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THE WHITE HOUSE

WASHINGTON

October 14, 1976

MEMORANDUM FOR: JIM CANNON
JIM CONNOR
JIM MITCHELL
JIM REICHLEY
DAVE ELLIOTT
BOB FRI

FROM: GLENN SCHLEEDE

SUBJECT: FACT SHEET - NUCLEAR POLICY STATEMENT

Here is a draft of the Fact Sheet. I suggest early consideration as to whether we can manage anything this complex in the time available.

As you will see, it makes a number of assumptions as to the content of the President's statement, which means that it will have to be changed later to fit the statement.

Agency review is needed. Unless you have objections, I propose that it be done early this morning by calling offices of heads of agencies and asking them to send someone to the EOB to review it and make corrections.

I suggest that we make an exception to this in the case of ERDA and that we leave to Bob Fri the task of getting consolidated ERDA comments back to us.

I assume Dave Elliott will cover State, ACDA and DOD. I will cover FEA, EPA, CEQ, Commerce, OSTP, Interior and NRC.

If we are to make it, we'll need comments back by about 1 pm today.

cc: Jim Shuman
Margaret Earl
Hugh Loweth
Jim Nix

10/14/76

Office of _____

THE WHITE HOUSE

FACT SHEET

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FACT SHEETPRESIDENT'S STATEMENT ON NUCLEAR POLICYI. THE PRESIDENT'S ACTION

The President today issued a comprehensive statement on nuclear policy. Principal announcements in the statement include:

- . A new attitude and new policy toward reprocessing of nuclear fuel in the U.S.
- . New steps, building on the initiatives undertaken over the past two years to achieve agreement worldwide on steps that are needed to prevent the theft or diversion of nuclear materials that could be used to make nuclear explosives.
- . Specific actions and schedules to assure that a repository is available for the long-term storage of nuclear wastes by the time it is needed in the late 1980's.

The President also indicated that he would send to the new Congress in January the legislative proposals and funding requests needed to carry out his latest policy decision.

II. BACKGROUND

During the past two years, the President has taken a number of actions to:

- . Assure that the benefits of the peaceful uses of nuclear energy will be available in the U.S. and to our trading partners, while avoiding the proliferation of nuclear explosives capability.
- . Maintain the role of the U.S. as a reliable and competitive supplier of nuclear fuel and equipment for peaceful purposes.

~~Use diplomatic efforts and our role as the principal supplier of nuclear reactors and fuel to encourage other nations -- suppliers and customers -- to avoid actions that would contribute to proliferation.~~

Accomplishments over the past two years include:

- . With strong U.S. leadership and encouragement, the number of nations signing the Non-proliferation Treaty (NPT), whereby nations forswear the acquisition of nuclear weapons, increased from _____ to _____.



- . Agreement in January 1976, among the 7 nuclear supplier nations on conditions to guard against proliferation that would be imposed by each nation before agreeing to export nuclear fuel and equipment -- culminating a U.S. initiative begun in 1975.
- . Negotiating tougher non-proliferation provisions in new agreements for cooperation with nations wishing to import nuclear reactors and fuel from the U.S.
- . Taking a strong stand, both publicly and privately, against planned exports by other nations of sensitive nuclear technology and equipment.
- . Expression of strong disapproval, in both public and private statements, of India's test of a nuclear explosive device.
- . In February 1976, announcement of a plan to strengthen the International Atomic Energy Agency (IAEA) through additional U.S. contributions to that agency.
- . In July 1976, the President ordered a thorough review be undertaken of U.S. nuclear policy, with particular attention to reprocessing, waste management, nuclear exports and non-proliferation to see whether additional actions should be taken.

As a result of the recent policy review and progress in discussions with other nations, the President decided on new actions announced today.

III. SUMMARY OF THE PRESIDENT'S STATEMENT

Briefly, the President, in his statement on nuclear policy:

- . Stated his continuing concern over the spread of the capability to obtain plutonium -- which can be used readily to make nuclear explosives -- through the chemical processing of "spent" nuclear fuel from nuclear reactors used for research and for producing electricity.

Government

- . Announced a change in U.S. attitude and policy toward chemical processing of "spent" nuclear fuel in the U.S. Specifically:

- Past U.S. policy assumed that spent fuel would be reprocessed to obtain unused uranium and plutonium and that plutonium will be recycled as new nuclear fuel.



- The recent review demonstrated that the U.S. is not forced to choose in favor of reprocessing and recycling.
- Henceforth, U.S. policy would assume that reprocessing and recycling would proceed only if safety, prevention of theft or diversion (safeguardability) and energy and economic benefits are satisfactorily demonstrated.
- Non-proliferation objectives will take precedence over economic and energy benefits if a choice must be made.
- . Announced that U.S. diplomatic efforts will be continued and increased and that new actions will be undertaken to convince all nations that reprocessing of nuclear fuel should not proceed until there are better assurances that it is the right course of action.
- . Announced that a program would be undertaken in cooperation with private industry to define and carry out demonstration activities that are needed to provide information for a decision on whether or not reprocessing should proceed.
- . Invited other nations and the IAEA to participate in the demonstration program.
- . Announced a program of R&D on alternatives to reprocessing, including long-term storage of spent fuel elements, and encouraged industry to plan and construct spent fuel storage facilities that will be needed until a final decision can be made on reprocessing.
- . Announced a comprehensive program to encourage other nations to postpone decisions to proceed with reprocessing and to strengthen their efforts to prevent nuclear proliferation.
- . Proposed additional actions, beyond those taken in February 1975, to strengthen the IAEA.
- . Committed the Federal Government to assure the availability of a long-term nuclear waste management facility when it is needed in the late 1980's and announced the plan and schedule that will be followed to achieve this objective.
- . Restated the intent of the U.S. to maintain its role as a reliable and competitive supplier of nuclear fuel and equipment for peaceful purposes. He also indicated that he would propose early next year the legislation needed to expand the capacity in the U.S. for enriching uranium and to produce the nuclear fuel that is needed for both domestic and foreign markets.



- . Reiterated his strong view that the ability of the U.S. to be a reliable and competitive supplier of fuel and equipment is critical to the success of U.S. efforts to encourage other nations to adopt our non-proliferation objectives.

In addition, the President:

- . Reaffirmed the need for the U.S. to increase its use of nuclear energy, along with coal, to meet the energy needs of an expanding economy in the years ahead, at least until advanced and more acceptable energy sources are available.
- . Recognized that other nations are increasing rapidly their use of nuclear energy.
- . Noted that a number of other nations have developed the capacity to supply nuclear fuel and equipment and are prepared to supply world markets even if the U.S. does not do so.

IV. CONTEXT OF THE PRESIDENT'S STATEMENT: STATUS OF AND CONCERNS ABOUT COMMERCIAL NUCLEAR POWER

Principal facts about the status of commercial nuclear energy, the U.S. role in world nuclear affairs and current concerns about nuclear energy are described below:

A. Status of Commercial Nuclear Energy

- . The use of nuclear energy in the U.S. There are 61 commercial nuclear power plants licensed to operate. Nuclear plants now supply about 9% of the nation's electrical energy requirements. Another ___ plants are on order, under construction, or awaiting license which will result in about ___ plants on line by the 1985-87 time period and ___ by 1990-92. By 1985 from 20-25% of the Nation's electricity will be supplied by nuclear power.
- . The use in other countries. Other countries now have a total of ___ commercial nuclear power plants in operation and, by 1985 ___ countries are expected to have about ___ plants in operation.
- . Energy needs. Even with greatly expanded energy conservation efforts, the U.S. will have to expand its use of both coal and nuclear energy from the current generation of nuclear power plants for the next 25 years to meet the demands for energy for a growing economy.



- Other technologies. The Government and industry are making major investments in the development of advanced technologies such as fusion, solar energy and geothermal energy. But, there is a long way to go and technological breakthroughs are needed before any of these sources can be expected to be a major source of electrical energy that people can afford.

B. Concerns about Commercial Nuclear Energy

- Nuclear Proliferation Abroad. There is a threat of increased nuclear proliferation abroad because of the spread of the capability to recover plutonium from "spent" fuel elements from nuclear power and research reactors in a step called "reprocessing." (See description of the nuclear fuel cycle at Appendix I.) Developers of nuclear power have intended that separated plutonium be recycled for use as reactor fuel. However, the existence of separated plutonium increases the risk that it might be stolen or clandestinely diverted for use in making nuclear explosives.
- Controls to Prevent Proliferation. Spread of the capability to make nuclear weapons has been a concern since the advent of nuclear power and major efforts have been made, with strong U.S. leadership, to curb proliferation. Concerns have grown as the use of nuclear energy has increased and as additional nations have sought the capability to produce enriched uranium and to reprocess nuclear fuel to obtain plutonium. Existing systems of controls to prevent the theft or diversion of plutonium in some foreign countries are not considered adequate.
- Reprocessing in the U.S. Efforts by industry to proceed with commercial scale spent fuel reprocessing in the U.S. have become stalled because of uncertainties concerning economics, safeguards and regulatory requirements. Domestic reprocessing is strongly opposed by some who believe the energy and economic benefits are outweighed by problems that might result from significant quantities of separated and recycled plutonium. While the technology is available and has been well demonstrated, industry has not yet constructed and operated, in a commercial setting, reprocessing and associated conversion and nuclear waste packaging facilities.



- Nuclear Waste Management. The U.S. government has the responsibility for providing a repository for the long-term storage or disposal of nuclear wastes. Even though a repository is not needed until the late 1980's and the technology for managing wastes is available, concern has been expressed that plans and programs have not been put in place to achieve that objective.

C. U.S. influence in world nuclear affairs

- The United States has been the principal/^{world} supplier of nuclear fuel and equipment for peaceful purposes and has used this role as the basis for encouraging other nations -- both suppliers and customers -- to adopt rigorous safeguards to prevent the theft or diversion of nuclear materials for use in nuclear explosives.
- Several other nations -- principally France and Germany -- have become suppliers of nuclear reactors and uranium enrichment services to produce fuel for reactors. In some cases, these suppliers -- unlike the U.S. -- have offered to export uranium enrichment and reprocessing technology and facilities.
- The U.S. role as a supplier in world markets -- and, therefore, our ability to influence others to adopt our non-proliferation objectives -- is declining.
 - The U.S. share of reactor sales to foreign markets has declined from 80% in _____ to 55% in _____.
 - U.S. capacity to provide uranium enrichment services has been fully committed since mid-1974 and no new domestic or foreign orders are being signed.
 - Suppliers from other nations are filling the gap. Enrichment capacity exists in the USSR and Western Europe and more is being planned. For example, the French recently announced that a consortium would build a major new uranium enrichment plant to capture a share of the growing world market, taking advantage of the indecision in the US owing to the lack of Congressional action.

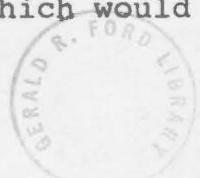


V. DETAILS OF THE NEW U.S. GOVERNMENT ATTITUDE AND POLICY ON REPROCESSING OF SPENT FUEL AND ON RECYCLE OF PLUTONIUM

A. New Policy - Details

Under the new policy announced by the President, the U.S. Government:

- . Will no longer assume that reprocessing and recycle of plutonium is inevitable.
- . Will encourage commercial scale reprocessing in the future only if it can be demonstrated that this approach will be safe, environmentally acceptable and adequately safeguarded against theft and diversion of nuclear materials; and that it is sensible from the standpoint of energy and economic benefits.
- . Will work with industry to resolve by 1979 significant uncertainties associated with reprocessing so that a national decision can be made on whether to proceed with reprocessing and recycle.
- . Invite other nations and the IAEA to participate in any Government-assisted reprocessing experiments.
- . Seek to accommodate some foreign spent fuel in reprocessing demonstration activities in the U.S. to help alleviate any pressure on other nations to proceed with reprocessing.
- . Encourage industry to proceed immediately with the expansion of spent fuel storage facilities, thus assuring utilities that they need not be concerned about shut down of reactors because of the postponement of decisions on reprocessing, and providing storage capacity to help accommodate foreign spent fuel.
- . Expand Federally-funded R&D efforts in related areas, including alternatives to reprocessing (such as two-stage use of fuel elements); reprocessing to recover energy value without separating out plutonium; and long-term storage of spent fuel elements.
- . Continue its policy that all steps in the light water fuel cycle, when performed on a commercial scale, will be the responsibility of private industry -- except long-term nuclear waste management, which would continue to be a Federal responsibility.



B. Background - Domestic Reprocessing and Recycle.

- For years, U.S. nuclear policy has assumed that "spent" fuel removed from commercial nuclear light water reactors (LWR's) would be reprocessed through physical and chemical actions to:
 - Recover valuable uranium and by-product plutonium which could then be reused ("recycled") as fuel in LWR's -- thus extending the energy output from uranium by about 50%.
 - Remove the radioactive wastes, which would be converted to a solid form and packaged for ultimate disposal.
 - Recover plutonium for use in fuel for breeder reactors, if and when breeders become commercial. Breeder reactors are expected to extend the use of our domestic uranium resources by 500 years or more.

(See fuel cycle depiction at Appendix _).

- U.S. policy has assumed that private industry has the responsibility for financing, building, owning and operating commercial reprocessing facilities.
- U.S. Government responsibility has been limited to R&D and small scale demonstration of reprocessing technologies. Basic technologies were developed in AEC (now ERDA) programs for producing nuclear materials for weapons work, and for handling spent fuel from naval nuclear reactors and research reactors. There are significant differences in technology for reprocessing spent nuclear fuel from commercial power plants.
- ERDA has continued conducting R&D on the chemistry of reprocessing, on control of radioactive discharges from reprocessing plants and on safeguard technologies for use in reprocessing and recycle facilities.

C. Current Status of spent fuel reprocessing in the U.S.

- In the U.S., there currently are no commercial reprocessing facilities in operation:
 - A small reprocessing facility built by the Nuclear Fuel Services Company in West Valley, New York, operated from 1966 to 1972 when it shut down for plant expansion. Due to changing regulatory standards of the NRC since that time, this plant is not expected to be started up again.



- A plant was built at Morris, Illinois, by the General Electric Company using a technology different from that developed by AEC(ERDA) and from the NFS facilities. Before starting up the plant, GE concluded that it would not work as planned and thus it will not be used to reprocess spent fuel.
- The Allied General Nuclear Services (AGNS) company has completed one major element -- a separations facility where spent fuel is physically chopped up and then chemically reprocessed, and a uranium conversion facility as part of a major reprocessing complex at Barnwell, S.C., at the boundary of an ERDA installation. AGNS has already invested approximately \$270 million. Two major additional elements -- a waste solidification facility and a facility to convert liquid plutonium into a solid oxide -- are needed to complete the complex. The facilities would cost an estimated \$500 million.
- . The independent Nuclear Regulatory Commission (NRC) now has under review the issue of whether reprocessing and recycle should be permitted in the U.S. This review is being conducted in the context of the NRC's evaluation of their Generic Environmental Statement on Mixed Oxide Fuel (GESMO), which is expected to lead to an NRC decision on reprocessing in mid-1978. Until this decision, the AGNS facility cannot be completed or operated but some additional design and construction -- particularly on waste solidification facility -- can be started.

D. Problems and Uncertainties Associated with Reprocessing

At this time, the principal problems and uncertainties associated with reprocessing and recycle involve:

- . The effectiveness of techniques for reducing to a minimum the risk of theft or diversion of plutonium that is separated out during reprocessing have not been sufficiently demonstrated.
- . The performance of technologies used to solidify the waste products of reprocessing -- preparing the wastes for ultimate disposal -- have not been demonstrated on a large scale.
- . The costs of reprocessing, recycle and waste conversion and packaging -- which will effect the economic benefits of reprocessing -- are not clearly understood. Specifically:
 - Capital and operating cost of required safeguard measures are not yet known.
 - Performance of large scale waste solidification technologies and spent fuel separation technologies are not yet



demonstrated on a large scale.

- The requirements that NRC will establish to make reprocessing safe and environmentally acceptable have not yet been firmly established.
- . These uncertainties are delaying or preventing private firms from investing in the planning, design and construction of facilities that would be needed if reprocessing proceeds.

E. Alternatives to Proceeding with Reprocessing Now

If reprocessing and recycle of plutonium are not pursued in the U.S., nuclear power plants can still operate and make significant contributions to U.S. energy supplies. A nuclear fuel cycle different from that previously assumed would be involved; e.g.:

- Spent fuel discharged from nuclear plants would be temporarily stored in special facilities either at nuclear plant sites or in central storage complexes. Adequate facilities for this are not now available and would thus have to be constructed by industry.
 - . If reprocessing and recycle is approved at a future date, spent fuel in temporary storage could then be reprocessed and the plutonium and unused uranium recycled to produce energy.
 - . If reprocessing is not approved, spent fuel could be delivered directly to permanent waste disposal sites.
- Alternative technologies could prove to be feasible, permitting extracting some of the remaining energy content from fuel elements. Considerable additional R&D would be needed to test the feasibility of such an approach.

F. Relationship between Domestic Reprocessing and Our World-wide non-Proliferation Objectives

- . The U.S. cannot proceed unabated with the development of reprocessing and recycle facilities and, at the same time, expect other nations to recognize the sincerity of U.S. concerns about the risks of separated plutonium. commercial



- . Yet, there are reasons--important to other nation's and the U.S. that justify proceeding with some limited scale but significant reprocessing demonstration. Specifically:

- The need to resolve uncertainties about reprocessing and recycle (listed earlier) on a demonstration basis, including safeguardability and economics.
- The desirability of having the capability to handle some of the spent fuel that is being discharged from nuclear plants here and abroad, so that plants can continue to operate and so that the US can make good on an offer to allow customer nations to turn spent fuel over to the U.S. for handling -- in exchange for cash or fresh fuel, thus avoiding the need for spreading reprocessing capability.
- If reprocessing is eventually approved, the U.S. should be prepared to provide reprocessing services, thus avoiding the need for spread of small scale facilities.

- . In order to meet both kinds of objectives, the U.S. must invite and encourage foreign nation participation and inspection (perhaps by IAEA) of any reprocessing demonstration activities.

G. Actions to be Taken to Implement Changes in Domestic Policy on Reprocessing.

- . Principal actions to be taken to implement the changes in Domestic policy on reprocessing announced by the President include the following:

- ERDA is expected to identify, evaluate and recommend to the President by November 30, 1976, proposed Federal actions and/or demonstration activities which will be required to reduce adequately the uncertainties in the economics, safeguards and waste technologies associated with reprocessing. This review will cover:

- . Additional information required to reduce uncertainties and permit a decision in the U.S. on reprocessing and recycle by 1979.
- . Cost effectiveness of alternative programs involving both the U.S. Government and private industry which could develop required information in a timely manner. Alternative approaches to be reviewed include:



- scaling up of existing ERDA experimental facilities to investigate safeguards and waste solidification technologies.

design, licensing and construction of commercial scale waste solidification and plutonium conversion facilities, including the potential addition of facilities at the site of the existing AGNS spent fuel separations facility at Barnwell South Carolina.

- ERDA is expected to include in its evaluation of any approach involving the existing AGNS facility:

- . A full assessment of the advantages and disadvantages-- from the standpoint of the national interest and the interests of all parties concerned -- of proceeding at the site of the AGNS facility.
- . Alternative approaches which would minimize the total cost of proceeding at that site while protecting both the national interest and the interests of the investors in the AGNS facility.
- . Terms of potential cooperative arrangements with the AGNS organization which preclude any legitimate concern about a potential "bailout" for the investors. Possible Arrangements should include consideration of:
 - Cost sharing by AGNS in any additional facilities.
 - Actions to be taken by AGNS in support of U.S. Nonproliferation objectives.
 - Reasonable protection for AGNS investors for any additional investments made in support of Government objectives -- if a decision is made not to permit proceeding with reprocessing.

ERDA is expected to consult with the NRC to help assure that NRC and ERDA activities are coordinated and mutually supportive.

- ERDA and State Department are expected to recommend by November 30, 1976, specific criteria that should be applied to any foreign participation in U.S. demonstration activities.
- State Department and ERDA are expected to open negotiations immediately with other nations to determine interest in participation.



- ERDA is expected to recommend to the President by November 30, 1976:
 - by December 31, 1976
 - . A program to assess/the feasibility of alternative technologies for obtaining energy and economic value from spent fuel.
 - . A program of R&D if the assessment indicates that such alternatives warrant further consideration.
 - . Actions needed by the Federal Government, if any, to encourage private industry to proceed with added spent fuel storage capacity to accommodate fuel which will have to be stored before a decision is made on reprocessing or if the throw away cycle or alternative technologies are available.

- ERDA and State are expected to open discussions with the IAEA and the Conference on Economic Cooperation to develop cooperative programs in non-nuclear energy development for those nations that forswear nuclear weapons.

- . Details of actions to be taken during FY 1977 or FY1978 to implement the changes in domestic policy on reprocessing are expected to be worked out in time for:
 - Submission of any necessary legislation early in 1978.
 - Providing for FY 1977 or FY 1978 Federal funding requirements in the President's new Budget.



VI. DETAILS OF THE PRESIDENT'S POLICY AND THE NEW ACTIONS TO REDUCE THE THREAT OF PROLIFERATION ABROAD

A. New Policy - Details

In his nuclear policy statement, the President:

- . Calls upon all nations to join together in new steps to deal with the common concerns of nuclear weapons proliferation and energy security.
- . Calls for a three-year moratorium on the export of sensitive nuclear technology for nuclear fuel enrichment or reprocessing along with corollary measures to ensure reliable long-term fuel supply at equitable prices.
- . Calls for establishment of an international storage regime for excess plutonium and spent fuel and calls upon the IAEA to implement this concept in the U.S. is prepared in principal to fully participate.
- . Announces strengthened non-proliferation criteria to be applied in the export of nuclear materials and technology and to be negotiated in new or amended Agreements for Cooperation.
- . Commits the U.S. to a program of significantly strengthening the IAEA in concert with other member nations.
- . Calls upon all nations not now full adherents of the NPT, to join the treaty.

B. Previous Actions Taken by the U.S. to Control Proliferation.

Since 1953 when President Eisenhower proposed creation of the IAEA, the U. S. has been a leader in efforts to control the spread of nuclear weapons, while helping to meet the legitimate peaceful nuclear energy needs of other countries.

In addition to its work to obtain treaties limiting the testing of nuclear weapons, the U.S. has:

- . Led in negotiating the Nonproliferation Treaty (NPT) which now has over 100 adherents, wherein nonnuclear weapons nations forswear the acquisition of such weapons.



- Encouraged the development of strong international safeguards and inspection capability through the IAEA to guard against the diversion of nuclear materials and effective international physical security standards to protect against theft and sabotage.
- Established and maintained a role as the world's principal supplier of nuclear fuels and equipment for peaceful purposes and used this role as the basis for urging other nations to join with us in adopting rigorous controls against the potential for misuse of nuclear materials.
- Entered into ^{thirty} "Agreements for Nuclear Cooperation" with nuclear trading partners (28 with individual nations, plus IAEA and Euratom), which agreements include political commitments and technical controls to prevent the diversion by nations of nuclear materials for weapons purposes.

Within the past two years the Administration has taken a number of steps to strengthen efforts worldwide to control proliferation. Principal actions are listed on pages 1-2 of this Fact Sheet.

C. Goal and Objectives of the New Policy

The principal goal of the President's nonproliferation policy is to ensure that the capability to produce in national facilities highly enriched uranium and separated plutonium, the materials necessary for a nuclear explosive device, does not spread to additional countries.

To achieve this goal, the President established the following objectives:

- Avoid the spread to additional countries of national enrichment and reprocessing facilities, while taking necessary measures to ensure reliable long-term fuel supply at equitable prices to recipient countries that share our objectives.
- Develop more effective safeguards against diversion.
- Explore the economic feasibility of reprocessing as one means of recovering the energy value in spent nuclear fuel.
- Investigate alternatives to reprocessing which would not entail the separation of plutonium.



D. Specific Actions in Support of the President's Policy Initiatives.

. Moratorium on export of enrichment and reprocessing technology.

- The U.S. adopted such a moratorium in 1972.
- The proposed 3-year moratorium would:
 - . Allow the supplier nations to develop new, common export criteria and incentives outlined below.
 - . Permit the demonstration of reprocessing economics and necessary safeguard measures to determine the value and safety of reprocessing, and the evaluation of alternatives to reprocessing.

. International Plutonium and Spent Fuel Storage Regime.

- Under this proposal, Article XII, Section 5 of the IAEA statute would be activated so as to establish a regime for international custody over all plutonium and spent fuel which is excess to current, economically justified civil requirements.
- The U.S. is prepared, in principal, to place its spent fuel in such a regime and to participate in a special grant to IAEA, along with other member states, to activate such a regime.

. Assisting other Nations in Meeting Energy Requirements.

- Establishment of a special program, in cooperation with the OECD, CIEC, and with the UN System, to assist developing nations in evaluating their current and future energy requirements and in developing energy alternatives, nonnuclear as well as nuclear, to meet requirements.

. Strengthening the IAEA Safeguards System.

- Continue developing programs with the IAEA for special technical contributions-in-kind.
- Explore with member nations and the IAEA staff other ways to strengthen the safeguards mission, including the provision of additional personnel.



- Develop with the IAEA a system of adequate safeguards for reprocessing facilities, should reprocessing prove economic and desirable.
- Dedicate resources from two ERDA laboratories in the U.S. for technical support of the IAEA safeguards mission and invite other countries to make similar dedications.

. Criteria for Nuclear Cooperation with other Nations.
Criteria would include:

~~NPT adherence or IAEA safeguards over all national civil nuclear programs (research and operating activities and facilities).~~

- Agreement, in principal, to place all excess spent fuel and, when available, plutonium in the proposed international storage regime.
- Agreement to postpone plans to enrich uranium or reprocess spent fuel until such time as a clear economic justification exists and to do so only in binational or multinational facilities.

These criteria would be applied in all new, proposed Agreements for cooperation with the Secretary of State expected to enter into negotiations with nations whom we now have agreements, with the objective of gaining acceptance of the principles embodied in these criteria.

. Incentives to Nations to Cooperate in Establishing the proposed new nonproliferation regime.

The U.S. would:

- Assure enrichment services, subject to capacity limits.
- Consider cooperative arrangements to cover fuel for reactors sold by nations other than the U.S.
- Buy back spent fuel in circumstances which would significantly advance U.S. non-proliferation objectives.
- Devise and support new programs to develop indigenous nonnuclear energy resources in energy poor countries, working through the UN system, OECD and CIEC.



. Sanctions

- Any spread of nuclear explosive capability will be viewed with serious concern.
- Any violation of a U.S. nuclear safeguards agreement will cause the U.S. at a minimum to suspend nuclear cooperation with the violating country.
- Beyond this, violation of any nuclear safeguards agreement will cause the U.S. to review its policy of nuclear cooperation with the violating country, and to initiate consultations with the IAEA and other countries with regard to suspending assistance in at least nuclear programs.

. Consultations

The Secretary of State is expected to initiate intensive consultations with other nations with regard to:

- Obtaining maximum restraint on the export of sensitive nuclear technologies.
- Establishing an international storage regime for spent fuel and excess plutonium.
- Strengthening the common nonproliferation criteria under which all nuclear materials and facilities are exported.
- Developing a common policy on fuel cycle exports, to remove competitive incentives which can undermine our common nonproliferation efforts.
- Strengthening the safeguards capability of the IAEA, especially through increasing the number and technical competence of safeguards inspectors.



VII. DETAILS OF THE PRESIDENT'S PLAN FOR DEALING WITH NUCLEAR WASTES

A. Plan and Schedule

The President announced that Federal Agencies have their assignments for the actions needed to enable a nuclear waste repository to be operating by 1985. Specific milestones are listed below.

B. Nuclear Wastes Requiring Long-Term Management

U.S. commercial nuclear power reactors "burn" enriched uranium fuel and produce in spent fuel rods a mixture of plutonium, slightly enriched uranium and waste products. These waste products are highly radioactive and could constitute a hazard for hundreds of thousands of years if they escaped to the biosphere.

- . If spent fuel rods are reprocessed, the wastes would be separated from the uranium and plutonium (which could be saved and recycled as fuel), put into solid form in stain steel canisters, and sent to a repository for permanent disposal.

. If there is no reprocessing, the spent fuel rods themselves must be disposed of in a repository.

Under either alternative, management of nuclear wastes is required to provide for permanent disposal and isolation from the environment for centuries.

C. The Nuclear Waste Problem and Alternatives for Dealing with it that have been Considered.

The principal problem in safely managing the waste is confining the radioactivity rather than finding enough storage space, since recent calculations suggest the total volume of high-level wastes produced by commercial nuclear power in the U.S. through 2000 will be equivalent to a cube only 70 feet on each side.

A wide variety of methods for permanent disposal of these wastes have been considered:

- . Most people have concluded that the most practical method is geologic storage in repositories in stable formations deep underground.



- Other methods under study are deep geologic disposal under the oceans, ice sheet disposal, transmutation and shooting into space.

While technology or means for nuclear waste disposal and management have been developed and demonstrated, we do not yet have available a repository for nuclear waste storage. Most spent fuel rods are continuing to be stored safely in temporary storage ponds at reactor sites.

Considerable public concern has been expressed that the Federal Government has not yet demonstrated that it can fulfill its responsibility to provide a repository for safe disposal of nuclear waste. Thus the nuclear waste "problem" is to demonstrate that the technology is in fact available, that an acceptable site can be found, and that a coordinated program within the Federal Government can be established to assure that a facility will be available, when needed, generally agreed to be by 1985.

D. The Federal Government's Waste Management Responsibility

Because of the limited incentives for private parties to engage in commercial storage of these wastes, the need to store wastes over centuries, and the environmental risks involved, the Federal Government has assumed the responsibility for long-term storage of high-level wastes. Private industry is responsible (subject to regulation) for packaging and delivering the waste in a prescribed form to a Federal repository.

E. Principal Actions that must be taken by the Federal Government to Implement a Sound Waste Management Program --and the Status of those Actions.

- Generic Environmental Impact Statement (GEIS).

Because the program will represent a "major Federal action," the ERDA is required to prepare a generic environmental impact statement (GEIS) on waste management.

- The GEIS will examine the impacts of all the major waste management alternatives including the alternative of doing nothing.
- Statement will cover all types of nuclear wastes.
- Other environmental impact statements (EIS's) will



be required when (i) regulations are proposed, and (ii) the site is selected.

Status - ERDA has been at work for some time. No major problems in completing the statement are anticipated. All of the relevant agencies have been cooperating in its development. A final statement is expected no later than late 1977.

. General Environmental Standards

The Atomic Energy Act and subsequent legislation requires the EPA to issue general environmental standards for releases to the biosphere from nuclear facilities, including waste management facilities. These standards will provide a numerical limit to long term radiation releases outside the boundaries of the repository that can be tolerated--above the natural background radiation. The standards need to be available as early as possible during the process of locating and constructing the repository.

Status--EPA will propose the general standards for high level waste in 1977 and publish them in final form by mid-1978, in time for the Nuclear Regulatory Commission(NRC) to issue its regulations and prior to starting construction.

. Licensing of Waste Repository.

The Energy Reorganization Act of 1974 requires that high-level commercial repositories be proposed for licensing by the NRC, and the NRC issue the appropriate criteria and standards to assure that the repository is constructed and operated in a safe and environmentally acceptable manner.

Status-- Both ERDA and the independent NRC have agreed that the repository should go through a licensing procedure before the first wastes are shipped. NRC is committed to produce final criteria and standards governing the construction and operation of the repository by 1978, prior to the time the site is selected and construction begins.



. Construction and operation of a Repository.

ERDA has the responsibility to construct and operate the repository, including:

- . finding an acceptable site, with the help of the U.S. Geological Survey (USGS).
- . acquiring the land.
- . designing the repository.
- . construction, operation and sealing of the repository.

Status--The President's FY 1977 Budget increased funding for this program to \$60 million, up from \$12 million in FY 1976.

- . ERDA is expected to have the repository in operation by 1985 and to assure the demonstration of all major elements of the technology by 1978.
- . The USFS is cooperating fully in the effort.

F. Timetable for Actions

The Office of Management and Budget (OMB) has led an interagency task force composed of ERDA, NRC, CEQ, USGS (Interior) and NSF which has detailed the key engineering, environmental and regulatory actions and dates required to enable a repository to be operated by 1985. The work of this Task Force provided the basis for the President's decision on plans and schedules.

The principal actions and the dates for their accomplishment are listed below and shown in chart form at Appendix C.

1976--ERDA issued for public review the Technical Alternatives Document for waste management which explains the current state of the technology.

1977--ERDA issues generic environmental impact statement on waste management no later than the end of the year.

--EPA propose draft generally applicable standards for permanent storage of high level waste.

--NRC publishes draft standards for solidified high level wastes and draft siting, engineering and operating criteria for repositories for high level and transuranic wastes. Each element will include the appropriate draft EIS statements.



--USGS will begin preliminary hydrologic work in conjunction with ERDA.

1978--ERDA will complete demonstration work on canister design, waste solidification, and preliminary repository design, and continue site selection process.

--NRC finalizes proposed site selection, solidification, waste definitions and operating criteria and regulations.

--EPA issues final general ambient standards for high level waste disposal.

1979--ERDA selects a particular site, issues a draft site specific EIS, and begins intensive site and design work.

--NRC performs early site review of ERDA repository; issues next phase of draft regulations for canister design, transportation, etc.

1980--ERDA completes site and design studies, submits preliminary safety analysis and environmental report to NRC in support of construction permit.

1981--NRC issues construction permit.

--ERDA begins construction.

1984--Construction completed, repository tested with "cold" wastes.

1985--NRC issues repository license.

--Repository begins initial "hot" operation.

VIII. BUDGET AND LEGISLATIVE PROPOSALS

The President is expected to propose early in the new year the budget requests and proposed legislation necessary to implement the policy and programs announced in his statement.

Budget and/or legislative proposals will cover:

- . To authorize the domestic reprocessing and safeguards demonstration activities.
- . To authorize R&D on alternative technologies to reprocessing.
- . To authorize work on the expansion of the Portsmouth uranium enrichment plant and authorize ERDA to enter into cooperative agreements with private firms wishing to finance, build, own and operate uranium enrichment plants.
- . To support through the UN Development Fund the evaluation of energy requirements and alternative energy systems for developing countries.
- . To authorize support for IAEA action leading to the establishment of an international plutonium and spent fuel storage regime.
- . To strengthen the safeguards capability of the IAEA.
- . Continuation of work necessary to provide a waste management repository.



ACTIONS PREVIOUSLY TAKEN BY THE PRESIDENT ON NUCLEAR ENERGY

In addition to the actions described above with respect to exports, proliferation, reprocessing and waste management, the President has taken a number of actions to assure the continued safety, reliability, and environmental acceptability of nuclear power; to maintain the U.S. role as a reliable supplier of nuclear fuel and equipment for peaceful purposes and to control the spread of proliferation abroad.

These actions have included:

- A. Uranium Resources (1977 Budget): The President's 1977 Budget provides for \$30 million in outlays (an increase of \$15 million over the FY 1976 Budget) to expand the ERDA program to provide more complete information on the extent of the Nation's uranium resources and \$5 million for the Department of the Interior's uranium assessment program. Even without this more complete information, domestic uranium resources known to be available plus those projected with a high degree of certainty, are sufficient to provide fuel for all reactors that are expected to be on line by 1990 over their entire lifetime. Uranium resources, together with the future market for nuclear energy, provide the basis for significant investment by industry in expanded capacity for mining, milling, and uranium conversion.



- B. Uranium Enrichment. In June 1975, the President proposed legislation needed to increase capacity in the U.S. for enriching uranium and to provide the basis for moving to a private, competitive uranium enrichment industry. The additional capacity is needed to provide fuel for nuclear power plants domestically and to permit the U.S. to maintain its role as a major supplier of uranium enrichment services abroad. That legislation is awaiting final passage by the Senate.

When he proposed the legislation, the President reiterated the intention of the United States to be a major supplier of uranium enrichment services, and pledged the U.S.

Government to assure the delivery when needed of uranium enrichment services covered by orders placed with private firms in the U.S.

ERDA has proposals from four firms wishing to finance, build, own and operate uranium enrichment plants. One would use the gaseous diffusion technology; the others propose to use the gas centrifuge process. ERDA expects to submit firm contracts to the Congress this session for anticipated approval under provisions of the pending Nuclear Fuel Assurance Act.

- C. Regulation of Nuclear Power. In January, 1975, the President activated the Nuclear Regulatory Commission (NRC), an independent regulatory agency with the full-time responsibility for assuring the safety, environmental acceptability, and reliability of commercial nuclear power in the U.S.

- D. Reactor Safety (1977 Budget): The President's FY 1977 Budget provides \$89 million in outlays in NRC and ERDA (an increase of 49% over FY 1976) to assure the safety of commercial light water reactor nuclear power plants even beyond their present levels of safety.



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E. Improved Licensing (administrative/legislative):

The President urged passage of legislation to reform the nuclear facilities licensing process by providing for early site review and approval, and encouraging nuclear facilities design standardization.

The Nuclear Regulatory Commission (NRC) has taken a number of steps to reduce regulatory delays, including issuing standardized review procedures for license applications so that applicants can have available detailed information on how NRC requirements can be met, and developing procedures to coordinate environmental siting reviews by other Federal agencies and the States.

F. Availability of Commercial Nuclear Power Plants (1977 Budget): Increasing the on-line availability of commercial nuclear power plants and reducing the time required to construct these plants can lower significantly electric generating costs. Primary responsibility for reliability improvements rests with industry which spends about \$100 million per year to improve nuclear plant technologies. The President's 1977 Budget for ERDA provides \$10 million in outlays for research on basic technologies to be used by industry in its program to improve plant reliability.

Plutonium and Uranium Recovery and Recycle

G. (administrative/1977 Budget):

The President's FY 1977 Budget provides \$31 million for ERDA (an increase of 138% over 1976) for R&D to permit the recovery and reuse of plutonium and uranium from nuclear fuel elements (called "spent" fuel) used in commercial nuclear power plants. The recovery and reuse of this plutonium and uranium fuel can reduce the consumption of this Nation's uranium resources and hold down the costs of nuclear power. The increased R&D program in 1977 will cover light water reactor fuel reprocessing (recovery) and recycle (reuse) technologies and reprocessing plant design concepts. It will provide a basis for converting plutonium to a safe form for transportation back to nuclear power plants. It will provide additional data useful for licensing reprocessing plants and encourage the establishment of a competitive reprocessing industry at the earliest practicable date.



H. Commercial Nuclear Waste Management (administrative/
1977 Budget):

- The President's 1977 Budget contains \$63 million in outlays for ERDA (an increase of \$51 million over 1976 funding levels of \$12 million) for greatly ~~accelerating research and development on, and for~~ investigating the suitability of several sites for long-term storage of radioactive wastes. The research and development will also focus upon improved methods for processing and packaging wastes for transportation and storage.

I. Domestic Safeguards (1977 Budget):

- The President's FY 1977 Budget contains \$27 million for ERDA (an increase of 80% over the FY 1976 funding level of \$15 million) for further development of technology to prevent the theft and misuse of nuclear materials in future years. These funds will be used to design and test overall security systems and to develop the more comprehensive methods of accounting for nuclear materials that will be needed as the amounts of these materials in use increase substantially in the future.

- The President's 1977 Budget also contains \$26 million in outlays (an increase of \$12 million over FY 1976 Budget) for NRC to accelerate efforts to develop more integrated material control and accounting measures, and physical protection measures.

J. International Safeguards and Non-Proliferation
(administrative):

- Agreement has been reached between the United States and other major nuclear supplier nations to follow certain stringent export principles to assure that the provision of nuclear power does not lead to the proliferation of nuclear weapons.

The President has also decided that the U.S. make a special contribution of up to \$5 million in the next five years to the International Atomic Energy Agency (IAEA) to strengthen its safeguards program, by providing training or personnel, research and development of improved techniques and services of expert consultants, specialized equipment and other appropriate support.



K. Advanced Nuclear Energy R&D (1977 Budget):

- Fission Reactors: The President's FY 1977 Budget contains \$674 million for ERDA (an increase of 30% over FY 1976 levels of \$519 million) for research and development on improved nuclear power reactors. Most of the funds (85% in FY 1977) are for development of the Liquid Metal Fast Breeder Reactor (LMFBR), which is a proven technological concept for greatly extending supplies of fuel for nuclear power plants. The increase in FY 1977 is primarily for the continued construction of the \$2 billion LMFBR demonstration project near Oak Ridge, Tennessee.

Fusion: The President's FY 1977 Budget provides \$304 million of outlays for ERDA (an increase of 36% over FY 1976 level of \$224 million in outlays) for research on determining the scientific feasibility of obtaining a virtually inexhaustible source of energy for the long-term (beyond the year 2000) from controlled thermonuclear fusion reaction. The budget permits the continued construction of the \$215 million Tokamak Fusion Test Reactor, near Princeton, N.J., which will represent a major milestone for the fusion development program.



STATUS OF NUCLEAR POWER PLANTS — AUG. 31, 1976

<u>Number Of Units</u>	<u>Rated Capacity (MWe)</u>
* 61 LICENSED TO OPERATE	44,000
** 73 CONSTRUCTION PERMIT GRANTED	76,000
21 Under Operating License Review.....	20,000
52 Operating License Not Yet Applied For	56,000
66 UNDER CONSTRUCTION PERMIT REVIEW	73,000
** 21 Site Work Authorized, Safety Review in Process	22,000
45 Other Units Under CP Review	51,000
18 ORDERED	21,000
19 PUBLICLY ANNOUNCED	23,000
237 TOTAL	237,000

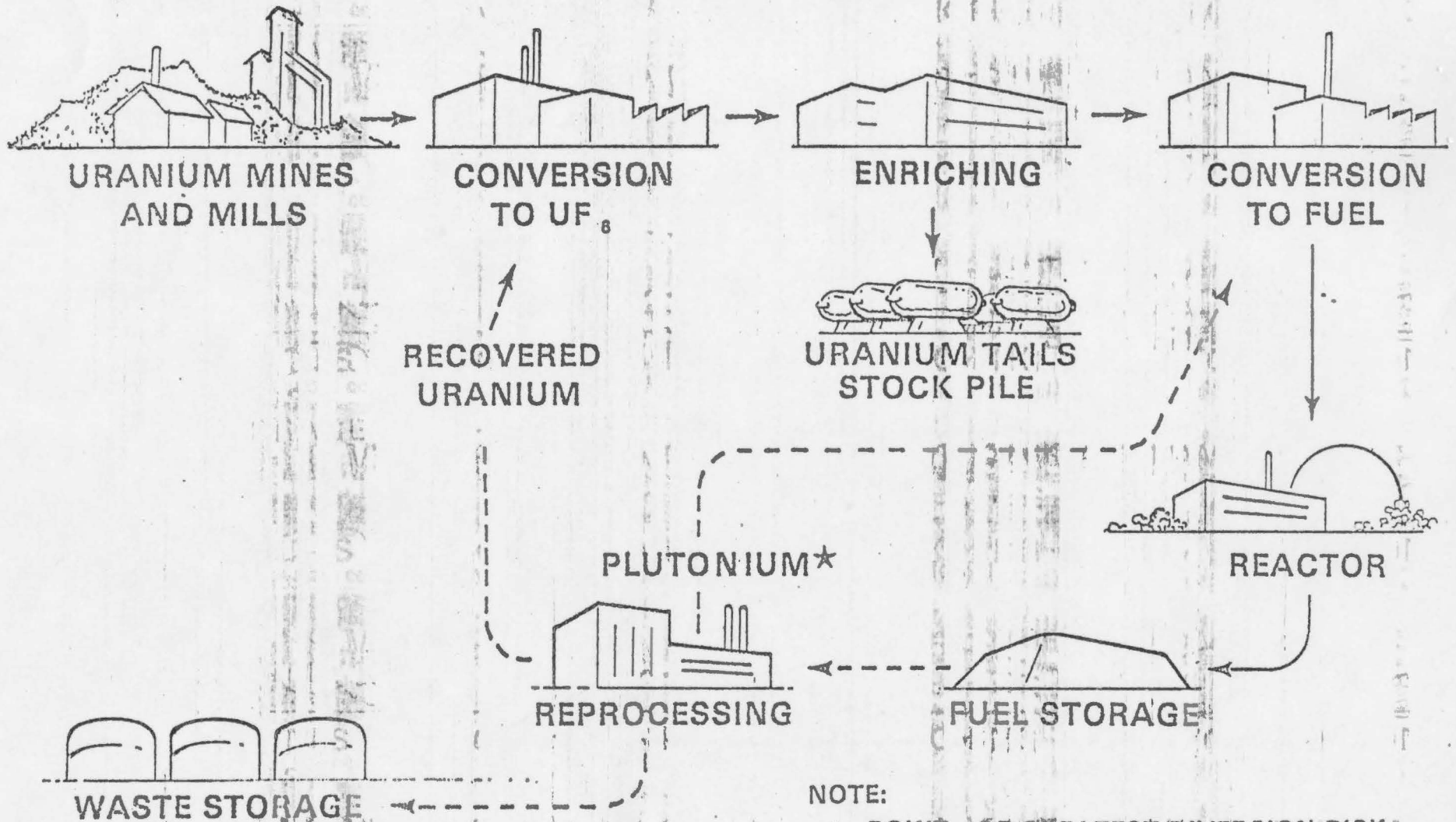
*Includes 2 plants with fuel loading and low-power testing licenses only. Not included are two operable ERDA-owned reactors with a combined capacity of 940 MWe.

**Total of units under construction (Construction Permit Granted plus Site Work Authorized): 94 units, 98,000 MWe.



- 30 -

THE LIGHT WATER REACTOR NUCLEAR FUEL CYCLE



NOTE:

* POINT OF GREATEST DIVERSION RISK



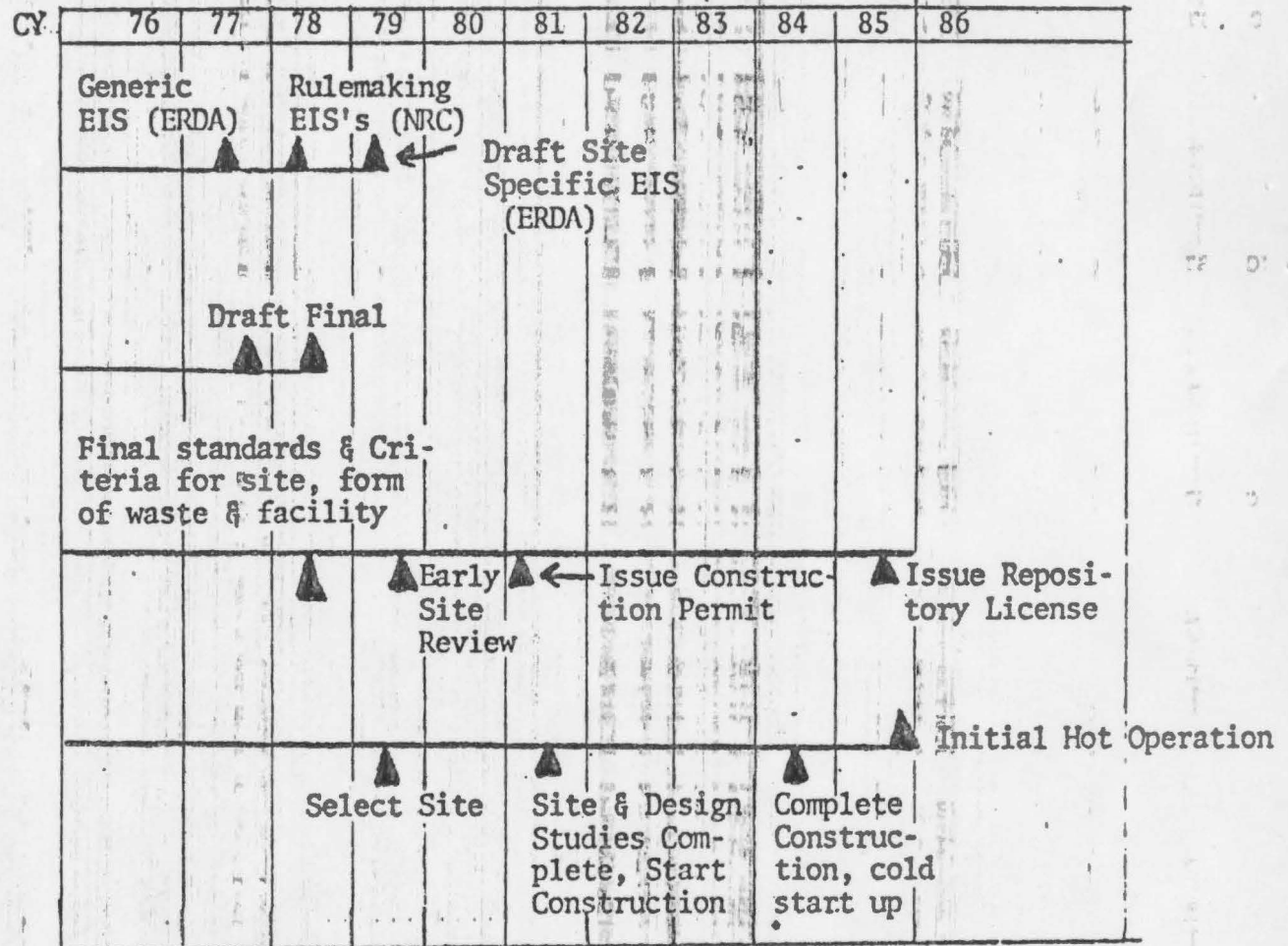
Timetable for Major Elements of Commercial Nuclear Waste Management Program

(1) Issue Appropriate Environmental Impact Statements and Reports

(2) EPA General Environmental Standards for High-Level Waste

(3) NRC Standard Setting and Licensing

(4) ERDA Construction



Reichley
10/15/76

NUCLEAR POWER AND THE FUTURE OF MANKIND

Little more than three decades ago, mankind, for better or worse, entered the nuclear age. We still can not be sure if nuclear power will turn out to be a boon of incalculable value to humanity -- or the agent of deadly destruction leading perhaps to the final extinction of the human race. The choice lies, to a great extent, in our own hands.

The decisions regarding the control of nuclear energy which we now are making will affect the whole future development of mankind. We therefore must weigh our moves carefully, and act only after we have given thorough consideration to all of the moral, economic, environmental, foreign policy, defense, and technical factors that are involved.

Non-proliferation -- avoidance of the further spread of nuclear weapons -- has been a top priority concern of my Administration since I took office in 1974. So far, we have done a good job of preventing atomic weapons from falling into the hands of more and more nations. But the result of failing in this enterprise would be so horrendous that I have concluded that even greater efforts are now necessary.

Today, I am directing a change in course in the nuclear policies of the United States.

I have reached the decisions that I am now announcing as the result of intensive study of the non-proliferation issue throughout my administration, culminating in a complete review of our nuclear policies undertaken at my direction last summer. I received the results of this review before Labor Day, and have since deliberated with great care on its recommendations. Before announcing the new approaches that I have selected, we have consulted with other interested countries. I am convinced that these changes will benefit not only the national interest of the United States, but also the long term welfare of mankind.

The problem of proliferation is directly related to the dual possibilities for good and evil that lie intertwined within the atom.

On the one hand, nuclear power represents one of the best hopes we have for satisfying the world's rapidly rising demand for energy. It can help reduce our own dependence on foreign energy sources, and offset the vulnerability of the world economy to fluctuations in the supply and price of oil. To ignore these potential benefits would be to risk our ability to act independently in advancing some of our most vital domestic and foreign policy interests.

Nuclear fuel that has been burned to produce power, however, leaves a residue that contains plutonium -- a man-made element with some highly destructive qualities. Through chemical reprocessing, plutonium can be separated from used nuclear fuel and possibly made available to generate additional power, if some technical problems are overcome. The pure plutonium that results from reprocessing has two extremely dangerous characteristics. First, it is very toxic -- inhaled, it leads to cancer of the lungs. Second -- and even more important -- it is a key ingredient of nuclear explosives. Widespread availability of plutonium, therefore, would inevitably increase the likelihood of uncontrolled proliferation of nuclear weapons.

There are two components needed to produce ^(pure) plutonium: used nuclear fuel; and the reprocessing technology, ~~that separates plutonium into its pure form.~~ Any nation -- or, for that matter, any gang of terrorists or ordinary criminals -- possessing both is within reach of the capacity to construct an atomic bomb.

In judging this issue, I have proceeded on the axiom that environmental safety and resistance to proliferation must take precedence over our economic and commercial interests. Great though the economic benefits of fast development of nuclear energy may be, they can not compensate for the dangers that would threaten a world faced with uncontrolled availability of deadly pure plutonium.



Applying this test, I have reached two major decisions, ~~following full-scale review of our entire nuclear program.~~

First, I have determined that the United States will no longer regard reprocessing of used nuclear fuel to produce pure plutonium as a necessary and inevitable additional step in the nuclear fuel cycle, to be developed and made available for commercial purposes as quickly as possible. To carry out this decision, I am directing the Chief Administrator of the Energy Research and Development Administration to reorient our energy policies and programs to fit the assumption that plutonium will be available for commercial use only when and if all safety problems are dealt with, and the danger that access to plutonium will contribute to proliferation has been counteracted.

Second, I am calling on all nuclear supplier nations to defer for at least three years the further export of enrichment and reprocessing facilities and technology. Such deferral will give us a period to study all of the environmental and proliferation problems that would flow from widespread availability of plutonium. Perhaps these problems can be dealt with. But if they can not, it is in the interest of all nations to forestall the spread of this technology.



A successful policy of reducing the worldwide risks associated with plutonium will require the support and cooperation of both supplier and consumer countries. To secure such support and cooperation, we must demonstrate to other nations that concurrence with the initiatives I am launching today will not harm their legitimate economic interests, while enhancing the future safety of all nations and all peoples. We will work at solving economic problems with all nations that join us in giving precedence to non-proliferation and environmental goals.

From these two fundamental decisions, a number of corollary decisions in both international and domestic policy flow.

International Initiatives

A unilateral decision by the United States to defer commitment to reprocessing would serve no useful purpose if other nuclear supplier nations plunged ahead with the export of reprocessing technology. My second major decision today -- to urge deferral for at least three years of export of enrichment and reprocessing facilities -- therefore, flows directly from the first.

During the past two years, I have vigorously pursued non-proliferation through multilateral cooperation with other nations. Because of the growth of nuclear capabilities among several potential supplier nations, I have rejected resort

to highly publicized or unilateral approaches, which not only would be futile, but also could easily alienate both supplier and consumer nations whose cooperation is essential to the success of the non-proliferation effort.

My most immediate concern has been to develop an improved system of international safeguards and controls. In 1974, soon after I assumed office, we proposed strengthening and standardizing non-proliferation measures at the United Nations General Assembly.

Early in 1975, I became concerned that some nuclear supplier countries appeared to be prepared to offer nuclear exports under conditions less rigorous than we believed prudent, in order to achieve competitive advantage. I communicated these concerns directly to my counterparts in key supplier and recipient nations. I directed the Secretary of State to explore ways of emphasizing multilateral action to limit this dangerous form of competition.

At our initiative, the first meeting of major nuclear suppliers -- the United States, Britain, France, the Soviet Union, the Federal Republic of Germany, Japan, and Canada -- was convened in London in April, 1975. Additional meetings and intensive bilateral consultations followed.

As a result of these meetings, we have developed tight new guidelines to govern nuclear exports -- involving both improved safeguards and controls to prevent diversion, and physical protection against theft and sabotage. This achievement has significantly raised international norms. The United States has adopted these guidelines as policy for nuclear exports.

In addition, we have acted to deal with the special dangers associated with pure plutonium. Even prior to today's decisions, the United States took the following steps:

-- We ~~prohibit~~ ^(have prohibited) export of reprocessing and other nuclear technologies that could contribute to proliferation.

-- We have firmly opposed reprocessing in Korea and Taiwan. We welcome decisions by these governments to agree with our position on this matter.

-- We have negotiated agreements for cooperation with Egypt and Israel which contain the strictest reprocessing provisions and other nuclear controls ever included in the twenty-year history of our nuclear cooperation program.

Other important gains in the effort against proliferation have been made during the two years of my Administration. Last year, the Federal Republic of Germany, Italy, and other European states completed ratification of the Non-Proliferation Treaty. This year, Japan also ratified the Treaty -- a significant step after many years of serious debate.

Despite this progress, further action is now needed to control the dangers posed by uncontrolled spread of pure plutonium. Agreement to the three-year deferral of export of reprocessing technology by supplier and consumer nations will make a vital contribution to this effort.

In addition, I urge nuclear suppliers to provide nuclear consumers with nuclear fuel services in place of sensitive nuclear technology. Nations accepting effective non-proliferation restraints have a right to expect reliable and economic supply of nuclear reactors and associated, non-sensitive fuel.

All such nations should share in the benefits of an assured supply of nuclear fuel, even though the number and location of sensitive facilities to generate this fuel is limited to meet non-proliferation goals. The availability of diverse fuel cycle services in several different nations can provide ample assurance to consumers of a continuing and stable source of supply.

It also will be worthwhile to continue studying the idea of a few suitably-sited multinational fuel cycle centers to serve regional needs, when economically warranted. Through these and related means, we can remove all incentive for the spread of dangerous fuel cycle capabilities.

The United States will do its part to ensure that any country accepting responsible restraints on its nuclear power program will have an assured supply of nuclear fuel.

To this end, I have directed the Secretary of State, in connection with the negotiation of new or amended agreements for cooperation, to offer binding letters of intent for the supply of nuclear fuel, to be fulfilled ^(b3) either ~~by~~ new government capacity or by private suppliers, at our discretion.

In certain cases, the United States is now prepared to enter into negotiations with consumer nations, either to purchase their spent reactor fuel, or to exchange it for fresh, low-enriched fuel of equivalent value. The amount of compensation will be determined at the time the fuel is ready to be reprocessed, and will ensure against any economic disadvantage to the cooperating nation.

In pursuing a program of assured fuel supply and fuel exchange, the United States seeks no commercial advantage over other suppliers. The program can and will be administered in a way which avoids unfair advantage in the sale of reactors or related services. At my direction, the Secretary of State will initiate consultations to explore arrangements ~~for~~ ~~coordinating their resources~~ to assure consumers an uninterrupted and economical supply of non-sensitive nuclear fuel and fuel services.

To reinforce these policies, we must develop means to establish international control over the plutonium itself, whether in pure form or as a part of unprocessed spent fuel. The accumulation of plutonium under national control has a destabilizing effect on the nuclear balance. As such, it causes a primary proliferation risk.

The United States will, in the immediate future, pursue urgent discussions aimed at the establishment of a new international regime to provide for storage of excess civil plutonium and spent reactor fuel. I am directing that we vigorously pursue this proposal which we made to the International Atomic Energy Agency and other interested nations last spring.

Creation of such a regime will greatly strengthen world confidence that the growing accumulation of excess plutonium and spent fuel can be stored safely, pending reentry into the nuclear fuel cycle or other safe disposition. I urge the IAEA, which is empowered to establish such a depository, to give prompt implementation to this concept.

Once a broadly representative IAEA storage regime is in operation, we are prepared to place our own excess civil spent fuel and plutonium under its control. Moreover, we are prepared to consider providing a site for international storage under IAEA auspices.

The inspection system of the IAEA remains a key element in our entire non-proliferation strategy. The world community must make sure that the Agency has the technical and human resources needed to keep pace with its expanding responsibilities.

I therefore have directed a major commitment of additional financial resources to the IAEA, and also a mobilization of our best scientific talent to support the Agency. Two of our principal national laboratories have been directed to provide assistance, on a continuing basis, to the IAEA Secretariat.

The terrible increase in violence and terrorism throughout the world has sharpened our awareness of the need to assure rigorous protection for sensitive nuclear materials and equipment. Fortunately, this problem is now broadly understood. Many nations have responded to the initiatives which I have taken in this area by materially strengthening their physical security and by cooperating in the development of international guidelines by the IAEA. As a result of consultations among the major suppliers, consumer countries are now normally required to agree to comply with adequate physical security measures.

Steps are still urgently needed, however, to upgrade physical security systems in some countries to meet international norms, and to assure timely international collaboration in the recovery of lost or stolen materials. On the basis of my review of nuclear policies, I have directed that the United States vigorously address this problem at both bilateral and multilateral levels, including exploration of a possible international convention.

The United States is prepared to embark with all its resources on development of the system of international controls that I have here outlined. Even when complete, however, no system of controls is likely to be effective, if a potential violator judges that his acquisition of a nuclear explosive will be received with indifference by the international community.

Any material violation of a nuclear safeguards agreement -- especially the diversion of nuclear material for use in making explosives -- must be universally judged to be an extremely serious affront to the world community, calling for the immediate imposition of drastic sanctions. I serve notice today that the United States will respond to violation by any nation of any safeguards agreement to which we are a party with, at a minimum, immediate cut off of our supply of nuclear fuel and cooperation to that nation. We would consider further steps, not necessarily confined to the area of nuclear cooperation, against the violator nation.

Nor will our actions be limited to violations of agreements in which we are directly involved. In the event of material violation of any safeguards agreement, particularly agreements with the IAEA, we will initiate immediate consultations with all interested nations.

Universal recognition of the total unacceptability of the abrogation or violation of any non-proliferation agreements is one of the most important steps which can be taken to prevent further proliferation. We invite all concerned governments to affirm publicly that they will regard nuclear wrongdoing as an intolerable violation of acceptable norms of international behavior, which would set in motion strong and immediate measures of retribution.

Finally, we must make sure that nuclear power is not used unnecessarily in cases where alternative sources of energy would serve just as well. To this end, the United States is placing increased emphasis on the development of non-nuclear sources of power. We have proposed the establishment of an International Energy Institute, specifically designed to help developing countries match the most economic and readily available sources of energy to their power needs. In many cases, this source will be non-nuclear. Through this Institute and other appropriate means, we will offer technological assistance in the development of indigenous energy resources as an alternative to nuclear power.

National Export Policy

During the past two years, the United States has strengthened its own national nuclear export policies. Our interests, however, are not limited to controls alone. The United States has a special responsibility to share the benefits of peaceful nuclear energy with non-nuclear countries. We have sought to serve other nations as a reliable supplier of nuclear fuel and equipment. Given the choice between commercial benefits and progress toward our non-proliferation goals, we have given, and will continue to give, priority to non-proliferation. But there should be no incompatibility between non-proliferation and a vigorous export trade, if common nuclear export policies are adopted by all supplier countries.

I am heartened by the progress we have made in developing common guidelines for nuclear export policy. There is need, however, for even more rigorous controls, and for policies that favor nations accepting responsible non-proliferation limitations. The United States will move in this direction.

On the basis of my recently completed study of nuclear policies, I have decided that we will henceforth apply new criteria in judging whether to enter into new or expanded nuclear cooperation with a non-nuclear weapon state.

These new criteria are:

-- Adherence to the Non-Proliferation Treaty will be a strong positive factor favoring cooperation.

-- Nations that have not yet adhered to the Non-Proliferation Treaty will receive positive recognition if they are prepared to submit to full fuel cycle safeguards, as well as physical security, pending adherence.

-- Recipient nations prepared to forego, or postpone for a substantial period, the establishment of national reprocessing or enrichment activities or, in certain cases, prepared to shape and schedule their reprocessing and enriching facilities to foster non-proliferation needs, will be favored.

-- Positive recognition will also be given to nations prepared to participate in an international storage regime.

Exceptional cases may occur in which non-proliferation will best be served by cooperating with states not yet meeting these tests. However, I have decided to go beyond the requirement in present law which requires Presidential approval of all new agreements for nuclear cooperation with other nations. Henceforth, negotiation of any new agreement with a nation which is not prepared to meet these strict standards will not even be initiated without my personal approval in advance.

The above criteria would provide the norm for all new ~~proposed~~ ² Agreements for Cooperation. I have also directed the Secretary of State to open discussions with the other nuclear suppliers to shape common guidelines so that they conform with these principles. With respect to countries that are current recipients of U.S. nuclear supply, I am directing the Secretary of State to enter into negotiations with the objective of conforming these agreements to agreed international guidelines, and to seek through diplomatic initiatives to obtain their acceptance of our new criteria.

Despite intensive personal efforts on my part, the 94th Congress adjourned without passing nuclear export legislation which would have strengthened our effectiveness in dealing with other nations on nuclear matters. In the absence of such legislation, I am directing the Secretary of State to work closely with the Nuclear Regulatory Commission to increase emphasis on non-proliferation concerns in the nuclear export licensing process.

I will continue to work with Congress to achieve improvements in our nuclear export laws. I welcome in particular the constructive proposals made by Senator Pastore, Congressmen Anderson and Price, and their colleagues on the Joint Committee for Atomic Energy. On the basis of their suggestions and my initiatives, I will work to develop bipartisan support for new legislation in this field during the next session of Congress.

Implications for Domestic Policy

We must not make the mistake of underestimating the current importance of nuclear energy to our own national well-being. If there are security risks associated with the use of nuclear energy, there would be risks almost as grave in abandoning this new energy source.

Our dependence on imported oil has risen 20 percent since 1973, largely due to the failure of Congress to act on my Administration's energy program. The dangers in this situation are obvious.

We must achieve more effective conservation, and vigorously pursue development of solar energy and other new non-nuclear energy sources. Under my Administration, conservation research has more than quadrupled. Solar energy research has increased 700 percent, and research on other non-nuclear resources has been correspondingly raised. I am now recommending that we do even more. But we must recognize that these new energy sources are in their infancy. No responsible scientific authority holds that they can significantly contribute to meeting our energy needs before 1990, at the very earliest.

Nuclear energy must fill much of the gap that remains.

The key question that remains in development of our domestic nuclear energy program is whether we can safely allow plutonium to be separated from used nuclear fuel on a commercially exploitable scale. The development of nuclear energy is approaching a point at which this question

must be definitively answered. We must not allow the answer to be reached by default.

I am therefore authorizing an experimental domestic program to determine answers to the following subsidiary questions:

-- Whether safe means for reprocessing used nuclear fuel and disposing of the remaining waste can be developed;

-- Whether means can be developed to provide adequate safeguards against the use of pure plutonium to manufacture nuclear weapons;

-- And whether technological alternatives to reprocessing can be found.

As further incentives to other supplier and consumer nations to join the deferral of export of reprocessing technology that I am recommending, we will explore means to include participation by other nations in this experimental program.

The experimental program will fit into the framework of our recently approved safeguard arrangement with the IAEA, serving as a testing ground for the development and demonstration of techniques to provide safeguards against diversion of pure plutonium for use in nuclear weapons. In this connection, we will urge the IAEA to test and apply the most vigorous possible safeguards to the experimental facility itself.

Another effect of the experimental program will be to complement the ongoing Nuclear Regulatory Commission proceedings concerning the wide scale use of mixed oxide fuel in nuclear reactors.

In light of the decisions I have made today, I am able to confirm my Administration's earlier assessment that we can defer for ten years any decision to place breeder reactors, which would require plutonium fuel, in commercial operation. We know from experience that the lead time for the development of complex technologies in the nuclear field is prolonged. The experimental program that I am authorizing will provide the knowledge of reprocessing that will be needed to go ahead with the breeder, if the responsible authorities should decide ten years from now to do so.

On the basis of the study of nuclear policy recently conducted by my Administration, I have quadrupled the budget for our program to dispose of nuclear waste. We expect to demonstrate a complete depository for such waste by 1985. I have recently directed, however, a speed up of the program to demonstrate the components of waste disposal technology by the end of 1978. I have also directed that the first demonstration depository be submitted for licensing by the Nuclear Regulatory Commission to assure its safety and acceptability to the public.

Consistent with my decision that reprocessing is no longer to be viewed as inevitable, I am directing today that the waste disposal program include careful study of the feasibility of long-term storage of spent fuel that has not been reprocessed.

The Future

Solving the problem of proliferation will require the best that is in us -- not only the best that is in the United States, but the best in all nations -- will require, indeed, the best that is in man. If there is not much good in man, then we are going to fail, and human civilization will sink beneath the flames of nuclear holocaust.

But I do not believe that will happen. I believe in man's capacity to master these titanic forces which science has unleashed for us. I believe, even, in his capacity to master his own inner nature, so that nuclear energy can be made his servant, rather than the source of his destruction.

The problem of proliferation, in the long run, is political ^{and moral} -- perhaps even spiritual. Can nations work together for the common good of all? Can nations practice self-^{discipline} ~~denial~~ and cooperation, when the alternative is mutual annihilation? We will soon know.

In the words of President Eisenhower, when he proposed the Arms for Peace program in 1953, the task that lies before us is "to find the way by which the miraculous inventiveness of man shall not be dedicated to his death, but consecrated to his life."

I believe that we are up to that task -- I mean not just, we, the United States, but we, the human race. But of course our first responsibility begins here in our own country, in our own governmental system -- begins, I think, with the steps we have taken here today.

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