures that exist solely or principally to provide nuclear safety and security. The phrase does not mean "absolute assurance against," however, maximum safety and security consistent with operational requirements must be provided.)

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**Department of Energy**
Washington, DC 20585

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MEMORANDUM FOR Robert B. Barker
Assistant to the Secretary
Atomic Energy
Department of Defense

Franklin C. Miller
Deputy Assistant Secretary
Nuclear Forces and Arms Control Policy
Department of Defense

Douglas R. Graham
Deputy Assistant Secretary
Strategic Defense Space and Verification Policy
Department of Defense

SUBJECT: Nuclear Initiative Issue Papers Numbers Five and Six

Attached for your review and comments are first drafts of Issue Papers Numbers Five and Six that were requested by John Gordon, National Security Council, in his October 4, 1991, memorandum, "Nuclear Initiatives Work Plan". Since preparation of these papers has been jointly tasked to the Departments of Energy and Defense by the National Security Council, they will not be submitted for interagency review until we have drafts that we both support.

Please send your comments on the attached drafts to me by COB, Friday, October 11, 1991. Questions on the drafts should be addressed to [redacted] respectively, who prepared the drafts.

OSD
5 U.S.C. § 552 (b)( 6 )

[redacted]
Acting Director
Office of Arms Control
Defense Programs

Attachments

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Chief, Records & Declass Div, WHS
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NSC NUCLEAR INITIATIVES WORKPLAN: ISSUE # 5:
JOINT TECHNICAL COOPERATION ON NUCLEAR SAFETY, STORAGE,
SECURITY AND TRANSPORTATION

This paper responds to the NSC request of DOE/DoD to provide a draft paper for interagency consideration on joint U.S./Soviet "technical cooperation in the areas of nuclear weapon safety, storage, security and transportation."

PLANNING PRINCIPLES

In planning for discussions the U.S. should be guided by the following principles: (1) establish at the outset clearly defined U.S. objectives; (2) view such discussions as a potentially long-term engagement, and therefore strive for steady progress toward clear and mutually-agreed long-range goals; and (3) as a result, enter talks with the idea of a phased approach, in which initial success in limited, well-defined areas can build the confidence to undertake more ambitious efforts in increasingly sensitive areas.

U.S. OBJECTIVES

The overall U.S. objective would be to reduce the risks of both a nuclear weapon accident and loss of control of a nuclear weapon in either country. A second objective would be to facilitate Soviet ability (if need is identified) to transport and store weapons they identify for retirement as a reciprocal response to another of the President's initiatives. A further objective would be to learn more about Soviet systems and procedures for nuclear weapon surety (safety, security including storage/transport, and use control). Once we learn more about the Soviet approach to these latter issues, we can identify and pursue specific items of interest in terms of their potential to enhance U.S. and Soviet surety processes. In no case should information we share with the Soviets increase their readiness posture.

FORUM AND TIME FRAME

The recommended forum for the type of joint technical cooperation envisioned is a regularly constituted delegation, headed by an Ambassador (much along the lines of the Nuclear Testing Talks) with appropriate agency policy representation and several technical working groups the composition of which might change to correspond to specific topics under discussion. An initial round of talks could begin as early as November, during which agreement on overall mutual goals could be reached and a general familiarity with each side's nuclear weapons safety and security processes could be achieved (see below).

MUTUAL INITIAL PREPARATIONS

In order to construct a joint process for implementing the initiative, the sides should: (1) agree on overall mutual goals, so that expectations are comparable and consistent, (2) establish baseline knowledge by familiarizing each with the other's nuclear weapons processes, (3) use this knowledge base for identifying specific topics for discussion that would achieve the agreed goals. (Wherever possible





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throughout the process, discussions should include reciprocal exchange of documentation on topics of identified interest.)

ACCEPTABLE DEGREE OF TRANSPARENCY

Discussions will be restricted to unclassified material until the issues can be framed with sufficient clarity. Once the issues are so framed, the U.S. can then consider what currently classified information it might release (and an appropriate quid pro quo).

EXPORT CONTROL AND TECHNOLOGY TRANSFER CONCERN

As talks proceed, topics must be reviewed to determine the extent to which information can be exchanged within existing U.S. laws and regulations governing technology transfer.

POTENTIAL FIRST STEPS

Topics are listed below on which we might have initial discussions with the Soviets. Annex 1 gives background and details on what the topics encompass.

A. Nuclear Weapons Management

In beginning discussions with the Soviets on issues of nuclear weapons safety, security, storage and transportation, it would be valuable to describe the long-established and carefully integrated structure that oversees the safe design of weapons and the procedures to ensure conformity with U.S. guidance on safety and security. Hence in the initial exchange the following topics should be addressed:

- o Roles and responsibilities of DoD, DOE, Nuclear Weapons Council (ascertain Soviet counterparts)
- o Key surety groups/committees (e.g., Nuclear Explosive Safety Study Group-NESSG, Nuclear Weapon Safety Study Group-NWSSG) (ascertain Soviet counterparts)
- o Primary U.S. guidance on nuclear weapon safety and security (see annex 2)(ascertain Soviet parallel and degree to which followed)

B. Safe Storage and Transportation

The topic encompasses nuclear weapons located within or enroute to and from production/retirement facilities, national level depots, direct support sites at a user location, and field locations. Because safe, secure storage/transport and security are complementary, some of the topics addressed overlap the "security" topic. Suggested general topics are listed below.

- o General Transport and Handling Safety Policies and Criteria
  - -- Requirements for safety studies and reviews
  - -- General design guidance
  - -- Organizational responsibilities
  - -- Safety evaluation criteria





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- o Methods of Transportation (helicopter, fixed wing aircraft, ship, rail, ground)
  - -- Evaluation of hazards
  - -- Criteria for safety
  - -- Related support equipment and tiedowns
  - -- Criteria and evaluation for shipping containers (including component and subassembly containers)
  - -- Safe Secure Trailer (SST) accident mitigation procedures and safety design features

- o Training Requirements and Personnel Assurance Program (PAP)
  - -- Criteria for personnel
  - -- Frequency of requalification
  - -- Assessment of training and PAP

- o Storage Safety
  - -- Storage configurations
  - -- Limits on hazardous materials
  - -- Regulations and criteria for storage sites
  - -- Safety evaluation program



C. Safety and Safety Features

Each side would benefit from knowledge of safety features in general (not associated with specific systems) and existing provisions to compensate for safety design shortfalls. Discussions could include topics such as:

- o Safety risk assessment methodology as used by DOE
- o DoD/DOE safety process (multifactor safety review process)
- o Safety assurance provided by modern weapons safety features
  - -- insensitive high explosive characterization
  - -- one-point safety
  - -- fire resistant (plutonium) pits
  - -- modern electrical safety systems
- o Environmental Impact Statement/Environmental Assessment process at DOE facilities

D. Security

Many of the basic physical security features, including the PAP, are noted above under transportation and storage. Whereas much of the material on safety is unclassified, more technical aspects of controlled access and use are particularly sensitive. Material on certain security/control issues that is actually classified has been published as unclassified (cf., Managing Nuclear Operations, Ashton Carter et al., eds., Brookings, 1987). To use such material as a base for discussions could compromise U.S. weapon security. Therefore, any materials released to the Soviets should derive only from official DOE/DoD sources and should be carefully reviewed and prepared by appropriate officials and technical experts. A careful review process, combined with judicious selection of general philosophical topics for initial talks, will ensure proper protection of sensitive information. Examples of appropriate initial topics are listed below:

- o General philosophy
  - -- layered approach to U.S. security/control of nuclear weapons
  - -- advantages disadvantages of various degrees of access/use control
  - -- possible negative outcomes following failure of security (including unauthorized detonation, scattering of toxic material, blackmail, sale to another country/terrorist organization, extraction of design details, etc.)
- o Definition of terms (e.g., access versus use control)
- o Personnel reliability programs (also covered under transport) and procedures for assuring loyalty and stability of personnel with access to nuclear explosives or critical devices
- o Methods, techniques and tools for evaluating effectiveness of physical security systems
- o Generic use control applications: PALs and other methods
- o Advantages/disadvantages of secure containers versus in weapon PALs or system level controls

STEPS FOR FURTHER CONSIDERATION

It is difficult to determine at present what specific topics might be included in more advanced stages of discussion. Once the issues particularly salient to our objectives are identified and framed during initial talks, it will be possible to zero in on particular, quite sensitive, topics and to assess the cost/benefit of addressing them. A few representative suggestions are listed below:

A. Safe Secure Storage and Transportation

- o Some SST access delay features as elements of a defense in depth concept
- o Secure storage vault philosophy or design
- o Sharing accident data base/accident history/lessons learned
- o Visits to restricted areas of storage sites
- o Joint development of access delay features for storage sites

B. Safety and Safety Features

- o Joint NESSG safety studies dealing with specific operations
- o Safety issues associated with weapon designs (including need for restrictive procedures to compensate for lack of safety design features
- o Joint development of intrinsic weapons safety concepts (i.e., weapons that are reliably safe through design features alone





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- Joint exploration of plutonium dispersal contamination and exposure concerns and dispersal mitigation concepts

C. Security

- Some elements of intruder access delay systems (e.g., WADS, Weapons Access Delay System)
- Types of threat we recognize in our security thinking (terrorists, insiders, local commanders, host states)
- Intelligence on common threat organizations (e.g., terrorist groups)
- Past histories of incidents, attacks, protests, threats, hoaxes, etc.
- Emergency response plans and capabilities
- Observation of emergency response exercises
- Examples of recapture/recovery technology
- Some techniques for deactivating or disabling stolen weapons or improvised nuclear devices
- General PAL capabilities

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WORKING PAPER

**NSC Nuclear Initiatives Work Plan Issue 6:**
**Nuclear Warhead Dismantlement/Destruction**

In planning for explorations of topics involving nuclear warhead dismantlement/destruction with the Soviets, we should: (a) view the new arrangements with the Soviets as a potentially long term relationship and therefore strive for consistent, steady progress toward mutually recognized long term objectives as opposed to isolated "big bangs"; (b) enter these talks with the idea of a phased approach in which success in limited, well defined areas builds confidence and may lead, if agreed, to more ambitious efforts in increasingly more sensitive areas; and (c) establish at the outset clearly defined U.S. goals and objectives.

This paper addresses nuclear weapons operations conducted within the Department of Energy production complex and which involve warhead disassembly, both interim and long term material and component storage, and safe, secure, and environmentally responsible disposition of waste materials. In addition, the logistics of transporting subassemblies, components, and materials among the various facilities involved in the dismantling processes are included.

I. U.S. Objectives. The general U.S. objective should be to engage in cooperative information exchanges to facilitate warhead dismantlement and appropriate disposition of the disassembled parts or materials in support of reciprocal, unilateral warhead reductions. In addition to the normal connotation of disposal of waste materials, the term "disposition" as used here includes both reuse of plutonium or enriched uranium components and long term storage of those items. It is very much in U.S. interests that Soviet dismantlement activities be accomplished consistent with responsible safety, security, and environmental standards. U.S. nuclear weapon dismantlement operations have been carried out routinely for many years and, based on this experience, has developed procedures meeting these standards for such operations. Exchanges of information about these activities, in some cases, may enable the Soviets to accomplish some dismantlement operations sooner than would have otherwise been possible. There are U.S. technology needs also. Long term storage and alternative non-weapons utilization of plutonium and enriched uranium are examples of important areas in which the U.S. continues to seek technology improvements.

<u>Specific objectives:</u>

- Improve mutual understanding about the respective processes for dismantling nuclear weapons
- Exchanges should support assuring that Soviet dismantlement activities are accomplished consistent with responsible safety, security, and environmental standards
- Identify and pursue specific items of interest and benefit to the U.S





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II. Forum and Time Frame.

The recommended forum for the type of joint technical cooperation envisioned is a regularly constituted delegation, headed by an Ambassador (much along the lines of the Nuclear Testing Talks) with appropriate agency policy representation and several technical working groups the composition of which might change to correspond to specific topics under discussion. An initial round of talks could begin as early as November, during which agreement on overall mutual goals could be reached and a general familiarity with each side's nuclear weapons dismantlement or destruction processes could be achieved.

III. Reciprocity.

It is assumed that the discussions of topics presented under the headings "Initial Explorations" and "Follow-on Steps" would be parts of mutual exchanges of information. This does not necessarily mean that the sides would be expected to match detail for detail information provided, however, in many of these technical areas, if the U.S. is to be able to assist the Soviet processes, frank discussions including relatively unconstrained dialogue, within the previously agreed bounds, will be necessary.

It would be a mistake to assume a priori that the Soviets have nothing of technical value for the U.S. In non-weapons science and technology, the Soviet approach has shown significant differences from that of the US. The Soviets in many cases show an excellent intuitive approach to provide guidance instead of over reliance on computer models and predictions. Because of the chronic shortages in their system, they also tend to make efficient and innovative use of materials and components. In their component testing, there is sometimes a tendency to limited use of test stands, but rather to move quickly to the intended use in the intended environment. However, their diagnostic instrumentation may fall short of conventional US approaches. The Soviet system may be sterile, but their technical people can be quite innovative.

IV. Initial Explorations. During the initial technical discussions the following topics might be discussed with mutual benefit in understanding how the sides might facilitate their own planned stockpile reductions in terms of dismantlement of nuclear warheads.

A. Nuclear Weapons Management. These general topics are suggested as initial information, important for understanding how the U.S. manages its nuclear operations. This, along with comparable characterizations of Soviet procedures and decision making processes, would be shared as general information on each other's weapons complex, facility and weapons safety processes, safety standards and criteria, modes of transportation, and safety analysis methodology.

- Roles and responsibilities of Department of Defense (DOD), Department of Energy (DOE), Nuclear Weapons Council (NWC)







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- Key surety groups/committees (e.g. Nuclear Explosives Safety Study Group)

- Details on the Department of Energy Personnel Assurance Program (PAP) program for critical duty personnel

B. Warhead Dismantlement or Destruction Operations. The term "dismantlement" as used here should only be construed as referring to those activities necessary to retire warheads so completely that they could not reasonably be reassembled into warheads of the same kind. Warheads are disassembled and the subassemblies, components, base materials, or waste materials are disposed of in ways which meet approved safety, security, and environmental standards. As explained earlier, dismantlement would not preclude reusing certain plutonium or enriched uranium parts or materials in newly produced warheads.

1. Technology and Processes:

- Overall description of U.S. dismantlement operations

- Safety specifications for component and subassembly containers

- Specifications for gravel gerties (assembly/disassembly areas) at the DOE Pantex Plant

- Dismantling operations involving high explosives

- Disposition or long-term storage of waste high explosive, light metallic compounds, low level radioactive waste, heavy metals in slurry or solution

- Disposition of recovered special nuclear materials (plutonium and enriched uranium)

2. Physical Security and Safety Arrangements:

- Safety Orders -- Safety standards and implementation

- Safety risk assessment methodology as used in U.S. nuclear weapon dismantling facilities

- Radiation safety and standards

- High explosive safety and standards

- Security force training/certification requirements

- Soviet observers at unclassified portions of Nuclear Explosive Safety Study Group studies of weapon disassembly operations and transportation; master studies would be most conducive to unclassified discussions since the issues are treated in a generic fashion







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3. Nuclear Control Arrangements:

- Two person concept
- Custodial responsibilities from retirement until completed disassembly

4. U.S. National Environmental Protection Act (NEPA) Activities -- Environmental Impact Statement and Environmental Assessment procedures at U.S. nuclear weapon dismantling and material storage facilities.

V. Follow-on Steps. The following are potential steps which may be implemented if initial discussions are assessed as mutually beneficial and both sides agree that further cooperation would be useful. These discussion topics represent yet an increased level of detail and, in some cases involve more sensitive technologies, but sharing such information would be judged as being necessary to accomplish U.S. objectives in the initiative to achieve reciprocal, unilateral reductions of U.S. and Soviet nuclear forces.

- Specific safety issues associated with weapon dismantlement
- Emergency response capabilities for security, safety, and environmental incidents -- expand any information exchange and assistance provided during the Chernobyl episode, including use of the U.S. Atmospheric Release Advisory Capability (ARAC).
- Observation of emergency response exercises
- Joint exploration of plutonium dispersal contamination and exposure concerns and dispersal consequence mitigation concepts
- Joint Nuclear Explosive Safety Study Group (NESSG) safety studies
- Visits to restricted areas of warhead dismantlement and of material and component storage facilities
- Joint development of access delay features for storage facilities





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Appendix

1. Process Arrangements/Preparations

One way to construct a joint process for implementing the initiatives would be to: (1) agree on overall objectives so that each side has comparable and consistent expectations, (2) become familiar with each other's processes to establish a knowledge baseline, and, (3) using this knowledge baseline, identify specific items which would achieve the agreed objectives.

2. Expectation Levels and Knowledge Background

A. General Context for the Initiatives

The U.S. side should view the initiatives as an effort to establish a new, long term, mutually beneficial US-Soviet relationship. With this viewpoint, it is hoped that unrealistic schedules, insufficient preparation, and dead end proposals can be avoided. It also should be recognized by both sides that this cooperation is setting a precedent and that the relationship will be evolutionary/revolutionary. Therefore both sides should be prepared to be flexible and to have explicitly agreed mechanisms for reviewing plans and making changes, if appropriate.

B. Soviet Capability

While the Soviet Union is still a "third world" country in many respects, its scientists and engineers posses considerable technical ability. The system may not allow them to demonstrate this capability. The US should take this as a serious opportunity for exchanging important technical information and insight and not as a missionary activity.

C. Classification

The discussions should be kept unclassified until the issues can be framed with sufficient certainty and thereby avoid the inadvertent disclosure of classified information. Once the issues are framed, the U.S. side can then decide what classified information it will release and an appropriate quid pro quo.

D. Export Control and Technology Transfer

All these topics must be reviewed to determine to what extent the information can be exchanged with the Soviets within existing U.S. laws and regulations governing export control and technology transfer.





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Appendix

1. Process Arrangements/Preparations

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All these topics must be reviewed to determine to what extent the information can be exchanged with the Soviets within existing U.S. laws and regulations governing export control and technology transfer.

E. Guidance

It should be expected that the policy makers will provide an outline for what is to occur and that technical working groups will fill in the details and prepare proposals for approval. The policy makers need to realize that they may determine the likelihood for success in their guidance. If the guidance is vague, the technical groups are apt to waste time trying to understand and agree on their tasking instead of working on implementation.

3. General information in technical areas

A. Weapons Safety

Each side needs to know what safety features (unassociated with specific systems) are available in general, what features, if any, are lacking in the weapons planned for dismantling, and what provisions exist for procedures to compensate for design shortfalls in used by the other. Each side also needs to know what constitutes adequate safety for weapons operations such as transportation, storage, and disassembly. for the U.S. this would involve discussions of Electrical Nuclear Detonation Safety (ENDS), one point safety, Insensitive High Explosive (IHE), and Fire Resistant Pit (FRP) as design features; a significant amount of information can be exchanged at the unclassified level. Other items for the U.S. would be the Nuclear Weapons Safety Study Group (NWSSG) and Nuclear Explosive Safety Study Group (NESSG) processes, risk assessments, safety standards, and safety rules.

B. Personnel Assurance

The two sides should share information on personnel screening to assure that only stable, responsible individuals have hands-on access to weapons or are entrusted with the movement of weapons. The U.S. side could present the Department of Energy (DOE) Personnel Assurance Program (PAP) and how it is administered.

C. Exchanges of Visits

After briefings on the above topics, visits to representative sites might be arranged to provide a tangible context for evaluating the information received. The visits would be carefully controlled with prior agreement on sites, areas to be visited within a site, numbers of people involved, documentation to be provided, appropriate topics for discussion, and what hardware would be shown/demonstrated.





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