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JOURNAL OF
GLENN T. SEABORG
Chairman, U.S. Atomic Energy Commission, 1961 - 1971

February 1, 1961 - June 30, 1961

Lawrence Berkeley Laboratory
University of California

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JOURNAL
OF
GLENN T. SEABORG

Chairman of the U.S. Atomic Energy Commission

1961 - 1971

VOLUME 1

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Visit to AEC Germantown Headquarters, February 16, 1961

Feb. 1, 1961

My first day as chairman^{-elect} of the U.S. Atomic Energy Commission - spent at 1717 H St. (alternate AEC headquarters). Arrived at 8³⁰ am. Dictated answers to congratulatory letters to Mildred Cecil, then conferred with Howard Brown (my Executive Assistant) regarding activities on a number of items I brought with me from my Calif. mail and impending items that had arisen in AEC here.

At 9³⁰ am met with Commissioners Graham, Wilson and Olson (in recently inaugurated daily information mtg to go over overnight developments), including Gen. Mgr. Luedcke, General Counsel Naiden, H. Brown and Asst. Gen. Mgr. Dwight Duke; checked important items that had appeared in the press and other items were discussed.

At 10¹⁵ am, Commission mtg with Dir. Mil. Applic. Betz, S. J. English and many others for briefing on deliberations of Risk Panel on nuclear weapons test cessation negotiations and effect on our weapons devlop. program. Lunch with Comm. Wilson at Metropolitan Club, at which time he outlined for me some duties former Chairman McCone had delegated to him (such as correspondence with SAC, representation on Federal Council of Science and Technology, representation on Federal Radiation Council, special responsibility for Reactor Devlop., liaison with

British Atomic Energy Authority). I agreed to continue this arrangement for the present, except for Fed. Council Sci. and Tech. (which I would handle myself).

At 10 pm met with General Advisory Committee (Pitzer, chairman presiding, Williams, Libby, Warner, Ransay, Ubelum, Benedict) plus Commission, Ruedicke, Charpie and Tamei. Pitzer gave us SAC recommendations covering 3-day mtg. including recommendations for Lawrence Awards (Brewer, Horowitz, Rengnise, Rengnise, Panofsky and Wilzbach) and their reaffirmation of Bethe as winner of Fermi Award; they recommended more work on materials and low energy physics so the funds for these could compete for those for high energy physics.

At 4 pm saw Congressman Holifield in his office to discuss my Confirmation Hearing, procedure for Section 202 hearings on Feb. 21, 22, 23 (others will make the presentation due to my just starting my job), his concern that Dept. of Defense requirements for no. of weapons should not be irrevocable as they seem to be, his feeling that Ruedicke should be replaced by a capable civilian, that Gen. Soper should be replaced as chairman of the Military Liaison Committee, that I should investigate Frank Pittman's capacity as Director of Div. of Reactor Devels.

At 4:30 pm visited Congr. Craig

Horner in his office, told him about our legislative proposal for \$3,000,000 bill (for Nat. Sci. Found.) for support for Sci. Training Center of Lawrence Hall of Science, application to AEC for support of Nuc. Sci. (Hall in Hall of Science; he emphasized need to be sure we don't enter into an unenforceable agreement to ban nuclear tests.

6:30 pm dinner at Black Steer Restaurant with Jerry Wiesner and Spurgeon Keeny; discussed identity of fifth AEC Commissioner (preferring (1) Harvey Brooks, (2) David Haworth, (3) & Alvin Weinberg), Diske Committee work on test ban and controls, resumption of non-nuclear experiments with chemical explosives (nuc. component below 10 lb. TNT equiv.).

Then Wiesner and I went to East Wing of White House where I met Ralph Duncan (who agreed to try to persuade Pres. Kennedy to appoint ~~the~~ Brooks to AEC despite his Harvard connection) and Pierre Salinger (whom I had met in Los Angeles with Ed Pauley and Pete Rozelle, when Los Angeles Rams were recruiting quarterback Frank Ryan) and Mrs. Lincoln (Pres. Kennedy's personal secretary).

at 9 pm went over stack of mail (which I had brought from office) to indicate referrals and actions.

PREFACE

During the ten years (1961- 1971) that I served as chairman of the U.S. Atomic Energy Commission I kept, on a daily basis, a rather complete journal. During the early years, off and on until 1969, I recorded my day's activities each evening at home in my study, in an unclassified, handwritten form in my large ledger type notebooks. This was augmented during each working day in my office by the dictation of memos to cover the content of telephone conversations, appointments, attendance at meetings, congressional hearings, etc. During my many trips within the United States and my visits to foreign countries (some 60 in all) I recorded my activities in little pocket notebooks which were transcribed when I returned home to my office. On some of these occasions, as well as for some appointments or meetings at home, my activities were covered by one of my able assistants or secretaries.

Finally, in 1969 I gave up altogether the laborious task of recording each day's activity by handwriting a summary at home during the evening. Rather, I covered each day's entire activity by producing memoranda during the day with the help of my secretaries and assistants. Thus, the journal began to be assembled each day on a current basis. In addition, the accumulated earlier material began to be assembled into daily journal form, a task that was soon completed. In both cases, the current and past material was augmented by daily attachments in numerous categories--selected incoming and outgoing correspondence and other relevant documents (deemed to be unclassified, with classified material placed in a separate file), and unclassified Summaries of Commission Meetings, and Commission Regulatory Meetings, and Notes on Information Meetings and Regulatory Information Meetings, so ably produced by Commission Secretary Woodford McCool and Director of Regulation Harold Price and their staffs.

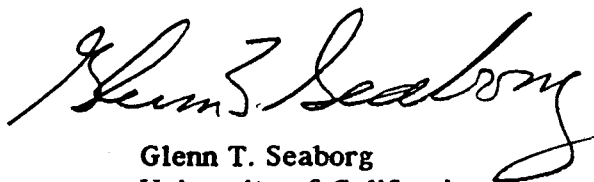
When I returned to the University of California, Berkeley, in November 1971, a couple of months after my tenure as Chairman of the Atomic Energy Commission, the two copies of my journal, which I presumed had been cleared, were sent there. Copy #1 eventually came to my Lawrence Berkeley Laboratory office and Copy #2 to my home, while the segregated, classified portions went to the local AEC-SAN office.

Due to the pressure of other activities no action was taken on my journal until early 1985, when I began working on editing my home copy (correcting spelling and typographical errors, adding first names or initials, etc.), preparatory to publication in DOE report form. About a year earlier, I had sent Copy #1, at their request, to the DOE History Division in Washington, D.C., for their use in the preparation of Volume IV of the official history of the Atomic Energy Commission. This led to questions as to whether my journal met present DOE declassification standards. As a result, a declassification officer was sent to my home in May 1985 to check my home copy (Copy #2). He made 162 deletions of a technical nature, which, in my opinion, reflected increased security standards but did not adversely affect the value of the journal. A second check, this time with my home copy sent to the Lawrence Livermore National Laboratory by a team of reviewers in October and November 1986, led to about 1,000 security actions (including the 162 deletions incurred in the earlier review). These actions included, in addition to deletions, the removal of 500 sections of or attachments to the journal for review by "other agencies" of our government or, in a few cases, of the British government. The majority of these documents have been returned to me either declassified or with some deletions. However, a number are still outstanding. I have decided to go ahead with the publication of my journal in the DOE report form with the intent of adding these now missing portions in an additional volume when they become available. Also, I have decided to proceed with such publication prior to the production of a name index; when this herculean task is completed, the name index will appear as an additional volume. It remains to be seen if a subject index will ever be added in such additional volumes. Although many news clippings are added as attachments, these were too numerous to include them all and, thus, there is a separate volume of these. (A little later Copy #1 underwent a similar security review, with similar results, and was returned to me.)

The journal consists of 25 volumes, averaging 700 pages each. This comprises about 15,000 items consisting of the approximately 4,000 daily journal entries and the average of about three attachments per day. The journal has three sections corresponding to each of the three presidents I served as chairman of the Atomic Energy Commission--the first six volumes covering the John F. Kennedy years (February 1, 1961- November 22, 1963), the next 11 volumes covering the Lyndon B. Johnson years (November 22, 1963- January 20, 1969) and the final eight volumes, the Richard M. Nixon years and a few months of post-AEC chairman activities in Washington (January 20, 1969- November 6, 1971).

I am indebted to my many assistants and to the secretarial staff that served so ably during my AEC chairmanship (see Page 1 of Introduction) and to the Commission's administrative staff (Appendix B to Introduction) and feel grateful for the team help of my fellow AEC Commissioners (Appendix A to Introduction).

I also want to acknowledge the invaluable help of my staff at Lawrence Berkeley Laboratory for putting this journal in publishable form--June Jackson, Sherrill Whyte, Grace Nubla, and Margie Hollander, and temporary assistants Susie Campbell and Mildred Varner.

A handwritten signature in cursive script that reads "Glenn T. Seaborg". The signature is written in black ink and is positioned above the typed name and address.

Glenn T. Seaborg
University of California
Berkeley, CA
January 1989

INTRODUCTION

This introduction to my journal of 1961–1971, covering my years of service as Chairman of the U.S. Atomic Energy Commission, is written from the perspective of 1971, in order to reflect the attitudes expressed in my journal, which was written on a daily basis during that period. Thus, I express the points of view of that time rather than those of today (1988), which might occasionally be somewhat different.

I served as AEC Chairman from March 1, 1961 until August 17, 1971, ten and a half years. President Kennedy appointed me first to a two and a half year term, the time remaining on the appointment of John McCone, whom I replaced as chairman. Kennedy reappointed me to a full five-year term when the initial appointment expired in 1963. President Johnson reappointed me in 1968, limiting the appointment, at my request, to a two-year term. When President Nixon reappointed me in the summer of 1970, it was with the understanding that I would return to my professorial post at Berkeley a year later. The termination date of this appointment, August 17, 1971, occurred while I was in the Soviet Union leading a group of U.S. nuclear scientists, engineers, and administrators on visits to Soviet nuclear establishments and laboratories. The president asked me to continue with the visit and to serve in September as head of the U.S. delegations to the Fourth U.N. Conference on the Peaceful Uses of Atomic Energy (in Geneva) and the Fifteenth General Conference of the IAEA (in Vienna).

President-Elect Kennedy first offered me the position in a telephone call from Boston on January 9, 1961. I had never met Kennedy, although I attended the Democratic National Convention in August 1960 and heard him give his eloquent acceptance speech.

Upon my arrival in Washington I was greeted cordially by outgoing AEC Chairman John McCone, who introduced me to his key staff, including his administrative assistant Howard Brown, his chief secretary Mildred Cecil, his driver James Haddow and his general assistant Cecil King. On McCone's recommendation I asked all of them to stay on. I also met my new colleagues, fellow commissioners John S. Graham, Loren K. Olson, and Robert E. Wilson, the Commission's General Manager Alvin R. Luedecke, Deputy General Manager Robert E. Hollingsworth (who became General Manager in 1964), Secretary Woodford B. McCool, the six Assistant General Managers (Dwight A. Ink, E. J. Bloch for Operations, Spofford G. English for Research and Development, George F. Quinn for Plans and Production, Algie A. Wells [Acting] for International Activities, and Harry S. Traynor for Administration), the Division Directors, and other principal staff. Many of these individuals I had known from previous contacts with the AEC. During my first meeting with President Kennedy, in the reviewing stand for the inaugural parade in front of the White House on January 20, 1961, he suggested that I find a scientist to fill the vacancy in the five-member Commission. I suggested Leland J. Haworth and he was appointed soon after I became Chairman.

The composition of the Commission and its officers and of my staff changed throughout my ten and one-half years as chairman. The Commissioners who served as my colleagues on the Atomic Energy Commission are listed in Appendix A--a total of 13 in all. Key staff members are listed in Appendix B. Marie Janinek soon joined me as a lead secretary and remained with me during the entire ten and one-half years. When Mildred Cecil left to join the Regulatory staff in the spring of 1967 she was replaced by Helen Gearin. Other secretarial and research assistants included Helen Brady, Pat Goodwin, Jeanette Hamilton, Ann Johnson, Sybil Kari, Gloria Lettre, Cathy Maus, Betsey McFadden, Jan Nichols, Elyse Stuckel, and Mary Sweeney. My administrative and technical assistants at various times over the years included, besides Howard Brown, Chris Henderson, Arnold Fritsch, Victor Schmidt, Julius Rubin and Justin Bloom. My principal speech writers were Dan Wilkes, John Napier, and especially Stanley Schneider. Among those assisting me with writing assignments were Benjamin Loeb, Betsey McFadden and Sydney Gaarder.

Although the commissioners operated pretty much as a collegial body, we did use a system of "lead" commissioner, in which individual commissioners paid special attention to certain areas of the AEC's program. For example, John Graham and Robert Wilson specialized on civilian nuclear power; Loren Olson on regulation; Leland Haworth, Gerald Tape and Clarence Larson on weapons and research (and attended meetings of the Federal Council on Science and Technology); James Ramey on regulation and civilian nuclear power; John Palfrey on international activities; Samuel Nabrit and Polly Bunting on life sciences and education; Theos Thompson on weapons and civilian nuclear power; and Wilfrid Johnson, on civilian nuclear power.

Congressional oversight was a very serious fact of life for the AEC. In our case it was exercised primarily by the Joint Committee on Atomic Energy, a unique body established by the Atomic Energy Act [see Appendix C]. Under the statute, we were required to keep the JCAE "fully and currently informed" on all our activities. In addition, the AEC's budget had to be authorized in detail by the JCAE before it could be acted upon in the normal appropriations process. Much of my time and that of the other commissioners and principal staff was spent testifying at hearings held by the Joint Committee on various aspects of the AEC's program. The record of these hearings provide a valuable source of information on the agency's programs throughout its history. According to a custom established by the committee itself, its chairmanship alternated each Congressional session between a House member and a Senate member. During my tenure the post was filled alternately by California Congressman Chet Holifield and Rhode Island Senator John Pastore. By and large, we had smooth relations with the JCAE and the White House. These sometimes required a difficult balancing act by the AEC.

Soon after I came, I initiated Information Meetings (held in the Chairman's Conference Room), informal sessions of commissioners and staff, to deal in an expeditious manner with day-to-day operational and administrative matters. These sometimes dealt with as many as 30 or 40 agenda items. They were in addition to the long-established, more formal Commission Meetings (held in the Commissioners' Conference Room), in which the commissioners and staff dealt with policy matters and more long-range business, usually with the help of staff papers submitted by the general manager stating a problem, possible solutions, and recommending an action. During my tenure I presided over some 1700 Information Meetings and some 850 Commission Meetings. About 500 of the Information Meetings and 100 of the Commission Meetings dealt exclusively with regulatory matters.

From its inception the AEC had a profusion of advisory committees. I was familiar with the nine-member General Advisory Committee (GAC), having served as a charter member when the committee was established in 1947. The GAC [see Appendix D] met about four times per year and advised the Commission on major scientific and technical questions. Another important committee was the Advisory Committee on Reactor Safeguards (ACRS), which was charged with various safety studies and with the responsibility for reviewing licensing applications in the civilian nuclear power field. The ACRS met monthly and, later in the decade, as the applications for licenses burgeoned, created subcommittees that met several times a month. The Military Liaison Committee (MLC), whose responsibility was to assure adequate liaison between the Commission and the military services, had been very active in the AEC's early days, when policies concerning nuclear weapons were being debated. By 1961, however, the MLC's importance had diminished and, during my chairmanship, it met with us only about once a year. There were more than a dozen other committees advising the AEC on particular subject areas and some of these occasionally met with the Commission.

Since 1957, the AEC's official headquarters was at Germantown, Maryland, some 30 miles from downtown Washington. This made for great inconvenience for those of us who needed to transact business at the White House, the Executive Office Building, Congress, and government departments and agencies in Washington. Therefore, an alternative headquarters had been established in rented space at the Matomic Building (1717 "H" Street, NW) two blocks from the White House, where my fellow commissioners and I, secretarial and key staff, spent most of our time. Still, we regularly held forth in Germantown as well. This gave rise to serious logistical problems because all of our files had to accompany us as we moved from one office location to the other. Adding to the cumbersome arrangement was the fact that the Regulatory people were quartered in still a different location, namely in rented space in Bethesda.

At one of my first meetings with Budget Director David Bell he suggested that we should try to move toward replacing the five-member Commission with a single administrator, a position that I would presumably fill. The other commissioners were amenable, and on May 16, 1962, we sent him a letter. We argued that, due to changed circumstances, the initial concern over concentration of too much power in a single individual had become relatively less important than the need for a more efficient decision-making process. This was a remarkable step--a government administrative body was recommending its own demise. An additional reason why the White House wanted this change was to reduce the leakage of confidential administrative information to the JCAE. There had been many such leaks.

Attempts to get the support of the Joint Committee on Atomic Energy, which would have had to provide the necessary legislation to effect the change, were without success. Congressman Holifield, a powerful force in the JCAE, was adamantly opposed. Several later attempts, including some during the Johnson Administration, were similarly unsuccessful. I was not too disappointed with this result. I found the Commission form of administration, although somewhat cumbersome, to have many advantages for attacking the numerous knotty problems we faced. Five minds were potentially better than one.

Worthy of special note was the role of Admiral Hyman S. Rickover, head of the joint Navy-AEC naval reactors program. The commissioners and I had good rapport with Rickover, but we couldn't claim that we gave much direction to his program. Brilliant, articulate and irascible, Rick was his own man. No more than by the AEC could he be controlled by the Department of the Navy, and largely for that reason, successive naval secretaries tried to get rid of him, especially after he reached the nominal retirement age. Navy Secretary Paul Nitze tried especially hard, but met with no more success than other secretaries. The prime reason was that Rick had enormous influence in Congress, which always insisted on his reappointment as Admiral and as head of the naval reactors program. The other commissioners and I visited him on occasion at his buildings on the mall just off Constitution Avenue. He, of course, attended Commission Meetings whenever he had an issue to propose or defend.

I recall that in February 1962, Rick invited me and my whole family to Norfolk and Newport News, Virginia, to visit the cruiser Long Beach, the first nuclear-powered surface ship, to attend the launching of the nuclear submarine Thomas Jefferson, and to have lunch on the nuclear submarine Sam Houston. On other occasions I took an overnight cruise with him on a nuclear submarine (where my fellow commissioners and I held a regular Commission Meeting), made an exciting, tight landing on the nuclear aircraft carrier Enterprise, and spoke at the commissioning of the nuclear-powered submarine Sturgeon at the U.S. Naval Submarine Base at New London, Connecticut.

During my decade as chairman Rick led the development at his Westinghouse Bettis Laboratory in Pittsburgh, at the AEC's National Reactor Testing Station (NRTS) in Idaho, and at other research facilities of more efficient, new, powerful and compact reactors for the propulsion of naval vessels. During the decade an extraordinary number of nuclear-powered naval vessels was built and launched. Thus, construction was begun on 43 attack submarines, 32 Polaris missile submarines, two aircraft carriers and three guided missile cruisers. Forty-four attack submarines, 38 Polaris missile submarines, one aircraft carrier and three guided missile cruisers were commissioned.

Rickover also ran an important show in the civilian nuclear power field. He utilized the pressurized water reactor technology developed for naval propulsion as a basis for design of the Duquesne Power and Light Company's Shippingport Atomic Power Station near Pittsburgh, which in 1957 became the world's first commercial nuclear power plant. Rick used this reactor as a basis for the development of the thermal neutron breeder reactor, the Light Water Breeder Reactor (LWBR) (the "Seed and Blanket" concept), and he continually encouraged the Commission to support this project.

As AEC Chairman, I was a member of a number of interagency committees that existed for all or part of my tenure. Foremost of these was the Committee of Principals, which advised the president on arms control policy. Established by President Eisenhower, this group was expanded and achieved new prominence under President Kennedy, continued to be important in the Johnson administration, but was abandoned by President Nixon in favor of more closely held White House control. Other committees that I or my designated representative attended included the Federal Council of Science and Technology (FCST, 1961-1971, composed of scientific representatives of federal agencies that had a science component in their operations); the U.S. Intelligence Board; the Federal Radiation Council (1961-1969); the President's Committee on Equal Employment Opportunity (1961-1965); the President's Science Advisory Committee (PSAC), as an observer and as an alumnus of this Committee; the National Aeronautics and Space Council (1961-1971); and the National Council on Marine Resources and Engineering Development (1966-1971). Vice Presidents Johnson, Humphrey and Agnew served as chairmen of the Space Council, Humphrey and Agnew of the Marine Council—I first became well acquainted with Lyndon Johnson because of his service as chairman of the Space Council.

I also found time while I was chairman to publish some books. In 1962, my book Man-Made Transuranium Elements appeared. Intended as part of the high school CHEM Study program (which I continued to serve as chairman of the Steering Committee), it turned out to have much wider appeal. In 1964, Earl K. Hyde, Isadore Perlman and I came out with the two-volume treatise (long in preparation) The Nuclear Properties of the Heavy Elements. Volume I was entitled Systematics of Nuclear Structure and Radioactivity and Volume II, Detailed Radioactivity Properties. Also, in 1964, Daniel Wilkes and I, with the help of Benjamin Loeb, produced Education and the Atom, which was used as a U.S. presentation volume given to the delegates of all countries at the Third Geneva Conference on the Peaceful Uses of Atomic Energy. The year 1969 saw publication of Oppenheimer with co-authors Isidor Rabi, Robert Serber, Victor Weisskopf, and Abraham Pais. And in 1971, there was Man and Atom: Building a New World Through Nuclear Technology with co-author William R. Corliss, a U.S. presentation volume at the Fourth Geneva Conference on the Peaceful Uses of Atomic Energy. Also, the AEC published several volumes of my speeches in paperback form.

I, of course, had close operating relationships with the presidential science advisors—Jerome Wiesner in the Kennedy Administration, Wiesner and Donald Hornig in the Johnson Administration, and Lee Du Bridge and Edward David in the Nixon Administration. Wiesner had an excellent working relationship with Kennedy. The role of the science advisor faded under Johnson and due in part to the attitude of Henry Kissinger deteriorated even further under Nixon. Du Bridge, for example, was completely frozen out of discussions on arms control policy. Although I had known Nixon since February, 1948 (when we met in Chattanooga, Tennessee, as members of the Junior Chamber of Commerce's "Ten Outstanding Young Men of the Year") my relations with him as president were less close than those I had with Kennedy and Johnson. I was not, like Du Bridge, cut off entirely from arms control matters, but my information came secondhand through the staff of our Division of International Affairs. Nixon's attitude seemed to be mirrored in a comment he made after I offered an opinion at a meeting about a SALT proposal. He said that he would look to me for scientific, but not for political, advice.

There were several episodes during the Nixon Administration that led to difficulties for me. During the early period when there was a push for the installation of an ABM system in the United States I was asked by Nixon's aides to make supporting speeches. This I declined to do. (Later, Nixon, to his credit, revised his own position and began the negotiations with the Soviet Union that led to the ABM Treaty.) I had a brush with Attorney General John Mitchell in connection with a charge that fissionable material had been diverted to Israel from a processing plant in Pennsylvania. He wanted me to revoke, without a hearing, the security clearance of the key individual involved. This I refused to do, as a matter of principle and because I was convinced that the charge was false.

I was pleased when President Kennedy volunteered in 1961 to make the presentation of the AEC's Fermi Award (\$50,000, a medal and a certificate) in a White House Oval Office ceremony to the eminent Cornell physicist, Hans A. Bethe. Kennedy repeated this for the presentation to Edward Teller in 1962 and President Johnson continued the practice with his presentation to J. Robert Oppenheimer in 1963 and to subsequent award winners during his Administration, Admiral Hyman G. Rickover for 1964, and John A. Wheeler for 1968. The Commissioners and I presented the Award in 1966 to Otto Hahn and Fritz Strassman in Vienna and I, to Lise Meitner in Cambridge, England. No Awards were given in 1965 and 1967. I made the presentations to Walter H. Zinn in 1969 and Norris E. Bradbury in 1970 because President Nixon refused to carry on the tradition started by Kennedy and Johnson.

With Presidents Kennedy and Johnson I was given the privilege of appealing to the President some of the adverse budgetary decisions made by the Bureau of the Budget. With Kennedy this was done in White House meetings and with Johnson in meetings (in December) at his ranch in Texas. Here I defended my requests for budget restorations in debates with the Director of the Bureau of the Budget before the President. I was singularly successful in winning the approval of President Johnson. In my one opportunity to present an appeal to President Nixon I didn't win a single point. Thereafter, I was asked to present my appeals through the OMB director (Office of Management and Budget, the changed name from BOB), the person who had already ruled against me; this procedure led to no appeal victories for me.

The sections that follow provide an historical summary of the major activities and events with which the Atomic Energy Commission was associated during the period of my chairmanship (1961- 1971). This is done in a topical manner, i.e., by describing in summary form the accomplishments in each of a selected number of subject areas over the ten-year period. This is in preference to dividing the account into three parts, covering the Kennedy, Johnson and Nixon administrations, which would inevitably result in a good deal of repetition in thus describing each of the subject areas three times.

I have chosen to touch briefly (not in any order of priority) on the following subjects:

- I. The Limited Test Ban Treaty (LTBT)**
- II. The Nonproliferation Treaty (NPT)**
- III. Arms Limitation**
- IV. The Cuban Missile Crisis**
- V. The program of international cooperation, including my visits to 60 countries**
- VI. Support of research**
- VII. Los Alamos Meson Facility and 200 Bev Accelerator**
- VIII. The National Transplutonium Production Program**
- IX. Civilian nuclear power**
- X. Raw Materials Program**
- XI. Gas Centrifuge Program**
- XII. Cutback in production of fissionable materials**
- XIII. Regulation**
- XIV. Radioisotopes Program**
- XV. Nuclear power in space**
- XVI. Nuclear weapons tests**
- XVII. Plowshare**
- XVIII. Controlled thermonuclear research (CTR)**
- XIX. Nuclear education and training**
- XX. Technical information**
- XXI. Civil Defense**

I. The Limited Test Ban Treaty (LTBT)

The United States, United Kingdom, and USSR began serious negotiations on a test ban treaty late in 1958. They were impelled to the bargaining table in part by a worldwide concern over radioactive fallout from nuclear tests. The negotiations soon became bogged down over disagreements about the details of a control system. Essentially, the United States wanted extensive controls because of a suspicion that the Soviets would cheat; the Soviets resisted controls because of a suspicion that we would use them for espionage. Nevertheless, a compromise agreement was almost reached in the spring of 1960 on a treaty that would have barred all tests considered to be verifiable; namely, all except underground tests producing signals of less than 4.75 on the Richter scale. Shortly before a Big Four summit at which it was thought such a treaty might be signed, however, the U-2 incident occurred and the way this was handled ended hopes of any agreement during the Eisenhower administration.

President Kennedy was deeply committed to achieving a nuclear test ban treaty with the Soviet Union and he pursued this goal persistently, despite numerous discouragements, showing sensitivity and patience in his diplomatic relations with both the Soviet Union (meaning, basically, with Nikita Khrushchev) and with the United States Senate. Discussions within the Committee of Principals, in which I participated, to define a U.S. position began immediately, in February 1961, and negotiation with the Soviet Union, within a matter of weeks thereafter, in March 1961. A draft treaty was introduced by the U.S. and U.K. in April 1961. It would have banned all but smaller underground tests; offered a moratorium on such tests; and allowed the Soviets to inspect devices we proposed to use for seismic research or for AEC's Plowshare (peaceful nuclear explosions) program. We also agreed to a Soviet suggestion that the number of onsite inspections on the soil of each party be limited to an annual quota. The most serious disagreement was over the size of this inspection quota: we proposed it be 20, the Soviets, while contending that no inspections were necessary, offered to accept three as a political concession to Kennedy. Over the ensuing two years we several times modified our quota demand until in February 1963 our chief negotiator was authorized to produce the number six as a final fall-back offer. But the Soviets would go no higher than three.

In August 1961 the Soviets surprised us by breaking an informal test moratorium begun three years earlier and launching a massive series of atmospheric tests. After some hesitation, President Kennedy authorized a series of U.S. atmospheric tests which took place in the Pacific between April and November 1962. (See Section XVI.)

President Kennedy's extraordinary commencement address at American University on June 10, 1963, finally set the stage for the high-level negotiations with the Soviet Union. Kennedy chose W. Averell Harriman, the experienced American diplomat, who had the respect of the Soviet leadership, to lead the U.S.-U.K. negotiating team in Moscow. On the specific issue of a test ban, Harriman was instructed that the achievement of a comprehensive test ban remained the U.S. objective. If that was unobtainable, he was to seek a limited treaty in three environments, (atmosphere, water and space) along the lines of a Western draft treaty of August 1962. Khrushchev made it clear before the emissaries arrived, however, that he was prepared to accept only a limited test ban, not the comprehensive agreement Kennedy wanted.

Harriman made an unsuccessful attempt to negotiate a Comprehensive Test Ban Treaty, then went on to negotiate the details of the Limited Test Ban Treaty. In 12 days of intensive negotiation in July, which Kennedy supervised on a daily basis, Foreign Minister Gromyko and Averell Harriman, leader of the small U.S. negotiating team, with minor British participation reached agreement on a treaty. It banned all tests in the atmosphere, outer space, and under water, environments where verification was feasible without onsite inspection. In order to achieve agreement with the Soviets, Harriman had to give up the U.S. peaceful uses of nuclear explosives (the Plowshare) provision in exchange for Soviet acceptance of a withdrawal clause.

I was pleased to be a member of Secretary of State Dean Rusk's delegation, which flew to Moscow for the signing, on August 5, 1963, exactly 18 years after Hiroshima, of the Limited Test Ban Treaty. We met with Soviet Chairman Nikita Khrushchev for an hour in his office in the Kremlin in the morning to discuss the significance of the Treaty, the future of East-West relations, etc. The Treaty was signed at 4:30 p.m. in the Kremlin's Catherine Hall by Rusk, Soviet Foreign Minister Andrei Gromyko and British Foreign Minister Lord Home.

To help assure a large favorable vote in the Senate, Kennedy agreed to four national security "safeguards" put forward by the Joint Chiefs of Staff as conditions for their support. These required the president to commit himself to a vigorous underground testing program, high-level maintenance of weapon laboratories, continued readiness to resume atmospheric testing, and improving our ability to detect Soviet violations.

The treaty was referred for study to the Committee on Foreign Relations, which began hearings on August 12, four days after the Senate received the President's message. The first three witnesses before the Foreign Relations Committee--Secretary of State Dean Rusk, Secretary of Defense Robert McNamara and I--were each separately questioned, each for an entire day. Without doubt, the most important aspect of my testimony of August 14 had to do with the effect of the treaty on the AEC's Plowshare program for peaceful nuclear explosions. Reassured by the safeguards and by forecasts (some by me during my day-long testimony) that peaceful nuclear explosion experiments would be permissible under the treaty, a number of senators who had been leaning against voted in favor. On September 24, 1963, the momentous vote on the treaty was taken. Every able-bodied senator was present. The treaty was approved by a vote of 80 to 19. This was 14 votes more than the required two-thirds majority, a margin that satisfied the President's desire for a strong endorsement. The treaty entered into force on October 10.

II. The Nonproliferation Treaty (NPT)

It was fear of the further spread of nuclear weapons more than any other consideration that prompted President Kennedy's push for a comprehensive test ban. Kennedy was so concerned about China acquiring the bomb that he authorized Averell Harriman, when the latter was in Moscow negotiating the Limited Test Ban Treaty, to feel out Khrushchev on the subject of launching a joint preemptive strike on China's nuclear facilities. Khrushchev shrugged off the suggestion—he said he didn't think China would be a serious nuclear threat.

By the time Lyndon Johnson became president, the Arms Control and Disarmament Agency had adopted nonproliferation as its number one objective. This position conflicted with another objective, which had strong support in the State Department, namely, the establishment of a NATO naval force, manned by personnel from several nations, and equipped with U.S. nuclear weapons, the so-called Multilateral Force (MLF). The purposes of the MLF included giving NATO countries, particularly Germany, a greater role in planning their own defense, thereby helping to dissuade them from wanting to be independent nuclear powers; preserving allied cohesion in the face of the Soviet threat; and encouraging the budding movement toward a united Europe. While it could be, and was, argued that the MLF and a nonproliferation treaty were not inconsistent, the former tended to exclude the latter because of the Soviet Union's attitude. The Soviets were fiercely hostile to a scheme that seemed to place a revengeful West German finger on the nuclear trigger. They made it clear they would not join in an NPT unless we abandoned the MLF.

Germany, and to a lesser extent Italy, seemed interested in the MLF from the start. The British were opposed—they didn't think this was any way to run a navy. Other NATO allies were indifferent at best. President Kennedy was himself rather cool toward the idea, although he was willing to go forward if the allies showed a clear desire to do so. Later, after France began to distance itself from NATO, Kennedy showed more interest because of a desire to give the Germans an alternative to nuclear cooperation with France. But there was strong opposition in Congress to sharing U.S. weapons with anybody, and to do so would have required Congressional approval in the form of an amendment to the Atomic Energy Act.

Despite the political problems, technical work on the MLF went forward, and when Johnson became president he was immediately subjected to strong pressures from MLF advocates in the State Department. Following some intense discussion within the administration he authorized a campaign to sell the idea to our allies, hoping to reach agreement by the end of 1964.

But then, on October 16, 1964, my journal contained the following entry:

"The big news today is that at 3 a.m. Washington time the Red Chinese exploded an atomic bomb in the atmosphere."

Our analysis of the debris convinced us, to our surprise, that the Chinese had detonated a ^{235}U device of sophisticated design, not a plutonium bomb such as the other four nuclear powers had used for their first tests. I reported these findings to a Cabinet meeting on August 20.

The Chinese test had long been expected, but the actual occurrence nevertheless shook up the whole international equation. Potent forces in India immediately began agitating for an Indian bomb to match China's. This made the Pakistanis edgy. The Australians began to stir. Proliferation seemed to be in the air. The need for an NPT seemed more urgent.

President Johnson had to confront the MLF issue seriously in December 1964. The occasion was a visit by British Prime Minister Harold Wilson. The principal item on the agenda was the MLF, and the British had made no secret of their opposition. But it was probably the runup to the meeting rather than the meeting itself that had the biggest effect on the President's mind. In five days of intensive meetings with his principal advisors, Johnson grappled with the MLF question, seeking a policy position of his own. In the end he determined that the United States, while not opposing the MLF, would no longer actively try to bring it about.

The president's new position, by seeming to remove the MLF obstacle, really energized the diplomatic quest for an NPT. In August 1965 the United States unfurled a complete draft at the Eighteen Nation Disarmament Conference (ENDC). The draft did not fully rule out a future MLF, however--die-hards in State had managed to keep it alive--so the Soviets promptly rejected the draft. The Soviets wanted to outlaw any transfer of nuclear weapons whatever--their position seemed to bar even existing NATO arrangements by which U.S. weapons were stationed in Europe. Then Secretary McNamara devised a substitute for the MLF--the idea of a consultative committee to devise NATO nuclear strategy. This seemed to satisfy the motive of giving Germany and other NATO allies a voice in their own nuclear defense.

The situation now seemed ready for forward movement on an NPT. The missing ingredient was presidential involvement. President Johnson had become somewhat disengaged from arms control matters because of his preoccupation with the Vietnam War following the major escalation early in 1965. Pressures to get him to focus again on the NPT came from a number of directions. One was a Senate resolution in May 1966 that urged "additional efforts by the president. . . for the solution of nuclear proliferation problems." Next, some inside the administration managed through Bill Moyers, to get to the president and make the case on the urgency of getting an NPT. The break seemed to come on July 5, 1966, when, in answer to a question at a news conference, the president stated: "We are going to do everything within the power of our most imaginative people to find language which will bring the nuclear powers together in a treaty which will provide nonproliferation." Secretary of State Rusk, previously quite removed from the issue, now became for the first time an active and very effective NPT advocate.

Just to allay any doubts there might have been about where he stood, President Johnson stepped up the pressure in a speech at the National Reactor Testing Station on August 26, 1966. Speaking of the NPT negotiations, the president said, "I believe that we can find acceptable language on which reasonable men can agree." The search for such language was underway in hard and intense and private negotiation between the U.S. and Soviet sides.

On October 10, 1966 Foreign Minister Gromyko showed up at the White House in a visit full of smiles, indicating that the process had borne fruit. On December 5, 1966, the two sides unveiled the text of the first two articles of an NPT. Article I forbade states having nuclear weapons from transferring them "to any recipient whatsoever." Article II forbade States not having nuclear weapons from accepting their transfer or manufacturing them. Article I essentially ruled out the MLF. The United States, however, prepared a series of interpretations which we told the Soviets would be submitted to the Senate with the treaty. Most important of these was that the treaty would not prevent a federated European state, if one ever developed, from inheriting the nuclear weapons of Britain or France, or both. Apparently, the Soviets considered this eventuality sufficiently remote that they were willing to take a chance on it.

After the breakthrough on Articles I and II, there was still one other important matter to clear up. This concerned so-called "safeguards," meaning inspections and other mechanisms for detecting on a timely basis any diversion of nuclear materials from peaceful to weapons uses. In this matter the AEC became embroiled in a dispute with other parts of the U.S. government. We wanted safeguards, preferably administered by the International Atomic Energy Agency, to be made mandatory. Our European allies resisted mandatory safeguards, ostensibly because they did not like the idea of inspectors from other countries roaming around in their nuclear plants. They were supported in this attitude by elements in our State Department. The ACDA, bowing to allied and State Department pressure, at first introduced in Geneva a miserably weak treaty provision specifying merely that the parties to the treaty would "cooperate in facilitating the application of safeguards." The AEC bitterly protested the weakness of this provision, and our position won support from the Joint Committee on Atomic Energy. In fact, the JCAE implied that any treaty that did not have mandatory safeguards would be in trouble in the Senate. This helped tilt the balance and mandatory safeguards for all non-nuclear weapon countries soon became the U.S. position.

It did not, however, settle the question of who would administer the safeguards. In deference to our European allies, the U.S. argued in Geneva for a formula specifying "International Atomic Energy Agency or equivalent" safeguards. "Or equivalent" was a reference to safeguards already being applied to its members by the European Atomic Energy Community (EURATOM). Several allied countries very much preferred EURATOM to IAEA safeguards. Their argument was that IAEA inspectors might make off with industrial secrets about their growing nuclear businesses.

But the Soviets stated that "self-inspection" by EURATOM of its own members was unacceptable. Various compromise proposals were then thrown into the mix, all seeking some way that EURATOM safeguards could remain, at least for a while, subject to some verification of their adequacy by the IAEA. At length, informal talks among negotiators from the two sides produced basic agreement on a compromise solution. This was that each non-nuclear party to the treaty would within a specified time reach a safeguards agreement with the IAEA. This formula allowed for the possibility of continued EURATOM safeguards in that the agreements could be negotiated either individually or together with other countries.

A key step to soften allied opposition to the proposed safeguards article was taken on December 2, 1967, when President Johnson announced that the United States would accept the application of IAEA safeguards to all its own peaceful nuclear activities at the time that such safeguards were generally applied to other nations under the NPT. This announcement was the culmination of a series of prior suggestions and events in which the AEC had played a key role. The British immediately followed our example. These actions tended to cut the ground from under previous allied objections based on presumed commercial disadvantage. The allies then agreed to the text of the safeguards article and, after some last minute haggling with the Soviets over wording, the agreement was announced in Johnson's State of the Union message in January 1968.

The first three articles of the NPT (Articles I and II setting out the basic obligations of nuclear-weapon states not to transfer, and non-weapon states not to acquire nuclear weapons, and Article III prescribing safeguards) pretty well encompassed what the superpowers hoped the final treaty would be. Not so the non-nuclear countries who were the main object of the treaty. There was very great resentment among them about what they considered the draft treaty's discriminatory nature. They felt they were being asked to renounce a future means of defense and without any compensation.

Ultimately three articles were added to the treaty in an effort to appease the non-nuclear states. Article IV stated the right of all countries to pursue the peaceful atom without discrimination. It also announced the obligation of more advanced countries to provide technical assistance in peaceful uses to others, particularly to those in "the developing areas of the world."

Article V referred to a technology that has since declined in importance, namely, the use of nuclear explosions for peaceful purposes like excavation, mining, and research. Both Brazil and India objected to the draft NPT on the grounds that it would preclude their independent development of such explosives. In a trip to Brazil in 1967 I spoke to Brazilian officials at length about this. I pointed out to them that the USAEC stood ready under an NPT to provide a peaceful nuclear explosives service to them at a fraction of what it would cost them to provide it for themselves. I found that they were generally not well informed about the issues and that their arguments did not hold up. I became convinced that their avowed interest in peaceful nuclear explosions was mainly a cover to keep alive a nuclear weapons option. Nevertheless, to meet such objections as the Brazilians advanced, an Article V was added to the NPT providing for such a nuclear explosives service as I had described to them.

The most clamorous demand of the non-nuclear states was that, in exchange for their abjuring nuclear weapons, the superpowers must do something to halt their bilateral arms race, which was regarded as a threat to everybody. The tide of revolt on this issue ran very strongly—so much so that the superpowers felt that if they did not give ground they might lose the treaty. They therefore added an Article VI pledging "to pursue negotiations in good faith on effective measures regarding cessation of the nuclear arms race and disarmament..." Later they were forced by the efforts of Sweden's Alva Myrdal to agree to an amendment requiring that these negotiations take place "at an early date."

Formal UN debate on the NPT began in the General Assembly on April 24, 1968. It was approved on June 12 by a vote of 95 to 4, with 21 abstentions. The treaty was opened for signature on July 1, 1968, in Washington, London, and Moscow. It was signed on that day by the Big Three and more than 50 other countries. Senate hearings began on July 10 with supporting testimony by Secretary Dean Rusk, ACDA Director William Foster, Deputy Defense Secretary Paul Nitze, Joint Chiefs Chairman Earle Wheeler, and me. My own testimony concentrated on IAEA safeguards, and the provision for a peaceful nuclear explosives service. There was little opposition, but the Foreign Relations Committee did not vote out the treaty until September 17. On October 11, with the presidential election campaign in full swing, the full Senate voted to postpone action. After Nixon's election, he made it clear that he wanted action still further deferred, until after his inauguration. On February 5, 1969, President Nixon recommended ratification in a special message to the Senate. The Senate gave its consent on March 13, and two days later, having been ratified by the requisite number of countries (the Big Three plus 40), the Treaty on the Nonproliferation of Nuclear Weapons entered into force.

III. Arms Limitation

On July 1, 1968, the very day they signed the Nonproliferation Treaty, President Johnson and Soviet Premier Kosygin announced their intentions to enter into talks on the limitation and reduction of offensive and defensive nuclear weapons.

This was by no means the first approach to this subject, but it may have been the first serious one. During the previous four years the United States and the Soviet Union had batted back and forth a series of proposals, some of which were obviously unacceptable to the other side and probably intended mainly for propaganda effect. In January 1964, President Johnson proposed a "verified freeze on the number of strategic nuclear offensive and defensive missiles." As details of this idea were worked out in Washington, it proved quite complex, much more so than its simple statement by the president would have indicated. The Soviets never took it seriously, possibly because verification of the freeze would have required intrusion into some of the most secret Soviet facilities.

One week after Johnson's freeze proposal the Soviets proposed that the major powers destroy all their bombers. This was obviously unacceptable to the United States, which held a large lead in number of bombers. The United States responded with a proposal that both superpowers destroy an equal number of bombers. The Soviets promptly rejected this since it would have increased the proportional U.S. advantage.

The superpowers also flirted briefly during Johnson's term with reductions in military budgets as an approach to arms limitation. Late in 1963 Chairman Khrushchev announced a 4.3 percent cut in planned Soviet military expenditures for 1964. President Johnson then announced a small reduction in the U.S. defense budget for fiscal year 1965. After both sides announced they intended to make additional cuts the process was aborted by the sharp escalation in the Vietnam War initiated by Johnson early in 1965. From that time forward, military spending by both superpowers resumed an upward course.

Section XII of this introduction describes the cutback in capacity to produce fissionable materials carried through by President Johnson. Though the president succeeded to some extent in surrounding these actions with the aura of arms control, they were prompted largely by the excess of materials production capacity built up during the 1950s. This same excess contributed to some U.S. proposals that both sides transfer already produced stocks of weapons grade U-235 to civilian use. In August 1963 the United States formally offered to transfer sixty thousand kilograms of such U-235 if the Soviet Union would transfer forty thousand kilograms. There was scant risk in this since our stockpile at the time was about five times that of the Soviets. Early in 1964 President Johnson suggested a halt in production of fissionable materials for weapons purposes and offered to act quickly on our past offer of a transfer to peaceful purposes in a 60-40 ratio. The Soviet response on both occasions was cold. They claimed that the amounts transferred would not diminish the U.S. nuclear potential, because we had excess weapons, that the verification procedures would require the most intrusive controls, and that, in general, the proposals amounted to "control without disarmament." To meet the last objection, we proposed that the transferred material be obtained from destruction of weapons chosen by each side from its stocks. U.S. efforts on behalf of such proposals reached their peak in 1965 and early in 1966. We ceased to press them thereafter, in part because our lead over the Soviets in stockpiles of fissionable materials was diminishing rapidly.

Meanwhile, both sides had been adding new and better weapons to their arsenals. One aspect of the continuing arms race appeared particularly alarming to serious-minded individuals. This was the deployment, first noticed in 1964, of an antiballistic missile system around Moscow, and rising pressure within the United States to deploy similar systems, then under development, to protect American cities.

In March 1966, Secretary of Defense MacNamara tried to still the clamor for an American ABM by stating it would not be capable of defending against a Soviet attack, although it might be effective against a lesser Chinese attack. He suggested that funds already authorized for an ABM system not be spent until arms limitation was explored with the Soviet Union. President Johnson agreed and was strengthened in this belief by a climactic meeting of his advisers held in Austin, Texas, in December 1966. He wrote to Kосygin in January 1967 setting forth the situation quite bluntly: if the Soviets deployed an ABM, we would follow suit, and also would increase our capabilities to penetrate their system. They would then increase their offensive and defensive capabilities and both sides would have incurred "colossal costs without substantially enhancing...security.." Johnson therefore suggested that some of the two sides' "highest authorities" meet to "carry the matter forward."

In response to the president's initiative, conflicting signals came from Moscow. Kосygin made public statements defending the Soviet ABM. This was in keeping with the Soviet military doctrine's emphasis on defense. At length, a month after the president's letter, the Soviets replied, stating their willingness to exchange views on strategic weapons but without suggesting a date. Meanwhile, discussions began within the U.S. government about the position we should take in the talks. The Joint Chiefs wanted any agreement to take the form of a treaty and that it both assure continued U.S. strategic superiority and allow future development of an American ABM. State and ACDA were less obdurate.

Preliminary discussions with the Soviets about arms limitation took place at a hastily arranged summit meeting between Johnson and Kосygin at Glassboro, New Jersey on June 23 and 24, 1967. The climax of the meeting was a passionate effort by MacNamara, over lunch, to persuade Kосygin that the security interests of both sides required some limitation of strategic arms. Kосygin appeared not to respond, continuing to argue that defense threatened no one. Yet there was evidence that he and his aides were indeed impressed with the logic and force of the American presentation.

They were not impressed enough to schedule strategic arms talks, however, and in the absence of such talks weapons developments continued apace. In September 1967, at the end of a long speech in which he argued the futility of a "heavy" ABM system to protect against the Russians, MacNamara announced a "light" one (SENTINEL) to defend against the Chinese. In December it was revealed that the United States was developing MIRVs.

President Johnson continued to pressure the Soviets to schedule talks and on July 1, 1968, as indicated above, the two sides announced their intention to enter into near-term talks "on limitation and reduction of offensive strategic nuclear weapons delivery systems as well as systems of defense against ballistic missiles." Still no date was announced.

Now the task of preparing a U.S. position began in earnest. A staff in the Pentagon prepared a draft treaty. Essentially it proposed a quantitative, but not a qualitative, freeze on strategic missile launchers, and an agreement to limit ABMs to an equal, but as yet unspecified, number. An ominous limitation of the proposal was that, at the insistence of the Joint Chiefs, it did not restrict MIRVs. Thus, while the number of missile launchers might be held steady, the number of warheads could increase substantially.

On August 19, the Soviet Union finally agreed to schedule a summit conference that would launch SALT, the strategic arms limitation talks. The date was to be in the first ten days of October, the site probably Moscow. On the night of August 20, however, a few hours before the joint announcement was to be issued, news came of the invitation of Czechoslovakia by Warsaw Pact forces. Anticipating a popular outcry, President Johnson felt he had to call off the scheduled announcement.

In the remaining months of Johnson's administration, some efforts were made to get the summit conference back on the rails. These were finally defeated by President-elect Nixon, who made it clear that he would not be bound by the results of such a meeting involving his predecessor.

The Nixon administration took several months to prepare before indicating a willingness to initiate SALT. A variety of options were considered. ACDA's new director, Gerard Smith, advocated an across-the-board freeze of the number and characteristics of strategic weapons. This "Stop Where We Are" proposal, which I supported, would have banned MIRVs on both sides. It would also have saved vast sums of money. The Joint Chiefs opposed this, and any other, limitation on technology.

The options were considered in a series of White House meetings in June 1969 which I attended. At one of these President Nixon stated with great emphasis that he would personally make all decisions regarding U.S. policy, setting the stage for very close White House control of the negotiations to follow. Discussions continued in coming months but before a more limited group, from which I and White House science adviser Lee DuBridge were excluded. President Nixon and Security Adviser Henry Kissinger apparently did not feel that the advice of scientists was of much use in matters like this.

SALT did not in fact begin until November 1969. There was early agreement on the desirability of limiting ABMs. But the asymmetry between the forces on the two sides led to difficulties in reaching agreement on an offensive arms. The Soviets then sought to limit negotiations to ABMs, but the United States, fearing unlimited growth in the Soviet Union's burgeoning ICBM arsenal, insisted that offensive weapons be included as well. After a prolonged deadlock, it was decided to negotiate a permanent treaty limiting ABMs and, as a holding action, to add an interim agreement (not a treaty) restricting the growth of offensive arms for five years.

IV. The Cuban Missile Crisis

Periodic intelligence reports since late August of 1962 had revealed the off-loading of military equipment from Soviet ships and an increase in military construction activity at several locations in Cuba. Although the AEC was not a "collector" of intelligence, it did serve as an evaluator and interpreter of nuclear-related intelligence data collected by the CIA, the Department of Defense, and other elements of the intelligence community. I served as a member of the U.S. Intelligence Board, the highest intelligence estimating body in the government. Commencing in October, the AEC's Director of Intelligence Charles Reichardt, often accompanied by Assistant General Manager for Administration Harry Traynor and General Manager Alvin Luedecke, came to my office in the early morning nearly every day to give me the latest reports and estimates on developments in the Cuban situation. Many of these reports bore classifications above top secret.

The crisis broke on Monday, October 15, when analysis of photographs from reconnaissance overflights by U-2 planes disclosed evidence of a medium-range missile site, though not yet the missiles themselves, in Western Cuba. Now a nuclear confrontation with the Soviet Union over Cuba appeared to be a distinct probability.

The president immediately established a top-level group, later formally named the Executive Committee of the National Security Council (EXCOM), to consider policy alternatives and make recommendations to him. By Wednesday, October 17, launchers and missiles could be seen in U-2 photographs, and it was clear that the missiles could be fired within two weeks. EXCOM discussions began to focus on two options: 1) a swift air strike to take out the missiles, or 2) a naval blockade while diplomatic pressure was exercised to get the missiles removed.

It is necessary to recall that, almost from its inception, but especially since the Korean War, the AEC had maintained a readiness plan for continuity of essential operations in the event of hostilities. Indeed, when the new headquarters of the AEC was constructed at Germantown, Maryland, in 1957 (as part of President Eisenhower's plan for the dispersal of critical government functions), a reinforced structure replete with sophisticated emergency communications systems was built into the underground structure of the new complex. It was known as the Emergency Relocation Center (ERC), and was built with compartmentalized sleeping facilities to house 120 people with sufficient water and food to meet their needs for several weeks.

Periodically, mock exercises were held in the ERC during which imaginative efforts were made to write a realistic scenario. For most of the key officials who participated, these exercises, were a bit of a nuisance, interrupting their busy schedule. In mid-October 1962, however, the exercises commenced to assume a new reality.

The ERC was meant to house, in the event of a war emergency, the Initial Cadre, consisting of the Chairman, the commissioners, and those members of the AEC staff essential to operation of the agency in such an emergency situation. It was also contemplated that the members of the Initial Cadre might be accompanied by their families, although the feasibility of this was in doubt and subject to much debate.

By Friday, October 19, the blockade concept appeared to have won out over the air strike in the deliberations of EXCOM, but with the proviso that an air strike would follow if diplomacy failed. The president's address to the nation on radio and television, which revealed the extent of the crisis to the world for the first time, took place on Monday evening, October 22. This address "brought home" to the nation the gravity of the situation. AEC employees, who had been enjoined by secrecy, were now for the first time able to discuss and develop with their spouses concrete plans for the safety of their families. This raised serious questions among the members of the Initial Cadre as to whether, if ordered to occupy the ERC in the face of impending outbreak of hostilities, they would actually bring their families to take up residence in the underground Emergency Relocation Center in Germantown. Helen and I had serious discussions as to our proper course of action should we be faced with such a fateful decision. Fortunately, we never had to make this decision.

The day following the president's address, I informed the Commissioners that AEC operations had been placed under Phase I Alert, i.e., instructions to check that communications were in order, 24-hour duty for communications personnel, additional security guards, etc. It was a tense day, featured by a meeting at which the Organization of American States (OAS) endorsed President Kennedy's action, a spirited discussion in the UN Security Council, and reactions of various types from around the world. What the USSR reaction would do was not yet clear.

Fortunately, after an historic exchange of messages between Kennedy and Khrushchev, a message came from the Soviet government on Sunday, October 28, agreeing to remove the missiles under UN inspection.

Although it was not publicly announced at the time, it is now known that, in return, Kennedy conveyed private assurances to Khrushchev: (1) that the United States would not attack Cuba, and (2) that we would remove Jupiter missiles we had deployed in Turkey.

This brush with disaster brought President Kennedy and Chairman Khrushchev closer together, a prelude to the successful attainment of the Limited Test Ban Treaty less than a year later.

V. The program of international cooperation, including my visits to 60 countries

In 1954 the Atomic Energy Act was liberalized to permit the AEC to transmit peaceful atomic energy information, research tools, and nuclear materials to other nations under "Agreements for Cooperation" pledging the recipient not to use what was received for any military purpose. The number of such agreements greatly increased during the decade of my chairmanship. By the end of 1971 they were in effect with 30 individual nations and two international organizations (EURATOM and the IAEA).

At first, the "safeguards" to prevent military use were implemented by the United States and the cooperating nation. In accordance with what had always been the U.S. intention, this responsibility began in the mid-1960s to be transferred to the IAEA through trilateral agreements among the agency, the United States, and the recipient nation. The principle of international safeguards administration was further strengthened by the 1968 Nonproliferation Treaty (see Section II), which required non-nuclear weapons signators to negotiate safeguards agreements with the IAEA.

The enthusiasm engendered by the U.S. Atoms for Peace Program led in 1955 to the convening in Geneva of a huge UN Conference on the Peaceful Uses of Atomic Energy. The success of this conference led to a second one being held in 1958, a third in 1964 and a fourth in 1971. At the first two Geneva Conferences I was a member, at the third the Chairman, of the U.S. delegation. I had the honor of being elected president of the fourth (1971) Conference. Another repeated occasion for travel abroad was the IAEA General Conference. During my ten and a half years as AEC chairman, I, along with one or more of my fellow commissioners, attended this annual event eleven times, held in Vienna except in 1965 when it was held in Tokyo.

It became my practice to visit other countries before and after the various conferences I attended. Thus, in 1965, when the IAEA General Conference was held in Tokyo, I visited nine countries in a trip around the world. A presidential plane was placed at my disposal for three of my trips: in January 1967 when I circled the globe in visiting five countries; in January 1970 for a trip to six African countries, Spain, and Germany; and in July 1967, when I visited six South American countries. One highlight of my travels abroad occurred in September 1964. Leaving the third Geneva Conference for a weekend, I served as host to high-ranking officials of 15 national nuclear energy organizations aboard the USNS Savannah, the world's first nuclear-powered cargo-passenger ship. The Savannah, which had started operation in August 1962, was completing a tour of the Scandinavian countries and was at anchor in Halsingborg, Sweden. My guests and I spent the night aboard ship, then cruised the Baltic the next day. (Actually, I made several visits to the Savannah during my tenure as AEC Chairman; even before it was launched, my entire family and I [except Dianne, who was judged to be too young] visited her at Yorktown, Virginia, in February 1962.)

Throughout the 1960s, fruitful cooperation on peaceful uses of the atom was enjoyed with the USSR. This was accomplished pursuant to several bilateral Memoranda on Cooperation in the Field of Utilization of Atomic Energy for Peaceful Purposes negotiated between the USAEC and the Soviet State Committee for the Utilization of Atomic Energy. The first of these was signed in 1959 by AEC Chairman John A. McCone and his Soviet counterpart, Professor Vasil Emelyanov. I and my counterpart Andronik M. Petrosyants signed succeeding memoranda in May 1963, July 1968, and early 1970.

One of the fruits of the Memoranda of Cooperation was exchanges of visits by American and Soviet scientists to laboratories and facilities in each other's country. A notable exchange of visits occurred in 1963. In May I led an American delegation on a tour of Soviet nuclear energy facilities. Everywhere we went we were treated with the warmest hospitality. Our hosts accepted unhesitatingly the itinerary we had proposed and even included some additional sites they thought would interest us. Our journey achieved a number of "firsts." We were the first foreign group to visit the Soviet reactor testing station at Ulyanovsk and the site of the high energy accelerator at Serpukhov, the first Western visitors since World War II to visit the Radium Institute in Leningrad, and the first foreign group to see certain industrial reactors and other scientific equipment. Overall, I believe this visit contributed to the improved relations that made possible the negotiation, some two months later, of the Limited Test Ban Treaty.

A high point of the trip took place on May 29, when I met for over an hour with Leonid Brezhnev, who occupied at that time the largely ceremonial position of "president" of the USSR. While interesting at the time, this talk became even more so in retrospect, since Brezhnev's elevation to the post of general secretary of the Communist party occurred less than a year and a half later. It is symptomatic of the extreme insularity of Soviet leaders at that time that, as I was told later, I was only the second American to meet Brezhnev, the other having been Gus Hall, head of the U.S. Communist Party. A reciprocal visit by Chairman Petrosyants and his colleagues took place during the period from November 16 to December 3, 1963. It was while the Soviet group was visiting the Radiation Laboratory in Berkeley on November 22, that news came of President Kennedy's assassination. I will always be grateful for the sympathetic and sensitive behavior of our visitors during the aftermath of the assassination. They seemed sincerely to share our grief.

The first Soviet-American experiment in the nuclear sciences began in 1970. Pursuant to the fourth Memorandum on Cooperation, six U.S. physicists were assigned for six months to the High Energy Physics Institute at Serpukhov, working with Soviet scientists at the 70 Bev (billion electron volts) accelerator. In return Soviet scientists were to be assigned to the 200 Bev accelerator at Weston, Illinois, when it would be completed.

Another exchange of scientist visits led by Chairman Petrosyants and me took place in 1971. The Soviet group visited nuclear facilities throughout the United States from April 15 to 28. Our return tour took place between August 4 and 20. Following visits to laboratories in the Moscow area, an extensive ten-day tour by our party utilized a specialized Aeroflot plane used by Premier Kosygin on some of his trips. Travelling a distance of 12,110 kilometers, we visited nuclear facilities in and around eight cities: Minsk, Leningrad, Ulyanovsk, Novosibirsk, Tashkent, Erevan, Tbilisi, and Schevchenko—with a stop at Samarkand. I also attended meetings and visited research laboratories in Moscow after our tour.

On entering the Soviet Union at this time, I had newly acquired and rarely bestowed status of Foreign Member of the USSR Academy of Sciences. This honor had been conferred on me during the Academy's General Assembly in March.

These trips involved extended separations from my family, disruptions of normal eating and sleeping habits, exhausting schedules at nearly every stop, intensive in-flight "homework" to prepare for the next visit, a host of minor frustrations and inconveniences, and, on return, a mountain of accumulated work. But the rewards were great. I am convinced that my personal discussions with scientists and statesmen of other nations, and visits to their scientific facilities, contributed significantly to the constructive use of the peaceful atom and nuclear safeguards and to better international relations generally. It was gratifying to know that President Johnson, for one, in repeatedly urging me to take such trips, felt the same way.

During my travels I met a rather large number of heads of state or high government officials--British Prime Minister Harold Macmillan, Soviet chairman Nikita S. Khrushchev, Soviet President Leonid I. Brezhnev, Soviet Foreign Minister Andrei A. Gromyko, and V. M. Molotov of the Soviet Union, Swedish Prime Minister Tage Erlander, Indian Prime Minister Indira Gandhi, Pakistani President Ayub Khan, President Chiang Kai-shek and Premier C. K. Yen of Taiwan, Finnish President Urho Kekkonen, Austrian Chancellors Josef Klaus and Alfons Gorbach, Austrian State Secretary Karl Gruber, Yugoslav Vice President Aleksandar Rankovic, Trygve Lie of Norway, U.N. Secretary General U Thant, Israeli Prime Minister Levi Eshkol, Irish President Eamon De Valera, Prime Minister Kittikachorn Thanan of Thailand, Brazilian Foreign Minister Jose da Magalhaes Pinto, President Juan Carlos Ongania of Argentina, Mexican Foreign Minister Antonio Carrillo Flores, President Nicolae Ceausescu of Rumania, Moroccan Foreign Minister Mohamed Sylnassi, Tunisian Foreign Minister Habib Bourguiba of Tunis, Ethiopia's Emperor Haile Selassie and Crown Prince Asfa-Wossen Haile Selassie, Vice President Daniel arap Moi of Kenya, Prime Minister Kofi A. Busia of Ghana, Spanish Foreign Minister Gregorio Lopez Bravo, Prince Juan Carlos and Princess Sofia of Spain, Korean President Park Chung Hee, President Suharto of Indonesia, Prime Minister Amir Abbas Hoveyda of Iran, and Canadian Foreign Minister Mitchell Sharp.

The trips were not without some personal "spin-off"--the Danube at Budapest on a clear September day, Roman paving-stones on the Appian Way, the Bibi Khanym Mosque in Samarkand, Inca ruins in Peru, the Great Buddha at Kamakura, the Temple of Bacchus at Baalbek, the Acropolis in Athens, the ruins of Carthage, the house where Beethoven composed "Fidelio," the mighty Congo 2,000 feet below me winding through green jungle toward a dam construction site, canals in Venice, the charm of exotic animals in Australia, sunset over Scotland's downs--kaleidoscopic contacts with nature and the history of man.

VI. Support of research

Physical sciences research programs

From its inception the AEC has felt a responsibility to support research in both the physical and life sciences. These endeavors have been spearheaded by a succession of scientist-commissioners. Starting with Robert Bacher, these have included Henry Smyth, John von Neumann, Willard Libby, John H. Williams, and, during my tenure, in addition to myself, Leland Haworth and Gerald Tape.

The research supported by the AEC in the physical sciences has covered a wide spectrum of knowledge and applications, including the search for new knowledge about nuclear structure and behavior, the discovery of new elements, and the expansion of nuclear technology, among other subjects. Much of this work requires very large, specialized machines. This is one reason why most of AEC's physical research program is carried out in National Laboratories or other AEC-owned, contractor-operated research and development centers. The remainder--about one fourth in terms of expenditures--of the program involves the support of unsolicited research proposals submitted by private organizations, usually educational institutions. In the off-site research program--mostly university research--the number of contracts remained around 550, while the total annual cost level increased from about \$47 million in 1961 to some \$73 million in 1970.

Accelerator facilities:

During my tenure there were major construction activities under the physical research program centered around the building of large accelerator facilities for research on elementary particles. At the same time, the need to proceed with plans for more complex and expensive machines, such as the National Accelerator Laboratory and the Los Alamos Meson Physics Facility, coupled with budgetary stringencies, forced the AEC to shut down two older, more obsolescent machines--the Brookhaven cosmotron and the Cal Tech synchrotron--in the 1960's.

The principal accelerator improvement program planned for the Alternating Gradient Synchrotron (AGS) at Brookhaven National Laboratory was the "conversion project." The primary objectives were modification of the AGS for operation at increased intensities and provision for improved experimental facilities. The 50 Mev injector was to be replaced with a new proton linear accelerator injector having an energy of 200 Mev. The conversion was authorized in fiscal 1966. Completion is expected in fiscal 1972. The converted AGS will make available secondary beams of nucleons, pions, muons, neutrinos, and strange particles of higher intensities. The higher intensity will also permit support of more experiments running in parallel and sharing the particles of each machine pulse.

The Cambridge Electron Accelerator (CEA) was constructed at Harvard University at a cost of \$10.2 million and by August 1962 had achieved an energy of 6.2 Bev. It is operated under an AEC contract with Harvard and is co-sponsored by MIT.

In August 1963, the Princeton-Pennsylvania Accelerator (PPA) of Princeton University reached its design energy of 3 Bev and, following a brief debugging period, operation was sufficiently reliable to schedule experiments. The first 3 Bev proton beam survey experiments were performed in November 1963. By January 1964, an active research program was under way. The PPA was from the beginning under the joint management of the University of Pennsylvania and Princeton University. In March 1971, fiscal stringencies caused the \$11.5 million machine to be shut down. AEC support ended on July 1, 1971. Other sources of operating funds were being sought.

The \$50 million, 12.5 Bev proton Zero Gradient Synchrotron (ZGS) at the Argonne National Laboratory (ANL) near Chicago was completed in the summer of 1963. The first scientific experiment there began in June 1964. The operating efficiency (the fraction of scheduled machine time actually delivered) was at first between 60 percent and 80 percent. Between three and five experiments were carried out simultaneously. Some two-thirds of the operating time was being devoted to the research program, the remainder being given to machine studies. Through the several years of ZGS operations, steady improvement in operating efficiency has been achieved.

An early decision faced by President Johnson was whether he should support the construction of the large fixed-field alternating gradient (FFAG) accelerator being developed by the Midwest Universities Research Association (MURA). There was a serious difference of opinion in the high energy physics community about whether such a high intensity, but relatively low energy (10 Bev) proton accelerator should be supported (at a cost of \$115 million to \$125 million) in competition with other research facilities, such as a high energy (200 Bev) proton accelerator. The president decided to stop this development but, as a sort of compensation to the universities involved, he directed me to explore and implement a plan to involve some of them in the operation of Argonne National Laboratory.

The Argonne Universities Association (AUA), an organization of 26 Midwestern universities, came into existence in July 1965 in response to this request from President Johnson. It was organized to aid in stimulating scientific and technological advancement in the midwest, assisting and supporting ANL staff, and helping make the facilities at ANL broadly available to the scientific community. The high energy physics program at ANL is, of course, only one of many major programs at this multi-purpose laboratory.

In November 1966 a tripartite contract involving the AEC, AUA, and the University of Chicago went into effect. Under this contract, AUA has the primary role for formulating, approving, and reviewing policies and programs of ANL. The contract also states that the University of Chicago is to be the operator of the Laboratory in accordance with policies established by the AUA and that the University shall collaborate with AUA developing long-range objectives, programs, and facility plans, and in evaluating the program accomplishments of the Laboratory.

Congressional hearings on a 1957 Stanford University proposal for the construction of Stanford Linear Accelerator culminated in authorization of \$114 million for the project in 1961. The AEC entered into a contract with Stanford for the design and construction of the 20-Bev electron facility on a 480-acre site near Palo Alto, California, which was leased to the government for 50 years. Actual construction of the accelerator was begun in July 1962. It was constructed within the initial cost estimate. In May 1966 electrons were accelerated for the first time through the full length of the accelerator obtaining an energy of about 10 Bev. Soon thereafter an energy of 18.4 Bev was achieved. Research operations with the accelerator began in late fall of 1966, six months ahead of the original schedule, and in January 1967 the machine exceeded its design objective when a beam of 20.16 Bev was achieved.

Following completion of a major improvement program, the Bevatron at the Radiation Laboratory of the University of California at Berkeley reached, in March of 1964, a beam intensity of 0.8×10^{12} particles per second.

The Berkeley Heavy Ion Linear Accelerator (HILAC), unlike its sister machine at Yale, had its intensity increased several times. The discovery at the Lawrence Radiation Laboratory of unexpected variable energy capabilities in the HILAC was accomplished during 1962. A \$1.5 million remodeling and modernization program was largely completed in the spring of 1965. It gave the machine the potential of accelerating particles continuously. The intensity (number of particles accelerated in a given time) was increased by about 800 percent for heavy nuclei such as neon and argon, and about 1,000 percent for lighter nuclei such as carbon and oxygen. Suppression of unwanted radiation, which formerly swamped counters in some experiments, opened up new areas of experimentation with sensitive counters. The modification provided for beam splitting and multiple experimentation for the first time, and it reduced the time required for a typical HILAC experiment. With highly desirable lower, monochromatic energies, ranging from 1 to 10 Mev per nucleon, the HILAC became able to elicit a large amount of detailed information on the structure and properties of complex nuclei.

A transformation of the HILAC was approved in 1970. The \$3 million overhaul began in February 1971. When it resumes full operation as a research machine in 1972, it will be known as the SuperHILAC and will feature a 3 million volt Cockcroft-Walton injector, improved electron-stripping capability and a 40 kilogauss quadrupole magnet, twice as powerful as any previous magnet of its size, for focusing the beam. Two new linear accelerator tanks, 60 and 100 feet long, will replace the old 15 and 90 foot tanks.

The SuperHILAC will be capable of accelerating all elements to energies between 2.5 and 8.5 Mev. Beam intensity will range from 100 billion ions per second for such heavy elements as uranium to milliamperes (10 million billion ions per second) for such light elements as carbon. It will be the world's first machine capable of accelerating all ions (including uranium) to energies high enough for nuclear penetration.

The 88-Inch Cyclotron accelerator at the Lawrence Radiation Laboratory, Berkeley, built at a cost of \$4.6 million, became operative in early 1962. Key features of the accelerator are its versatility in the medium-energy field (deuterons, helium ions, light heavy ions at 30 Mev per nucleon) and its beam intensity of some million-billion particles per second, about double that of the 60-Inch Cyclotron and 1,000 times greater than that of the 184-Inch Synchrocyclotron. The intense beam on the 88-Inch Cyclotron has allowed the production of research quantities of important isotopes of heavy elements.

In a meeting with President Johnson at the LBJ Ranch in December 1966, I succeeded in persuading him, over the objections of Budget Director Charles Schultze, to support the construction at the Lawrence Radiation Laboratory of a new type of accelerator, known as the Omnitron. This accelerator, the invention of Albert Ghiorso, was estimated to cost \$24 million and expected to be capable of accelerating substantial beams of heavy ions, over the entire range of elements up to and including uranium, to energies capable of penetrating into the nucleus of even the heaviest target nuclei. Unfortunately, due to the lack of backing by the director of the Lawrence Radiation Laboratory, support for the Omnitron was later stricken from the AEC budget by the Joint Committee on Atomic Energy and it was never possible to restore it. A little later, Ghiorso came up with the idea of using the HILAC as an injector of heavy ions into the Bevatron, a combination which came to be called the Bevalac. It would be capable of accelerating heavy ions to relativistic energies.

The building for the Isochronous Cyclotron (ORIC) at Oak Ridge National Laboratory was completed early in 1961 and the fabrication and installation of the cyclotron components approached completion by the end of 1961 at a cost of 3.7 million. The first proton beam at full radius was obtained in ORIC on March 19, 1962. In 1969 and 1970 major improvements were made in the ion-source of the ORIC so as to permit the acceleration of argon ions.

New isochronous cyclotrons were established during the 1960's at Texas A&M University, the University of California at Davis, and the University of Maryland. The Maryland machine has accelerated protons to more than 100 Mev, making it the world's highest energy operating isochronous cyclotron. An isochronous cyclotron injecting into a tandem Van de Graaff accelerator (called a cyclo-Graaff facility) was established at Duke University.

In view of the need for electron beams of higher intensity, resolution, and duty factor for higher energy nuclear physics research, a 400 Mev electron linear accelerator was built at MIT. It is scheduled for operation in late 1971. Operation of the Oak Ridge Electron Linear Accelerator (ORELA) began in 1969. New tandem Van de Graaff accelerators were established at ANL, Oak Ridge, Rice University, University of Minnesota, Yale University and BNL. The one at BNL is the world's highest energy Van de Graaff system accelerating hydrogen ions to an energy of more than 30 Mevs.

Research reactors, nuclear chemistry, neutrino detection:

The High Flux Isotope Reactor (HFIR) is discussed in section VIII.

The High Flux Beam Reactor (HFBR) at Brookhaven National Laboratory became operational on October 31, 1965. Built at a cost of \$12.5 million, this 40-thermal-megawatt reactor is cooled and moderated by heavy water and contains a heavy water reflector and provides a maximum flux of more than 1.6×10^{15} neutrons per square centimeter per second at full power. The HFBR is used for basic research in nuclear physics, nuclear chemistry, solid state physics and metallurgy.

The Ames Laboratory Research Reactor (ALRR) became operational on February 17, 1965. In 1968 researchers at the Ames Laboratory succeeded in growing a large, single crystal of solid helium and scattering neutrons (from the ALRR) off it to study the vibrations of the helium atoms in such a lattice.

Throughout the history of science, as a given area of research has developed, the interrelations between that discipline and others have increased. Never has this phenomenon been more apparent than in the chemistry research programs supported by the AEC's Division of Research. Some of the developments over the past decade have been: a) the synthesis of new elements and new isotopes, b) new insights into nuclear structures and properties, c) new methods for studying the chemistry of radioactive ("hot") atoms, d) new light shed on the chemical effects caused by ionizing radiation, and e) further development of new analytical techniques.

The past ten years were marked by increasing applications of nuclear methods. These included neutron diffraction, Mossbauer effect studies, electron spectroscopy for chemical analyses, and determination of chemical structures. Much of the role of chemistry in nuclear energy related programs, such as the production of fissionable materials, reactor chemistry, and the large-scale production of radioisotopes, is attributable to past research supported by the AEC. Two specific examples are the californium-252 production program and Oak Ridge's molten salt reactor program.

Efforts to extend the Periodic Table of the Chemical Elements have been successful. At the Berkeley Radiation Laboratory element 103 (lawrencium) was discovered in 1961, while elements 104 and 105 (tentatively named rutherfordium and hahnium) were discovered in 1969 and 1970, respectively. New element synthesis, through the heavy ion approach, became increasingly difficult with increasing atomic number. New methods of detecting new heavy isotopes and elements were developed. An important discovery made at the Oak Ridge National Laboratory was the identification of transuranium elements by x-ray spectroscopy.

By 1966, a solar neutrino experiment (production of argon-37 from chlorine-37) was being conducted by the Brookhaven National Laboratory 4,900 feet below the earth's surface in the Homestake Mine at Lead, South Dakota. Data for 1967 and 1968 were collected and the background noise of the counting instruments were reduced. Significant improvements in instrumentation led to the first positive evidence for the detection of neutrinos from the sun. The astrophysical theory of neutrinos would suggest that one should have seen some two to seven events a day. In 1970 the argon-37 production rate was found to be 0.5 ± 2 events per day. The neutrino intensity found is at most one-fifth of that predicted by the best theoretical calculations of the sun's behavior. This result calls into question some fundamental and widely accepted concepts in astrophysics.

Metallurgy, solid state physics and isotope separation:

Greater availability of transuranium isotopes caused an upswing of work in the metallurgy and solid state physics of these elements. A committee was established by the AEC in 1961 to help coordinate the research conducted in these fields by various AEC divisions. Several important scientific achievements occurred in the metallurgy of plutonium during this period. A method for preparing high-purity metallic plutonium by electrorefining from a molten salt bath was developed at Argonne National Laboratory (ANL) in 1960. Single crystals of plutonium were prepared for the first time in 1967 at ANL. Ductile metallic alpha-plutonium was made at Pacific Northwest Laboratory (PNL) in 1970 by inducing grain refinement through extrusion of high-purity metal.

Following the discovery, announced in 1961, of magnetically hard superconductors, applications in many AEC programs were immediately obvious. Basic research projects were reoriented within the metallurgy and materials program to accelerate progress in the physics and metallurgy of superconductivity and applied efforts were initiated in the high-energy physics and controlled thermonuclear research programs.

In the field of extra nuclear properties of matter, research studies were carried out on a variety of topics, including optical spectroscopy, mass spectrometry, behavior of low-energy ions in matter, magnetic resonance techniques, and low-temperature phenomena.

Electromagnetic separations of stable isotopes and isotopes of the heavy elements were performed at Oak Ridge National Laboratory. In 1970, ORNL completed 25 years of separating and distributing enriched isotopes. Starting in 1945 with 4 calutrons, the program has grown to one which has 34 separators available for use in the separation of stable isotopes. In addition, a doubly-contained facility including eight calutrons, together with associated laboratory and process area, was completed and put into operation for the isotopic separation of the isotopes of heavy elements such as thorium, uranium, plutonium, americium, and curium. Samples were made available for all AEC research programs as well as for member countries represented on international data committees, especially for neutron cross-section measurements.

University, materials, radiation research:

AEC research projects with educational institutions are generally supported by means of a Special Research Support Agreement. Under this type of arrangement the AEC pays the institution its cost of performing the research, up to a specified amount (referred to as the "support ceiling") in consideration for its performance of specific research activities described in the agreement and in accordance with the provisions of the agreement.

Larger research projects, generally those with an estimated cost in excess of \$250,000 annually, may be financed through a cost-type contract which permits closer AEC surveillance of the work in accordance with appropriate contractual provisions not included in a Special Research Support Agreement.

During the 1960's, the number of scientific man-years supported under the Physical Research Program increased from about 3,200 to some 4,700 per year, while the number of graduate students participating in the program went from around 2,600 to nearly 3,700. Scientific publications resulting from the program increased from some 4,000 annually during the early 1960s to more than 5,400 in 1970.

In 1959 the Federal Council for Science and Technology instituted the Interdisciplinary Materials Research Laboratory (IDL) Program wherein participating agencies provide block research support and assist in the construction of research facilities at selected universities. The AEC, already supporting substantial numbers of research projects on the campuses of the University of Illinois (Champaign-Urbana) and the University of California (Berkeley), agreed to sponsor IDL's at these institutions.

The IDL at Berkeley was formed as part of the Lawrence Radiation Laboratory (LRL). Selected members of the staff of the campus Metallurgy and Ceramics Engineering departments joined with the high temperature chemistry group under Professor Leo Brewer of the campus Chemistry Department and became the Inorganic Materials Research Division of LRL with Brewer as its Director. A research laboratory was completed and occupied at LRL in 1965.

In 1961 Congress authorized the AEC to construct a Materials Research Laboratory on the campus of the University of Illinois. However, Congress declined to appropriate the necessary funds. In 1964, the authorization was rescinded after the Advanced Research Projects Agency of the Department of Defense, as part of its IDL program, provided the University of Illinois with the necessary assurances to go ahead and construct a facility with its own funds on a DOD pay-back basis. A laboratory building was completed in 1966. It is known as the Materials Research Laboratory (MRL). Professor Robert Maurer of the Physics Department has been the Director of the MRL.

For the Notre Dame Radiation Laboratory the decade 1961-1971 represents a period of recognition, consolidation, expansion and trial. A federal appropriation for construction of a Radiation Research Building was made in 1961 and construction formally began on January 15, 1962. The new building was first occupied by the Radiation Laboratory on March 15, 1963. In October 1963, the staff numbered 1000 of whom 62 (i.e., those requiring repeated access to radiation sources and other specialized equipment) were actually housed in the new building. Just as congestion had been divisive, freedom of motion suddenly resulted in a spirit of cohesiveness. Theoretical developments were encouraged and the unity of objective in the experimental groups became more clearly apparent. The major radiation sources were the 10 kCi ^{60}Co source, the kCi ^{60}Co underwater source and the new and very flexible 2 Mev Van de Graaff generator. Shortly thereafter a very elaborate mass spectrometer was acquired. Subsequently, the growth and increasing diversity of interests among the senior personnel of the Laboratory resulted in some fractionation of the efforts of the experimental group into smaller groups. These included one on pressure effects and another on luminescence and associated studies.

Biomedical research programs

Irradiation of ecosystems:

The Brookhaven ecology forest program was initiated in 1961 as a part of the Brookhaven radiation ecology project. Its purpose was to investigate the nature of the changes following exposure of an oak-pine forest in the temperate zone to low levels of ionizing radiation. The project, designed to run for many years, has been yielding classic information on physiological characteristics of organisms growing under their local natural conditions; the sensitivity of this type of forest to gamma irradiation; the long-term genetic modifications in each component of the system; and a variety of associated phenomena such as the direct and indirect effects of irradiation on insect populations in the litter.

Marine sciences:

Investigators from the Woods Hole Oceanographic Institution isolated a nitrifying bacterium, Nitrocystis oceanus, from ocean water collected from radioactive tracer studies. Nitrocystis is able to oxidize ammonia to nitrate. Until this discovery the mechanism whereby organic nitrogen is converted back to an inorganic nitrate was unknown. The bacterium has now been cultured from water at all depths down to several thousand feet in all major oceans.

An unexpected observation by radioecologists at Oregon State University promises to revise present ideas about the size of radiation doses to aquatic organisms. Organisms living at depths below the penetration range of cosmic radiations were thought to be exposed only to the radiations from the naturally radioactive isotopes built into their cytoplasm, chiefly potassium-40, the radiation dose from which would equate to about 30 mrad per year. Analyses of fish for the radioactive isotopes lead-210 and polonium-210 disclosed amounts of these isotopes that would raise their annual radiation dose about tenfold. But, since the radioactivity is restricted almost exclusively to the liver, viscera, and bones, no health hazard for man is anticipated.

Thermal effects studies:

In 1968 the AEC's Division of Biology and Medicine expanded its long-established program on the effects of thermal additions to natural bodies of water. The result is an improved capability for predicting the effects on the local biota of heated waste water from nuclear power plants. Thus, the investigations of the thermal discharges from single nuclear power plants indicate that the effects are confined to a small local area and do not endanger the ecosystems of the recipient bodies of water.

Effects of radiation on man:

The research protocols of the Atomic Bomb Casualty Commission (ABCC) at Hiroshima and Nagasaki, Japan, have become the model for many other large-scale prospective epidemiological studies. With the cooperation of the Japanese people and government, three major lines of investigation are now functioning smoothly to detect and measure long-term effects of exposure to the mixed radiations from nuclear weapons. By careful physical examinations every other year, a selected group of originally about 10,000 exposed and 10,000 matched non-exposed people are being followed to detect abnormalities and diseases in their incipient stages. An additional approximately 45,000 exposed and 45,000 unexposed are being followed for longevity and cause of death. The third program is a study of the pathologic anatomy of persons in control and exposed groups.

As of 1970, 25 years after exposure, only three effects can be identified with assurance. 1) A characteristic cataract developed on the posterior sub-capsular surface of the lens of the eye in fewer than 100 people within five years of exposure. The cataract is similar to those seen in the small number of early cyclotron workers who thoughtlessly looked directly into the beam. The cataracts are amenable to surgery. 2) The annual incidence rates of leukemia five to nine years after exposure rose six to seven times over those in the control population. The leukemias were histologically identical with those which occur spontaneously among the Japanese. The subsequent rate declined until now it is just a little higher than the rate in the control population which, interestingly, has been gradually decreasing. 3) The incidence of thyroid tumors has begun to be statistically higher in the exposed compared to the control population and there seems to be a positive correlation with radiation dose. The tumors are indistinguishable from the thyroid neoplasms occurring spontaneously.

Transuranium Registry:

This special registry was organized in order to maintain close medical contact with workers who have accidentally accumulated an appreciable body burden of the recently man-made transuranium elements, chiefly neptunium, plutonium, americium, and curium, during the course of their employment. Fortunately, contaminating accidents have occurred infrequently and have on the whole been modest to negligible, so that knowledge of the toxicity of these radioelements had to be based on their effects in experimental animals. The resulting experimental data indicate that the toxicity of this group of elements is comparable to that of radium, but it is still necessary to know whether man will react to these radioactive metals like the experimental animals. Since it is unacceptable to use human volunteers for such toxicologic investigations, a registry is the only device available for maintaining the continued contact needed for learning the outcome, if any, of such contamination among humans. The voluntary cooperation of the workers, including releases for autopsy study, has been outstanding.

Beneficial applications of L-Dopa:

The discovery that daily doses of the amino acid, L-3,4-dihydroxyphenylalanine or L-Dopa, are of great value in relieving the symptoms of Parkinson's disease was an outgrowth of studies on manganese toxicity in miners by Brookhaven National Laboratory investigators. L-Dopa therapy represents (in 1971) the best effective medical treatment of Parkinsonism and the side effects of the chemicals are tolerable. In addition to its clinical usefulness, L-Dopa has introduced new concepts in the management of neurological disorders affecting the structures at the base of the brain. Nondestructive, sequential studies of the metabolism of radiolabelled L-Dopa and its analogs raise the possibility of uncovering the neurologic basis of Parkinson's disease which affects approximately 500,000 Americans.

Beneficial applications of hormone assay:

An in vitro clinical diagnostic procedure for assay of circulating hormones has been developed in which appropriate radioisotopes or antibody reagents labelled with radioisotopes are added to small samples of blood or other tissues taken from patients. This chemical or immunochemical type of radioassay is highly sensitive and specific. In many cases it can be used as a rapid, inexpensive office procedure for estimating the blood level of a number of hormones. The technique is of particular importance as it does not expose the patient to radiation, an advantage that is especially desirable in the case of children and pregnant women in whom irradiation is to be avoided.

Beneficial applications of californium-252:

A program for evaluating the effectiveness for cancer therapy of neutrons from naturally fissioning californium-252 was begun about three years ago when californium-252 sources were loaned to two medical institutions. The initial studies focussed on the dosimetry and radiobiology of this man-made radioisotope, first in normal malignant cell cultures and then on the skin of swine. To date (1971) 17 specially selected patients with far-advanced carcinoma have received radiation therapy by means of the X- and gamma-rays and neutrons from californium-252 implants; by far most of the tissue dose results from the neutron flux. The californium-252 is sealed in platinum-iridium tubes like those used to contain radium-226 for radium implant therapy.

Beneficial applications of technetium-99m and the "cow":

In 1960 the "hot atom group" of Brookhaven National Laboratory suggested that technetium-99m ought to be used for diagnostic purposes. However, the six-hour half-life of this radioisotope, a desirable property from the standpoint of low radiation dose to the patient, tended to restrict it to laboratories close to facilities having neutrons to irradiate molybdenum targets. The Brookhaven group solved this transportation impediment by designing the following isotope generator system: the parent radioactive isotope, which is firmly adsorbed onto a resin, decays into the daughter radioisotope not retained on the resin; an appropriate eluant then removes at will the daughter isotope in high degree of purity ready for conversion into a pharmaceutically acceptable form. In the case of technetium-99m the parent radioisotope is the radioisotope molybdenum-99. This kind of generator was given the name "cow" since the eluant percolates down through a vertical tube packed with the resin and the daughter radioisotope is "milked," from the generator. The basic concept is now used to obtain many short-lived radioisotopes.

Beneficial applications of the Anger camera:

The Anger Camera, named for its developer, Hal Anger, a scientist at the Donner Laboratory in Berkeley, can provide a series of scanning pictures of a total area made a few seconds or minutes apart and so record the kinetics of change of concentration of an injected radioactive isotope in a tissue. In addition, by use of focussing collimators and a refined computer program, a depth dimension can be achieved. In this way a series of tomographic pictures can be taken which give a three-dimensional picture of a tumor as well as indicating the depth of a defect from the surface of the body. Today virtually every major nuclear medicine facility routinely uses this camera in its diagnostic clinics. The scanning instrument, however, retains its position as the mainstay diagnostic tool.

Beneficial applications of biomedical engineering:

At the Oak Ridge National Laboratory the molecular anatomy (MAN) program in biomedical instrumentation, jointly sponsored by the National Institutes of Health and the AEC, has led to the development of a number of centrifuge systems that have revolutionized several areas of biomedical research and development. These zonal centrifuges are highly effective in separating cell particles, various large biologic molecules, and animal and human viruses in the purest forms attained to the present time (1971). For example, a large 1.7 liter continuous-flow centrifuge is being employed by a number of pharmaceutical houses to isolate the influenza virus that now is used to manufacture the pure influenza vaccine which the world has chosen for prophylactic immunization. The ability of the zonal centrifuge rapidly to isolate small amounts of undamaged specific biomolecular species from large volumes of fluid has made this instrument a necessity for pharmaceutical houses and laboratories preparing pure enzymes, nucleic acids, proteins, and hydrolysis products.

VII. Los Alamos Meson Physics Facility and 200 Bev Accelerator

The Los Alamos Meson Physics Facility (LAMPF)

In August 1963, the Los Alamos Scientific Laboratory (LASL) submitted to the AEC a proposal for the construction of a "Los Alamos Meson Physics Facility" (LAMPF), at an estimated cost of \$47,142,000. It was proposed that architect-engineering work be initiated in the first quarter of fiscal 1965. In the project's description it was stated that it would provide for a meson physics facility consisting of a linear accelerator capable of producing a 1 milliamp beam of protons at 800 Mev, a suitable target and experimental area at the output end of the accelerator for conducting an experimental program using mesons, an accelerator tunnel, support areas and utilities. The AEC responded favorably to this proposal.

In its markup of the AEC's 1967 budget, the Bureau of the Budget eliminated \$3 million requested for LAMPF. This was among a number of adverse actions on the AEC budget that I appealed to the President during a visit to his Texas ranch in December 1965. After hearing me and Budget director Charles Schultze debate the issue, the president restored the funds. It was now possible to proceed with the design and construction of LAMPF.

Groundbreaking ceremonies were held at Los Alamos on February 15, 1968, the 25th anniversary of the founding of LASL. I delivered an address at the ceremonies.

The 200 Bev Accelerator

In May 1963, the AEC, acting on a recommendation by a joint panel of the President's Scientific Advisory Committee and its own General Advisory Committee, authorized the Lawrence Radiation Laboratory, Berkeley, to proceed with an advanced engineering study of a proton accelerator in the unprecedented energy range of 200 Bev (billion electron volts).

As this study proceeded, great interest was evinced in the scientific community. The Joint Committee on Atomic Energy also followed it very closely. On January 25, 1965, I forwarded to President Johnson a report that had been requested by JCAE Vice Chairman Holifield. Entitled "Policy for National Action in the Field of High Energy Physics," the report summarized the status of national and international efforts in this field and included among its proposals construction of the 200 Bev accelerator. In transmitting the report to Holifield, the president commended the AEC and its staff "for their efforts in working out a well-considered program.."

Earnest consideration began to be given now to where the accelerator would be located. Bearing in mind its high cost (estimated at \$350 million), it was evident that there could be only one such facility in the United States. It was important, therefore, that it be accessible to all qualified experimentalists. On January 17, 1965, the NAS hosted a meeting of 25 university presidents at which this and related matters were considered. This meeting initiated a train of events that culminated in the formation of the Universities Research Association, which was to be under contract to the AEC to construct and operate the accelerator.

It was soon decided that there should be a national competition to select a site. On March 2, 1965, I wrote to Frederick Seitz, president of the NAS, asking that his organization study the problems associated with selecting a site and listing several general criteria. A month later a site evaluation task group was established within the AEC to conduct a preliminary screening of proposed sites. This effort, covering 126 site proposals involving over 200 potential locations in 46 states, was completed by the end of August. On September 15, the AEC publicly identified 85 site proposal packages that it had transmitted to the NAS for further evaluation. To assist the NAS, the AEC organized eight site visit teams to inspect and gain further specific data on all 85 locations.

Meanwhile, design work had been continuing at LRL. Its continuation was placed in jeopardy when Budget Director Charles Schultze struck our request for \$4 million from the FY 1967 budget. This was one of the matters I took up with the president at his ranch on December 10, 1965. When he ruled in our favor, it represented a turning point in the fortunes of the 200 Bev accelerator. From this point forward, the funding process in the Executive Branch proceeded on a schedule pretty much in tune with the project's requirements.

The report of NAS's Site Evaluation Committee was received on March 21, 1966. It identified six sites as clearly superior to the others. These were at Ann Arbor, Michigan; Brookhaven National Laboratory, New York; Denver, Colorado; Madison, Wisconsin; the Sierra Foothills near Sacramento, California; and South Barrington and Weston, both near Chicago, Illinois.

Following community opposition, South Barrington was soon withdrawn from the competition. On April 11, the AEC announced that a group of AEC officials - headed by me - would inspect each of the six sites. Such visits were indeed made. In addition, the AEC evaluated a number of factors relating to the five proposals. These included construction costs, civil rights and equal opportunity aspects, electric power requirements, air accessibility, proximity to universities, projected growth patterns for these schools, probable university involvement with the facility, and the general effect it might have on the surrounding region.

On December 16, 1966, the AEC announced that it had selected the Weston, Illinois site. Maintaining to the end his stance of leaving this decision entirely to the AEC, despite what must have been some strong political pressures on him to intervene in behalf of one site or another, the president specifically requested that he not be notified in advance of the public announcement.

In April 1967, following the suggestion of Illinois Congressman Frank Annunzio, among others, I announced that the National Accelerator Laboratory would be named in honor of the late Enrico Fermi. On December 1, 1968, a wintry day in Chicago, with approximately 1,000 people in attendance, laboratory director Robert R. Wilson and I broke ground for the project. In my address, I stated: "Symbolically, we could say that the spade that breaks ground on this site today begins our deepest penetration yet into the mysteries of the physical forces that comprise our universe."

In retrospect, it might be said that the success in getting this project launched was due in large part to an early shift of the debate from the question of whether we should build such an accelerator to the question of where we should build it. The cooperation of all concerned in the resulting competition, including the White House, the NAS, many members of Congress, and the AEC, helped to give the process credibility and wide acceptance.

VIII. The National Transplutonium Production Program

The National Transplutonium Production Program may be said to have had its genesis on October 24, 1957, when I wrote to Atomic Energy Commission Chairman Lewis Strauss about the need for a "very high flux reactor" and for a two-fold program to 1) irradiate ^{239}Pu in a high flux production-type reactor to produce ^{244}Cm and 2) irradiate curium in a "very high flux reactor" to produce berkelium, californium, and einsteinium in substantial quantities (milligrams!).

In late 1964 a Transplutonium Program Committee was officially formed as an advisory body to the director of AEC's Division of Research. The same group of scientists had previously served as, first, the "Ad Hoc Committee for Reactor Actinide Production" and, then, as a "Transplutonium Advisory Group" with membership as follows: A. R. Van Dyken (AEC, Chairman), Richard W. Hoff (LRL), Paul R. Fields (ANL), Richard Dodson (BNL), Robert A. Penneman (LASL), T. Raymond Jones (AEC, Vice-Chairman), D. E. Ferguson (ORNL), Albert Ghiorso (LRL), O. Lewin Keller (ORNL), A. Chetham-Strode (ORNL), and Clark H. Ice (SRP). The Committee membership has remained unchanged except that O. Lewin Keller replaced A. Chetham-Strode following the latter's sudden and untimely death on December 23, 1965.

The interest developing in 1963 in the use of ^{244}Cm and ^{242}Cm for isotopic heat sources led to a proposal for production of ^{244}Cm at the Savannah River Plant (SRP) in South Carolina. In May of that year, the AEC approved initiation of a large-scale program to produce ^{244}Cm ; subsequently, it was decided that a pilot production program should precede any large-scale effort. Accordingly, a pilot program to make about 3 kg of ^{244}Cm to demonstrate production techniques and provide material for tests was approved by the AEC on September 6, 1963.

Curium production was carried out as a main-line effort at SRP in two stages. The first, designated Curium-I, involved irradiation of ^{239}Pu -Al alloy material to almost complete burn-up of the ^{239}Pu . The targets were then chemically processed and the actinides recovered, refabricated as Al alloy, and reirradiated at a high flux, about 10^{15} n/cm²/sec, in a second stage designated Curium-II. Curium-I was carried out in 1964 and Curium-II in 1966. The production concept of high flux operation of an SRP reactor for Curium-II was evaluated immediately following Curium-I; chemical processing of the original Curium-I targets took place at SRP in 1965.

Transplutonium Production Program plans originally were that all additional irradiations of ^{242}Pu , ^{243}Am and ^{244}Cm following their recovery from the early SRP irradiations would be carried out in the High Flux Isotope Reactor (HFIR) at Oak Ridge National Laboratory (ORNL). Advantage was taken, however, of the high flux operation of the SRP reactor in 1965 to accelerate transplutonium production for the research program by continuing the irradiation of a portion of the ^{242}Pu produced for HFIR feed at SRP.

The high flux irradiation was carried out in 1965 at fluxes in excess of 2×10^{15} . For these irradiations, ORNL contributed 520 g of ^{242}Pu from the 930 g that had been delivered to ORNL following the two campaigns originally carried out to provide target material for HFIR. The ^{242}Pu was fabricated into three types of slugs.

Finally, eight SRP slugs were fabricated at SRP, each with about 35 g of ^{242}Pu . These were also charged at the beginning of the high flux run in early 1965. The high flux run lasted one year through February 1966, and was followed by another run in 1966.

The HFIR was authorized in FY 1961 for construction at ORNL at an estimated construction cost of \$12 million. The actual cost for construction was \$14,718,000. HFIR went critical August 25, 1965. By the end of 1965 it had operated at 50 MW, and in May 1966, approval was given for 100 MW operation. Cycle 2 (operation on the second core) was initiated June 30, 1966 and completed July 31, 1966, reaching a power level of 75 MW. Cycle 3, initiated August 9, 1966 and completed September 4, 1966, achieved a power level of 90 MW. Full reactor design power, 100 MW, was reached with Cycle 4 which was initiated September 9, 1966, and ran through September 30, 1966. Many full power cycles followed. From the very beginning, reactor cycles were averaging better than 2200 megawatt days (MWD), as compared to the original design estimate of 1500 MWD.

Construction of the facility for chemical processing of the transplutonium products of these neutron irradiations, the Transuranium Processing Plant (TRU), was authorized in FY 1963 and construction started in July 1963, and completed on schedule in May 1965. Its cost of construction, \$8,818,000, was only slightly higher than the original estimate. Equipment for initial operation was installed at the beginning of 1966. TRU's first "hot" processing took place in July 1966. During its first year of operation, ^{244}Cm , ^{243}Am , ^{249}Bk , and ^{252}Cf were isolated.

During the second year of operation of TRU, through May 31, 1968, 17 processed targets processed in 1967 yielded around 5 mg of californium. A major campaign to recover, purify and make available multigram amounts of ^{243}Am and ^{244}Cm from the original SRP raffinate solution was conducted. Products, including 70 g of curium and 25 g of americium, were shipped to about a dozen customers. This was followed by many more such campaigns and shipments.

In early 1968 three special californium targets were fabricated and irradiated in HFIR to produce einsteinium. A secondary purpose for the irradiations was to refine some of the calculated values of the cross sections in the production chain of isotopes from californium. It was discovered that the capture cross section of ^{252}Cf is considerably higher than previously supposed, apparently in the range of 40 to 50 barns instead of 7 to 10. About three milligrams of ^{252}Cf were irradiated in March 1968 and produced approximately 6 micrograms of ^{253}Es . This was followed by a continuing program of irradiations.

As a result of this National Plutonium Production Program, by the end of the decade, about 3 kg of curium (mainly ^{244}Cm , containing also a mixture of the heavier isotopes ^{245}Cm , ^{246}Cm , ^{247}Cm , and ^{248}Cm), about 70 mg of ^{249}Bk (which is a source of an equal amount of daughter ^{249}Cf), about 500 mg of ^{252}Cf , about 1 mg of ^{253}Es , and about a picogram of ^{257}Fm had been produced.

IX. Civilian nuclear power

In March 1962 President Kennedy asked the AEC to take a "new and hard look at the role of nuclear power in our economy." (Actually, my administrative assistant, Howard Brown, and I had planted the notion of such a study in the White House, hoping that this might increase the president's interest in civilian nuclear power and, thus, give it a higher priority.) The president asked that the study identify the objectives, scope and content of a nuclear power development program in light of the nation's prospective energy needs and resources and of advances in alternative means of power generation.

The year 1962 was an appropriate one for a "new and hard look." By this time 25 experimental or prototype nuclear power reactors had been funded by the government, while 12 others had been funded under cooperative programs with industry. From this work had come substantial advances in nuclear technology and considerable operating experience, sufficient to make the goal of economically competitive nuclear power seem attainable, at least in areas of the country with high conventional fuel costs. Not surprisingly, such progress had stimulated increased industry interest in nuclear power and in the private ownership of nuclear fuel. On the other hand, general economic conditions did not seem to warrant the construction of additional experimental facilities without more definitive program guidance. Guidance was needed particularly to help determine what reactor concepts should be emphasized in the coming period. The plants thus far built had been of several different types, each having its virtues and its champions.

Light water-cooled reactors had demonstrated their reliability, having been used extensively, for example, in nuclear submarines and in the Shippingport Atomic Power Station near Pittsburgh. They were not extremely complex either in construction or operation, and could be built and operated with available technology.

The use of nuclear superheating, to obtain higher thermal efficiencies and steam conditions more compatible with conventional turbogenerators, had been explored, for example, with the 50 Mwt Boiling Nuclear Superheat Power Station [BONUS] in Puerto Rico.

Gas-cooled systems were known to permit relatively high thermal efficiency. Potentially the coolant gas could drive a turbine directly, and this concept, known as the HTGR (High Temperature Gas-Cooled Reactor), showed promise of being able to use thorium fuel, which was in abundant supply.

Through operation of experimental reactors, it was known that liquid metal-cooled reactors could achieve high temperatures and thermal efficiency, permitting low net power costs. In addition, the liquid metal-cooled reactors could be breeder reactors. Their further development could therefore be considered essential to achieve the full benefit of nuclear power.

Heavy water-cooled and moderated reactors had been examined, but had limited support in the U.S., because of the availability of enriched uranium fuel material. (Heavy water reactors could use natural uranium fuel and required larger facilities because they could not produce as much energy per cubic foot of reactor as those using enriched fuel.)

In November 1962, the AEC issued the requested report to the president. It was of major significance to the civilian reactor development program. It set forth program objectives and proposed planning for a national energy production effort—for the president, the Congress, the utilities, the nuclear industry and the general public—all those whose support would be needed to carry out the program.

A major contribution of the report was to establish the national and international need for nuclear electric power and to set forth why there should be a civilian nuclear power program in the U.S. to help meet this need. It did so by first analyzing the availability of alternative fuels for energy production. It then indicated that nuclear energy was technically feasible and economically reasonable for electric power and process heat applications, and that it could extend indefinitely the fuel reserves of the United States through the use of breeder reactors which could utilize available uranium and thorium resources. Other advantages of nuclear power cited were that it would: 1) eliminate geographic variations in power costs, 2) place the U.S. in a position of international leadership, 3) improve the defense posture of the U.S., and 4) reduce air pollution.

At the time of preparation of the 1962 report to the president, it was believed desirable for the most efficient use of nuclear fuel reserves to develop converter reactors that were more advanced than already existing or planned light water reactors. These were expected to be in operation during a transition period prior to construction of the so-called high gain breeders, such as the Liquid Metal-cooled Fast Breeder Reactor (LMFBR).

The advanced converters thought most likely to succeed in bridging the gap were the thorium-fueled high temperature gas-cooled reactor (HTGR), the heavy water moderated organic-cooled reactor (HWOCR), the sodium graphite reactor (Hallam Nuclear Power Facility), and a spectral shift control reactor. In addition, the AEC planned to build an advanced Shippingport-type reactor (seed-blanket) which would be able to demonstrate low gain breeding in a light water reactor. Like the HTGR, this light water breeder reactor (LWBR) and was expected to utilize thorium-uranium-233 fuel.

One of the important trends in atomic energy development in the 1960's was the emergence of economic nuclear power. On March 26, 1964, the Jersey Central Light & Power Co. applied to the AEC for a permit to construct a 515 Mwe nuclear power station at Oyster Creek, near Tom's River, New Jersey. The company had chosen a boiling water reactor, a type for which there was a considerable accumulation of operating experience. While the capacity of the plant was large, other plants then being planned were not much smaller. The plant was to be wholly investor-financed. The most significant aspect of the company's application was its statement that nuclear power has been chosen over alternative (fossil-fueled) generating systems on the basis of economics alone. The plant vendor, General Electric Co., took the bold step of submitting a firm bid for the turn-key construction of this unit.

The Oyster Creek decision was but one dramatic event in a trend which the Commission had signalled in its 1962 report to President Kennedy. The report had predicted that nuclear power was on the verge of being competitive in high-cost power areas in the U.S. and that it had prospects for later expansion on a more widespread geographic basis. The 1962 report forecast a nuclear generating capacity in the U.S. of 5,000 Mwe by 1970, and 40,000 Mwe by 1980. In 1964, following the Oyster Creek announcement, the AEC increased these estimates, predicting that U.S. nuclear generative capacity would be 6,000 to 7,000 Mwe by 1970 and between 60,000 and 90,000 Mwe by 1980. Several years later, when utilities had begun to order reactors with spectacular rapidity, the AEC raised its projections to between 130,000 and 170,000 Mwe by 1980.

Although the Oyster Creek decision did not initiate an immediate large-scale shift to nuclear power. It undoubtedly had some relationship to an increase in contracts awarded for nuclear power plants which began to appear in the latter half of 1965. Westinghouse and other nuclear reactor vendors also became very active. In the three-year period 1966-68, U.S. utilities ordered, without direct government assistance, 67 reactors, the units ranging in size from about 450 Mwe to more than 1,100 Mwe. By the end of 1970, three of these reactors were operable and more than 50 were being built. All but one of these orders were for light water reactors (the exception being an HTGR).

There were several reasons for the rapid growth of nuclear power and the initiative taken by industry. Those utilities which had had experience with nuclear power plants were expressing their confidence by planning for more and larger units. Increasing demands for electric power were causing a new emphasis on expanding generating capacity. Further, the trend in the industry was toward larger plant size, a factor that favored nuclear power plants, which were relatively more economic as plant size increased. Possibly, the growing concern over air pollution was another factor. The most significant factor was undoubtedly economics. Projections indicated that nuclear power, previously thought likely to be competitive only in high fuel costs areas of the country might also be so in areas where fossil fuels were abundant. For example, in 1966, the TVA announced plans to install three large nuclear reactors in the coal-mining area of northern Alabama. Also, in 1970, Louisiana Power and Light Co. ordered a large nuclear plant to be built west of New Orleans, an area of gas production.

By January 1, 1967, there were 13 operative central station nuclear power plants in the U.S. and 36 others under construction or ordered. Development of the various reactor concepts had proceeded more-or-less as planned and proposed; emphasis had begun to be placed on the development of high gain breeder reactors, as recommended in the 1962 report, especially the liquid metal fast breeder reactor.

Later in the year, the AEC prepared a supplement to its 1962 report. Such an updating had been recommended by the Joint Committee on Atomic Energy and by officials in the Executive Branch to take account of developments since 1962, such as the sharply increased rate of addition of nuclear generating capacity, some wide disagreements in estimates of future growth, technical developments in certain advanced reactor fields, and some new estimates of uranium resources.

An important finding of the 1967 supplement was future reactor development would center on the LMFBR. Pursuant to this finding the AEC organized an LMFBR program office at Argonne National Laboratory. Following months of discussions, reviews, and assessments by this office, the AEC, the AEC's national laboratories, the nuclear industry, and the electric utilities, an agreed program emerged.

Important components of this program included the privately-owned SEFOR (Southwest Experimental Fast Oxide Breeder Reactor) at Fayetteville, Arkansas, a 20 Mwt (megawatt thermal) sodium-cooled fast reactor used primarily for safety experiments; the plutonium-fueled Zero Power Plutonium Reactor (ZPPR) at the National Reactor Testing Station (NRTS) in Idaho and its related ZPR reactors at ANL; the Experimental Breeder Reactor No. 2 (EBR-2) at NRTS; and the Fast Flux Test Facility (FTFF) under construction at the AEC's Hanford Works in Washington.

The climax of LMFBR development will be reached when a demonstration plant is constructed and operated on a utility system. In 1969, the AEC, in cooperation with industry, initiated the first of a two-phase approach leading to the construction of the such a plant. This project definition phase (PDP) involved: proposed plant and site definition; project cost estimates; assessment of technical and economic risks; scoping and planning for research and development; quality assurance programs and codes and standards efforts; engineering, procurement, construction training, and operational effects; identification of utility and reactor manufacturer resources; and identification of relationships among architect-engineer, reactor manufacturer, utility and AEC. The three AEC contractors carrying out this first phase were Atomics International, General Electric and Westinghouse.

The second phase, the Definitive Cooperative Arrangement, will arrange for the design, supporting development, tests, construction, and operation of an LFMFR demonstration plant. It will be a cooperative undertaking with participation by the AEC, the electric utility industry, reactor manufacturers, equipment suppliers and others.

During 1971, each of the three PDP contractors indicated its interest in proceeding toward a cooperative arrangement for the construction and operation of a demonstration plant. More than 100 utilities, representing about half of the Nation's electric generating capacity, have expressed their preparedness to participate financially or in other ways. During the year, two utility advisory boards were formed to assist the AEC determining the extent to which the electric utilities might participate and in establishing suitable arrangements. These two boards were the Senior Utility Steering Committee and the Senior Utility Technical Advisory Panel.

A canvass of the Nation's utility industry by the advisory committee members, with the assistance of the Edison Electric Institute, the American Public Power Association, and the National Rural Electric Cooperative Association, indicated that utility support for the first demonstration plant of about \$240 million could be expected. The AEC is now concentrating on the identification of utilities willing to undertake the responsibilities and financial obligations of plant ownership, including the provision of suitable alternate sites. At year end, discussions were continuing with several utility groups which had indicated an interest.

On June 4, 1971, at a climatic meeting of President Nixon's cabinet, including some key members of Congress, I made a presentation proposing a vigorous program for the development of the LMFBR. Following the meeting, the president supported the idea, stating:

"...Our best hope for meeting the Nation's growing demand for economical clean energy lies with the fast breeder reactor. Because of its highly efficient use of nuclear fuel, the breeder reactor could extend the life of our national uranium fuel supply from decades to centuries, with far less impact on the environment than the powerplants which are operating today..."

The president also said that it was important to the Nation that the commercial demonstration of a breeder reactor be completed by 1980.

Initial operation of a demonstration plant is being planned for the late 1970's.

During the 1960's the Power Reactor Development Co. (PRDC) built and operated a fast neutron power plant, the Enrico Fermi Atomic Power Plant (60 Mwt) at Lagoona Beach, near Detroit, Michigan. Detroit Edison Chairman Walker Cisler offered the Fermi reactor to the AEC as a source of fast neutrons for irradiation experiments potentially useful to the fast reactor development program. Due to a long history of antagonism toward Cisler (due to his alleged earlier opposition to governmental development of civilian nuclear power), influential New Mexico Senator Clinton Anderson, a JCAE member, and AEC Commissioner James Ramey opposed the acceptance of this offer. The program was interrupted by a partial fuel meltdown at the plant occurred on October 5, 1966.

AEC's civilian nuclear power efforts have extended into several realms in addition to its main preoccupation with achieving economically competitive production of electricity from nuclear plants. One of these was a program to analyze, develop and demonstrate nuclear reactor systems for desalting sea and other brackish water. The AEC's activities in this field have been closely coordinated with the Office of Saline Water (OSW), Department of the Interior. The Oak Ridge National Laboratory has provided technical support for both OSW and the AEC. Joint studies were completed for many areas both in the U.S. and abroad, and extensive interest has been expressed in this potential use of nuclear power, especially in a large industrial and agro-industrial complex, termed the "Nuplex" by ORNL. However, a large nuclear desalting project, the Bolsa Island Nuclear Power and Desalting Plant, proposed for Southern California, did not materialized.

The AEC has conducted a widespread nuclear reactor safety program. Some of the efforts have had generic application to the siting and safety of all research, test, and power reactors; others have dealt with problems of particular reactor concepts. The results are essential to the design, siting, operation, and licensing of nuclear plants. During the early 1960's, most of the safety work related to water-cooled reactors. Later, some of the the emphasis turned toward the safety of breeder reactors and the effects of operations on the environment.

The disposal of high level radioactive waste remains a problem. In 1970 the AEC announced a significant new policy designed to insure that high-level radioactive waste products are disposed of in a manner that will not damage the environment. Years of research have proven the feasibility of converting liquid radioactive wastes to solid form. This greatly reduces their volume; 100 gallons can be reduced to one cubic foot. However, over the long term, safe storage of the alpha-emitting actinide elements presents a very difficult problem. One possible solution, storage in salt formations, has achieved recent prominence. Between 1965 and 1967 there was a successful demonstration project in a salt mine near Lyons, Kansas. Encouraged by this experience, the AEC, in 1970, tentatively selected a salt formation near Lyons as the site for its first long-term storage of solid high-level and long-lived low-level wastes. This project unfortunately did not materialize. It was opposed vigorously by residents of Kansas. And then, in 1971, measurements showed that there were possible routes for the entry of water into the site.

The decade in civilian power reactor development closed with an outstanding record of accomplishments. There were some disappointments--some of the pioneering demonstration plants had to be closed out earlier than anticipated--but even in these instances knowledge was gained which helped push nuclear progress onward.

At the end of 1971, 130 central station nuclear power plants, representing an aggregate capacity of more than 108,600 net megawatts of electricity (Mwe) were built, under construction or planned in the United States, , as follows: there were 25 operable units (including two licensed for fuel loading and subcritical testing), representing a total capacity of 11,400 Mwe; 52 units (44,500 Mwe) were under construction or being reviewed for operating licenses; 39 units were under AEC review for construction permits, representing 38,400 Mwe of initial capacity; and there were 14 units for which utilities had contracted but not yet filed construction permit applications, representing 14,000 Mwe.

The AEC was involved, in cooperation with the Department of Army, in the development of compact reactor systems suitable for use in remote areas or for unique military purposes. Such reactors actually operated for a time at such places as McMurdo Sound, Fort Greely (Alaska), and Camp Century, Greenland. Later, attempts were made to develop a prototype mobile Military Compact Reactor (MCR) to furnish 3,000 kilowatts of electric power to troops in the field. Technical and funding problems led to the discontinuance of such projects.

In Project Pluto, a joint AEC-Air Force undertaking, a nuclear ramjet engine was to be developed at the Livermore Laboratory for use in strategic missiles, giving them a unique capability for supersonic flight over long distances at low altitudes. Air-cooled high temperature reactors, designated the Tory series, were tested in the early 1960's at the Nevada Test Site. Again, technical and funding difficulties led to the demise of the program.

X. Raw Materials Program

The original objective of the AEC's raw materials program, and a major AEC concern in the 1950s, was to secure the large amounts of uranium urgently needed for the production of nuclear weapons. The major accomplishments in the 1950s were the acquisition of sufficient uranium to meet the requirements of both defense and non-defense programs and the development of a domestic source of supply.

By contrast, the principal task facing the AEC and the uranium industry in the 1960s was adjusting to the developing oversupply of uranium, which reflected the success of the exploration program and the cutbacks in military requirements. A transition was necessary from a crash AEC procurement program, geared to meeting urgent military needs, to a program whose goal was the establishment of a viable domestic uranium industry capable of supplying, on a commercial basis, the energy resources for the developing civilian nuclear power economy. The transition was complicated by a hiatus of some years between the time when the major portion of the military requirements had been met and the development of the civilian market.

In early 1962, it appeared evident that a large-scale non-defense market for uranium probably would not develop for a number of years after 1966, the established termination date of AEC's procurement program. An AEC surplus was also forecast if the procurement program were to be continued through 1966 at the previously projected rate. Thus, it was desirable to find a means of reducing deliveries to AEC which would at the same time also provide for a continuing uranium industry capable of meeting future civilian and military needs.

To meet these needs, the AEC announced on November 7, 1962, a program under which its uranium procurement would be extended at a reduced level through December 31, 1970. A producer participating in this "stretch-out" program would hold back delivery until 1967 and 1968 of a part of the material under contract for delivery to the AEC before 1967, and AEC in return would buy in 1969 and 1970 an additional quantity equal to the amount deferred and delivered. The deferred material would be bought during the 1967-1968 period at the then-existing contract price of \$8 per pound of U_3O_8 . The equal additional quantity would be bought during 1969 and 1970 at fixed prices under each contract, the prices to be determined by application of a formula to allowable costs of production for the 1963-1968 period subject to a ceiling price of \$6.70 per pound of U_3O_8 . Uranium producers were invited to submit proposals covering the quantity of U_3O_8 in concentrate under their existing contracts with the AEC which they would be willing to defer.

Contracts were renegotiated with 11 companies to defer delivery under this formula of more than 15,000 tons of U_3O_8 , reducing AEC's procurement costs in the 1963-1966 period by \$246 million.

Although a reasonable balance between uranium purchases and requirements had been projected in 1962, even with the added purchases in 1969 and 1970 under the stretch-out program, decisions in 1964 and 1965 to reduce production of nuclear weapons materials resulted in a substantial surplus of uranium. The stretch-out program originally provided a market for about 8,000 tons of U_3O_8 per year during the 1967-1970 period. This was expected to achieve the other stretch-out objective of a continuing industry production base which could be expanded as necessary to supply the long-range commercial market.

The AEC uranium surplus and the earlier-than-anticipated development of the commercial market permitted AEC to reduce its purchases in 1969 and 1970 by negotiation of reductions in, or termination of, deliveries under some of its contracts without endangering the viability of the uranium producing industry. In fact, total industry sales (AEC plus commercial) substantially exceeded the originally anticipated stretch-out level of 8,000 tons of U_3O_8 per year, rising to 9,500 tons in 1967 and to more than 14,000 tons in 1970. Most of the companies who did not stretch out their contracts were also able to make commercial sales to utilities and reactor manufacturers. The renegotiation and termination of contracts reduced AEC's expenditures by \$56 million and reduced its excess uranium accumulation by 4,900 tons.

As a result of these additional reductions in procurement commitments and some shortfalls in deliveries, the four-year stretch-out in production was achieved through the purchase of only an additional 9,135 tons of U_3O_8 at a cost of \$107 million.

A natural outgrowth of private ownership of nuclear fuel (authorized by Congress in the Private Ownership Act of 1964) was the concept of toll enrichment. This involves the delivery of privately-owned uranium to the AEC in government-owned plants and the subsequent return to the customer of a lesser amount of uranium containing a greater concentration of U-235 upon payment of an enrichment services charge.

The private ownership legislation also gave the AEC the authority to enter into long-term contracts for toll enrichment. This provided the basis for a commercial market for natural uranium and permitted the phasing out of government procurement for non-government needs. It ended the government monopoly over uranium and permitted the emergence of a strong and competitive domestic uranium industry capable of satisfying peaceful nuclear energy requirements for years to come.

As a result, the only industrial activity for which operators of nuclear power reactors are now dependent on the AEC is the enrichment of uranium in the fissionable isotope U-235. This is accomplished in large government-owned gaseous diffusion plants using highly classified technology developed under the AEC's military program. Such enrichment may ultimately be provided by U.S. industry as well.

Abroad, the incentive to use toll enrichment was even stronger than in the U.S. because it had been AEC policy to make enriched uranium available for foreign power projects through sale, rather than lease, to foreign governments. Hence, the prospect of toll enrichment afforded foreign nations greater independence in supply of this vital material and more flexibility in managing balance of trade payments or in using natural uranium stocks already available to them. In addition, they have the same economic incentive as domestic users of the enrichment service; that is, the opportunity to seek uranium in commercial markets at lower prices. The assurance of long-term enrichment services favorably influenced the foreign power industry toward selection of enriched uranium reactors and the use of U.S. capabilities for the long-term supply of fuel for these reactors.

Although the Private Ownership Act deferred the actual availability of toll enrichment services until January 1, 1969, its enactment authorized AEC to enter into contracts for such services earlier. By this means, AEC gave assurance to its customers of the long-term availability of enriching services. Meanwhile, the deferral of actual enriching did, of course, allow for some liquidation of AEC natural uranium stocks.

XI. Gas Centrifuge Program

A constant proliferation danger was that some breakthrough in technology might occur that would bring nuclear weapons more easily within the reach of additional nations. One such possibility was the gas centrifugation process for producing enriched uranium. In this process, the heavier ^{238}U atoms in uranium hexafluoride gas are spun out by centrifugal force and thus separated from the lighter ^{235}U atoms, much as milk is separated from cream. The centrifuge was briefly considered as the enrichment method of choice in the early days of the wartime atomic bomb project, but was rejected in favor of the gaseous diffusion method largely because the latter had fewer development problems remaining to be solved at a time when haste was of the essence. It was always recognized, however, that the centrifuge had significant potential economic advantages, particularly for European countries. As compared to gaseous diffusion it would require only a small fraction of the electricity per unit of output. (Electricity was relatively more costly in Europe than in the United States.) In addition, centrifuge plants could operate efficiently on a much smaller scale than diffusion plants, which are intrinsically huge.

In 1953, the AEC began to study centrifuge technology as a possible economic encouragement to the development of civilian nuclear power. Development work was undertaken also in Britain, West Germany, and the Netherlands. The interest of these countries was in producing enriched uranium for power reactors in a way that would be economically attractive and that would lessen dependence on ^{235}U supply by the United States. In 1959, the AEC concluded that centrifuge technology had advanced to such an extent that units already developed could be used in ^{235}U enrichment plants and that the power and space requirements for such plants were so modest as to be amenable to clandestine operation. The AEC at once came under competing pressures. On the one hand, U.S. industry wanted the technology made freely available in order to lessen the fuel costs of future civilian power endeavors. On the other hand, there were those who wanted the centrifuge placed under wraps as an antiproliferation measure. It was economics versus security—a classic dilemma of the nuclear age.

The AEC tilted toward the latter view and embarked on steps to limit spread of the technology. In July 1960, it prevailed on the U.K., West German, and Netherlands governments to impose security classifications on their gas centrifuge programs. At the same time, tight security restrictions were imposed on the industrial firms participating in the AEC's own program, and gas centrifuges and their component parts were placed on the Commerce Department's Positive List to prevent export.

By 1964 there were indications, both at home and abroad, of desires to break free from these restrictions. At a meeting of U.S., British, Dutch, and West German representatives early in the year, the latter two argued for a relaxation of the restrictions, ostensibly because the centrifuge process was useful in a variety of peaceful applications in addition to the separation of ^{235}U . It was only with difficulty that we persuaded them to continue their classification arrangements. U.S. firms working in the field were similarly restive. Thus, when I met with representative of the General Electric Company and the Allied Chemical Company, who were conducting a joint centrifuge venture, they told me of their frustration in having to explain to their boards of directors that, under existing restrictions, there was no indication they could establish a commercial operation even if their development work was successful. Compounding the AEC's difficulty in determining a policy was the realization that, despite our best efforts to restrict it, the gas centrifuge technology might eventually be acquired by other nations.

In April 1964 I wrote to ACDA Director Foster and Secretary of Defense McNamara, among others, seeking guidance "to assure that the [centrifuge] policy we adopt at this time will best serve our national security interests." Specifically, I asked for their views on "the importance to the United States of maximum delay in the acquisition by an Nth power of a capability to produce fissionable materials for atomic weapons use, even in very limited quantities."

Foster's views were strong and unequivocal. He wrote, "I believe that we should continue to resist all pressures to release controls on the dissemination of gas centrifuge technology."

McNamara replied in similar vein. He recognized that we could only retard, not prevent, the technology's growth and diffusion. "Even so," he wrote, "the goal of retardation is a worthwhile one." He recommended that we continue our restrictive policies and endeavor to persuade others with significant centrifuge programs to do the same. He also recommended that, in order to dampen the incentive of countries to develop their own centrifuge technology, "the U.S. should leave no doubt that enriched uranium will be available from this country on attractive terms. . . ."

On October 11, 1964, I also discussed our dilemma with Chairman Holifield of the Joint Committee on Atomic Energy. At first Holifield said he favored AEC continuing to develop the gas centrifuge technology, but doubted that U.S. industry should be allowed to continue this development work. I told him there was some argument in favor of allowing industry to continue under strong security controls, since this would place it in a strong competitive position in the event foreign countries should develop the process. This could actually aid the non-proliferation concept rather than hinder it; it would discourage other countries because their process would not be economically competitive. After I made these points, Holifield seemed to agree that his was a question that deserved further discussion at an executive session of the JCAE.

Such a session was indeed held, but not until March 9, 1967. Four of the five AEC commissioners were present, signifying the importance we attached to the issue. By this time the proliferation scare had worsened considerably, largely due to the Chinese tests and the reaction to them. As a consequence, the AEC had, albeit reluctantly, come round to the point of view expressed by Holifield more than two years earlier: We believed that private work on the gas centrifuge should be cut off, but that the AEC should continue a strong program. All the JCAE members agreed readily, with the exception of Representative Craig Hosmer. He at first argued vigorously against excluding industry, but in the end he also went along.

Another opinion being expressed on this issue was that of the Soviet Union. The Soviets charged that further work on the centrifuge in Western Europe could lead to West German development of nuclear weapons.

The next task was to break the news to industry. On March 14, 1967, the AEC commissioners (again all but one--Commissioner Samuel M. Nabrit was out of town) met with officers of two of the companies involved, W.R. Grace and Company and Electro Nucleonics, Inc., to tell them that we had decided to terminate centrifuge work in private corporations. Electro Nucleonics took it particularly hard. Their representatives tried to persuade us, as a minimum, to support their work. Later in the day I received a letter from them pointing out that our action would result in about a \$10 million loss of stock equity on the open market and hinting that they would hold the AEC responsible. (Subsequently, the AEC helped Electro Nucleonics move from weapons-related work into the biological field, where their experience with and knowledge about the centrifuge found useful applications.)

The results of the AEC's program for the past ten years are classified. However, on the basis of work done so far, there is still not sufficient experience to determine whether the gas centrifuge process can compete in countries like the United States with the proven gaseous diffusion process for the separation of uranium isotopes. There is, however, the possibility that the gas centrifuge process may offer economic competition in the future. The laboratory results obtained since 1960 must be confirmed and the cost, reliability, and life of many components determined before meaningful evaluations can be made.

XII. Cutback in production of fissionable materials

In his State of the Union Message on January 8, 1964, President Johnson, speaking in reference to a "world without war" and "the control and the eventual abolition of arms," said:

"And it is in this spirit that in this fiscal year we are cutting back our production of enriched uranium by 25 percent. We are shutting down four plutonium piles."

At the time of the president's announcement, the AEC had 13 production reactors in operation and another, the New Production Reactor or "N" reactor (which also would produce electricity) at Richland, Washington, then in final stages of construction. There were eight reactors (not counting "N") at Richland and five reactors at the Savannah River site in South Carolina. The Richland site had expanded from the assigned wartime three reactors to nine. The Savannah River site was a new production complex constructed in the early 1950's. The gaseous diffusion facilities at Oak Ridge, Tennessee, were expanded and the new Paducah, Kentucky, and Portsmouth, Ohio, facilities were added at that time for the production of enriched uranium. Additional advances in reactor and gaseous diffusion technology and production processing and control pushed the capability of the AEC production sites far beyond their original design limits.

By March 1, 1961, long-range requirement studies still seemed to indicate the gaseous diffusion plants at a power level of 4,850 Mwe (reduced from a maximum level) and all of the production reactors were needed for maximum production. It was not until two years later that President Kennedy, in a letter to me of February 2, 1963, asked that the Commission, in conjunction with the Department of Defense, "initiate appropriate action as soon as practicable to adjust production of enriched uranium...in accordance with revised objectives." The primary revisions to the previous production requirements that resulted in the president's letter were the result of the widely publicized decisions of the president to cancel both the Sky Bolt missile and 8-inch artillery shell programs.

By May 1963, the AEC had completed its studies based on the revised objectives. On May 17th, I wrote the president indicating the results of the studies and outlining the AEC's plans for production adjustments by reducing power requirements for the uranium enrichment plants and shutting down some plutonium production capacity.

The AEC production complex in total was further examined to achieve the reductions in the most economical manner. These refinements were necessary in order to continue to take advantage of advances in weapons and production technology and to be able to cancel, with the lowest possible penalty, long-range electric power contracts with various suppliers.

As a follow-up to President Johnson's reduction announcement, the AEC issued a public statement detailing the cutbacks in relation to the total AEC program effort at the affected sites. The cumulative effect spread throughout the feed chain. On January 11, 1964, a second AEC public announcement considered the effects of the production site cutbacks on the uranium feed processing plants which provided the fuel for the facilities being shut down.

The uranium concentrate plants at Weldon Spring, Missouri, and Fernald, Ohio, would continue operation but at reduced levels. The feed material plant at Paducah, Kentucky, which supplied products to the gaseous diffusion plants, would be shut down and placed in standby by June 30, 1964, and the Metropolis, Illinois, plant of Allied Chemical Corporation would not be kept under contract to the AEC beyond the existing expiration date of June 30, 1964.

Of the four reactors to be shut down, three were at Richland and one was at Savannah River. The reductions in power were to be made at all uranium enriching sites, Oak Ridge, Paducah, and Portsmouth.

Five reactors at Richland would remain in operation and the new "N" reactor startup, scheduled for later in the year, would not be affected. At Savannah River, the AEC would continue to operate four reactors. It was also explained at that time that the loss of reprocessing load, through the Hanford reactor shutdowns, would eventually lead to the shutdown of one of the two Hanford fuel reprocessing plants then in operation. Later, at the end of 1966, the Redox chemical processing plant was shut down.

Reactors shut down in keeping with the president's announcement were: the Savannah River "R" reactor, on June 19, 1964; the Richland "DR" reactor, on December 30, 1964; the Richland "H" reactor, on April 21, 1965, and the Richland "F" reactor, on June 25, 1965.

The 25 percent megawatt electrical reduction in power at the gaseous diffusion plants, covered by the presidential announcement became effective July 1, 1964, through reduction of 360 Mwe. at Oak Ridge, 375 Mwe. at Paducah, and 600 Mwe. at Portsmouth. In conjunction with the reduction of power at the Oak Ridge gaseous diffusion plant, one of the process buildings (K-25) was shut down on June 30, 1964. This was the original U-shaped structure built during World War II. Operations in the other process buildings at the other sites were continued but at a reduced level.

In the interim, on April 20, 1964, in accordance with a further decision of the president, I announced additional power reductions totalling 945 megawatts (445 at Oak Ridge, and 500 at Portsmouth) beginning in 1966, with completion in 1968, which would reduce the power and hence production by 40 percent from the previous operating level. In February 1965, under direction of the president and as a result of continuing studies, the AEC announced further cutbacks in enriched uranium production which would, by December 31, 1968, reduce the power level to 2000 Mwe.

This long-range shutdown situation was a time of deep personal concern to all in the AEC, particularly as it affected the employees and communities involved. Hardest hit would be the cities of Oak Ridge and Richland which had been established in World War II by the Manhattan Engineer District. These communities were, by design, in isolated areas and had virtually no support beyond that provided by AEC activity. Additionally, homes and commercial facilities in the communities had recently been sold to individuals. Also, local school and hospital services were turned over to the municipality. Concern for the personal problems the shutdowns caused was magnified by the possibility that the recruiting and maintenance of an adequate staff at the AEC facilities might be severely affected if the living areas were not adequate for plant employees.

Most severely hit was Richland where about 2,000 positions or approximately 24 percent of the then existing employment level of 8,300 would be affected. As severe as this would be there were mitigating factors. The first reactor shutdown was a year away and the other two shutdowns were scheduled for subsequent shutdown at three-month intervals; the full impact would not be felt until fiscal 1967 when certain auxiliary facilities (principally the plutonium separations plant) would be shut down as an after effect of the reactor shutdowns. Additionally, in fiscal 1964 the newest AEC production reactor ("N") would be placed in service and ease the employment situation.

At Savannah River the scheduled reactor shutdown would take effect within six months and reduce the plant employment level by about 500 positions or eight percent of the then existing employment level of 6,500 employees.

Employment in Oak Ridge, Paducah, and Portsmouth would be reduced by some 400 (later increased to 450) employees of a total of 5,100 positions, 180 of 2,600 at Oak Ridge; 150 of 1,367 at Portsmouth and 120 of 1,133 at Paducah.

At the feed material sites Fernald would lose 300 of 2,100 employed and Weldon Spring, 50 of 600. The close-down of the Allied Chemical Corporation plant at Metropolis, Illinois, would, of course, drop its entire staff of 150 employees. The grand total affected by these first announcements, but not necessarily reflected in people to be released—primarily because of the time lags involved and the new "N" facility startup—was 3,450. While the total number was not overwhelming it was staggering to the isolated communities and to the individuals who specialized in nuclear activities. Additionally, those persons close to the situation knew this was just the beginning. More plants would have to be retired from service. Only timing and the specific facilities to be affected were unknown.

That the effects of these shutdowns were foreseen well in advance did not lessen the immediate concern as the shutdowns became an accomplished fact. As early as 1962, when it became apparent from long-range studies that future shutdowns were inevitable, the AEC adopted a policy to cooperate with local communities where AEC operations constituted the major economic force in their efforts to encourage diversification of the economic base of these communities. Many studies were undertaken, and other Federal agencies as well as commercial concerns were made aware of the capabilities of the sites for various activities.

Strengthening this effort became a major concern as the shutdown periods approached. Effective May 6, 1964, the AEC established an Office of Economic Impact and Conversion to coordinate analysis and review of management activities designed to cope with the broad economic impact resulting from program cutbacks.

The initial shutdowns announced by President Johnson were only a prologue to what followed; yet the communities of Oak Ridge and Richland have continued to expand in total population and the quality of the municipal services they are able to offer has remained at a high level. At no time has the AEC's ability to recruit or retain personnel been threatened by the inability of these communities to provide the level of services considered adequate by the highly skilled and trained professional AEC work force. By making the shutdown announcements well in advance, and by carefully controlling hiring rates, the majority of employees were able to find new employment elsewhere, take an early retirement, or be reassigned to another AEC facility as normal attrition reduced the work force.

There was another aspect to the production cutback announcement which had far-reaching consequences. This was in the area of the Cold War and increasing world tensions. As President Johnson indicated in his announcement, the reductions in production capability were made in the interest of world peace. It came as no surprise, therefore, that on April 20, 1964, the Soviet Union announced:

"The moment has come now when it is possible to take steps to reduce the production of fissionable materials for military purposes...and that the Soviet government has decided:

1. To discontinue now the construction of two new, enormous atomic reactors for the production of plutonium;
2. To reduce substantially in the next several years the production of uranium-235 for nuclear weapons; and
3. To allocate more fissionable materials for peaceful uses ...".

While U.S. action to cut back nuclear production was not contingent upon any agreement with the Soviets, part of the intent was to show good faith that vertical nuclear proliferation would not go unchecked, and that perhaps this evidence of good faith would meet with an affirmative response from other nuclear weapons powers.

In contrast to the well-publicized original shutdown announcement, future curtailments in plant operation received little national notice. These shutdowns were conducted in an orderly, spaced manner consistent with maintaining capability to meet long-range military and sharply increasing civilian requirements.

The Commission shut down the uranium concentrate plant at Weldon Spring in October 1966 and eventually returned this facility to the U.S. Army in December 1967.

Other reactor shutdowns followed the first four: the Richland "D" reactor, in June 1967; Richland's "B" reactor, and the Savannah River "L" reactor, in February 1968; the Richland "C" reactor, in April 1969; the Richland "KW" reactor, in February 1970; and the Richland "KE" reactor, in January 1971. This left only the "N" reactor at Richland and three reactors at Savannah River operating.

While some of these reactors are retained in standby condition for production startup in 18 months, it becomes more doubtful with the passing of time that they will be reactivated or that some of them could be satisfactorily operated.

Power reductions at the uranium enrichment plants reduced the total electricity supplied to a 1,900 Mwe. level in July 1969.

In contrast to the continued shutdown of the reactors and their auxiliary facilities, portions of the shutdown diffusion plant began to be restored in March 1970 in connection with preproduction of uranium hexafluoride for use as fuel in civilian nuclear power reactors.

XIII. Regulation

On March 16, 1961, as one of my first acts as Chairman, I announced the Commission's action to separate its regulatory function from the operational and developmental functions administered by the General Manager. A new position of Director of Regulation, reporting directly to the Commission, was established, vested with the authority to discharge licensing and related regulatory functions other than those where the final decision rested with the hearing examiner or the Commission, or which involved the Commission's authority to approve the issuance of regulations. Subsequently, all AEC staff regulatory activities including those associated with licensing and regulation, compliance and enforcement, and the development of radiation protection standards and regulations were consolidated under the Director of Regulation. The Commission named Harold L. Price, former Director of the Division of Licensing and Regulation, to the new position.

On February 8, 1962, the Governor of Kentucky executed with the Commission in Washington the first agreement whereby a state would assume some regulatory authority in the interest of public health and safety, all of which had been exercised exclusively by the Federal Government. In an address the next day before a joint session of the Kentucky Legislature in Frankfort, I stated:

"There are those who hold, and not without some historical support, that the shifting of power and responsibility from the States to the Federal Government is a never-ending, irreversible process. Here is one significant instance of a noteworthy exception, but I think it would be a mistake to regard this event as a triumph of States' rights. This milestone in Federal-State relations is a triumph of good government in accordance with Jeffersonian principles."

It was in keeping, I noted, with a unique mission of the Atomic Energy Commission--"by an orderly process to fit atomic energy into the traditional, democratic structure of our society."

The transfer of 104 AEC materials licenses to State jurisdiction when the Kentucky agreement became effective on March 26, 1962, signalled the start of an upswing in State radiation control activities that was sustained throughout the decade. Mississippi, California and New York joined Kentucky as Agreement States during 1962, and thereafter two or three agreements were signed each year by Governors with the Commission.

An agreement with Maryland on December 18, 1970, brought to 23 the number of States (Alabama, Arizona, Arkansas, California, Colorado, Florida, Georgia, Idaho, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Nebraska, New Hampshire, New York, North Carolina, North Dakota, Oregon, South Carolina, Tennessee, Texas and Washington) entering into agreements with the AEC for regulating the peaceful uses of the atom. At this date, all but six of the remaining States had enacted enabling legislation and several of these were actively moving toward such agreements. Nearly half of the more than 16,000 atomic materials licenses in the total Federal-State program were being administered by the States.

When the developing regulatory program was separated from the Commission's operational and developmental functions in March 1961, materials licensing and regulation occupied the major portion of the new Director of Regulation's manpower of some 260 personnel. It administered a wide variety of more than 10,000 licenses through the country. But the emergence of the regulatory program as a primary function of the Commission came as the electric utility industry turned increasingly to the nuclear power reactor as a primary source of energy in the mid-1960's.

This turn of events was hardly discernible in 1961. At the beginning of the year, operating licenses and authorizations were in effect for only three power reactors, and 11 others were in various stages of construction. The year saw most of these relatively small nuclear plants under way delayed by problems such as fuel fabrication difficulties, pressure vessel cladding cracks, procurement delays, or construction labor strikes. Utilities as a whole continued to eye the nuclear field with skepticism over the next three years.

As indicated in Section IX, on March 26, 1964, the Jersey Central Power and Light Company jolted the utility industry by applying to the AEC for a permit to construct a 515-Mwe boiling water reactor at its Oyster Creek site in Ocean County, New Jersey, about 35 miles north of Atlantic City. Although it was one of the first two nuclear power plants in the 500-Mwe class to be proposed, the significance of the Oyster Creek plant was that it represented the first decision of a utility to build a nuclear generating station solely on the basis of economics in competition with conventional power facilities.

The Oyster Creek application marked the beginning of a year of intense regulatory activity and continual efforts to maintain pace with a new and remarkably expanding industry. The statistics and predictions at the end of 1964 placed in some perspective the AEC's projected regulatory task of protecting the public health and safety: Installed nuclear electric power from all 12 licensed "central station plants," several of which were small prototypes destined for early retirement, had reached only 1,000 megawatts—a total that would be exceeded by the capacity of many individual units to be undertaken within the decade. Forecasts were projecting up to 20,000 Mwe of installed nuclear power capacity by 1974, and some felt more than half the nation's energy requirements would be furnished by nuclear plants at the end of the century.

Although the stimulus of the Jersey Central action to other utilities was not immediately apparent, the repercussion of a wave of nuclear plant orders hit the regulatory program abruptly during 1966 with the filing of construction permit applications for 16 large power reactors representing a total of 11,500 Mwe. Twin reactor units on single sites were proposed for the first time, and the first reactors in the 1,000-Mwe class were proposed by the Tennessee Valley Authority for its Browns Ferry Station in Alabama. The surge toward nuclear power reached its peak of the decade during 1967 when utilities filed applications with the AEC for the construction of 29 nuclear power units – nine of which were 1,000 Mwe plants – representing a total design output of 24,287 electrical megawatts.

A major reorganization of the regulatory staff took place in early 1964, emphasizing the reactor licensing function. At year end the Director of Regulation, in a progress report to the Commission, noted that "projected workload data, particularly in the reactor licensing area are startling when projected through 1970." It appeared inevitable that this expected growth would have a powerful impact on the regulatory program, and that the time involved in the licensing process would affect the planning schedules of utilities. Of predominant importance in staffing up to meet the workload, however, was the need to recruit professional personnel with outstanding talent for the technical safety evaluation of power reactors of new design and increasing size.

As nuclear power plant applications mounted, the Commission and staff undertook numerous studies and actions to improve and streamline the licensing process on virtually a continuous basis for the remainder of the decade. Internal and external reviews were conducted, including an exhaustive examination by the Regulatory Review Panel of 1965, headed by William Mitchell, former AEC General Counsel. The JCAE, concerned over the implications of increasing nuclear power applications, also conducted, in 1967, the most extensive public hearings on reactor licensing and regulation to be held since passage of the 1954 Act.

In its report to the Commission, the Mitchell Panel stated:

"On the whole, in the few years it has been in existence, the regulatory staff has done a remarkable job in organizing its work and in developing competence in the technology of reactor safety. The Director of Regulation has been successful in recruiting persons of a high level of technical skill and experience and also has been successful in establishing an esprit de corps which is necessary to attract additional competent scientists and engineers. With the increased workload anticipated in the future and the need for an enlarged staff, the matter of quality of the staff is of real importance. The contributions the staff has made to techniques of safety analysis and reactor technology and the opportunity to make further contributions doubtless contribute to developing a climate attractive to professional people. It is necessary that this climate continue into the future. The panel believes that, accordingly, the work of the staff will be the principal component in the discharge of AEC safety responsibilities, and this premise is inherent in and vital to several of the recommendations."

In recommending actions to simplify the regulatory process, the panel noted that, "If the size of the regulatory staff were to grow in direct proportion to the number of reactors, this staff would soon number thousands of individuals."

In a period of rising competition from the expanding nuclear industry for highly qualified technical professional people and continuing austerity in national budgets, the Commission brought total regulatory staff strength to slightly over 500 by the end of 1970.

Some 75 percent of these were professionals in a broad spectrum of disciplines such as physics and various branches of engineering. More than half of these were engaged in the licensing, regulation, and inspection of reactors and other nuclear facilities, and the development of safety standards pertaining to their construction, design and operation. The marked increase in reactor licensing activity also impacted heavily on the workload of the other two review bodies regularly involved in the regulatory process, the Advisory Committee for Reactor Safeguards (ACRS) and atomic safety and licensing boards.

During 1961 the statutory ACRS, a 15-man body of recognized scientists, engineers and other experts in fields important to reactor safety, had found it necessary to conduct only nine full committee meetings and 30 subcommittee meetings on nuclear safety matters. By contrast, the ACRS during 1970 held 12 regular three-day meetings, one special meeting and 109 sessions of subcommittees and ad hoc working groups. It provided reports to the Commission on 25 nuclear facilities and several special subjects, and engaged in a wide range of activities related to safety.

The atomic safety and licensing boards, which were authorized by law in 1962, had handed down initial decisions in only four cases by the end of 1963. During 1970, three-man boards drawn from the Atomic Safety and Licensing Board Panel conducted 17 public hearings on nuclear facility applications in 12 states. The Commission established a permanent chairman and staff to coordinate the Panel's activities in 1967, and in 1970 had increased its membership to 18 qualified technical experts and ten attorneys experienced in administrative procedures.

Milestones in nuclear power plant licensing during 1961-1971 included issuance of operating licenses for the first fast breeder facility (Enrico Fermi plant in Michigan) in 1963, the first high-temperature, gas-cooled reactor plant (Peach Bottom Unit 1 in Pennsylvania) in 1966, the first two facilities with more than 400 Mwe of capacity (San Onofre Unit 1 in California and Connecticut Yankee's Haddam Neck plant in Connecticut) in 1967, and the first plants in the 500-Mwe and 800 Mwe classes (Oyster Creek-1 in New Jersey and Dresden-2 in Illinois, respectively) in 1969.

The licensing of the Oyster Creek facility, originally scheduled for operation in 1967, was delayed for nearly two years when discovery of weld defects in connections to the pressure vessel led to extensive evaluations and repair. The regulatory staff conducted 50 inspections of the plant during this period.

At the end of 1970, the AEC had licensed or authorized the operation of 19 central station nuclear power units with a capacity totaling 6,708 Mwe (includes AEC's nonlicensed Shippingport station in Pennsylvania). In addition, 53 other large reactors representing 44,040 Mwe of capacity were in various stages of construction or awaiting action on operating licenses, and 30 proposed plants aggregating 29,103 Mwe in design capacity were under review for construction permits.

In related actions, the AEC was acting on several hundred operator license applications a year for individuals who manipulate or supervise manipulation of reactor controls. More than 2,000 such licenses were in effect at the end of 1970.

Until 1970, the Commission's regulatory authority under the Atomic Energy Act of 1954, as amended, had been limited essentially to radiological health and safety concerns and common defense and security considerations. The enactment of two Federal laws during 1970 greatly enlarged the AEC's responsibilities concerning environmental matters with increasing impact on licensing activities.

In addition, an amendment to the Atomic Energy Act in December 1970 eliminated the requirement for finding of "practical value" and invoked the "commercial section" (section 103) of the act which made all future license applications for commercial or industrial nuclear facilities subject to antitrust review by the Attorney General and the Commission. The Atomic Energy Act included the requirement for a finding of "practical value" by the AEC before nuclear facilities (such as power reactors and fuel reprocessing plants) could be licensed under the "commercial section" (section 103) of the law. Such licenses had been issued under the research and development section (104b) of the Act. In the past the Commission had considered the matter and concluded each time that the finding could not be made on the basis of cost information limited to the prototype and noncompetitive nuclear power reactors then in operation. From now on licenses are to be issued under section 103.

The wave of public concern over environmental quality that swept the country at the end of the Sixties coincided with the building of nuclear power plants on a large scale, and a spotlight of public attention was focused on atomic energy activities that had not been experienced since the beginning of the program.

A primary focal point was in the health implications of radioactive discharges from nuclear power plants. Among the leaders in the clamor on this issue were two Livermore Laboratory biological scientists, John W. Gofman and W. R. Tamplin. (Gofman did his Ph.D. research with me, 1940-1943, and was co-discoverer with me of the fissionable isotope uranium-233.) They claimed that their analyses indicated that if everybody in the United States were exposed to the allowable amount (170 millirads per year) of radiation this could finally produce 32,000 extra cancer and leukemia deaths plus 150,000 to 1,500,000 extra genetic deaths per year. It was, of course, absurd to assume that everyone in the United States could be exposed to this amount of radiation as the result of operating nuclear power plants. Other analyses, by AEC staff and other biological scientists, have led to the conclusion that these dire predictions are gross exaggerations; some such contrary views suggest that the number of additional cancer cases caused by the operation of nuclear power plants will be so small in number as to be immeasurable.

Another primary focal point was on the potential adverse effects on aquatic life of discharging large quantities of heated condenser cooling water from nuclear plants into the rivers and other bodies of water on which they were located. Such water use is characteristic of all steam-electric generating plants, whether nuclear-fueled or fossil-fueled, but the water-cooled nuclear plants of current design discharged somewhat more waste heat than modern conventional fossil-fueled plants.

The Commission had long been concerned over the potential adverse thermal effects of nuclear power plants and, in fact, was supporting in its development program more extensive research in this field than any other Federal agency. In 1962, the regulatory staff began to routinely obtain comments of the Department of the Interior's Fish and Wildlife Service regarding each application for a construction permit or operating license for a nuclear power plant. These comments, in addition to recommendations concerning radiological matters, recommended actions to minimize the possibility of adverse effects of thermal discharges. The AEC, although having no jurisdiction in the nonradiological area, made it a practice to call the applicant's specific attention to the Fish and Wildlife Service's recommendations on thermal effects and to urge his cooperation with the appropriate agencies.

Although the AEC's position, concurred in by the Department of Justice, was that it had no regulatory authority to consider thermal effects in licensing, this issue was pursued by intervenors in licensing proceedings. Some hearings before atomic safety and licensing boards toward the close of the decade, both at the construction permit and the operating license stages, became arenas of controversy where radiological and other environmental issues were sharply joined. In June 1968, the State of New Hampshire petitioned the Court of Appeals for the First Circuit (Boston, Massachusetts) for review of the Commission's licensing action in the Vermont Yankee Nuclear Power Corporation case with respect to the denial of AEC jurisdiction over thermal effects. In January 1969 the court upheld the Commission's position, and a petition by New Hampshire for review by the U.S. Supreme Court was subsequently denied.

Several bills were introduced in both the 90th and 91st Congresses to give authority to the AEC or other agencies such as the Federal Power Commission to impose conditions regarding thermal effects in nuclear power plant licenses. The Commission, in testimony before Congressional committees in March 1969, supported proposed legislation that would require a certification that the facility to be licensed would not violate appropriate water quality standards, including thermal standards.

The National Environmental Policy Act of 1969 (NEPA), which became law on January 1, 1970, followed by enactment in April of the Water Quality Improvement Act of 1970 (WQIA), thus had a major impact on the AEC regulatory program.

Under NEPA, Federal agencies were required, among other things, to prepare and file with the Council on Environmental Quality a detailed statement on specified environmental considerations regarding each major Federal action "significantly affecting the quality of the human environment." The WQIA amended the Federal Water Pollution Control Act to require certification from the appropriate state, interstate or federal water pollution control agency that there was reasonable assurance that federally licensed activities resulting in discharges to navigable waters of the United States would not violate applicable water quality standards (including thermal standards).

Although NEPA did not specifically refer to licensing activities, the AEC interpreted it to cover the licensing of nuclear facilities – particularly nuclear power plants – as "major Federal actions" affecting the environment. The Commission proceeded promptly to initiate procedures to bring its licensing program into conformity with the new environmental legislation.

The AEC's final policy statement on NEPA, issued on December 4, 1970, also took into account requirements of the WQIA and provided for fuller consideration of the whole range of environmental issues in the licensing of nuclear power plants. In testimony before a House committee regarding progress in implementing NEPA, Russell E. Train, Chairman of the Council on Environmental Quality, characterized the new AEC policy provisions as "very responsive developments" in implementing the Act. (At an annual meeting of the Atomic Industrial Forum and American Nuclear Society in Washington, D.C. in November 1970, Dr. Gordon J. MacDonald of the Council on Environmental Quality, stated: "The AEC has by far the best record of any federal agency in submitting environmental reports under NEPA. The AEC reports are the most complete, the best thought out, and the most sophisticated of any agency.")

As a result of the environmental legislation of 1970, a number of procedural changes were integrated into the AEC licensing process for nuclear power reactors and fuel reprocessing plants, including the provision of conditions in permits and licenses to the effect that licensees will 1) observe all standards and requirements validly imposed under Federal and State law for protection of the environment, and 2) comply with the appropriate water quality certification provisions of the Federal Water Pollution Control Act. Atomic safety and licensing boards also were authorized to consider, under NEPA, nonradiological environmental matters to the extent that a party raises as an issue whether issuance of the permit or license would be likely to result in a significant, adverse effect on the environment.

Similar procedures were provided for other licensing proceedings on proposals significantly affecting the environment, including licenses for: 1) nuclear fuel fabrication plants, scrap recovery facilities, and uranium hexafluoride conversion plants; 2) uranium milling and production of uranium hexafluoride; and 3) commercial radioactive waste disposal by land burial.

On July 23, 1971, the U.S. Court of Appeals for the District of Columbia made an historic ruling directing the AEC to revise, in several respects, its rules on consideration of nonradiological environmental matters in licensing facilities, i.e., directed the AEC to broaden its responsibility. The court held, in the consolidated cases of Calvert Cliffs Coordinating Committee, Inc., et. al., vs. the U.S. Atomic Energy Commission, et. al., that AEC regulations for implementing NEPA in licensing procedures did not comply in several respects with NEPA. The petitioners had also questioned several aspects of the AEC's application of NEPA procedures to Calvert Cliffs Nuclear Power Plant of the Baltimore Gas & Electric Co., a facility near Lusby, Maryland, on the Chesapeake Bay for which a construction permit had been issued six months before enactment of NEPA, and the court agreed. The AEC took several implementing steps immediately following the court's decision.

XIV. Radioisotopes Program

In analysis and controls applications, cobalt-60 and cesium-137 encapsulated sources for industrial radiography were the principal products employed in 1960 in terms of quantity. During the decade, there has been increased use of iridium-192 for radiography, low-energy photon sources for X-ray fluorescence, and tritium and promethium-147 for self-luminescent applications.

In nuclear medicine, iodine-131 was the principal product in use in 1960 and continues to be important. However, technetium-99m, which has been approved for similar diagnostic uses, results in decreased radiation exposure of the patient and increased definition of the body organ functions. The technetium-99m agent was developed at Brookhaven National Laboratory (BNL) and first studied for medical applications at Argonne Cancer Research Hospital. Many other products have been studied as diagnostic agents during this period, including iodine-124, copper-67, zinc-69m, gallium-67 and indium-111.

In the process radiation field, cobalt-60 and cesium-137 have continued to be the principal products of interest. Considerable work was carried out using cobalt-60 produced in AEC reactors to develop an efficient and reliably contained cobalt-60 source. Much of the AEC's process radiation development work was based on the use of cobalt-60. However, recent emphasis has been given to the use of cesium-137 for this purpose.

One of the most significant developments in radioisotope processing during the decade was the recovery of megacurie (a million-curies or more) quantities of fission products in the ORNL Fission Products Development Laboratory. During the early 1960's, the plant demonstrated the ability to recover cesium-137, strontium-90, promethium-147, and cerium-144, and technetium-99 (from processed fuel) in quantities in some cases up to many thousands of curies a year. As the decade passed, the output of cesium-137 and strontium-90 for radiation and heat sources grew to million-curie quantities annually. This production activity has provided the only significant large-scale supply of encapsulated fission products for isotopic power and process radiation applications during the decade.

Strontium-90 is the long-life (28 years) fission product of principal interest for terrestrial isotope power use as well as for process radiation applications. Strontium titanate was developed as the isotopic fuel form for application in terrestrial isotopic power (SNAP-7) systems. With thermoelectric conversion, use of such fuel can furnish power for use at remote places on land or sea to transmit information to receiving stations more conveniently located. Such use includes weather stations both in the Arctic and Antarctic regions, and U.S. Coast Guard flashing light buoys. Another use is for underwater acoustic beams. Other radioisotopic power sources were developed to meet a variety of needs.

Cesium-137, in equilibrium with its 2.6-minute barium-137m daughter, is the other long-lived (30 years) high-yield fission product of principal interest produced during nuclear reactor operation. It is produced along with other stable and radioactive cesium isotopes, including the 2.3-year cesium-134. The yield of cesium-134 is such that the mixed cesium-137/134 product will have significant radiation processing applications. As a radiation source, cesium chloride is preferred, principally for: (a) its high specific activity; (b) its thermal and radiation stability; (c) its reasonable compatibility with encapsulating materials; and (d) its ease of production.

Promethium-147 is an intermediate-lived (2.67 years) fission product in sufficient supply for isotopic power consideration. Its relatively low-energy radiation is readily shielded. The promethium-148 (42 days), which is initially present with the promethium-147, has a very energetic gamma which requires about 2 years storage to allow its decay before use. In addition, there are trace amounts of promethium-146 (1.9 years) present with sufficient gamma radiation to require shielding beyond that which is necessary for plutonium-238. Materials studied have demonstrated the feasibility of using promethium oxide at temperatures up to 2,000°C. (3,632°F.)

The short-lived fission products plant at Oak Ridge continued to be the principal supplier of 13 fission products (with half lives from 3 to 65 days) for research, industrial, and medical uses. Typical isotopes prepared in this plant are: barium-140, iodine-131, molybdenum-99, niobium-95, ruthenium-103, strontium-89, xenon-133, yttrium-90, and zirconium-95. With the exception of niobium-95 and yttrium-90, which are recovered from their parents zirconium-95 and strontium-90, these products are produced from irradiated uranium-235 targets.

Cobalt-60 is the most readily prepared reactor product with a reasonably long half-life (5.26 years) and radioactive decay characteristics of major interest. In selected applications, it competes directly with 28-year strontium-90 and 30-year cesium-137. In the past decade, while withdrawing from production of many forms of cobalt-60, the AEC has also carried out tests that show the production feasibility of hundreds of millions of curies of high specific activity cobalt-60 (400-600 curies per gram) for many applications. At the same time, industry has established its own capabilities in test and power reactors to produce most of these product grades in quantities to satisfy the market.

The transuranium product series results from multiple neutron capture in both the nuclear reactor fuel, uranium-235, and the source material uranium-238. The nuclides of principal interest include plutonium-238, curium-242, americium-241, and californium-252 and their applications require the conversion to forms useful in both thermal and radiation applications. In the thermal area the production of plutonium-238, curium-242, and curium-244 represented significant efforts.

Accelerator products have significantly different decay characteristics from isotopes prepared in a reactor since they are neutron-deficient and generally cannot be readily produced by neutron irradiation. These products find their principal use in medical diagnosis, Mössbauer applications and metallurgical studies, as well as several research applications. For many years, the Oak Ridge 86-inch cyclotron has been the principal source of accelerator products. More recently, a group of accelerators with additional capabilities have become available at Brookhaven and the future program will be expanded to include the use of the Los Alamos Meson Physics Facility.

There are about 15 radioisotopes in some 30 chemical forms approved by the AEC for medical use. In 1966, the U.S. Public Health Service surveyed the frequency of the various medical procedures. The results show that iodine-131 represented 70 to 80 percent of the radioisotopes used in the organ function studies or for radiopharmaceutical therapy procedures, while cobalt-60 was the predominant radioisotope used for teletherapy procedures, and radium and strontium-90 for brachytherapy (source implant) procedures. A survey today (1971) would show that the use of technetium-99m may now exceed the use of iodine-131 for scanning procedures, since the use of technetium-99m was just getting underway when the survey was carried out in 1966.

In 1965, the development of the technetium-99m generator for medical diagnostic application brought this technology to the attention of all potential users of radioisotopes. Today, this generator represents an important part of the radioisotopes products industry; technetium-99m generator sales for 1969 were estimated at \$6 million.

During the past decade, much effort has been directed toward establishing neutron activation analysis as an accurate and reliable technique particularly for measuring trace elements in materials. It is now well established technically and is proving to be very valuable in many important applications throughout the world; in medicine, to determine trace metals in tissues; in industry, to analyze products and determine trace compositions; in crime detection, to analyze materials taken as court evidence; and for a variety of tests in geology, oceanography, agriculture, meteorology, public health and other sciences. The technique has recently met several important needs for analyzing foods to determine concentrations of pollutants such as mercury.

Another analytical technique whose range of applicability has been greatly expanded by the advent of radioisotopes is X-ray fluorescence. As a consequence of this AEC initiative, at least six U.S. companies are now marketing radioisotope XRF systems for many analysis and control applications such as ore assaying, metal alloy analysis, and monitoring various solid and liquid chemical processes.

About 1961, work was started at West Virginia University (Morgantown) on the fabrication of wood-plastic composites. The process involves impregnation of wood substrates with a liquid monomer and subsequent irradiation by gamma rays, during which the monomer hardens. The result is a plastic-filled wood with the aesthetic properties of wood and the durable properties of the plastic. The work at West Virginia University, and related work at North Carolina State University (Raleigh) and Research Triangle Institute, provided the technological basis for the production of a new commercial product. In 1964, the American Novawood Corp. (Lynchburg, Va.) was formed for the purpose of commercializing the new wood-plastic material. Since that date, three other companies have begun commercial production of wood-plastic materials. In each case, the principal product is parquet flooring.

An outstanding success has been the adoption of radiation sterilization of medical supplies both by isotopes and by accelerators. Radiation sterilization plants now number more than 20 in countries all around the world, and the trend is accelerating. Both technical and economic advantages are afforded by this process through: (a) elimination of the damaging effect of heat; (b) sterilization in final container; (c) greater reliability; and, (d) elimination of residual sterilization gas.

During the early part of the 1960's, a new application was exploited in the isotopes development program. This was the use of heat resulting from radioisotope decay to produce useful energy. The most promising isotopes with sufficient abundance for research and use were the fission products strontium-90, cerium-144, cesium-137, and promethium-147 and reactor-produced isotopes thulium-170, polonium-210, plutonium-238, curium-242, curium-244, and cobalt-60. Applications of radioisotope heat are directed toward the production of electricity using the Seebeck (thermoelectric) process. This work was most dramatically exemplified by development and demonstration in June 1961 of nuclear power in space and in August 1961 of the world's first radioisotope-powered automatic weather station (see next section, XV).

The Division of Isotopes Development first became interested in the concept of an implantable radioisotopic power source for an artificial heart in May 1964. In the process of considering such a program and through discussions with personnel of the National Heart Institute (now the National Heart and Lung Institute) of the National Institutes of Health, it was apparent that the development of a fully implantable artificial heart was not only extremely complicated undertaking but one in which success could not be projected with any degree of assurance.

XV. Nuclear power in space

The first use of nuclear power in space took place on June 29, 1961 when a U.S. Navy Transit satellite carrying a small nuclear-electric power source achieved earth orbit. Because of the reliability of that nuclear system, today (1971), more than nine years later and after its more than a billion miles of travel, the signals from that navigational satellite can still be monitored.

The climax of nuclear energy in space in the 1960s was the emplacement on the moon's surface of a small power device called SNAP (Systems for Nuclear Auxiliary Power). This radioisotope thermoelectric generator is the sole source of electrical power for all of the data gathering devices left on the moon by the Apollo 12 astronauts. This plutonium-238 fueled atomic battery, designated SNAP-27, was developed by the AEC for NASA's Apollo Program and has been performing extremely well since its deployment on the moon on November 19, 1969.

The AEC has delivered four additional SNAP-27 systems to the NASA for use on Apollo missions to other areas on the moon's surface, and has recently been requested to build another one. One of these systems was placed on the moon by astronauts of the Apollo 14 mission. Another, was flown by the Apollo 13 mission. Both the AEC and NASA were, of course, deeply disappointed that the objectives of the latter mission were not fulfilled. However, the reentry characteristics of the SNAP-27 were demonstrated on that mission. All data indicate that the capsule in its protective cask returned to earth intact as designed and is resting two to five miles deep in the Pacific Ocean.

The SNAP-27 generator and its plutonium-238 are carried to the moon as separate packages. The generator is transported in a compartment and the fuel, contained in a capsule or metallic tube, is carried in a graphite cask attached to the leg of the lunar module. Upon arrival on the moon, the astronaut removes the fuel capsule and inserts it in the generator and electricity begins to flow. For Apollo 12, when Astronaut Alan Bean inserted the fuel capsule in the generator, 73 watts of electricity were produced and have flowed ever since to the various lunar data gathering devices.

On January 16, 1959, a device that turned heat from radioactivity into electricity was demonstrated publicly, for the first time, on the desk of the President of the United States. President Eisenhower introduced this device to the world fueled by polonium-210, as the first atomic battery.

The unit launched in June 1961, an improved version of this nuclear system, was the size of a grapefruit. It weighed four pounds and produced 2.7 watts of electrical power using plutonium-238 as fuel. This first nuclear device used in space was called SNAP-3A. The Navy Transit satellite, with the SNAP-3A aboard, holds the record as the oldest operating U.S. satellite.

By April 1964, a total of five radioisotope electric generators, another SNAP-3A and three SNAP-9A/s, had been launched. The SNAP-9A was a larger and more advanced model of the SNAP-3 and was developed to supply all the power requirements of other navigational satellites. This improved model also used plutonium-238 fuel. It produced 25 watts of electricity--about ten times more than the earlier SNAP-3A. The first SNAP-9A was launched in September 1963, the second in December 1963, and the third in April 1964. Of the five generators launched to that date, three continue to supply power to their respective satellites. Unfortunately, a satellite failure, unrelated to the nuclear system, terminated the operation of the second SNAP-9A after only eight months in space. The satellite carrying the third SNAP-9A failed to achieve orbit.

Research and development began in late 1965 on a generator designated SNAP-19. The SNAP-19, unlike the SNAP-27, provided for the plutonium-238 fuel capsule as an integral part of the generator, and was developed for use on the NASA weather satellite known as Nimbus III. The first Nimbus satellite, with two SNAP-19 devices aboard, was destroyed during launch in May 1968 when the guidance system of the booster vehicle failed. A second SNAP-19 generator system was delivered to NASA for use on a replacement Nimbus in December 1968 and was launched aboard that satellite in April 1969. Both the satellite and SNAP-19 are still operating successfully. The SNAP-19 is augmenting solar cell power sufficiently to sustain continual operation of all weather monitoring equipment. Without the SNAP-19 some of the equipment would have to have been shut down periodically.

In July 1969, NASA requested the AEC to provide Radioisotope Thermoelectric Generators (RTG's) for two more operational space missions--the Pioneer, which is an unmanned Jupiter fly-by probe to be launched in early 1972 and 1973, and the Viking, an unmanned Mars lander to be launched in 1975. At the Navy's request, the AEC is also developing an RTG for an advanced Transit navigational satellite to be launched in the early seventies.

In 1965, the first zirconium hydride reactor, a 500 watt experimental system, was flown. This reactor system, designated SNAP-10A, was launched from the Vandenberg Air Force Base, California, in April of that year. While in orbit, this system operated at full-power for 43 days before a failure in the satellite's voltage regulator system--not the reactor system--caused a shutdown of the entire satellite. Had this failure not occurred, the chances are that the SNAP-10A would have effectively operated throughout its design lifetime. An exact copy of this orbital unit completed over a year of uninterrupted operation on the ground at the Santa Susana, California test site. This is the longest uninterrupted operation of any nuclear reactor in the world to date.

For the past decade and even before that, the AEC, working jointly with NASA, has been developing the technology for a nuclear rocket system which can do the propulsion jobs in space that will be required for the advanced missions of the future.

The nuclear rocket operates on the same principle as the chemical rocket. However, unlike the huge chemical rockets which must burn tons of fuel and liquid oxygen per second to produce their thrust, the nuclear system uses the heat of a reactor to expand liquid hydrogen into the escaping hydrogen gas that produces the rocket's propulsive force. A rocket's efficiency is measured in terms of what engineers call "specific impulse"; that is, the pounds of thrust per pound of propellant flow per second through the rocket's exhaust nozzle. The nuclear rocket undergoing development will have a specific impulse value at least twice that of the best chemical rockets today.

In recognition of the potential benefits of nuclear propulsion in space, AEC and NASA established, in August 1960, a joint agency office and program for the development of nuclear rocket technology, the Rover program. By that time, some nuclear rocket ground tests had already been conducted by the Los Alamos Scientific Laboratory at the Nevada Test Site (NTS). Later, a portion of NTS was designated the Nuclear Rocket Development Station (NRDS). The Kiwi-A reactors (named for the flightless bird of New Zealand) were tested there at power levels under 100 megawatts to check reactor design methods and to test niobium carbide coatings for protection of carbon against attack by hydrogen.

The first Kiwi-B reactor was tested in December 1961 at a power level of 300 megawatts with gaseous hydrogen supplied to the reactor as the coolant-propellant. A regeneratively-cooled jet nozzle was used on a rocket reactor for the first time in this test. Another test was conducted September 1962 at 900 megawatts. Operation in this test with liquid hydrogen caused no unexpected control or stability problems but structural weaknesses in the reactor core were revealed. These problems were resolved in subsequent Kiwi tests before the series ended in 1964.

With the phase-out of the Kiwi tests, LASL had moved forward with the development of the Phoebus reactors, including the high-powered 4,000 megawatt plant. This program culminated in the power testing of the Phoebus-2A reactor in June and July 1968 at power levels up to 4,200 megawatts, the highest power ever attained by a rocket reactor. Total operating time in two test runs at various power levels was more than one hour. The power density in the reactor actually exceeded that necessary for the NERVA nuclear rocket, which, by 1968, had been redirected to a power plant with a thrust level of 75,000 pounds rather than the 200,000 pounds earlier contemplated.

The primary objective is to build a flyable reactor, a little larger than an office desk, that will produce the 1,500 megawatt power level of the Hoover Dam hydroelectric power plant and achieve this power in a matter of minutes from a cold start. During every minute of its operation, high-speed pumps must force nearly three tons of hydrogen, which has been stored in liquid form at minus 420°F. (below zero), past the reactor's white-hot fuel elements which reach a temperature of 4,000°F.

XVI. Nuclear weapons tests

The U.S. atmospheric test series, designated Operation DOMINIC, began April 25, 1962, with an air drop in the intermediate-yield range (20 kilotons to 1 megaton) off Christmas Island. (In reporting its own and Soviet tests, the Atomic Energy Commission frequently adopted the practice of reporting yields in size categories rather than as precise numbers. Prior to 1964, the categories and the yield ranges they represented were: low yield, less than 20 kilotons; intermediate, 20 kilotons to 1 megaton; low megaton, 1 to several megatons.)

In all, the series comprised 40 tests, conducted between April 25 and November 4, 1962. It included the firing of 29 nuclear devices dropped from aircraft in the vicinity of Christmas and Johnston islands and five detonations of nuclear devices carried to high altitudes by missiles launched from Johnston Island. Two nuclear weapons system tests were also involved—one in the Christmas Island area and one in the eastern Pacific. These 36 Pacific tests were conducted by a joint AEC-Defense Department task force that, at the peak of its activity, numbered over 19,000 men. In addition to the Pacific tests four small tests were conducted near the surface at the Nevada Test Site.

I witnessed my only nuclear weapons test on a visit to the Pacific test site near the end of June, along with McGeorge Bundy, Arnold Fritsch (my technical assistant) and Dwight Ink (AEC Assistant General Manager). On June 30, on Christmas Island, we went to Observation Point where at 6:20 a.m. we saw an explosion 30 miles south at 5,000 feet, the low megaton yield BLUESTONE event. It was dropped from an airplane. It was necessary to use dark glasses for the first eight seconds. Upon removing them, I found the area brighter than full daylight, an awesome sight.

In accordance with the restrictions imposed by the president, the total yield of the DOMINIC series was held to approximately 20 megatons. The Soviet series in the fall of 1961 had yielded almost ten times as much, including a 50 megaton explosion.

By and large, DOMINIC went well. There were, however, certain difficulties. After we had alerted the scientific community of the world, it was with acute embarrassment that we learned that BLUEGILL had to be destroyed after launching from Johnston Island on June 5 due to a failure of radar tracking. Then on June 20 STARFISH suffered an abort on its Johnston Island launching pad. However, STARFISH went successfully on July 9, lighting the sky all the way from Hawaii to Australia. To our great surprise and dismay, it developed that STARFISH added significantly to the electrons in the Van Allen belts. This result contravened all predictions.

As the series neared its end, I presented a summary evaluation in a letter to the president. A salient portion read:

"The current tests have produced many important successes. They have also yielded some surprises and some failures which confirm that we are indeed experimenting at the frontier of weapons technology. The test successes vindicate, in a large measure, the elaborate computational and certification procedures which were developed during the moratorium [1958-61]. The surprises and failures serve to remind us that our theories and procedures are, at best, only approximate...

Although not a stated objective of our test program, I believe that one of the most significant results is the fact that our laboratories have become revitalized to a major degree. The importance of this reawakening of our defense posture cannot be overstressed."

The United States resumed nuclear weapons testing, initiating the underground NOUGAT series on September 15, 1961 after the Soviets had broken the voluntary U.S.-Soviet moratorium on the testing of nuclear weapons with an atmospheric test on September 1. From that date through December 31, 1970, the AEC has publicly announced a total of 359 United States nuclear tests which have been conducted in the various environments (in the atmosphere, in space, underwater, and underground). Of that total, 25 were Plowshare experiments and six were tests to improve our capability to detect nuclear weapons tests (the Vela program). The rest were weapons-related tests. In addition there were four joint United States - United Kingdom tests.

Since 1963, the AEC has conducted underground nuclear tests at the Nevada Test Site, which is approximately 65 miles northwest of Las Vegas; the Central Nevada area, which is approximately 175 miles north of Las Vegas, Nevada; Amchitka Island in the Aleutian Islands, which is approximately 1,400 miles southeast of Anchorage, Alaska; Farmington, New Mexico; Fallon, Nevada; and Hattiesburg, Mississippi.

The AEC conducts almost all of its underground nuclear tests at the Nevada Test Site. Since the Limited Test Ban Treaty the AEC has conducted these underground detonations at depths that provide reasonable assurance of containing radioactive debris. However, there were occasions when such underground tests, nevertheless, vented radioactivity to the atmosphere. Perhaps the most famous of these is the PIKE event of March 13, 1964. Apparently, a crack had developed as the result of a local weakness in the geological structure. There was much concern from the standpoint of possible violation of the Limited Test Ban Treaty. Airborne radiation monitors and automatic recording instruments were used to measure radioactive levels along the fallout trajectory. The increase of radioactivity in Las Vegas, Boulder City, Yuma, and elsewhere in Arizona, while measurable, was slight and considered not to be hazardous. It was concluded that air masses that might have contained suspect material entered Mexico and then returned to the United States.

The Soviet Union did not make a big issue of the PIKE incident, although a Tass news dispatch and a formal diplomatic note made it clear that they had taken note of it. In all likelihood the Soviets tempered their response because they understood full well that such mishaps might happen in their own program also and they did not want to establish too high a standard of accountability. The Soviet Union also had its problems in this respect. On January 15, 1965, they conducted an underground test of intermediate yield (20 kilotons to a megaton) of which about 10 percent vented, as measured by acoustic signals. It was the largest Soviet underground test yet. High flying U.S. planes picked up small quantities of radioactive material over the northern Pacific Ocean.

As a result of the active U.S. underground nuclear weapons test program, the Nevada Test Site was expanded in 1963 and 1964 by more than 153,000 acres to its present size of about 860,000 acres. However, in 1966 it became apparent to the AEC that additional areas would be needed for the underground testing of devices with yields greater than those which could be safely accommodated at the Nevada Test Site. The higher yield tests were needed to satisfy certain military requirements. After a number of studies, the sparsely populated Central Nevada area and the unpopulated Amchitka Island in the Aleutian chain were chosen. The choices were based on relative development costs, relative absence of logistical and environmental problems, and the low chance of possible off-site damage. These two supplemental test areas, as they are known, have been developed and the Amchitka site is currently in use, while the Central Nevada site has been put in a caretaker status.

Because of technological limitations other than yield, additional localities, such as those near Farmington, New Mexico; Fallon, Nevada; and Hattiesburg, Mississippi, have been used. These possess unique qualities, such as geological formations, hydrologic factors and terrain features, which are necessary for a specific type test. These localities have been used in the peaceful uses of nuclear explosives and the Vela detection program and were intended for one time use. The facilities are small and generally temporary in nature.

In addition to the test areas mentioned above, the AEC and DOD maintain Johnston Atoll in the Pacific Ocean. It has been improved and maintained in the event the Limited Test Ban Treaty is abrogated and testing in presently prohibited environments is necessary.

There have been a number of underground high yield tests. These were publicly announced in advance and this gave rise to a good deal of public concern that the tests would contaminate the water, change water levels, trigger earthquakes and cause structural damage to buildings. A special concern was the question of damage to buildings in Las Vegas. In the case of the BOXCAR event, the largest underground nuclear weapons test to date with an estimated yield of about one megaton, billionaire Howard Hughes, because of concern about the effect on his property in Las Vegas, tried to exert pressure on me and then on President Johnson to cancel or postpone this test. Normal administrative procedures had been followed in securing Presidential approval for this test, but the President wanted to review the matter in view of this protest and other protests. A telephonic justification of the test was made to the White House just an hour before the scheduled execution time. Only when the President was convinced of the necessity of the test and of the adequacy of the safety studies was final approval given. The BOXCAR event was conducted at Pahute Mesa, Nevada, approximately 100 miles north of Las Vegas, on April 26, 1968, with minimal environmental effects.

Although public concern continued to be expressed the subsequent high yield tests proceeded under less dramatic circumstances.

The BENHAM test, with a yield of about one megaton, was conducted at the Nevada Test Site on December 19, 1968. The test was necessary in the development of more advanced nuclear weapons. The device which was buried 4,600 feet deep produced ground motions which were felt at various locations in Las Vegas and Tonopah, Nevada and Salt Lake City. At Hoover Dam, southwest of Las Vegas, the maximum acceleration from the test was less than one percent of those accelerations caused by the largest natural earthquake recorded at the dam in 1963.

The JORUM test was conducted in Nevada on September 16, 1969. This test was a weapons-related event. The device, with a yield of about a megaton, was buried 3,800 feet deep and produced lower seismic activity than BOXCAR and JORUM.

The MILROW test, with a yield of about one megaton, was conducted at Amchitka Island off the coast of Alaska, on October 2, 1969. The specific purpose of the Milrow test was to obtain the required information on both physical and bioenvironmental effects from which a realistic evaluation could be made of the similar effects to be anticipated from a follow-on weapons-related test. The device was detonated at a point 4,000 feet below the surface. Milrow had no major impact on the environment.

The HANDLEY test was conducted at the Nevada Test Site on March 26, 1970. This test, with a yield of more than one megaton, was a weapons-related event. The device was buried 4,000 feet deep and produced no damage to off-site structures.

The Soviets conducted another atmospheric nuclear weapons test series in the summer of 1962, which included a 30 megaton explosion.

XVII. Plowshare

The first Plowshare (Peaceful Uses of Nuclear Explosions) experiment, to investigate the feasibility of the use of nuclear explosives for excavation purposes, was SEDAN, a 100-kiloton device which was detonated in Nevada on July 6, 1962. It involved excavation of a crater 1,280 feet in diameter and 320 feet deep. (I flew over the crater with President John Kennedy in a visit to the Nevada Test Site on December 8, 1962.) However, further excavation experiments became fraught with difficulty due to the provision of the Limited Test Ban Treaty prohibiting any nuclear explosion that "causes radioactive debris to be present outside the territorial limits of the State under whose jurisdiction or control such explosion is conducted."

The next excavation experiment, SULKY, of estimated yield only 0.1 kiloton took place on December 18, 1964, at the Nevada Test Site. In order to be sure of not violating the test ban treaty, the AEC buried the device at an overly conservative depth. As a consequence we ended up with a mound instead of a crater. Even so, some radioactivity was detected off-site. The amount was small and quickly dissipated, long before it could reach a national border.

SULKY was not a total loss. We obtained useful information from it. What we had chiefly lost was time. To still the clamor of its opponents and ease the impatience of its friends, Plowshare needed a relatively quick success. We had hoped through the series of experiments of which SULKY was a part to demonstrate nuclear excavation technology convincingly to skeptics in the United States and elsewhere. As 1964 ended we were a long way from having done that.

On April 14, 1965, we conducted a Plowshare experiment called PALANQUIN at the Nevada Test Site. It involved detonation of a 4-kiloton thermonuclear device buried at a depth of 180 feet in an emplacement hole drilled to 615 feet. The purposes were to explore cratering mechanisms in hard dry rock such as might be encountered in Panama, and to investigate emplacement techniques that would reduce the amount of radioactivity released in the atmosphere.

It was our expectation, based on earlier experiments, that a large fraction of the radioactive debris would go down the hole and that very little would reach the atmosphere. Also, following the experience of SULKY, we expected PALANQUIN to create a fully contained mound rather than a crater. (The purposes of PALANQUIN, unlike SULKY, were such that we would have been satisfied with a mound.) Our expectations proved wrong in both respects. The dust cloud from the explosion rose to a height of 8,000 feet, and contained higher-than-expected levels of radioactivity. This air mass moved northward rather slowly, dispersing laterally as it travelled. As I reported to the president, the radioactivity was much less than that following the errant Soviet test of January 15, 1965, and well below any possible health hazard level, even close to the test site. Worryingly, however, the radioactivity was sufficient to be readily detectable by properly equipped aircraft should the cloud drift into Canada. On the afternoon of April 15, the radioactive air mass was located east of Spokane, the next morning over Butte, Montana. To our relief, it appeared then to drift to the southeast. However, the Soviets wrote to us in protest.

After many, many postponements due to concerns over LTBT violations, CABRIOLET, using a 2.7-kiloton explosive, was detonated at a depth of 170 feet in hard, dry rock at the Nevada Test Site on January 26, 1968. It created a crater about 400 feet across and 125 feet deep. The wind was right, blowing away from Mexico, and a snowstorm in northern Nevada apparently brought down much of the debris. The snowstorm was a stroke of good luck! No radioactivity attributable to CABRIOLET was detected by the Canadians.

The successful detonation of CABRIOLET on January 26, 1968, set the stage for the execution of two other cratering experiments during that year. In neither case was there major opposition from within the government. BUGGY went off on March 12. It involved the simultaneous detonation of five low-yield (about 1 kiloton) nuclear explosives in a row. It created a ditch-like crater 860 feet long, 280 feet wide, and 68 feet deep. As with CABRIOLET, the explosion was set off in hard rock, the medium most likely to be encountered in a trans-Isthmian canal. Again there were no problems of radiation crossing the border. (After seeing a film of BUGGY, I commented somewhat testily in my diary: "This and CABRIOLET should have been approved for execution long ago.")

On December 8, 1968, SCHOONER was successfully detonated at the Nevada Test Site, creating a crater 850 feet in diameter and over 240 feet deep. Its purpose was to extend cratering technology in hard rock to encompass higher yields, approaching those that would be required for actual construction of a canal. (SCHOONER's yield was 300 kilotons, as compared to CABRIOLET's 2.7.) It released in the atmosphere the highest levels of radioactivity recorded in the United States since the test ban treaty. The radioactive debris seemed to stay well within U.S. borders, however; there appeared to be no treaty violation. What was our astonishment, then, when on January 21, 1969, the first full day of the Nixon administration, the Soviet chargé d'affaires in Washington delivered an aide-mémoire stating that SCHOONER had caused a "two to fivefold increase in fallout in the regions along the Baltic, Volga, Northern Caucasus, and Crimea." The following day I explained to Nixon's assistant Robert F. Ellsworth that this corresponded to an absurdly small amount of radioactivity. As it developed, we were unable, despite President Nixon's favorable prejudice, to obtain administration approval for even one further cratering experiment.

The demise of nuclear excavation was a heavy blow to the Plowshare program, whose hopes for the future rested so heavily on the foreseen opportunities to perform excavation projects as a service for other nations. I would not wish to leave the impression that the delays or denials of CABRIOLET and other experiments bore sole responsibility for this unhappy denouement. Without doubt, they hastened the outcome, but there were serious objections to nuclear excavation that might well have prevailed in any case.

In 1965, the El Paso Natural Gas Company proposed a cooperative project with the AEC and the Interior Department to examine the phenomena involved in the use of nuclear explosions to recover gas. An experimental explosion, called GASBUGGY, took place on December 12, 1967, on one of the company's leases in New Mexico. It involved a 29-kiloton explosive buried at a depth of 4,240 feet. There had been little difficulty gaining approval for this experiment since the explosion would be fully contained---there was virtually no possibility that escaped radioactivity would cause accusations of a treaty violation.

GASBUGGY seemed highly successful. A rate of production several times greater than that of neighboring wells was achieved, although, because the gas was slightly radioactive, none of it was sold commercially.

A second experiment, equally successful, followed in September 1969. Its purpose was to extend GASBUGGY experience to greater depths and different types of rocks. Named RULISON, this second experiment involved explosion of a nuclear device more than 8,000 feet deep near Grand Valley, Colorado. The industrial sponsor in this case was the Austral Oil Company. Resulting natural gas production was copious. Amounts of radioactivity in the gas were very small but there was some and, again, none of the gas was sold commercially.

The Plowshare program made substantial contributions to basic research, including experiments in the production of transplutonium elements. The high flux of neutrons in nuclear explosions can be utilized for the synthesis of heavy isotopes and many were identified for the first time or further investigated by the use of this technique. (Those identified for the first time, however, came from a nuclear weapons test, not a Plowshare experiment.)

The most dramatic of these experiments was the unexpected discovery of einsteinium (atomic number 99) and fermium (no. 100) in the airborne debris from the first thermonuclear explosion, the "Mike" shot staged in the Pacific on Elugelab Island, Eniwetok Atoll, in November 1952. A large group of scientists from the Berkeley Radiation Laboratory, the Argonne National Laboratory and the Los Alamos Scientific Laboratory participated in these discoveries. In addition to ^{253}Es and ^{255}Fm , the first known isotopes of einsteinium and fermium, the isotopes ^{244}Pu , ^{246}Pu , ^{246}Am , ^{246}Cm , ^{247}Cm , ^{248}Cm , ^{250}Cm , ^{249}Bk , ^{249}Cf , ^{252}Cf , ^{253}Cf and ^{254}Cf were discovered. They were produced by the capture of fission neutrons in the ^{238}U in the Mike device, followed by a series of successive beta decay processes.

The success of such fast neutron capture reactions for the synthesis and identification of new heavy isotopes led, in the 1960's, to the fabrication of specially tailored nuclear explosive devices, by the Los Alamos Scientific Laboratory, and the Lawrence Livermore Laboratory, for the further production and study of such isotopes. In these underground experiments, performed at the Nevada Test Site, the greatest success was obtained with ^{238}U targets. The neutron capture products are distributed in the vaporized rock and must be recovered from 300–600 meters below the surface. Only a small fraction of the total production is recovered, although much greater than in the atmospheric Mike explosion, and it usually takes several days after the explosion for the first samples to become available for chemical identification and counting.

Some of the more notable experiments were named Par (conducted by Livermore in October, 1964), Barbel (Los Alamos, October, 1964), Tweed (Livermore, May, 1965), Cyclamen (Los Alamos, May, 1966), Kankakee (Livermore, June, 1966), Vulcan (Livermore, June, 1966), and Hutch (Livermore, July, 1969). Of these, the 13 kiloton (kt) Cyclamen and especially the 20–200 kt Hutch events were by far the most productive. The Cyclamen device produced a flux of 15 moles neutrons/cm² and Hutch 40 moles neutrons/cm².

A greater quantity of nuclides with mass number greater than 250 was produced in the Hutch event than in the Mike explosion, in spite of the much larger explosive yield of Mike (10,000 kt). For Cyclamen the production of heavy nuclides was also very impressive--the yields of products with mass number greater than 250 was only one order of magnitude less than for Mike, while the total explosive yield was nearly three orders of magnitude less. The fraction of the total products produced in the device that was recovered was about 10^{-8} for Hutch compared to about 10^{-12} for Mike.

Although no new nuclides or new elements were detected in these underground explosions, significant amounts of some rare and heavy nuclides were produced. More ^{250}Cm was recovered from Hutch debris than has been produced by neutron irradiations in reactors. The Hutch detonation produced 6×10^{17} atoms of ^{257}Fm , of which 6×10^9 atoms (2.5 picograms) were recovered, which is more than has been produced and recovered by neutron irradiations in reactors. The 80-day ^{257}Fm , the heaviest and longest-lived isotope of fermium, was discovered in 1964 as the result of a four-year neutron irradiation in the Materials Testing Reactor (MTR) in Idaho.

In total the United States conducted 41 Plowshare explosions. Most were conducted in the years 1962 to 1968. During each of these years there were four or more tests. Thereafter, the program dwindled rapidly. There were only two explosions in 1969, one in 1970, and no more while I was Chairman of the Atomic Energy Commission.

XVIII. Controlled thermonuclear research (CTR)

At the beginning of 1961 the many devices for research on controlled fusion reactions were divided into five different categories: stellarators, mirrors, pinches, Astron, and rotational plasma research. The Model C Stellarator (doughnut-shaped magnetic container with a twisted container carrying current outside the plasma) at the Princeton Plasma Physics Laboratory (Princeton, New Jersey) was then two-thirds completed. The Scylla (a high beta stellarator), forerunner of the Scyllac device, was operating at the Los Alamos Scientific Laboratory (LASL), while at the AEC's Livermore Laboratory, in collaboration with and part of Lawrence Radiation Laboratory in Berkeley, "a rather old mirror machine" (a linear machine) called Table Top was producing plasmas with 25 kev electron plasmas. The Astron facility (plasma confined by a circulatory electron beam), also at Livermore, was nearing the stage where hopefully a step-by-step test of the Astron principle would be possible. At Oak Ridge National Laboratory (ORNL), the DCX-2 facility was being designed to replace DCX-1 (a mirror machine injected with molecular deuterium ions).

However, in the research with these devices, between 1961 and 1965, a veritable host of plasma instabilities was discovered, some experimentally, some theoretically. Each in its turn had to be understood and either eliminated or minimized. Critical experiments and better theory had to be developed. Together they would have to provide a depth of understanding of plasma phenomena that went far beyond anything that anyone had formerly conceived of as necessary. Altogether a good deal of progress in such understanding was made. An important advance was made in the early 1960's by the Soviet physicist M. Joffe, referred to as Joffe bars effect, which made possible increased plasma stability. Gradually the belief emerged that, though troublesome, plasma instabilities did not present an insuperable obstacle to the attainment of adequate plasma confinement.

Another ray of hope came from other places. In October 1963 Professor Donald Kerst at the University of Wisconsin reported encouraging results in a small device called a toroidal octupole (a doughnut-shaped container with circular conductor carrying current outside the plasma). Tihiro Ohkawa at General Atomic reported, in November, preliminary results on a linear octupole. The studies of Kerst and Ohkawa paved the way for an entire new genus of devices, the multipoles; and Dr. Ohkawa's work culminated in 1970, with a demonstration of classical plasma confinement in a large toroidal octupole.

During 1964 and 1965, program emphasis on Controlled Thermonuclear Research (CTR) began to shift from basic plasma research to a more applied form in which the considerable body of knowledge about instabilities was applied to the design of a new generation of confinement systems.

At the request of the JCAE a review panel composed of scientists not connected with the CTR programs at the four (national) laboratories was appointed. The full committee met for the first time on May 25 and 26, 1965. Subsequent to this organizational meeting the panel met at each of the four laboratories during the period late June to mid-July 1965. By late July the first tentative conclusions had been reached and these were forwarded to Dr. Paul McDaniel, Director of Research, on August 4, 1965. The panel met on October 9-10 to consider their final recommendations.

On December 30, 1965, the final report of the Controlled Thermonuclear Research Review Panel was forwarded to the Commission. In its final form the panel report addressed itself directly to the then existing status of research in CTR as well as to future program requirements. On the latter subject the panel was distressed to find that the U.S. contribution to world research in fusion was declining rapidly. It recommended "a doubling of scientists and engineers engaged in CTR under AEC auspices in a period of approximately five years." Furthermore, it recommended that "the AEC take immediate steps toward establishing a national center for plasma studies and nuclear fusion research."

The panel concluded that fusion research in the four major laboratories was in a healthy state and the "CTR (was) rapidly moving from an experimental art into a quantitative science." These recommendations included specific references to various experimental programs and how these could be augmented and improved.

At year end, 1965, a major administrative change took place in the Controlled Thermonuclear Research Program. Amasa Bishop, who had headed the program from 1954 to 1958, returned to take charge again. On February 10, 1966, I sent a revised version of the panel report to Charles Schultze, the director of the Bureau of the Budget. I noted that "the views of the Commission were guided in great measure by the report of the Review Panel on Controlled Thermonuclear Research."

During the months that followed, the proposed policy and action paper was subjected to extensive review both within and without the Commission. Early in March, a subcommittee, headed by Sydney Drell, was commissioned to review the report on behalf of the President's Science Advisory Committee. On March 22, the entire Committee was briefed and by mid-June, when the document was put in final form, the Commission's General Advisory Committee had reviewed it also.

On June 16 and 17, 1966, two staff papers were sent to the Commission. One was a request "to consider the adoption of an AEC policy and action paper on controlled thermonuclear research." The other was to consider the establishment of a CTR advisory committee as proposed in the policy and action paper. This advisory committee was envisioned to consist of approximately eight members: the four directors of the primary CTR programs; the assistant research division director (for controlled thermonuclear research), who would act as chairman; and an additional three or four members of the committee to be selected from among the ranks of the U.S. scientific community.

On June 21, 1966, the Commission adopted the policy and action paper including approval of the CTR advisory committee. In response to the recommendations made in the policy and action paper, an orderly expansion of the CTR program began. An internal program review committee was established in 1966. Officially titled the "CTR Advisory Committee," it became known within the program as the Standing Committee. Within a year, four ad hoc panels were convened to study the LASL Scyllac proposal, Low-Beta Open, and Low-Beta Closed, Systems and the Livermore Astron project. The reports they made provided the necessary sound scientific support for the programmatic decisions that followed.

In the scientific-technical area, the document urged that "a number of large new experimental devices (be built) in order to test recent concepts for improved plasma confinement."

The list of fiscal recommendations included one that urged "a net increase of about 15 percent a year in normal operating funds over the next five years," and another recognized the need for major fabrication funds of from \$3 million to \$4 million annually.

At its third meeting on September 7 and 8, 1966, the Standing Committee approved its panel recommendation on the LASL Scyllac. The motion concluded with the unanimous recommendation that the project "be pursued vigorously, through its incorporation in the FY 68 budget." This led to the inclusion of \$8.5 million in the FY 1968 budget for this facility.

During 1967 the other three ad hoc panels of the Standing Committee were appointed in the following subject areas (and chronologically in the order shown): Low-Beta Toroidal Plasma Research, Low-Beta Open System Research, and the Astron program.

After accepting the Low-Beta Toroidal panel's report, the Standing Committee, on September 7 and 8, 1967, went on to authorize fabrication of a superconducting multipole (FY-1) at Princeton.

The Standing Committee reviewed the Low-Beta Open System panel's report on October 30, 1967, and approved a statement which included the following points:

"We find that the present mirror program is well balanced and that the fusion motivation for mirror research continues strong.

We see a clear need for proceeding with the construction of the Baseball II facility as recommended unanimously by the panel...

We support in principle the target plasma program at ORNL ...

We note with gratification the excellent plasma regime achieved semi-empirically in the 2X experiment. We urge the Lawrence Radiation Laboratory (at Livermore) to exploit this encouraging achievement by increasing the effort devoted to it."

Based on the recommendations of the Astron panel, the report of the Standing Committee in March 1968, was not favorable to the Astron project.

In 1967 the crucial objective of the Low-Beta Toroidal research program was a clear demonstration of substantially improved plasma confinement over that predicted by the Bohm formula. So stated the Panel on Low Beta Toroidal Research; and so did the scientific community believe. In the January 19, 1970 issue of Physical Review Letters, such confinement was unequivocally demonstrated. Not even the journal's sterile prose can disguise the magnitude of the breakthrough by Tihiro Ohkawa and his General Atomic co-workers:

"The confinement of 300 Bohm times is observed...In high-density regimes the loss process is found to be due to classical diffusion."

Not only had there been a demonstration of substantially improved confinement, but in fact classical diffusion of a magnetically confined plasma had been obtained for the first time. (The Bohm formula is an empirically observed scaling law that tells how the diffusion time is increased as the dimensions and the field are increased.)

Another significant development program occurred which would have a marked effect on the U.S. Low-Beta Toroidal Program. At the third IAEA Conference on Plasma Physics and Controlled Thermonuclear Research held in Novosibirsk, USSR, in the summer of 1968, new results on toroidal confinement had been presented. In particular, the Soviets disclosed that in the T-3 and TM-3 Tokamak devices (doughnut-shaped magnetic container with current circulating within the plasma) they had confined hot plasmas (electron temperatures of kilovolts and ion temperatures a fraction thereof) for times on the order of 10 milliseconds, which represented a factor of 50 over that predicted by the Bohm formula. The Tokamak program director, L. Artsimovich, was no newcomer to CTR. he had been developing and refining the Tokamak principle for over a decade. Immediately after Novosibirsk, the CTR office began a searching re-evaluation of the U.S. Low-Beta Toroidal Program.

At the September Standing Committee meeting at Los Alamos, Bishop requested that each laboratory analyze the impact of the Novosibirsk Conference on its program. By April 1969 there seemed to be general agreement that the Soviets had forged significantly ahead in low beta toroidal confinement research. As a result, an Information Paper on CTR was forwarded to the Commission on May 15. In it were detailed the Soviet results as they were then appreciated.

"Hot plasma is now reported to have been confined in the T-3 Tokamak for times of more than 1/50 of a second which corresponds to at least 80 times the Bohm value. In these experiments the ion temperatures are reported to be about 500 eV, the initial plasma density being about $5 \times 10^{13}/\text{cm}^3$. If these figures are valid, this combination of factors is by far the best achieved anywhere in the world."

Following the May Information Paper, the Standing Committee met at Albuquerque from June 26 to 28, 1969. The major item on the agenda was what the proper response to the Soviet challenge of tokamaks should be. It was unanimously agreed that at least one tokamak experiment had to be started in fiscal 1970 and a second would be highly desirable. On the basis of the speed with which the experiment could be put on line and on its ready ability to check out Soviet interpretations, the PPPL conversion of Model C to a Symmetrical Tokamak (ST) device and the ORNL ORMAK (Oak Ridge Tokamak) program were approved. Inasmuch as the Committee also had to consider excellent proposals from General Atomic for Doublet-II (toroidal multipole with current circulating within the plasma), from MIT for Alcator (a tokamak), and from the University of Texas for its turbulently heated system, the decision to approve only two devices represented a concession to the fiscal pressures then operative.

Of the three proposals not acted upon at the time, the first deserves special mention. Doublet-II was the extension of an already existing Tokamak-like device called Doublet-I, whose genesis can be traced back to an idea of Ohkawa's in late 1967 to combine the best features of the Tokamak with the best features of the multipole. Ohkawa was clearly the first of the U.S. scientists to appreciate the importance of the tokamak geometry. In his proposal to the AEC dated May 22, 1968, he related his entire design of Doublet-I, then called a plasma current multipole, specifically to the Tokamak and outlined its properties in terms of that concept. By the time of the Albuquerque Standing Committee meeting, Doublet-I had already shown the feasibility of obtaining a geometrically stable Magnetic Hydro Dynamic (MHD) equilibrium in the Doublet geometry and had indicated the possibility of obtaining stable confinement of an intermediate beta plasma. Late in fiscal 1970, the Standing Committee finally agreed that the project should be funded and recommended it to Bishop. Funding began in February 1970. Completion was scheduled for the summer of 1971.

The other two tokamak proposals not originally approved by the Standing Committee fared equally well. As a result of the British verification of the T-3 results in August 1969, there was no longer any doubt that the Soviets had indeed made a major contribution to the CTR program. Virtually overnight, attention focused on how to take advantage of the breakthrough. The MIT and Texas programs were tailor-made for that purpose. The MIT group had fashioned a program that depended on the special high field capability of the Francis Bitter National Magnet Laboratory. They were prepared to investigate the scaling of tokamak behavior to reactor-like magnetic fields, i.e., fields in the 120-150 kG range; while the Texas program had addressed itself to the problem of increasing ion-heating through the use of induced plasma turbulence. Both proposals were reviewed extensively and favorably during the fall of 1969 and the winter of 1970. By late December 1969, the Division of Research had completed its review of Alcator (the MIT device) and on June 6, 1970 the AEC's General Manager was notified of "plans to initiate in fiscal 1970 the fabrication of a high magnetic field toroidal experiment at the Massachusetts Institute of Technology."

The Model C Stellarator was shut down in December 1969 and conversion to a symmetric tokamak (ST) was completed by May 1970. The first series of experiments confirmed the Soviet results on T-3 and provided the confidence needed to push forward with the other systems.

While the Low-Beta Toroidal Program was undergoing redirection, the embodiment of the High-Beta Toroidal effort, Scyllac, was proceeding along well-defined lines. Scyllac had been authorized in fiscal year 1968. However, building construction did not start until late November 1968. Thereafter, with the exception of a one month delay due to labor difficulties, the Scyllac project stayed right on schedule. Initial operation began on March 8, 1971.

Like the High-Beta Toroidal Program, the Mirror Program followed quite closely the Low Beta Open System panel's recommendations. At the Novosibirsk Conference in 1968, the Livermore (Berkeley) group reported near-classical plasma confinement in the 2X device. Additional data, taken during the year that followed, demonstrated the need for larger plasma volume, and deeper well depth.

As a result, the 2X (mirror) device was shut down early in 1970 and conversion to 2X-II was begun. In 2X-II the mirror ratio was to be increased by 50 percent, the plasma volume by a factor of 2, and the classical confinement time by a factor of 10. If the device is found to exhibit only classical losses, the case for stable confinement in mirror reactors will be greatly strengthened. Concurrently, the Baseball I (mirror) device, in which Landau damping was shown to be the controlling element in the plasma buildup process, was being converted to a larger neutral injection system in which several high energy beams can be injected simultaneously. Baseball II, although delayed somewhat by funding stringencies, was expected to be operational in summer 1971.

Thus by 1971 the following devices were operating or near operating: the Scyllac at Los Alamos, the Symmetric Tokamak and FM-1 (Multipole) at Princeton, Baseball II and 2X-II at Livermore (Berkeley), Doublet-II at General Atomic, ORMAK at Oak Ridge, and Alcator at MIT.

XIX. Nuclear education and training

To illuminate the orders of magnitude of the number of persons assisted, the FY 1969 program has produced the following education and training accomplishments: supported advanced study through 466 fellowships and 155 traineeships, enabled the training of 804 faculty members through summer and academic-year institutes, trained 672 individuals through nuclear courses and provided training opportunities at AEC laboratories ranging from participation in research to short instruction in use of scientific instruments for 1,182 faculty, 2,742 students and 609 others from government and industry. Additionally, close to 200 Puerto Ricans and Latin Americans were trained at the Puerto Rico Nuclear Center.

The program that experienced the greatest expansion in the ten-year period was the University-AEC Laboratory Cooperative Program. In July 1965 the Division of Nuclear Education and Training (DNET) organized a Laboratory Relations Branch to accelerate the Commission's programs of encouraging colleges and universities to make greater use of the unique talents and sophisticated facilities of AEC laboratories for educational purposes. The establishment of this branch enabled the Division to provide several full-time professionals with the opportunity to 1) motivate both AEC laboratories and educational institutions to expand interactions among themselves, 2) improve coordination of laboratory cooperative activities with other agencies and industrial nuclear laboratories, and 3) work with college and university consortia to develop new programs of cooperation with AEC laboratories. This program is administered for the Commission by a number of university consortia throughout the United States. These include Oak Ridge Associated Universities, Argonne Universities Association, Associated Western Universities, the Northwest College and University Association for Science and several others. These cooperative educational programs are developed by committees of the associations, representing a number of nuclear disciplines. The support of faculty and students at AEC laboratories is administered principally by the consortia but may also be administered in some instances through the laboratory providing the research facilities. The laboratory cooperative endeavors comprise principally: faculty and student research participation, faculty-student conferences, laboratory graduate fellowships, honors programs, and engineering practice schools. There are 15 AEC laboratories that participate in some or all of these activities.

Another important educational activity under the Assistance to Schools category is the program of training teachers through summer and academic-year institutes. Most of the training in this category is in the field of radiation science and technology. However, its level has been cut in two over the ten years ending in FY 1971. The major reduction has been in phasing out training of high school science teachers, due to budget stringencies. In the early years of this program the related funding was provided by both the National Science Foundation and the AEC. NSF provided the support for the college and high school teachers attending the institutes and the AEC provided operating support to the host universities conducting the institutes. In recent years the AEC has been providing the total funding required for these institutes, but confined to teachers.

Since 1954 the Commission has provided financial support to colleges and universities for nuclear materials and services related to their instructional programs in the nuclear sciences and engineering. The support for this category has more than doubled over the FY 1960- FY 1970 period. In the last few years, nevertheless, it has been possible to accommodate less than one-half of the requests received. Most of this activity, about 80% of its funds, has been for fabrication and reprocessing of fuel for university reactors, known as fuel cycle assistance. Two dozen reactors on campuses spread widely through the United States are assisted in this way and 15 of them are rated above 1 megawatt. Many of these are increasing in power and usage, thereby resulting in increased fuel and operating costs. A most serious problem facing universities with large research reactors is how to meet the increasing cost of operating these facilities. The universities bear three-quarters of this cost but they depend on the AEC for some financial support for their reactors. For this, fuel cycle assistance is augmented by waiver of use charges for fuel and waiver of reprocessing costs for spent fuel elements. The institutions possessing these larger reactors produce more than 90% of the M.S. level and 97% of the Ph.D. level nuclear engineers. These advanced degree graduates contribute greatly to fulfilling the manpower requirements for the nuclear industry and AEC contractors. These reactors also help to diffuse nuclear phenomena into many scientific disciplines other than nuclear engineering. It is estimated that a typical university research reactor is utilized over 50% by disciplines other than nuclear engineering.

In recognition of the versatility of these reactors, the AEC in 1969 instituted a program of reactor-sharing, whereby institutions with reactors are compensated for costs added by sharing the reactors with nearby colleges and universities. To date there are five such reactor-sharing centers located in California, Texas, Kansas, Georgia and New York. It is the intent of DNET to expand this program in the future to establish at least 20 such centers within the United States.

As part of the Atoms for Peace program of the Eisenhower Administration, the Commission established the Puerto Rico Nuclear Center for the training of Latin American scientists and engineers in nuclear technology. The initial budget for the establishment of the Center was in FY 1958 and that the budget has expanded from \$510,000 in FY 1960 to \$1,340,000 in FY 1970. During this growth a shift took place from emphasis on instruction in radioisotope techniques to graduate degree programs in the physical and life sciences and engineering, all with a nuclear emphasis. The shift was made concurrently with a Commission determination that it was necessary to have a research capability at the Center as a base for graduate education and training, and for an instructional center whose staff would be up to date in techniques. Thus, in addition to DNET's financial support for educational activities at PRNC, the Division of Biology and Medicine instituted in 1962 a life science research program approximating \$600,000 per year, and the Division of Research initiated a physical sciences program running about \$200,000 per year.

It must be apparent that during the period FY 1960- FY 1970 and continuing to date the Commission has made substantial changes in its education and training program. Because of stringent budgets in recent times DNET has terminated its program of training high school science teachers and is concentrating on the training of college faculty, including faculty from junior colleges and technical institutes who will be trained to instruct the technicians urgently needed by the expanding nuclear industry. Increased emphasis is being placed on the traineeship mode of support for graduate study as distinguished from fellowships. Traineeships provide the Commission with a greater voice in choice of graduate curricula and degree level than do fellowships. Likewise, more emphasis is being placed on M.S. level programs than the Ph.D. degree in Nuclear Engineering and Radiation Science and Protection. Some of these changes in emphasis reflect not only the changing picture of government contractor and industrial employment but also concerns of the Office of Management and Budget and the Joint Committee on Atomic Energy resulting from their review of the Commission's education and training budgets.

The 1970 workshop for black institutions at Oak Ridge was broadened from the 1969 format to include faculty from all university disciplines instead of engineering alone. Reports during August 1970 indicated that this workshop also has been quite successful.

The story of nuclear education and training would not be complete without mention of the excellent assistance that has been rendered to educational institutions and the AEC by the American Nuclear Society (ANS), the American Society for Engineering Education (ASEE), and the American Institute of Biological Sciences (AIBS). The Commission has worked hand-in-glove with these organizations almost from the inception of the program for nuclear education and training. The ASEE and the AIBS were particularly helpful in the early part of the 1960's, whereas the contributions made by the ANS have been exercised during the latter five years of the decade. These three organizations' invaluable professional assistance has been principally in the areas of faculty institutes, training aids, manpower surveys, conferences, seminars, and symposia.

In summary, the 1960's may be characterized as the period when the joint venture of AEC and educational institutions to develop instructional capabilities on campus in the nuclear sciences and engineering paid off to the benefit of the government, industry, education and the public. The Commission has invested over \$125 million plus \$20 million worth of loans of nuclear materials and substantial indirect aid through use of its laboratory facilities on behalf of this venture. Similarly, the institutions have more than matched this sum in estimates as high as an additional \$160 million.

XX. Technical information

As of 1961, the Commission was publishing four quarterly Technical Progress Reviews, journals which covered developments in particular areas of the nuclear energy field of interest to technical and management people. The four were Nuclear Safety, Power Reactor Technology, Reactor Core Materials (renamed Reactor Materials in 1962), and Reactor Fuel Processing, and were prepared by staffs of major laboratories. A fifth journal, Isotopes and Radiation Technology, was added in 1963; and in 1967, the publication schedule for Nuclear Safety was increased from four to six times per year.

In 1966, when it became apparent that chemical reprocessing of nuclear fuel had become routine, Reactor Fuel Processing was merged into Power Reactor Technology. In 1969, Reactor Materials was merged with Power Reactor Technology.

Another means of furnishing scientists with needed information covering the state of knowledge in their fields of interest was provided in 1968, when AEC began publication of its Critical Review Series. (A critical review has been defined as "an article on a specialized field of study in which the scientific objectives within the field are defined, concepts or hypotheses are examined, existing knowledge is evaluated, and new concepts are synthesized.") Five volumes were issued in this series: Sources of Tritium and Its Behavior Upon Release to the Environment; Plume Rise; Atmospheric Transport Processes, Part I; Reactor-Noise Analysis in the Time Domain; and The Analysis of Elemental Boron.

Since its inception, the AEC has received a steady flow of inquiries from the general public, particularly secondary school students and their teachers, regarding various aspects of nuclear science and its applications. By 1963, the volume of such requests had become so heavy that the AEC decided to prepare topical booklets to provide answers to the questions asked most frequently. These could serve as tools for the strengthening of science education. Accordingly, a series of educational booklets was initiated under the title of "Understanding the Atom." Prepared by established science writers, the booklets are made available in limited quantities without charge.

The series proved to be enormously popular from the outset, resulting in repeated reprints and the addition of more titles. Many of the booklets have been translated into foreign languages, and seven which have been produced in Braille are being distributed to blind high school students through the American Printing House for the Blind. The growth of the series may be seen in the following table.

Understanding the Atom Booklets

<u>Year</u>	<u>Number of titles in Print</u>	<u>Number of Copies Distributed (Cumulative)</u>
1962	3	
1963	8	
1964	19	
1965	28	
1966	39	3,328,200
1967	45	4,779,000
1968	51	6,524,000
1969	54	8,047,600
1970	56	9,456,400

The booklet "The Elusive Neutrino," by Jeremy Bernstein, received the 1970 Science Writing Award in Physics and Astronomy sponsored by the American Institute of Physics and the U.S. Steel Foundation.

By 1970 it was felt that there was a need for educational materials on a somewhat less technical level than "Understanding the Atom." Accordingly, under the title of "World of the Atom," a new series of booklets was begun, designed for use by students in upper elementary grades and for basic adult education courses. Five titles were published in this series during its first year.

Among the accomplishments of which I am most proud were the publication of the two histories of the Atomic Energy Commission: Volume I, The New World, 1939/1946 by Richard G. Hewlett and Oscar E. Anderson, Jr. (The Pennsylvania State University Press, 1962), and Volume II, Atomic Shield, 1947/1952 by Richard G. Hewlett and Francis Duncan (The Pennsylvania State University Press, 1969).

During the ten years (1961-70), the AEC organized U.S. participation in 120 IAEA conferences held throughout the world. The U.S. sponsored approximately 3,000 participants who presented 1,500 papers covering a broad spectrum of subject matter. The IAEA conferences which drew the largest U.S. attendance abroad and the greatest number of papers were those on Plasma Physics and Controlled Thermonuclear Research. There were three such conferences held: at Salzburg, Austria, in 1961; Abingdon, U.K., in 1965; and Novosibirsk, USSR, in 1968. Several of the IAEA conferences were held in the United States. Most highly attended was the conference on "Environmental Aspects of Nuclear Power Stations," held at United Nations Headquarters in New York in August 1970 (which I attended).

In addition to the IAEA meetings, there were 152 other conferences supported by the AEC during the ten-year period. Especially noteworthy among these were:

Radiation Research Congresses held in England (1962), Italy (1966), and France (1970).

International Congress on Nuclear Physics, Gatlinburg, Tenn. (1966).

Conference on Constructive Uses of Atomic Energy, Washington, D.C. (1968).

To facilitate access by the scientific community to the world's nuclear literature, the AEC established in 1948 its semimonthly journal Nuclear Science Abstracts (NSA). Trends in nuclear science and technology have been mirrored by the yearly changes in NSA contents. During the 10 years (1961 through 1970), the number of literature items abstracted annually increased from 33,064 to 53,080. A very significant trend reflected in the contents of NSA is the increased tempo of nuclear research and development in foreign countries. Whereas in the early years a heavy preponderance of the literature abstracted in NSA originated in the United States, a crossover occurred during the 1960's, and the U.S. share of the total dropped below 50 percent.

A notable change, initiated during the decade and still in process, is the computerization of the actual production of Nuclear Science Abstracts.

In 1967, an automatic data processing system with input prepared via paper tape was instituted to increase the speed of input and to facilitate storage of the information for index cumulation and other retrieval purposes. In 1970, an even faster and more efficient system was initiated through which the contents of NSA are inputted through keyboards attached to video display cathode ray tube terminals. These permit the information to be edited and corrected prior to entering the data base. A key feature of the new procedures is that the single keyboarding step used for automatic entry of bibliographic citations also provides information for the titling of microfiche, reproduction copy for catalog cards and weekly accession lists, data for the production of NSA indexes, and a bibliographic data base for further computer manipulation.

In addition, there has been under development since 1966 an International Nuclear Information System (INIS), operated under the aegis of the International Atomic Energy Agency for all its member states. The basic plan of INIS is that each country surveys its own national scientific literature, identifies items on the peaceful uses of nuclear energy which fall within the subject scope of the system, and supplies English-language bibliographic descriptions, abstracts, and subject indexing terms for those items. The IAEA then merges the data received and makes available on magnetic computer tape copies of a complete bibliographic file which each member state can use to supply nuclear information services within its borders. The IAEA also furnishes periodic categorized listings of the items reported to the system and, on request, copies of scientific and technical reports. Following approval by the IAEA's Board of Governors, the INIS became operational in May 1970 with a subject scope limited to reactor technology for the initial "debugging" period. In 1970, submissions were received from about 30 countries, including the U.S. (about 2,400 items) and the USSR.

"This Atomic World," the AEC's nationwide mobile lecture-demonstration program, aims to stimulate high school students' interest in science and increase their understanding of the basic principles and peaceful applications of nuclear energy. During the academic year, the teacher-demonstrator, traveling in a specially-equipped van, visits a different school each day. In a 40-minute assembly program for the entire student body, the teacher covers basic aspects of nuclear science including radioactivity, chain reactions, reactors and their uses, and applications of radioisotopes. Subsequently, s/he conducts more specialized sessions for the school's science classes.

By the end of 1970, more than 19 million students in all 50 states had seen the program. A long-standing goal of the program is to be able to reach every U.S. student at least once during his/her high school career. To reach more students without substantially increasing Federal expenditures for the program, a cooperative method of support was introduced in 1966-67. Under this procedure, AEC supplies the van and its equipment and trains the demonstrator, while a State or local organization employs the demonstrator and handles scheduling. In 1970, 18 of the 21 units were operated in this manner.

AEC has found museums, especially those with active science programs, to be excellent locations for presentations of exhibits and demonstrations on nuclear energy. One of the first of these exhibits was "Radiation and Man" which opened at the Museum of Science and Industry in Chicago, Illinois, in 1963. It utilizes audience participation devices to explore highlights of nuclear science, with particular attention to the effects of radiation on living matter. It also features lecture-demonstrations which explain uses of radiation in research, medicine, and agriculture. In 1964 and 1965, "Radiation and Man" and Atomsville, U.S.A.," a nuclear museum for children ages 7 through 14, were displayed at the New York World's Fair Hall of Science.

Another museum exhibit, "Life Science Radiation Laboratory," features a biology laboratory where actual experiments are carried out with plants, animals, and fish which have been "tagged" with radioisotope tracers. This exhibit has been shown at many U.S. museums.

An important addition to the Commission's traveling museum program is the "Energy" exhibit originally designed under the Office of Education auspices for the Cincinnati Science Center. When that Center was closed in 1970, the exhibit was transferred to AEC. Its three major components, "Electrical Energy", "Radiant Energy", and "Mechanical Energy" have been loaned to the New York Hall of Science, Franklin Institute in Philadelphia, and the Oregon Museum of Science and Industry in Portland, respectively.

The AEC agreed to support the installation of a research reactor and a gamma irradiation facility in a new atomic energy wing being added to the New York Hall of Science.

From 1959 through 1969, the AEC presented a series of month-long nuclear science demonstration expositions in major cities of the world. The program has been terminated because of lack of funds.

A major exhibit demonstrating U.S. achievements in nuclear technology was held in conjunction with the Third Geneva Conference in 1964. It was visited by more than 22,000 persons.

The AEC and the Department of Interior cooperated in a nuclear desalting exhibit at the Levant Fair in Bari, Italy in 1966. Other presentations on desalting were made in 1967 in Milan, Italy, and Sao Paulo, Brazil, and during 1968 in several major cities of Pakistan.

The AEC displayed information on desalting, peaceful nuclear explosives, and other subjects at NUCLEX-66, a nuclear industry exposition at Basel, Switzerland. Other AEC exhibits abroad were presented in connection with the Mexico City Olympic Games in 1968 and at the Paris Air Show in 1969.

XXI. Civil Defense

As a result of the persistent efforts of Alvin Weinberg and Eugene Wigner, a civil defense research program, supported jointly by AEC and the Office of Civil Defense, was established at the Oak Ridge National Laboratory in 1964. A general national lack of support for civil defense led to the demise of this program.

AUXILIARY AND PERSONAL ACTIVITIES

My journal includes descriptions of various auxiliary and personal activities.

During this decade I gave some 500 major speeches, including the annual historic "Prelude to Independence" Address at Williamsburg, Virginia, in May 1962; addresses at each of the 11 annual General Conferences of the International Atomic Energy Agency, 1961-71; 18 commencement addresses at universities and colleges; 20 addresses at dedications of university or college laboratories; talks each year at the annual joint meetings of the Atomic Industrial Forum and the American Nuclear Society (1961-71); six talks at the annual International Science and Engineering Fairs; seven talks at the annual Science Talent Search in Washington; three talks at the California Commonwealth Club in San Francisco; and two talks at the National Press Club.

During this period I received a number of awards, including being named "Swedish American of the Year" by the Vasa Order of America (1962), election as a "Kentucky Colonel" by the State of Kentucky (1962), receiving the Franklin Medal of the Franklin Institute (1963), the Charles Lathrop Parsons Award of the American Chemical Society (1964), the First Spirit of St. Louis Award from St. Louis University (1964), the Leif Erikson Award from the Leif Erikson Foundation (1964), the Washington Award from the Western Society of Engineers (1965), the Willard Gibbs Medal of the Chicago Section of the American Chemical Society (1966), the Arches of Science Award of the Pacific Science Center Foundation (1968), the Chemical Pioneer Award of the American Institute of Chemists (1968), the Prometheus Award of the National Electrical Manufacturers Association (1969), the Nuclear Pioneer Award of the Society of Nuclear Medicine (1971), the Oliver Townsend Award of the Atomic Industrial Forum (1971), and the Distinguished Honor Award of the U.S. Department of State (1971). In addition, I was awarded about 40 honorary degrees (including D.Sc., Sc.D., LL.D., D.P.S., D.P.A., D.Eng., and L.H.D. degrees).

I was also elected to membership in the following foreign academies: Argentine National Academy of Sciences (Honorary Member, 1967), Bavarian Academy of Sciences (Corresponding Member, Mathematics-Natural Science, 1968), Royal Academy of Exact, Physical and Natural Sciences, Spain (Academic Foreign Correspondent, 1969), and the USSR Academy of Sciences (Foreign Member, 1971).

Soon after my arrival in Washington I moved into the University Club, which served as my residence until the arrival of my family in late June of 1961. Before they arrived I purchased a house (with four bedrooms, an attic dormitory room and a study which could serve as a guest room) in the Old Chevy Chase or Reno Park area of northwest Washington (3825 Harrison Avenue). A major criterion for the location of the house was proximity, i.e., easy walking distance, to Ben Murch Grammar School (grades kindergarten through six), Alice Deal Junior High School (grades seven through nine), and Woodrow Wilson High School (grades ten through 12). Peter (age 15) was scheduled to start the 10th grade in the fall; Lynne (soon to be 14), the ninth grade; David (12), the seventh grade; Stephen (soon to be 10), the fifth grade; and Eric (to be seven in November), the second grade. Dianne (to be two in November) started kindergarten three years later (after having to pass an entrance examination because she was too young, by a matter of days, to qualify in the regular manner).

Upon graduation from Woodrow Wilson High School in 1964, Peter entered Harvard University to major in history, and graduated in 1968. Lynne followed him, to Radcliffe College in 1965, where, as an anthropology major, she graduated in 1969. David went to the University of California, Davis, as a zoology major in 1967, and Stephen followed him there in 1969 as a psychology major. Thus, my journal includes copies of the letters that I wrote to them after they went off to college. Lynne married William B. Cobb, a Harvard social relations major and classmate of Peter in June 1968 (at the end of her junior year) in a ceremony at the Swedish Embassy in Washington, presided over by Judge Luther Youngdahl. Peter married Jane Rubenstein at the United Nations Chapel in New York in June 1971.

My mother visited us from her home in South Gate, California, one or more times each year until ill health overtook her in 1967, followed by her death in 1968. Much of my correspondence with her is attached to the pages of my journal.

Before any of the kids left home, the eight of us enjoyed our family vacations together--in 1961, short visits in our Pontiac station wagon to Ocean City, Maryland, and the Shenandoah Mountains; in 1962, a visit via air travel to my hometown of Ishpeming, Michigan, the newly opened Century 21 Exposition (World's Fair) in Seattle, Washington (as guests, in recognition of my service on the National Science Planning Board), and our home area of Lafayette, California; in 1963, an automobile trip to New England and eastern Canada, including Quebec; in 1964, an automobile trip to Gatlinburg, Tennessee, and the Smoky Mountains via the Blue Ridge Parkway in the Shenandoah Mountains; and in 1965, an automobile visit to the Pocono Mountains in Pennsylvania and Atlantic City, New Jersey. A favorite spot for short vacation interludes was Skyland Lodge in the Shenandoah Mountains. We also enjoyed a rented cottage on the beach at Virginia Beach, where I visited the family on weekends during their more extended stays. We were a pretty sight, the eight of us packed into our red station wagon with a luggage rack on the top often packed full of equipment and food.

After 1965, Peter and Lynne had their own agendas at summer vacation time and no longer accompanied us. However, the four younger kids continued to do so. In 1966, we flew to Chicago, rented a car to drive to and visit my hometown of Ishpeming; in 1967, we drove to Montreal, Canada, to visit Expo '67 (Peter and Lynne flew up for short visits with us); in 1968, we drove to Florida and toured the state, and visited the Savannah River Laboratory on the way back; in 1969, we flew to Los Angeles to do the sights (Disneyland, Knott's Berry Farm, movie studios, etc.) and Helen and I attended a banquet that President Nixon gave for our astronauts who had landed on the moon the month before; and in 1970, we made an automobile tour of historic and scenic regions in Pennsylvania.

Although I played some golf at the Chevy Chase Country Club (of which we were members), on the whole I neglected my exercise during the first half of our stay in Washington due to the pressures of my work and travel schedule, with the result that I began to feel tired. I then began to hike with some regularity, taking, when the weather permitted, almost daily hikes on the marvelous trails of Rock Creek Park, and sometimes longer hikes on weekends. A favorite hike was to Old Rag Mountain in the Shenandoahs, which became an annual event in which we were joined by members of the AEC staff--on one occasion by as many as 50. Also, at my request, a hiking trail was fashioned at our Germantown headquarters, which later became known as the "Seaborg Trail," and on which I and some of my staff often hiked after lunch, on those days when we were at Germantown.

In 1965, I joined the Board of Trustees of Science Service, and in 1966, upon the retirement of Leonard Carmichael, I became President. Watson Davis also retired as Director at that time and was succeeded by Ted Sherburne. Science Service is devoted to the public understanding of science, sponsors the annual Westinghouse Science Talent Search, the annual International Science and Engineering Fair and is the publisher of Science News. Thus, I began to interview the 40 finalists each year at the annual Science Talent Search in order to help select, as one of a panel of judges, the winners of the scholarships.

I served on the Board of Directors of the National Educational Television and Radio Center (1958-1964 and 1967-1970), the Board of Trustees of the Pacific Science Center Foundation (1962-1971), the Board of Trustees of the American Scandinavian Foundation (1968-1971); became a member in 1969 of the Board of Directors of the newly formed, Washington-based, World Future Society; continued my membership on the Scientific Advisory Board (SAB) of the Welch Foundation and attended their semi-annual meetings in Houston, Texas; and served on the editorial boards of the Journal of Inorganic and Nuclear Chemistry (1954-71) and the Panel of User Consultants of the American Heritage Dictionary (1964-1971).

After having declined to do so on several previous occasions, on the basis of my heavy schedule, I consented in the fall of 1970 to run for president of the American Association for the Advancement of Science (AAAS), this time on the basis that I knew that I would finish my service as AEC Chairman in the summer of 1971. I was elected, am serving as President-Elect now (in 1971), will serve as President in 1972, and as Chairman, in 1973. In this capacity, I began to attend the meetings of the Board of Directors in 1971, when my old friend Athelstan Spilhaus is Chairman and Mina Rees is President.

During this decade I participated in countless press conferences in this country and in almost all of the 60 countries that I visited. Major press conferences occurred at each of the 11 General Conferences of the International Atomic Energy Agency, and the two Geneva Conferences on the Peaceful Uses of Nuclear Energy. I appeared on the NBC news program "Meet the Press" twice (in 1961 and 1971), the ABC news program "Issues and Answers" several times, the NBC "Today" show and many other TV and radio news programs. I was featured in news magazines, including cover stories in both Newsweek (October 1961) and Time (November 1961), a cover story in Business Week (December 1964), and interviews in U.S. News & World Report.

With all of this, I managed to read the scientific journals in my specialty, enabling me to stay abreast of my research field of transuranium elements and nuclear chemistry. I published about two dozen scientific articles, the most notable being a 100-page review article in the 1968 issue of the Annual Review of Nuclear Science entitled "Elements Beyond 100, Present Status and Future Prospects". Thus, I feel, I am returning to the University of California in a position to resume research in my specialty.

APPENDIX A

Commissioners

Bunting, Mary I.

1964-1965

Biologist and former president of Radcliffe College

Costagliola, Francesco

1968-1969

Former staff member of the Joint Committee on Atomic Energy

Haworth, Leland J.

1961-1963

Physicist and former director of the Brookhaven National Laboratory

Johnson, Wilfrid E.

1966-1971

Engineer and former general manager of the Hanford Atomic Works

Larson, Clarence E.

1969-1971

Chemist and former general manager of Oak Ridge Operations

Nabrit, Samuel M.

1966-1967

Biologist and former president of Texas Southern University

Olson, Loren K.

1961-1962

Washington attorney and former general counsel of the Atomic Energy Commission

Palfrey, John G.

1962-1966

Former professor, Columbia School of Law

Ramey, James T.

1962-1971

Former executive director of the Joint Committee on Atomic Energy

Tape, Gerald F.

1963-1969

Physicist and former president of Associated Universities, Inc.

Thompson, Theos J.

1969-1970

Nuclear engineer and former professor, Massachusetts Institute of Technology

Wilson, Robert E.

1961-1964

Former chairman of Standard Oil of Indiana and member of the General Advisory Committee

APPENDIX B
Key Staff of the Atomic Energy Commission (AEC)

Secretary to the Commission
W.B. McCool, 1961-1971

Controller
Don S. Burrows, 1961
John P. Abbadessa, 1962-1971

General Counsel
Neil D. Naiden, 1961
Joseph F. Hennessey, 1962-1971

Chief Hearing Examiner
Samuel W. Jensch, 1961-1971

Chairman, AEC Board of Contract Appeals
Paul H. Gantt, 1964-1971

General Manager
Alvin R. Luedecke , 1961-1964
Robert E. Hollingsworth, 1964-1971

Deputy General Manager
Robert E. Hollingsworth, 1961-1964
Edward J. Bloch, 1964-1971

Assistant General Manager
Dwight A. Ink, 1961-1965
Howard C. Brown, Jr., 1966-1971

Director, Office of Congressional Relations
Richard X. Donovan (Special Assistant), 1961-1963
John J. Burke, 1964-1966
Robert D. O'Neill, 1967-1971

Assistant General Manager for Operations
Edward J. Bloch, 1961-1964
John A. Erlewine, 1964-1971

Assistant General Manager for Research & Development
Spofford G. English, 1961-1971

Assistant General Manager for Plans (or Development) & Production
George F. Quinn, 1961-1971

Assistant General Manager for Reactors
John A. Swartout, 1964
George M. Kavanagh, 1965-1971

Assistant General Manager for International Activities
Algie A. Wells, 1961-1964
John A. Hall, 1964-1966
Myron B. Kratzer, 1967-1971

Assistant General Manager for Administration

Harry S. Traynor, 1961-1964
Howard C. Brown, Jr., 1964-1965
John V. Vinciguerra, 1966-1971

Assistant General Manager for Plans

John J. Flaherty, 1970-1971

Director, Division of Military Application

Austin W. Betts, 1961-1964
Delmar L. Crowson, 1964-1966
Edward B. Giller, 1967-1971

Special Assistant for Disarmament

Allan M. Labowitz, 1966-1971

Director, Division of Research

Paul W. McDaniel, 1961-1971

Director, Division of Biology and Medicine

Charles L. Dunham, 1961-1966
John R. Totter, 1967-1971

Director, Division of Reactor Development and Technology

Frank F. Pittman, 1961-1962
Milton Shaw, 1963-1971

Director, Division of Isotopes Development

Paul C. Aebersold, 1961-1964
E. Eugene Fowler, 1965-1971

Director, Division of Technical Information

Edward J. Brunenkant, 1961-1971

Director, Division of Nuclear Education and Training

Russell S. Poor, 1962-1969
Elliot S. Pierce, 1970-1971

Director, Division of Public Information

Duncan C. Clark, 1961-1965
John A. Harris, Jr. 1966-1971

Director, Division of Production

Frank P. Baranowski, 1961-1971

Director, Division of Industrial Participation

Ernest R. Tremmel, 1961-1971

Director, Division of Inspection

Curtis A. Nelson, 1961-1968
George E. Hubbell, 1969
Jon D. Anderson, 1970-1971

Director of Regulation

Harold L. Price, 1961-1971

Deputy Director of Regulation
Clifford K. Beck, 1961-1971

Assistant Director for Nuclear Safety
M. M. Mann, 1964-1971

Assistant Director for Administration (Regulation)
C. L. Henderson, 1964-1971

Assistant Director for Special Projects (Regulation)
Richard L. Doan, 1968

Director, Office of Environmental Affairs
John J. DiNunzio, 1970-1971

Chairman, Atomic Safety and Licensing Board Panel
Algie A. Wells, 1967-1971

Director, Office of Safeguards and Materials Management
Delmar L. Crowson, 1967-1971

APPENDIX C
Joint Committee on Atomic Energy

Rep. Chet Holifield (California), Chairman, 1961
1964-1965, 1968-1969; Vice-Chairman, 1962-1963, 1966-1967, 1970

Sen. John O. Pastore (Rhode Island), Chairman, 1962-1963, 1966-1967,
1970-1971; Vice-Chairman, 1961, 1964-1965, 1968-1969

Sen. Clinton P. Anderson (New Mexico), 1961-1971

Sen. Richard B. Russell (Georgia), 1961-1971

Sen. Albert Gore (Tennessee), 1961-1971

Sen. Henry M. Jackson (Washington), 1961-1971

Sen. Bourke B. Hickenlooper (Iowa), 1961-1969

Sen. Henry C. Dworshak (Idaho), 1961

Sen. George D. Aiken (Vermont), 1961-1971

Sen. Wallace F. Bennett (Utah), 1961-1971

Sen. Carl T. Curtis (Nebraska), 1965-1971

Sen. Norris Cotton (New Hampshire), 1969-1971

Sen. Everett M. Dirksen (Illinois), 1962

Sen. Stuart Symington (Missouri), 1971

Sen. Alan Bible (Nevada), 1971

Sen. Peter H. Dominick (Colorado), 1971

Sen. Howard H. Baker, Jr. (Tennessee), 1971

Rep. Melvin Price (Illinois), 1961-1971; Vice Chairman 1971

Rep. Wayne N. Aspinall (Colorado), 1961-1971

Rep. Albert Thomas (Texas), 1961-1965

Rep. James E. Van Zandt (Pennsylvania), 1961

Rep. Craig Hosmer (California), 1961-1971

Rep. William H. Bates (Massachusetts), 1961-1969

Rep. Jack Westland (Washington), 1961-1965

Rep. Thomas G. Morris (New Mexico), 1961-1969

Rep. John B. Anderson, 1963-1971

Rep. William M. McCulloch (Ohio), 1965-1971

Rep. John Young (Texas), 1966-1971

Rep. Ed Edmondson (Oklahoma), 1969-1971

Rep. Catherine May (Washington), 1969-1970

Rep. Orval Hansen (Idaho), 1971

Executive Director

James T. Ramey, 1961-1962

John T. Conway, 1962-1968

Edward J. Bauser, 1968-1971

APPENDIX D

Members of the General Advisory Committee

Abelson, Philip H.

1961-1962

(Director, Geophysical Laboratory, Carnegie Institution, Washington, D.C.)

Benedict, Manson

1961-1967

(Professor of Nuclear Engineering, MIT, Cambridge, MA)

Bugher, John C.

1964-1969

(Director, Puerto Rico Nuclear Center, San Juan, PR)

Eliassen, Rolf

1970-1971

(Environmental Engineer, Stanford University, Palo Alto, CA)

Friedman, Herbert

1968-1971

(Superintendent, Space Science Division, U.S. Naval Research Laboratory, Washington, D.C.)

Froman, Darol

1964-1965

(Retired, Espanola, NM)

Goldwasser, Edwin L.

1966-1971

(Professor of Physics, University of Illinois, Urbana, IL)

Hafstad, L. R.

1962-1967

(Vice President, Research Laboratories, General Motors Corporation, Warren, MI)

Hall, Jane H.

1966-1971

(Assistant Director, Los Alamos Scientific Laboratory, Los Alamos, NM)

Lawroski, Stephen

1964-1969

(Associate Laboratory Director, Argonne National Laboratory, Argonne, IL)

Libby, Willard F.

1961

(Professor of Chemistry, University of California, Los Angeles, CA)

Murphree, Eger V.

1961

(President, Esso Research & Engineering Co., Linden, NM)

Pitzer, Kenneth

1961-1964

(Professor of Chemistry, University of California, Berkeley, CA)

Ramsey, Norman F.

1961-1971

(Professor of Physics, Harvard University, Cambridge, MA)

Squires, Lombard

1968-1971

(Manager, Atomic Energy Division, E. I. Du Pont de Nemours & Co., Wilmington, DE)

Sterner, James H.

1971

(Professor of Environmental Health, University of Texas School of Public Health, Houston, TX)

Vesper, Howard G.

1965-1971

(Vice President, Standard Oil Company of California, San Francisco, CA)

Warner, J. C.

1961-1963

(President, Carnegie Institute of Technology, Pittsburgh, PA)

Webster, William

1963-1971

(President, New England Electric System, Boston, MA)

Wigner, Eugene P.

1961-1963

(Palmer Physical Laboratory, Princeton University, Princeton, NJ)

Williams, John H.

1961-1965

(School of Physics, University of Minnesota, Minneapolis, MN)

Scientific Officers

Charpie, Robert A.

1961-1962

(Oak Ridge National Laboratory, Oak Ridge, TN)

Harrison, Melvin A.

1968-1971

(Lawrence Radiation Laboratory, Livermore, CA)

Sewell, Duane C.

1963-1967

(Lawrence Radiation Laboratory, Livermore, CA)

Secretary

Anthony A. Tomei

1961-1971

APPENDIX E

GLENN T. SEABORG is currently University Professor of Chemistry (the most distinguished title bestowed by the Regents), Professor in the Graduate School of Education, Associate Director of the Lawrence Berkeley Laboratory and Chairman of the Lawrence Hall of Science at the University of California, Berkeley.

He received his A.B. in Chemistry from UCLA in 1934 and his Ph.D. in Chemistry from Berkeley in 1937. He has served on the faculty of the Berkeley campus since 1939 and was Chancellor of that campus 1958-1961. In 1961 Dr. Seaborg was appointed Chairman of the Atomic Energy Commission by President John F. Kennedy. He was subsequently reappointed by both Presidents Johnson and Nixon, serving in that position until 1971.

Winner of the 1951 Nobel Prize in Chemistry (with E. M. McMillan) for his work on the chemistry of the transuranium elements, Glenn Seaborg is one of the discoverers of plutonium (element 94). During World War II he headed the group at the University of Chicago's Metallurgical Laboratory which devised the chemical extraction processes used in the production of plutonium for the Manhattan Project. He and his coworkers have since discovered nine more transuranium elements: americium (element 95), curium (96), berkelium (97), californium (98), einsteinium (99), fermium (100), mendelevium (101), nobelium (102), and element 106. He holds over 40 patents, including those on elements americium and curium (making him the only person ever to hold a patent on a chemical element).

In 1944 Dr. Seaborg formulated the actinide concept of heavy element electronic structure which accurately predicted that the heaviest naturally occurring elements together with synthetic transuranium elements would form a transition series of actinide elements in a manner analogous to the rare earth series of lanthanide elements. This concept, one of the most significant changes in the periodic table since Mendeleev's 19th century design, shows how the transuranium elements fit into the periodic table and thus demonstrates their relationships to other elements.

His co-discoveries include many isotopes which have practical applications in research, medicine and industry (such as iodine-131, technetium-99m, cobalt-57, cobalt-60, iron-55, iron-59, zinc-65, cesium-137, manganese-54, antimony-124, californium-252, americium-241, plutonium-238), as well as the fissile isotopes plutonium-239 and uranium-233.

Dr. Seaborg continues to work as an active research scientist, with a research group in the search for new isotopes and new elements at the upper end of the periodic table, including a search for the "superheavy" elements. The group is also investigating the mechanism of the reactions of heavy ions with heavy element target nuclei. Another aspect of the research program is concerned with the determination of the chemical properties of the heaviest chemical elements.

Seaborg is the author of numerous books—his most recent, Kennedy, Khrushchev and the Test Ban (1981) and Stemming the Tide: Arms Control in the Johnson Years (1987) describe, respectively, the negotiations for the Limited Test Ban Treaty of 1963 and the Nonproliferation Treaty of 1969. He has also authored over 400 scientific articles and guided the graduate studies of more than 60 successful Ph.D. candidates. In addition to the Nobel Prize and a great many other awards for his work in chemistry, science education and community service, Dr. Seaborg has been awarded 50 honorary doctoral degrees.

Among his many interests are international cooperation in science (as President of the International Organization for Chemical Sciences in Development), history of science (documenting the early history of nuclear science), nuclear arms control (advocating a comprehensive test ban treaty), conservation of natural resources and hiking. A member of the National Commission on Excellence in Education which published the much-publicized report A Nation At Risk in 1983 and Chairman of the Lawrence Hall of Science, Dr. Seaborg is recognized as a national spokesman on education, addressing in particular the crisis in mathematics and science education.

Wednesday, February 1, 1961 - D.C.

My first day as Chairman-Elect of the U.S. Atomic Energy Commission was spent in the D.C. office at 1717 H Street, N.W. I arrived at 8:30 a.m. First, I dictated replies to some congratulatory letters to Mildred Cecil, my secretary, and then I conferred with Howard Brown, my Special Assistant, regarding action on a number of items of California mail that I brought with me, as well as impending items that had arisen in the AEC here.

At 9:30 a.m. I met with Commissioners John S. Graham, Robert E. Wilson and Loren K. Olson in an Information Meeting. These daily meetings had been inaugurated recently for the purpose of going over overnight developments. General A. R. Luedecke (General Manager), Dwight Ink (Assistant General Manager), Neil Naiden (General Counsel), and Howard Brown were present. Items that had appeared in the press were discussed.

At 10:15 a.m. General Austin Betts (Director of the Division of Military Application), Dr. Spofford G. English (Deputy Director of the Division of Research), and many others briefed the Commissioners on deliberations of the Fisk Panel on nuclear weapons, test cessation negotiations, and the effect on our weapons development program.

Commissioner Wilson and I lunched at the Metropolitan Club, at which time he outlined for me some of the duties that former Chairman John A. McCone had delegated to him, such as correspondence with the General Advisory Committee (GAC), representation on the Federal Council for Science and Technology, representation on the Federal Radiation Council, special responsibility for the Division of Reactor Development, and liaison with the British Atomic Energy Authority. I agreed to continue this arrangement for the present with the exception of representation on the Federal Council for Science and Technology which I indicated I would handle.

At 2 p.m., we met with the General Advisory Committee. Dr. Kenneth S. Pitzer, the Chairman, presided. Members John H. Williams, Willard F. Libby, John C. Warner, Norman F. Ramsey, Philip H. Abelson and Manson Benedict were present. In addition to the Commissioners, General Manager Luedecke, Robert A. Charpie (Technical Secretary), and Anthony Tomei (Secretary) were present. Dr. Pitzer gave us GAC recommendations from a three-day meeting, including recommendations for the Lawrence Awards - Dr. Leo Brewer, Dr. Henry Hurwitz, Jr., Dr. Conrad L. Longmire, Dr. W. K. H. Panofsky, and Dr. Kenneth E. Wilzbach. They reaffirmed their choice of Dr. Hans Bethe as the recipient of the Enrico Fermi Award. They recommended more work on materials and low energy physics so that the funds for these could compete with those for high energy physics.

At 4 p.m., I saw Congressman Chet Holifield in his office and discussed with him my confirmation hearing, the procedure for Section 202 hearings on February 21st, 22nd, and 23rd (others will make the presentation due to my just starting as Chairman), his concern that the Department of Defense requirements for number of weapons should not be insatiable as they seem to be, his feeling that General Luedecke should be replaced by a capable civilian, that General Herbert B. Loper should be replaced as Chairman of the Military Liaison Committee, and that I should investigate Frank Pittman's capacity as Director of the Division of Reactor Development.

At 4:30 p.m., I visited Congressman Craig Hosmer in his office and told him about our legislative proposal for a \$3,000,000 grant from the National Science Foundation for support for the Science Training Center at the Lawrence Hall of Science, and the application to AEC for support of the Nuclear Science Hall in

the Hall of Science. He emphasized the need to be sure we don't enter into an unenforceable agreement to ban nuclear tests.

Around 6:30 p.m., I had dinner at the Black Steer Restaurant with Jerry Wiesner and Spurgeon Keeny. We discussed the identity of the fifth AEC Commissioner (preferring Harvey Brooks, Leland Haworth and Alvin Weinberg in that order), the Fisk Panel work on a test ban and controls, the resumption of non-nuclear experiments with chemical explosives (nuclear component below 10 lbs. TNT equivalent).

Then Wiesner and I went to the East Wing of the White House where I met Ralph Dungan, who agreed to try to persuade President Kennedy to appoint Harvey Brooks to the AEC (despite his Harvard connection); Pierre Salinger, whom I had met in Los Angeles with Ed Pauley and Pete Rozelle when the Los Angeles Rams were recruiting quarterback Frank Ryan; and Mrs. Evelyn Lincoln, President Kennedy's personal secretary.

At 9 p.m., I went over a stack of mail to indicate referrals and actions.

Thursday, February 2, 1961 - D.C.

On my second day as Chairman of the Atomic Energy Commission, I arrived at 8:45 a.m. I met with Howard Brown to give him instructions on mail I had worked on the previous evening; I also conferred with William L. Oakley, my staff assistant, on current items requiring decisions. During odd moments of the day I read the mail and indicated its disposition to Miss Cecil.

At the 9:30 a.m. Information Meeting, the Commission discussed the morning's press clippings, the G. E. Hanford strike potential, the problem of Southern California Edison Company locating a reactor at Camp Pendleton over Department of Defense objections, as well as other items. General Luedecke attended during the latter part of the meeting.

At 11 a.m., I was briefed on the ROVER (nuclear rocket) program at Los Alamos by Harold Finger, who is in charge of the AEC part of a joint AEC/NASA effort, Frank Pittman, Deputy General Manager Robert E. Hollingsworth, and Secretary W. B. McCool. Finger described programs for reactor building and testing (Kiwi series A and B); materials problem for module (container for fuel elements); fuel element problems (U^{235} in graphite coated with niobium, etc.); problems of reactor dynamics (zero to full power of 100's and 1000's of MW in 30 sec.); a safety problem; a Joint Committee requirement to have a test flight by 1965, which is probably too soon, and if unsuccessful, will actually delay the program; the problem of prevention of procurement of heavy hardware before we are ready; and a Bureau of the Budget cut in our FY 1962 budget from \$33,000,000 to \$28,300,000 when actually an increase of \$5,000,000 is needed.

At noon, the Commission met with Oscar Smith (Director of the Division of Labor Relations) to discuss the status of General Electric's negotiations with the labor unions at the Hanford facility. The demands involve a 3 - 4 percent wage increase, an extra week of vacation, another holiday, etc. This matter was discussed by Secretary of Labor Arthur Goldberg at President Kennedy's Cabinet meeting this morning and will be brought before the Atomic Energy Labor-Management Relations Panel headed by Cyrus Eaton.

At 12:20 p.m. I met with Sir Solly Zuckerman, who you might call Jerry Wiesner's counterpart in England, and Military Attache Colonel Younsar; this was a get-acquainted session and he brought greetings from Sir Roger Makins, Chairman of the United Kingdom Atomic Energy Authority - my counterpart.

At 12:45 p.m. I had coffee and sandwiches with Jerry Wiesner, Bob Kreidler, Dave Beckler and Steve White in Room 220 of the Executive Office Building to discuss and help revise President Kennedy's message to Congress on science education and research.

At 2:30 p.m., Commissioner Graham, Spof English and I had a meeting with John J. McCloy and Adrian Fisher in McCloy's office at the New State Department Annex to discuss the Fisk Panel Report. I stated that AEC is going to be cooperative and open-minded on the test ban proposals that McCloy is re-examining; that the less than ten-pound non-nuclear laboratory experiments had been suspended and an early decision on whether to resume was needed. We said we thought these experiments should be resumed but emphasized that the apparent air of secrecy surrounding them could lead to wide public misunderstanding and for that reason consideration should be given to having president Kennedy make some kind of a statement.

At 4:30 p.m. I met with Senator Clinton Anderson in his office. We went over material needed in my confirmation hearing. He handed me a letter asking for a written statement on my investment holdings, which he said would be handled in confidence by the Committee. We also discussed the time scale of the ROVER Program; he thinks 1965 is the latest acceptable date for a flight test, and I advanced the point of view that a premature flight test could actually delay the program.

Around 6 p.m., Howard Brown and I had dinner at the Statler Coffee Shop. I persuaded him to stay as my Executive Assistant. We discussed various possible reorganizations of my immediate staff, but I decided to continue the organization as it is. We discussed the possibility of bringing in Dan Wilkes as an additional special assistant and this appears to be feasible. I also mentioned the possibility of bringing in a professor of law as another special assistant; I had Adrian Kragen of Berkeley in mind. William L. Oakley is leaving to go to the Plowshare program so we decided to ask John Erlewine to take his place as Staff Assistant.

About 8 p.m., I went to the Fairfax Hotel at 2100 Massachusetts Avenue and talked to Mrs. McDaniel, the Manager. I decided to rent a one-room, plus kitchenette and dining area, apartment (Room 217) at \$200 a month.

Friday, February 3, 1961 - D.C.

At 9:30 a.m. Commissioners Graham, Wilson and I started the morning Information Meeting. I told them that I had talked with Howard Brown last evening and had persuaded him to stay as my Executive Assistant, and that I was going to ask John Erlewine to take Bill Oakley's place. We were then joined by General Luedecke, Bob Hollingsworth, Dwight Ink, Howard Brown, and Bruce Mercer. We reviewed the press clippings and discussed the following items: 1. the Livermore third Toy Top experiment, which might make possible a breakthrough on controlled thermonuclear power, and possible publicity for it; 2. the possibility of asking Isadore Rabi to serve as the U.S. Representative to the International Atomic Energy Agency (IAEA); 3. the difficulties of the Improved Cycle Boiling Water Reactor of the Los Angeles Department of Power and Water and the Pasadena Department of Light and Power - the costs are so high they may withdraw; 4. the problems caused by the discharge of Harley from Livermore-Sandia due to his security indiscretion; 5. Norman Hilberry's letter of January 12, 1961, to Chancellor Beadle, offering, in effect, to resign as Director of Argonne; 6. a letter to Secretary McNamara regarding the choice of cycle for the Aircraft Nuclear Propulsion (ANP); 7. President Kennedy's order

of yesterday to speed up projects to help ease unemployment; 8. the problems of commercial nuclear fuel processing; and 9. next week's calendar.

At 11 a.m., Comptroller Don Burrows and others briefed me on the FY 1962 budget and the needed additions to it. BOB is withholding the budget on the ANP indirect cycle reactor at Idaho and if the chosen contractor is delayed it will increase the cost. We need a release of one million out of \$10.5 million immediately.

At 12:30 p.m. Howard Brown and I had sandwiches in the office.

At 12:45 p.m., in the presence of a large group, Commissioner Graham presented a citation to General Alfred Starbird who is leaving.

After lunch, John Erlewine briefed me, as well as Commissioners Wilson and Graham, Howard Brown, Frank Pittman, General Luedecke, Bob Hollingsworth and others on the problem of Southern California Edison Company siting their 375 MW reactor on the Camp Pendleton site. The Department of Defense is opposing this. Southern California Edison has an agreement with the AEC to design, construct and operate the reactor at a cost of \$78,000,000, using Southern California Edison money; however, this is conditioned on a long-term Camp Pendleton lease, assurance of safety and no increase in cost. Westinghouse has a contract with the AEC, at AEC expense, to do the research and development, but their agreed upon cost has gone from \$4.5 to \$10 million. The estimated cost of power, including a ten-year amortization, is 6.75 mils per kilowatt hour.

At 1:45 p.m., I interviewed Robert Warren Baker for possible employment with the AEC. He was referred to me by Ed Pauley.

At 2 p.m. I met with Duncan C. Clark, Director of the AEC Office of Public Information, to get acquainted with him. He offered services to help me in speech writing and public relations but suggested that in the long run it would be a good idea to get a special assistant for this; we discussed Dan Wilkes as a good man for the job. Clark suggested that I hold a press conference soon.

At 2:15 p.m., I met with Lawrence Weiss, an editorial writer for the Denver Post, and Duncan Clark. Weiss wanted my views concerning any change of the AEC stand on the test ban, etc. I said I was open minded. We tried to show him that the AEC view had often been misunderstood by the press. Weiss is gathering background material for a series of articles in the Denver Post.

At various times during the day I conferred with General Counsel Neil Naiden about my response to Senator Clinton Anderson's letter of February 2, 1961, asking me for a statement on my financial holdings and my professional and business connections. He said that the law forbids me to accept money for any of my professional connections, including honoraria for speeches. He thought I should resign from the Board of Directors of the National Educational Television and Radio Center, from the Scientific Advisory Board of the Robert A. Welch Foundation, and as Chairman of the Steering Committee of the Chemical Education Material Study; however, I may try to get exceptions granted in these three cases. I will probably offer to resign other assignments, such as the Editorial Board of the Journal of Inorganic and Nuclear Chemistry, the Advisory Board of Funk and Wagnall's Encyclopedia, etc. (However, this didn't turn out to be necessary.)

At 4 p.m. I met with Commissioners Wilson and Graham, Jim Miller (Mr. Graham's assistant), and Howard Brown to discuss the letter Mr. Graham is sending to

President Kennedy, asking him to review President Eisenhower's directive to former AEC Chairman John McCone, increasing the allotment of AEC product for overseas dispersal under the control of the Department of Defense.

During the day Jim Haddow moved my things from the Statler Hotel to my apartment at the Fairfax Hotel. I had dinner alone in the Fairfax Hotel restaurant--the Jockey Club. During the evening I called Helen and brought her up-to-date on my move, transacted other business and learned the latest news from her. Peter has ninth grade report card and received A in Algebra, English, History, and C in Biology and German.

Saturday, February 4, 1961 - D.C.

Today Jim Haddow drove me to do some shopping. I bought a radio, electric clock and many small items that I need for my apartment.

Later I interviewed Ferne Hudson, Secretary to General Persons (President Eisenhower's Executive Assistant) for ten years, as a potential secretary. She is well qualified but possibly too highly rated for the job.

I spent the rest of the day reading Commission material.

Sunday, February 5, 1961

I spent a great part of the day reading AEC material and I also did more shopping.

At 4 p.m. Alan Waterman and I went to call on Jim Webb, Administrator of NASA, at his home. We discussed: 1. the possibility of Webb, Waterman, Gene Zuckert, Wiesner and I holding some informal meetings, possibly at dinner, to discuss mutual problems in order to get well started in the space area; 2. the future of the National Aeronautics and Space Council; we decided there is some doubt as to its value; 3. the Federal Council for Science and Technology and agreed that this group should be utilized and strengthened; 4. the role of the Vice President in the space program and said we felt that Wiesner should get this clarified; 5. the need for the government to devise some means for longer term support of various areas of science; 6. Webb's and my role with the National Security Council and the Cabinet and we decided that direct access to the President is more important than frequent, time-consuming meetings with these bodies; and 7. the possibility of my joining the reconstituted Board of Directors of Educational Services (ESI), which I agreed to do after my confirmation if there is no conflict of interest. Jim Killian may become president and chairman of ESI; Beadle will be asked to join, and Webb, Detlev Bronk and Waterman will remain as Board members.

I wrote a letter to Helen and the kids.

Monday, February 6, 1961 - Germantown

This was my first day at the AEC Headquarters in Germantown. I was driven out and back by Jim Haddow. Arriving at 9:15 a.m., I discussed some business with Miss Cecil and Bill Oakley.

At 9:30 a.m., I met with Commissioners Graham, Olson, and Wilson and Bill Oakley to review happenings over the weekend; we were joined by Naiden and Luedecke about 10 o'clock. Mr. Olson described the Lanphier-Taylor debate he saw on TV last night; I had seen part of it. Mr. Graham said that Elmer Staats, the Deputy Director of the Bureau of the Budget, wants us to clear with

President Kennedy our proposed reorganization of the Commission's Regulatory function before it is presented to the Joint Committee. We discussed the draft prepared by the staff for use at the Joint Committee's forthcoming hearing pursuant to Section 202 of the Atomic Energy Act (now scheduled for February 21, 1961). Graham and Olson are dissatisfied with the staff work on this, feeling that the tone is too optimistic in regard to progress in the nuclear power program and is not realistic enough. I pointed out that this was not the staff's fault since they hadn't received any guidance from the Commission, a point which met with general agreement. It was also agreed that in the future we should meet with the staff first to give them the necessary guidance. Commissioner Graham, Dwight Ink and Cecil King will report to the Joint Committee at 2 o'clock this afternoon on their European trip to study the NATO weapons problem; the Joint Committee had not been briefed on this study. We also discussed the Hanford strike, which has been postponed by the stipulation of both sides until a panel can be brought in. Also, there is a serious problem of corrosion that caused cracking of control rod drives (17-4 PH stainless steel) in the Dresden and Vallecitos reactors.

At 11 a.m., I was briefed by Jesse Johnson (Director of the Division of Raw Materials), Ed Bloch (Director, Division of Production) and General Manager Luedecke on the uranium procurement program from its start in 1947 to its projection through 1967. Although use of barter instead of money is desirable, as requested by Secretary of the Treasury Douglas Dillon in a call to me last Thursday, it is difficult because (1) we have firm contracts which have been stretched out as far as possible - contracts with South Africa and Canada; (2) Canada would protest barter of wheat to South Africa because it would affect its wheat market; (3) South Africa demands that we procure 50 - 100 percent more uranium as a concession to agreeing to barter, which would antagonize Canadian and domestic producers. This should be discussed with Commodity Credit Corporation (CCC) and is basically a State Department decision. We have about 85,000,000 tons (0.25% U) reserves or 250,000 tons U_3O_8 , a more than ten-year supply at the present rate of domestic mining. The present price of \$8.00 a pound is profitable for moderately large producers with going facilities. There will be great pressures during the tenure of the Kennedy Administration (the next four years) from uranium producers to determine policy in such a way as to assure their future; it may be necessary to go to an arrangement that will again make it possible for private companies to prospect for new sources, although there seems to be more uranium than we need for some time in the present proven reserves.

I had lunch in the Commissioners' dining room with Commissioners Olson and Wilson, Neil Naiden, General Luedecke, Bob Hollingsworth, and Howard Brown.

From 2 to 3 p.m. I conferred with General Luedecke on a number of problem areas where decisions by the Commission will be needed. These included: (1) the test cessation question; (2) dispersal, production and stockpiling of weapons; (3) the AEC organization. I mentioned that I would, because of my background, confer directly with a number of people below him and that he shouldn't take this as a lack of confidence in him. He described his ideas for a reorganization in which subject areas, such as research, would be grouped, instead of having a whole laboratory report, through an area office, to one particular division; (4) ANP, ROVER, and SNAP problems; (5) the need of missions for our national laboratories; (6) the position of domestic uranium producers after 1966-67; (7) the liberalization of university research contracts; (8) the possibility of transferring the Chicago Cancer Laboratory to the Department of Health, Education and Welfare; (9) the problems of the International Atomic Energy Agency; and (10) the reorganization of the AEC regulatory function, which he opposes. He elaborated on the many problems in

the nuclear power field. The commercial development of reactors is running into serious roadblocks as evidenced by the process heat producer falling through, the site problems for the 20 MW pressurized water reactor at Jamestown, New York, etc. There is really no market left for such reactors. He mentioned also the improved cycle boiling water reactor failures (the recent withdrawal of the Los Angeles group), and that there is no first-round interest in organic cooled prototype (50MW) reactors. He suggested that we need a revised plan to take to Congress containing new incentives for building these reactors, or perhaps the Commission should build large reactors, as proposed a few years ago in the Gore-Holifield bill. On the positive side, he said a small pressurized water reactor would be worthwhile if the Eisenhower Administration's directive, stating that full cost must be borne by the end user, could be rescinded. The Navy can't support this by itself but could with AEC aid. Similarly, the three Antarctica reactors might be built by the Navy if AEC could provide assistance. Another matter to come to the Commission is the approval of the revised agreement with TVA for 700 MW of electric power. A decision is needed on the production of U^{235} ; certain planned improvements were dropped since production wasn't needed, but this may not stand as a permanent decision. A decision is needed on the pricing of U^{235} and the related buy-back price of plutonium and U^{233} ; the rates on U^{235} expire on June 30, 1963, even though the law allows an annual revision on a seven-year lead basis. A decision is needed for beyond 1963, so industry can make their plans.

General Luedecke recommended Christopher Henderson or George Taylor as possible replacements for Bill Oakley.

Tuesday, February 7, 1961 - D.C.

The morning information meeting convened at 9:30 a.m.; Howard Brown and General Luedecke were also in attendance. Luedecke said he would want new divisions to cover safety, etc., if the Regulatory separation is made. He also wants the Secretary to continue reporting to him. Mr. Graham described a meeting that he, Dwight Ink and Cecil King had yesterday with Congressmen Chet Holifield, Craig Hosmer and Jack Westland and Jim Ramey and others and Harold Agnew and John Foster to discuss the conclusions they made as a result of their trip to Europe in December to study the NATO weapons problem. The Joint Committee on Atomic Energy will make a report on this in about two weeks.

Naiden came in and we then discussed responses received from utilities regarding organic moderated reactors; press clippings; the question of the start of the statutory 30-day limitation for certain legislative actions in view of the fact that the Joint Committee has not yet organized.

Before lunch, at 11 a.m., I met with Graham, McCool, Wilson, Luedecke, Hollingsworth, Finan (and three assistants), Oakley and others at a regular Commission meeting. First, the Commission approved the document transferring AEC regulatory authority over special nuclear material, source material and by-products to the states. Second, with Ink, Naiden and others present, the Commission outlined a new draft of 202 Hearings testimony as follows (for power section): 1. describe what we can be proud of--Naval propulsion, Shippingport reactor, Yankee reactor; 2. the less favorable aspects such as the SL-1 accident, delays in construction program due to site problems, etc.; 3. our hopes for the future--fuel cycle progress, experimental safety program, materials research. The responsibility for preparing this and other sections of the testimony was divided among Commissioners Graham, Olson and Wilson.

At 12:15 p.m. I received a call from Fred Dutton at the White House who said Dave Bell is hopeful that the AEC would hold up its Regulatory report which our staff told the JCAE would probably be sent to them today. Bell wants to look at it and get my informal views before it goes to the Hill. I said I would be glad to do this.

I had lunch with Howard Brown and Bill Oakley at the Hot Shoppe and we discussed many of the AEC Chairman's areas of action.

At 2:30 p.m., I attended a budget briefing preparatory to a later meeting with representatives of the Bureau of the Budget. Burrows said he had learned that Budget Director David Bell would raise the following questions listed with group's corresponding comments at the 4 p.m. meeting: 1. the gold flow problem. Uranium purchase problems were covered in a letter to President Kennedy going out today; in addition, AEC is bringing six people home from overseas; 2. Long-term outlook for production of nuclear material. The Department of Defense has set requirements through 1969, which require expansion to meet; 3. an amended TVA contract with justification for such long-term contracts. TVA has a 51-month notice time for cancellation; 4. weapons testing. Increased budget will be required if it is resumed; 5. ANP. Both cycles cost \$75,000,000; 6. high energy physics program, especially at Stanford. AEC endorses, subject to ceiling on over-all operating budget of \$150,000,000 in 1965; 7. organization of Commission. Separation of regulatory function; and 8. Antarctica reactors. Held up by Bureau of the Budget policy that the using agency, the Navy in this case, must also fund them.

At 4 p.m. Burrows, Brown and I met with David Bell (the Director of the Bureau of the Budget), Elmer Staats, Fred Schuldt, and others in Bell's office in the Executive Office Building. We discussed: 1. the gold flow problem; 2. long-range requests for special nuclear materials. We explained DOD requirements and they asked for more information on DOD's last request extending through 1969; 3. the TVA long-range contract. We agreed to re-examine pending the new look by McNamara regarding Department of Defense needs; 4. weapons testing. In response to explicit request from Bell as to my views on the need for renewal, I said the tests would improve old and make possible new weapons but must be weighed against need for these improvements vis-a-vis Russian posture; 5. ANP. We agreed to make a decision, in collaboration with McNamara, regarding which cycle to support. They seemed to agree to release money for preliminary Idaho work on indirect cycle; 6. Antarctica reactors. They agreed to review a justified request from the AEC, despite BOB rule that the using agency should ordinarily do the funding; 7. high energy physics, especially the Stanford accelerator. I said that I support building this accelerator, that further review is undesirable and that other research should be supported to keep a balance; 8. the role of the Joint Committee. They expressed the view that they and President Kennedy feel that the Joint Committee has too much power in actual policy determination and even in operations; 9. my plans for the future research program of AEC. I mentioned the need to support more research and teaching in research contracts, referring to PSAC Panel report; the need for national laboratories to have missions, mentioning especially the great national problem among scientists that would be created if the plan to discharge hundreds of technical people at Oak Ridge is carried out; the need for materials research even if this means building laboratories for universities; and the need for a balance between high energy nuclear physics and other fields like low energy physics and chemistry.

The big issue in our meeting was the question of the AEC's proposed reorganization of the regulatory function; obviously, large forces are at play here. Bell said he saw no need to separate this from the General Manager, citing the Department of Agriculture as an example where such functions are not separated. We tried to describe to him the public pressure for such a separation because of the paramount importance of the safety problem. Bell and the others were insistent that, even if AEC did effect such a separation, it shouldn't be effected through legislation as the report recommends. Bell said the President would oppose this because it would tie his and our hands for later possible reorganization of the Commission, such as replacing the Commission by a single administrator. He asked me to report back to him on my general reactions to his observations.

At 6:15 p.m. I had a call from John McCloy who said he thought the question of the resumption of the hydro-nuclear experiments should be settled quickly. I told him that I would be meeting with Bundy and Wiesner at 5 p.m. tomorrow. He said he couldn't make that meeting because he would be going to New York. I said we would let him know immediately if we came to an agreement. He advises resumption of these experiments and hopes the decision could be made within 48 hours. He said McNamara also advises this and that I am to let McNamara know what our decision is. We agreed that Secretary Rusk could probably be informed via Bundy. I emphasized the importance of the question of secrecy and that we should give careful consideration to the possibility of an announcement by the President. He was skeptical about this, but I pointed out the importance of keeping faith with the American people and avoiding a repetition of something like the U-2 incident. He said if the decision is made to have some kind of an announcement by the President he wants to be involved in the making of that decision.

Later this evening I wrote a letter to Helen and the kids.

Wednesday, February 8, 1961 - D.C.

At 9:30 a.m., I met in an Information Meeting with Commissioners Graham, Olson and Wilson, and Bill Oakley. Howard Brown came in later. I gave them a complete report on my meeting with Budget Director David Bell yesterday. It was decided to remove the request for legislation from the report that would go to the Joint Committee regarding separating AEC's regulatory function from the General Manager's office. We also worked on a letter to the President requesting resumption of certain laboratory experiments at the Los Alamos and Livermore laboratories.

At 10 a.m. I had a call from Mr. Dungan's office asking that I send them biographical information on Dr. Harvey Brooks, Dr. Leland Haworth and Dr. Alvin Weinberg.

11:20 a.m. to 1 p.m. - Commission Meeting 1696. We discussed proposed amendments to the FY 1962 Budget in the fields of weapons, reactors, etc. At Meeting 1697 in the afternoon we continued discussion on the budget and approved a letter to BOB on the ANP cycle selection.

At 4:30 p.m. I received an Intelligence briefing from Dr. Charles Reichardt, Director of the Division of Intelligence.

At 5 p.m. I met with Wiesner and McGeorge Bundy, Special Assistant to the

President on Security Matters, in Bundy's office in the Executive Office Building. We discussed the question of a decision by President Kennedy to resume certain laboratory experiments at Los Alamos and Livermore. Bundy called Kenneth O'Donnell to arrange an appointment with President Kennedy for Bundy, Wiesner, McCloy and me to discuss this question. Following this, I discussed with Wiesner, in his office, the following items: 1. the U.S. Representative to the International Atomic Energy Agency; 2. the Discussion with Bell yesterday regarding reorganizing of the AEC; 3. the role of Vice President Johnson in the U.S. Space program; 4. Graham's letter of February 7 to President Kennedy regarding the problem of increased dispersal of AEC product overseas; 5. the identity of the fifth Commissioner--still agreeing he should be a scientist which I should reiterate to Dungan; 6. the question of Plowshare and when it should commence, if it does; and 7. Jim Webb's (Director of NASA) views on the PSAC Space Panel (I agreed to try to convince him of its value) and the Space Council.

I received a letter from Helen today.

Thursday, February 9, 1961 - D.C.

9:30 a.m. - Information Meeting with Commissioners Graham, Olson and Wilson, and Howard Brown. Dr. English is preparing a letter to McCloy regarding the AEC position on the test ban report being prepared by McCloy with the help of the Fisk Panel. I saw this at the end of the day and shall want to go over this very carefully before I will agree to a final AEC position on this question. We approved Dr. David B. Hall for a position on the Advisory Committee for Reactor Safeguards (ACRS) despite the adverse recommendation of the General Manager. I agreed to present the section on controlled thermonuclear research at the 202 Hearings before the JCAE, scheduled for February 21st. We decided to study further the Plowshare budget supplementary request for FY 1962.

I briefed them on my talk with Wiesner and Bundy yesterday and on my subsequent talk with Wiesner. Ink joined us and described the history of the JCAE-AEC relationship and the White House-AEC relationship and the need to re-establish the latter; I told them I would talk to Wiesner or someone in the White House about this. We discussed safety procedures at Mound Laboratory and the question of publicizing accidents, which we decided we should continue to do in order to keep the public informed. The Southern California Edison Company and Westinghouse representatives want a meeting with the Commission regarding their site problem, but we decided to defer this until we could read our advisory board's report.

At 11:30 a.m. I received a call from Harold Brown. He told me that he would not be able to attend the briefing of the Commission on Plowshare tomorrow as he is to attend a PSAC meeting and to meet with the President. We discussed an important Sherwood experiment performed recently at Livermore. Brown has talked with McDaniel as he is afraid that an announcement of this may be handled in an unscientific manner if we are not careful. He suggested we not make any announcement until they send in a paper, and that, when it is made, it be made in Livermore and Washington simultaneously. Brown plans to talk to Wiesner about the White House being in on this; he is afraid that if it comes out now, before the experiment is finished, it would be bad.

John Foster (Director, LRL, Livermore) and General Betts (Director, Division of Military Application) briefed me on the need for special laboratory

experiments, in preparation for the meeting with President Kennedy tomorrow.

At 12:30 p.m. I called Bundy to elaborate on our conversation of yesterday and asked him if he planned to refer the matter to the President; he said that he did. I said there are safety problems that haven't been solved, and this program would enable us to make a safety test to determine whether that calculation led to a safe result.

At 1 p.m. I had lunch at the University Club with Commissioner Olson, his former law partner, and an officer of the Club. After I saw their excellent athletic facilities, including a swimming pool, I decided to join the Club.

At 2:30 p.m., I attended a meeting in the Ohio Room of the Statler Hotel presided over by President Nathan Pusey of Harvard University. The purpose of the meeting was to acquaint Federal Government agency representatives with the Study of the Effect of Federal Aid on Universities, which is being sponsored by the Carnegie Foundation. I was familiar with this study from the university point of view because the University of California at Berkeley is one of the participants.

From about 3:40 to 6:30 p.m. I handled correspondence and many current matters at the office.

I received a letter from Lynne today.

Friday, February 10, 1961 - D.C.

I went directly to the Executive Office Building to attend a meeting of the President's Science Advisory Committee (PSAC) at 9:30 a.m.

At 11:45 to 12:15, Bundy, Wiesner and I met with President Kennedy at his office in the White House. The main item of business was to get his approval for resumption of certain laboratory experiments at Los Alamos and Livermore, which he granted. We discussed a number of other items. The President referred to his statement regarding the exchange of scientists in his State of the Union message and expressed concern that this not be forgotten and that it be implemented; he mentioned, in particular, Poland. The President also referred to the present preparations for the Geneva negotiations to start March 21, 1961, regarding the nuclear test ban; we gave him a short progress report on the work of the Fisk Panel and reminded him that this is being worked on intensively, as he knew, with McCloy. Mention was made of the need for more help for McCloy. The name of Bill Foster was mentioned in this connection.

We discussed the identity of the Commissioner to fill the remaining position on the Commission and the three names, Harvey Brooks, Alvin Weinberg and Leland Haworth, were explored. It was agreed to approach Harvey Brooks even though the President expressed some sensitivity due to the fact that Brooks is from Harvard; Wiesner pointed out that the President had not taken any scientists from Harvard. I told him that I rated Weinberg and Haworth as about equally qualified in the event Brooks declined the appointment. In the course of the conversation, the President said to me with a smile that he thought I should go around to talk to Congressman Holifield and Senator Anderson, and I assured him that this I had done.

The President indicated that he would like a briefing on the AEC and after some discussion it seemed preferable that this should be done at Germantown; I did inform him about the existence of our 1717 H Street offices in the course of this discussion. It seemed most feasible for the President to go to Germantown by helicopter and the implication was that this might take place next week.

The discussion indicated that the briefing should be in the area of weapons and reactors and any other area that might seem useful. Wiesner and I told Kenneth O'Donnell about this possibility on the way out of the President's office; I also mentioned to O'Donnell my desire to have an appointment with the President to discuss various matters pertaining to the AEC. Also, in the course of the conversation, I mentioned my previous and continuing PSAC connection and my intention to continue to work closely with them in the future.

At 12:25 p.m. I called McCloy at the Ford Foundation in New York from the Executive Office Building. I told him about the Bundy-Wiesner-Seaborg meeting with the President this morning, in which we had obtained the President's approval for continuation of the experiments that we were interested in, and requested his concurrence in the formal letter to go to the President requesting authorization. He said that I had his concurrence. I asked whether he had discussed it with Secretary Rusk and he said that he had, but that he would call him in order to get express approval of concurrence and call me back.

At 12:30 p.m., I called Secretary McNamara from the EOB. I told him about the meeting we had with the President and requested his concurrence in the formal letter to go to the President requesting authorization. Secretary McNamara gave his concurrence and said he didn't feel it necessary to initial the document; a carbon copy would be sufficient.

I called Bundy at 12:50 p.m. and asked him whether he had talked to Rusk about the matter of concurrence in the Presidential authorization for the resumption of the experiments we are interested in and he stated unequivocally that he had obtained Rusk's concurrence and that no further call to Rusk was needed.

I had lunch with Alvin Weinberg and we discussed the shutdown of the homogeneous reactor which he says is now unjustified because chemical stability has been proved, and he understood it could show favorable performance. He feels that this tentative decision should be reversed. He handed me a copy of a letter which he wrote Frank Pittman on January 9th and expressed particular concern that it had not been acknowledged. I told him one of the factors which led to the discontinuance of the homogeneous reactor was the recommendation of the GAC. I said I may call Ken Pitzer to see whether we should go into this again. He said he would be glad to have the GAC, or its Reactor Subcommittee, come down for a day to study it.

Earlier in the day I had seen Rabi at the Executive Office Building and had explored with him whether he would accept appointment as U.S. Representative to the International Atomic Energy Agency and he said no. He had no alternate suggestion but said he would give me any ideas that might occur to him. He suggested Brynielsson, who is head of the atomic energy agency in Sweden, as the replacement for Sterling Cole to head IAEA. If Brynielsson would not accept, then he suggests that we consult with the Russians as to an agreeable candidate.

McCloy called me at 2:45 p.m. He said he talked with Dean Rusk who said he would concur in the letter to the President if he (McCloy) could tell him in normal parlance that this would not propel a nuclear explosion. I told McCloy he could be assured it could not be called a nuclear explosion.

At 2:50 to 3:20 p.m., I met with the AEC Advisory Committee for Plowshare.

At 4 p.m. I attended a conference with President Kennedy and PSAC. This was a very informal meeting and we discussed a wide range of topics. Rabi opened the discussion with a statement on the importance of international scope in science

and, in particular, he mentioned the desirability of an international meeting in Geneva in the summer of 1962 to discuss the applications of science and technology to strengthen underdeveloped areas; he also mentioned the necessity for strengthening NATO science; the President said he would look into both of these matters.

We discussed a number of ways in which science could be helpful and the President was especially interested in sea water conversion. It was pointed out to him that at present this is economically unfeasible, with the cost about ten times greater than the normal costs for fresh water, and that there is no presently available scientific principle that holds out much hope for economical water from this source.

In the course of the discussion, the status of the economics of atomic power was raised. Zinn pointed out that only the very largest reactors were economically competitive and these only because of the Government subsidies of the rules of the game, as he put it. I pointed out the value of nuclear power at remote stations and for nuclear propulsion of naval vessels such as submarines. I also pointed out that the aim of the Commission was to have competitive nuclear power by 1968.

The President expressed the wish to work closely with, and to rely on, the PSAC for advice in a number of matters. He referred specifically to his difficulty in getting unbiased advice from the various departments in the Department of Defense due to the competition between them.

A number of other areas in the general fields of science and its approach to human welfare were discussed. I mentioned the proposal for a joint U.S.-U.S.S.R. joint accelerator as a means of scientific cooperation; Wiesner also mentioned my idea of a joint reactor to produce certain isotopes.

At 5 p.m. I had a conference with Budget Director Bell in his office to answer some of the questions raised in our February 7th meeting. In regard to the area of the needs for special nuclear materials, I called his attention to Acting Chairman Graham's letter to the President of February 7, 1961. I told him the dates of the new DOD requirements for such material and about Secretary McNamara's statement that his reappraisal study is going to take more than four to six weeks, as well as that we had deferred signing the TVA contract for 30 days. He indicated that if a decision on the matter of needs for special materials were delayed much longer than this, we probably shouldn't be asked to interfere with our normal operations and, thus, he may not ask us to defer the TVA contract further.

On the ANP, he said he understood from Secretary McNamara that the DOD would assume the responsibility for establishing the need and urgency for the ANP project and the AEC would have the responsibility to construct the nuclear plant, including deciding the type of plant and type of cycle to be used. He suggested that we try to get a decision from DOD before the February 21st, 202 Hearings. He also indicated the need to be able to report Wiesner's position on this general problem. (I saw McNamara at the Army-Navy Club later in the evening and he confirmed Bell's statement that he thought the DOD should have responsibility for determining the need and urgency of the ANP and the AEC should have the responsibility for the construction of the nuclear power plant. He said, however, that DOD wouldn't be able to make their recommendations before February 21st, as requested by Bell, but had set a date of March 1st. I also saw York at about the same time and he confirmed this division of responsibility and said he favored the indirect cycle.) I also asked whether AEC should proceed with the construction at Idaho of the initial

stages of the 10-megawatt reactor for the indirect cycle, requiring a supplemental 1962 appropriation of about \$1,000,000, and he suggested that we come in with a formal request.

He reminded me that we should come in with a reaffirmation of the AEC position on the Stanford machine which is, I assume, equivalent to coming in with a formal request.

We discussed the AEC organization. I told him that the AEC report on reorganization of the regulatory function had gone forward to the JCAE with all reference to concomitant implementing legislation deleted. He didn't particularly object, but he reiterated that he thought the present organization was best, that this proposed reorganization was next best, and that a separation of the regulatory function from the AEC entirely was least desirable. He renewed his discussion concerning the desirability of changing the Commission form of government to that of a single administrator and asked me to check back with him in two or three months after I have had some experience and could form a judgment on this.

We reaffirmed our previous discussion suggesting that the AEC come in with a formal request for a 1962 supplementary appropriation for such things as the Antarctica reactor and the Guam reactor if our study seemed to justify this.

On Rover, I told him that we were still exploring this and that I had no particular report to make at this time.

Regarding civilian power, I recalled that he had said the BOB would shortly submit to AEC certain suggestions on the matter of incentives for private development of nuclear power and he reaffirmed his intention to do so.

At 6 p.m., I met with Harvey Brooks and Bundy in Bundy's office. We told Brooks that the President wanted him to accept the position as Commissioner on the Atomic Energy Commission, and I explained to him something about the operation of the AEC, especially as it concerns the role of the Commissioners. Brooks said he would think this over and would let me know, presumably early next week.

Earlier, and also by a phone call at 6:30 p.m., Ralph Dungan and I discussed some legal problems connected with the Supreme Court hearing on the PRDC (Fermi) reactor case (involving a UAW suit regarding its safety). The issue involves the degree of AEC responsibility and the present AEC position in view of the recent SL-1 reactor accident in Idaho and siting problems. I also discussed this with Commissioners Graham, Olson and Wilson, and we may have to call Solicitor General Cox tomorrow.

I had dinner at the Army-Navy Club with PSAC in honor of new PSAC members. I saw Wally Zinn there and asked him informally and confidentially whether he would be interested in accepting a commissionership and he said that the terms of his contract with Combustion Engineering precluded this at the present time; he has a five year arrangement which expires in November, 1963. He also emphasized that to terminate this before its end would entail a considerable financial loss which he did not feel he and his family would be able to incur. He did say, however, that he would be interested in a commissionership in November 1963.

I received letters from Helen and my mother.

Saturday, February 11, 1961 - D.C.

I arrived at the office at 9 a.m. and dictated memoranda covering yesterday's meetings and answers to correspondence. I then attended briefly Commission Meeting 1699 to discuss draft 202 Hearing testimony.

At 11:30 a.m. I went to the Justice Department to meet with Solicitor General Archibald Cox, his assistant, Ralph Dungan (Special Assistant to the President), Courts Oulahan (Assistant General Counsel, AEC) and Commissioners Graham and Olson to discuss the impending trial, before the U.S. Supreme Court, of the Government's appeal of Michigan's Circuit Court of Appeals adverse decision restraining the building of the PRDC (Fermi) reactor in Michigan; the issues involve safety and the AEC's responsibility in a complicated way; the plaintiff is the United Auto Workers. The UAW has approached the Kennedy Administration which led Dungan to raise a number of questions which were satisfactorily resolved at this meeting as far as Dungan was concerned.

I had lunch at the Metropolitan Club with Commissioners Graham, Olson and Wilson.

At 2:30 p.m. I attended a PSAC meeting, where organization for support of science by the Federal Government was discussed. The remainder of the day was spent in reading current secret documents, many related to the impending discussions regarding the U.S. position on the test ban negotiations.

I had dinner at the Cosmos Club with Commissioner and Mrs. Wilson.

Sunday, February 12, 1961

I spent the day reading various AEC reports. I received a letter from Helen and talked to her and Lynne on the phone at 9:40 p.m. It was good to hear their voices and to learn news of the family and friends. Dianne has just taken her first step.

Monday, February 13, 1961 - D.C.

At 9:30 a.m. we started the Information Meeting. We decided to remove from the consent calendar for tomorrow's Commission meeting an item which recommends discontinuance of Commission 80% discount policy for certain users of radioisotopes. We decided to consider Plowshare policy and the FY 1962 budget in executive session tomorrow. We requested that staff get for us information about the British spy situation on Dreadnaught to ascertain whether any U.S. secrets were involved. We discussed proposed legislation which would give each of the fifty states money (\$50,000 - \$350,000) for nuclear exhibits. This is motivated, erroneously I believe, by the University of California, Berkeley, request for \$1 million AEC grant for a nuclear exhibit and teaching facility in the Lawrence Hall of Science. Hollingsworth joined the Commissioners and brought us up to date on the Hanford labor dispute.

It was noted that Hirsch, the French Director of Euratom, questions some points in the U.S.-Euratom agreement. We discussed a proposed letter and press release regarding the Los Angeles-Pasadena reactor construction which was stopped by them due to siting and cost difficulties. We discussed the draft of a section on Raw Materials for the President's message to Congress on natural resources. We also discussed the possible identity of the U.S. delegate to the IAEA (Henry Smyth, Manson Benedict or someone else) and of the IAEA Director General (Harry Brynielsson of Sweden). I told them the results of my meeting with BOB director Bell last Friday.

At 11:10 a.m. I received a call from Mr. McCloy. He raised the question of being sure that our negotiators have the proper authority to advance the "black box" concept for the weapons to be used in connection with the experimental aspects of the weapons test ban. He is concerned about Congress and whether this has been explored with the JCAE; we should show them that this is an obsolete weapon and that no aspect of weapons will be given away to the Soviet Union. He asked if someone from his shop could come over and talk with our people on this. I said this could be done and that I would have someone make the arrangements.

He also raised the question of who should be similarly involved in connection with getting all proper authority for negotiations involving partial cutoff of production. What is involved in the cutoff? What harm could this do to us? Could we do it? It isn't clear what is involved in getting the background for this and whether Congress is involved. I said I would get our people to work on this and that the same person who is concerned with the other item will discuss this with his people.

I attended a reception and luncheon at the Sheraton-Park Hotel given by the National Industrial Conference Board. I met and talked to Dean Rusk, Henry Heald, Cy Ching, Gwinn Follis, Wilbur Malcolm (Cyanamid Co.), McCloy, Henry Ford and General McAuliffe. Rusk mentioned his acceptance of the U.C. invitation to be Charter Day speaker in March. President Kennedy spoke at the luncheon--humorously and well.

At 2:45 p.m. I met with General Kenneth Nichols in my office. We renewed acquaintanceship and talked generally about his career as a consultant since he left the Commission as General Manager in 1955. He said, in his connection with Westinghouse, he would like to convey the desire of Charlie Weaver to arrange a conference of Westinghouse and Southern California Edison representatives to consider the next move in the problem of their reactor. I told him the Commission awaits the receipt of an Advisory Board report which we can study in order to acquaint ourselves with all the factors involved and that we would get in touch with them when we were ready for a meeting. He mentioned that he is a consultant to the Commission whereby the Commission prescribes in writing ahead of time the areas in which they ask him to give advice in order to avoid any possibility of conflict of interest.

Ken O'Donnell, President Kennedy's appointment secretary, called and we agreed on the time for the President's visit to Germantown Headquarters as 9:30 a.m., Thursday, February 16th. I suggested a two-hour briefing and O'Donnell will check to find out whether the President will have this much time. Earlier I had discussed plans for the briefing with Hollingsworth.

At 4:30 p.m. I was visited by Dr. Sidney Siegel, Dr. William Parkins and Mr. Robert Sehnert of Atomics International. They came in primarily to renew acquaintanceship, but in the course of the conversation they reminded me of their three major projects at Santa Susana; namely, the sodium reactor experiment (SRE), the organic moderated reactor experiment work (OMRE, which is at Arco), and the space nuclear auxiliary power (SNAP). They also mentioned their reactor installation in connection with the Hallam nuclear power facility. They gave me literature describing their operations and invited me to visit them at the earliest opportunity.

I received an envelope full of newspaper clippings from Helen. I wrote to her and the kids.

Tuesday, February 14, 1961 - Germantown

At the 9:30 a.m. Information Meeting I raised the question of establishing machinery for the implementation of GAC reports; the Commission will discuss the report first and then make assignments to follow up on the recommendations. Spof English is meeting with John McCloy at 10:30 a.m. to discuss questions raised by McCloy yesterday. Ramey has told Graham that the JCAE prepared material on the budget for the new Administration. (This may have been the source of Bell's information on ideas for new incentives for private industry in nuclear power.)

We continued our discussion on the draft letter to the Los Angeles-Pasadena group. The proposed legislation regarding museums of science for each of the 50 States was clarified. With Howard Brown's help, the reference to the Lawrence Hall of Science request for \$1 million to furnish a nuclear exhibit was removed from the proposed legislation; it didn't belong in this bill and should be presented as a separate item sometime later. After Luedecke joined the group he reported on the Hanford strike situation. The Panel has established a 30-day negotiating period, which started February 12th. General Electric won't go beyond their settlements of labor disputes on a national basis. Labor protests that General Electric is spending Government funds (\$72,000) for boats to transport supervisors (with 24-hour pay), food and 500 beds on the site. Graham and Olson questioned Harold Brown's membership on the Aerospace Board, indicating that it took time he should give to the AEC. I tried to explain that able scientists must be allowed to do other things. The brief on the PRDC case was filed yesterday, as scheduled. General Betts described a weapons safety problem.

At noon I attended Commission Meeting 1701. A pricing policy for access permits was approved. Transmittal of atomic information to Turkey was discussed. The Commission approved, over my objection, discontinuation of the 80 percent isotope discount, effective June 30, 1961.

I had lunch with Warren Johnson, William Harrell, Commissioners, Howard Brown, Frank Pittman and others.

I called Wiesner and told him that a proposal for the director generalship of the IAEA had not been made by the Russians yet, but we expect them to come up with a recommendation of an Indonesian, Dr. Sudjarwo, who I thought was pretty amenable to suggestions from the Russians. I said I thought Brynielsson would not be acceptable to them and asked him what he thought about it. I also mentioned Sigvard Eklund. Wiesner thought we should try to get someone amenable to both and will explore this with Ambassador Llewellyn Thompson while he is still here. He said Brynielsson was acceptable to him. I said I had discussed this with Rabi, who thinks we should propose Brynielsson, and then, if he is not acceptable, we should get together with the Russians. I said I would check further through John Hall for a mutually acceptable person and then call Professor Walter Whitman of the State Department. I suggested Dr. Harry Smyth or Dr. Manson Benedict as a candidate for the position of U.S. representative to the IAEA. Wiesner thought that Dr. Smyth would be first-rate.

At 2 p.m. I met with Warren Johnson, William Harrell, General Luedecke, Commissioner Wilson, Al Tammaro, Kenneth Dunbar (Manager, Chicago Operations Office), Sax (Assistant Manager, Chicago Operations Office), and Frank Pittman to discuss the Argonne National Laboratory contract and its directorship. The GAC recommends Harvey Brooks, Robert Charpie and Roger Hildebrand as candidates for the directorship. Other possibilities are Ed Creutz, Norman Ramsey, Al Crewe, John Swartout, and Ed Purcell. Chancellor Beadle will consult with me

about this. A search committee (two from Argonne, three from the University of Chicago, and one from Associated Universities, Inc.) will make recommendations. They want more university responsibility when the contract is renewed, presumably for five years, on June 30, 1961.

At 3 p.m. we continued the Commission Meeting to consider the FY 1962 budget. Consideration included restoration of the ORNL cut (resulting from the homogeneous reactor and chemical processing cutoff) so as to avoid discharging some 400 to 500 employees. I have been insisting that such a layoff should not be considered; the effect on the reputation of AEC national laboratories would be catastrophic.

I received a letter from Helen and a valentine from Eric.

Wednesday, February 15, 1961 - Germantown

John Hall, Assistant General Manager for International Activities, rode with me part of the way to Germantown this morning to discuss candidates for the Director generalship of the IAEA; he suggests Brynielsson, to be explored first with Canada and England, then France, before discussing with the U.S.S.R.

At 9:30 a.m. we had an Information Meeting attended by the Commissioners and Howard Brown. We discussed plans for President Kennedy's visit tomorrow. We will leave the White House by helicopter at 9:13 a.m.; I will accompany him. The visit will last approximately 70 minutes. I will make introductory remarks, then short talks will be given by Betts on weapons, Pittman on reactors, McDaniel on research, Dunham on biology and medicine and Hall on international affairs. McNamara, Gilpatric and York have been discussing a division of responsibility on the ANP; Gilpatric called Graham and agreed to a discussion before sending a letter. He welcomed Graham's letter of February 7th. Walter Hamilton of Nuclear Development Associates told Graham about a proposed merger of NDA and nuclear energy sections of Olin-Mathieson and Mallinkrodt, effective April 1, 1961.

Luedecke, Hollingsworth, Naiden, McCool and Ink joined us at 10 a.m. Paul Fine met with Ted Sorenson, Lee White and Stewart Udall yesterday to discuss AEC's part of the President's message on natural resources. Wendell Fraser was killed yesterday by solvent fumes at Los Alamos; we sent a wire of condolence to his mother yesterday. Jim Ramey informed Ink that the JCAE wants an informal executive session with Jesse Johnson at 10 a.m. on Friday, the 17th, to discuss GAO criticism of AEC's \$8.00 per pound price for uranium. There was further discussion of Harold Brown's membership on the Aerospace Board; I again emphasized the need to allow our laboratory directors freedom of action in such matters, otherwise we cannot attract and hold first class men for such jobs.

At 11:15 a.m. and again at 1:45 p.m., we heard the Betts, Pittman, McDaniel, Dunham and Hall presentations as they will be given to the President tomorrow.

Around noon I talked on the telephone with Congressman Chet Holifield. I told him of the impending visit of the President tomorrow via helicopter and Holifield thought this was a sound idea and would have a good effect. I said it was an off-the-record visit and the press had not been informed; but there is always a chance of a leak. I told him Commissioner Graham had given me the gist of their conversation last night in which details on the question of organization of the Committee and arranging for a conference between the Commission and the JCAE on the budget was discussed. I told him I would like to talk with him some time about the director generalship of the IAEA and he indicated he wanted to talk, too. He wants to go carefully into the question

of whether we should continue it at all; the JCAE has not been satisfied with the performance of the IAEA.

He thinks we should talk with Ambassador Paul Foster before we get into the question of choosing a Director General. He might have implied, but I am not sure, that Foster would be a good Director General. I pointed out that it was doubtful that Cole's replacement could be an American, but that we should explore this. In any case, we should have some position on this before Cole explores it with the State Department.

I had lunch with the Commissioners and others in the Commissioners' Dining Room. Howard Brown received word of his father's death during the lunch.

We received word that President Kennedy has approved the request that I presented to him in our morning meeting last Friday; I called Harold Brown and Norris Bradbury and informed them.

At 3:15 p.m., Commissioners Graham, Olson and Wilson, Luedecke, Betts, McCool, English and others met to discuss the AEC position on the McCloy letter of February 6, 1961, giving the tentative U.S. position on arms control or test ban negotiations scheduled to begin on March 21st.

Thursday, February 16, 1961 - Germantown and D.C.

I went to the White House and boarded the helicopter which left at 9:15 a.m. with President Kennedy, Dr. Wiesner, Mr. Bundy, General Clifton (military aide), and security officers, arriving at Germantown at 9:30 a.m. We went to my office where Commissioners Graham, Wilson and Olson were present and we had our pictures taken with the President. Howard Brown and General Luedecke were also present. Coffee was served and then we had a general discussion of the Commission structure and its activities.

After this, we proceeded to the Commission meeting room where all present rose to their feet. I introduced Dwight Ink, the person nearest at hand, to the President, and Bob Hollingsworth, then introduced in turn the staff members occupying front row seats as the President proceeded down the row. These included Colonel Allan Anderson, Brigadier General Austin Betts, Dr. Frank Pittman, Dr. Paul McDaniel, John Hall, Dr. Charles Dunham and Hugo Eskildson. At the end of the line someone then thought to introduce Bob Hollingsworth to the President. As I escorted the President over to his seat at the far side of the oval table, the members of the President's staff, General Clifton, Dr. Wiesner and Mr. Bundy, passed down the front row introducing themselves and shaking hands with each person in that row.

All persons promptly took their places. The President's chair was in the middle of the far side of the oval table, directly opposite the lectern to be used by the speakers. Eight other officials occupied places at the table. Viewed from the lectern we were seated, left to right, as follows: General Luedecke, General Clifton, Commissioner Olson, Acting Chairman Graham, the President, myself, Commissioner Wilson, Dr. Wiesner and Mr. Bundy.

On the left side of the lectern and facing the President was the easel for charts; on the right side was the translucent screen for the projection of slides and transparencies. A cut-away model of a Polaris submarine, about two feet long, was on the table to the right of the lectern. Speakers and watchers were seated in three rows on the opposite side of the room from the President and behind the lectern, easel, and screen which served to obstruct their view and render them less conspicuous.



President Kennedy entering Headquarters Atomic Energy Commission,
Germantown, Maryland, February 16, 1961
Glenn T. Seaborg, President John F. Kennedy



Visit of President Kennedy to AEC Headquarters, Germantown, Maryland.
L to R: Commissioner Graham, Glenn T. Seaborg, President Kennedy,
Commissioner Wilson and Commissioner Olson, February 16, 1961



Visit of President Kennedy to Headquarters of the Atomic Energy Commission, Germantown, Maryland

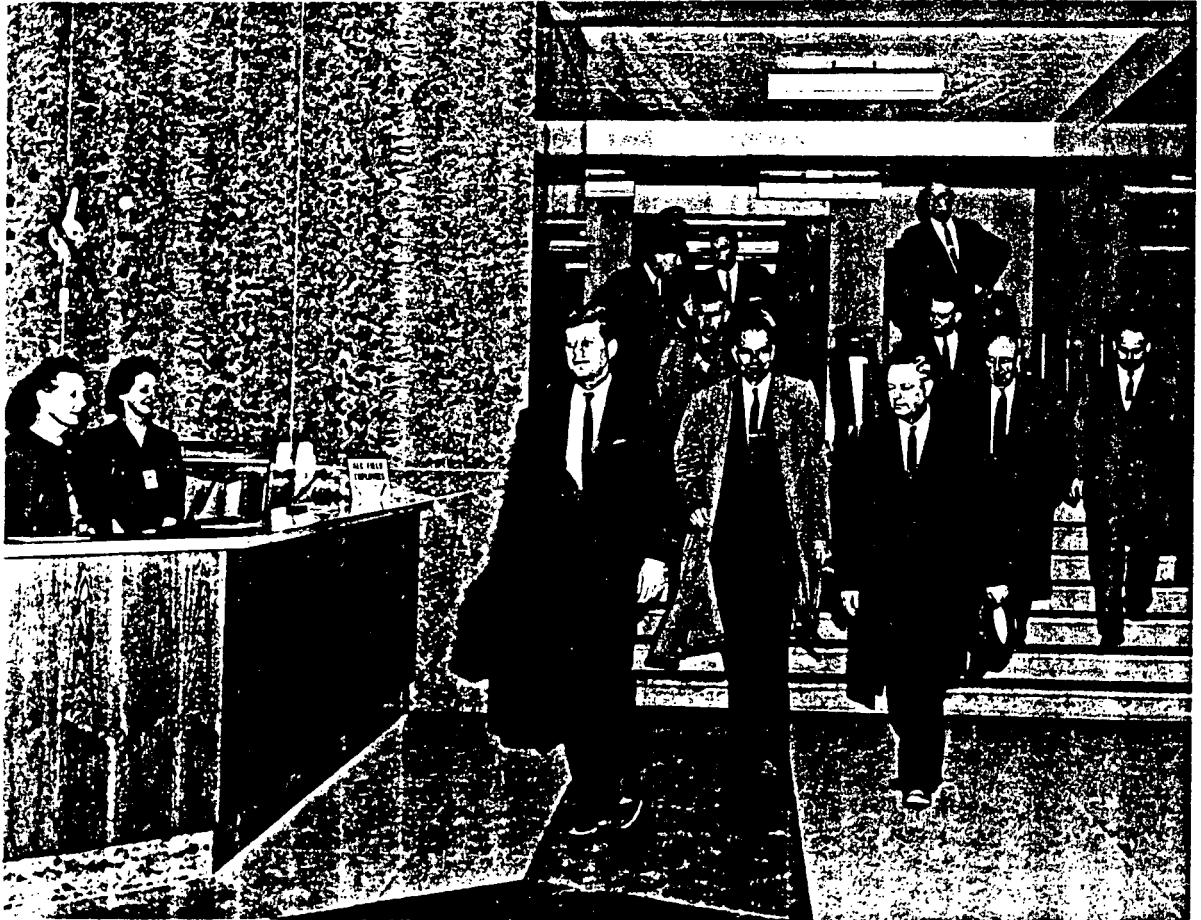
Seaborg with President John F. Kennedy

February 16, 1961



Visit of President Kennedy to Headquarters
Atomic Energy Commission, Germantown, Maryland

Glenn T. Seaborg, President Kennedy
February 16, 1961



President Kennedy leaving Headquarters, Atomic Energy Commission, Germantown, Maryland, February 16, 1961

L to R: President John F. Kennedy, Glenn T. Seaborg, Loren K. Olson, Alvin R. Luedecke (behind), Robert E. Wilson, William Vitale

I opened the discussion at 10 a.m. with a few brief remarks on fundamental physics. I contrasted chemical energy, released through rearrangement of planetary electrons, and nuclear energy, derived from rearrangement of particles within the nucleus. By way of explaining both I then contrasted fission reactions and fusion reactions and described in the simplest terms the uses, potential and actual, which man makes of these reactions with weapons, reactors, and thermonuclear devices. I pointed out that the limit to the usefulness of nuclear energy is man himself because of the effects of radiation and in this connection emphasized the Commission's concern for greater understanding of radiation effects and for protecting public health and safety. I brought out that the fission process is self-initiating and self-perpetuating at normal temperatures while the fusion process requires the creation of an environment of extremely high temperature which can be maintained only with great difficulty. I also pointed out that a very great potential advantage of the fusion reaction is the absence of residual radioactivity such as is created by fission products.

I then gave a broad-brush picture of the principal AEC activities covering: military weapons, propulsion for ships and aircraft, peaceful uses, civilian power reactors, nuclear propulsion and auxiliary power for rockets, production and use of radioactive isotopes, research program in physics, chemistry, materials and biology and medicine, the regulatory role of the Commission, the operating budget, the value of capital plant, the number of employees, etc.

I next introduced General Betts, who spoke from the lectern. Colonel Anderson handled the charts and helped the audience to follow the principal points emphasized in General Betts' discussion. The charts included highly sensitive top secret information concerning weapon stockpile composition, stockpile numbers and yield, evolution of weapon families, and efforts to overcome weapon obsolescence.

Availability of special nuclear materials was projected on charts showing long-term DOD requirements, with indication of recently received additional guidance for a further period, still under discussion with DOD.

With colored slides a dozen or more weapon types were illustrated with a description of the principles employed to achieve, over the years, higher yields, lower weights, improved efficiency, and ability to withstand extreme environmental conditions.

There was a brief discussion of weapon concepts which now appear feasible to develop if there is opportunity to perform weapon testing.

A discussion included a general appraisal of Russian and United States nuclear weapon capability.

The President asked a number of questions. One had to do with the factors causing weapons to become obsolete, others related to the military usefulness of certain attributes of existing weapons, and weapons which might be developed. General Clifton was very helpful in offering comments which could more appropriately come from the military services than from AEC.

General Betts' prepared remarks had required 17 minutes for delivery the previous day. His presentation before the President, because of questions and discussion, required 28 minutes.

Dr. Pittman was the second speaker. His task was to provide a quick survey of the reactor development program in 15 minutes. His prepared remarks the previous day had required 13 minutes. Because of questions and discussions his presentation before the President required about 30 minutes.

Dr. Pittman employed about a dozen slides and transparencies to show different aspects of reactor development. The most specific information was provided on the military and space programs.

The President spoke up at one point to say that he had on several occasions discussed with Senator Anderson the latter's interest in nuclear rocket development. He asked for additional information on future scheduling for this effort and for information concerning the cost levels in comparison with other military reactor projects. There was discussion of the relative advantages of performing initial nuclear flight tests in a first-stage or second-stage vehicle.

Prompted by an initial question from the President there was considerable discussion in which General Clifton and Dr. Wiesner joined, concerning the development effort on manned aircraft reactors.

The third speaker was Dr. McDaniel, who used charts on the easel which were handled by Mr. Harold Anamosa. Dr. McDaniel quickly reviewed the scope of the physical research program over a period of recent years in terms of expenditures for the several major segments and in terms of scientific manpower engaged in the effort.

He next proceeded to comment more specifically on two major segments of the program, high energy physics and controlled thermonuclear research. Three charts were shown in rapid succession listing high energy particle accelerators in being, under construction, and under design. Each chart listed those in the United States at the top and those in the remainder of the world at the bottom. As the third chart was about to be snatched away, the President commented on the fact that the second chart had shown a 12.5 Bev accelerator (ZGS) as the United States effort compared with a 50.0 Bev accelerator as the Soviet effort. There were hasty explanations, never more than four persons speaking at once, that the ZGS was a superior machine in many other respects than the energy level shown on the chart, that Soviet machines often do not perform as well as they are supposed to, and that we are in fact at the head of the parade in high energy physics. To support this conclusion the first chart was reinstated on the easel to show the Brookhaven AGS machine as the most powerful accelerator operating anywhere.

Dr. McDaniel next summarized research efforts on controlled fusion reactions, mentioning specifically the hoped-for results which might be obtained in the near future from the TOY TOP experiment by the Livermore Laboratory. Dr. McDaniel's text had required seven minutes for presentation the previous day. The presentation to the President, because of the questions and discussion, probably required 12 or 13 minutes.

During the final minutes of Dr. McDaniel's presentation the President and I exchanged pencil jottings on our scratch pads. I then commented that the proceedings were running behind schedule and that it would be necessary to omit Dr. Dunham's presentation on the AEC Biology and Medicine program. I stated that I was anxious, however, that the President understand the great importance placed by the Commission on the work in the life sciences and the necessity for protecting the public health and safety. The President indicated regret at not being privileged to hear Dr. Dunham's presentation, expressing the hope that he

would be able to hear it "next time," and asked permission to address a question to Dr. Dunham.

The President then asked Dr. Dunham's judgment as to the reason for the lessened concern by the American public and the press over the problem of radioactive fallout since two years ago. Dr. Dunham had only to draw from his prepared remarks to indicate that the radioactivity being added to the soil from continuing stratospheric fallout is being added at a lesser rate than the decay of contamination already in the soil, with a result that the peak of the fallout hazard from previous weapon testing is now passed. He further stated that the radioactivity levels reached from weapon fallout never exceeded one-twentieth of the permissible level, expressed in strontium units, established by the National Committee on Radiation Protection. Dr. Dunham expressed the personal opinion that had weapon testing been continued at the 1958 rate, civilized man would have been "in trouble."

Reassurance now comes both from the declining level of fallout activity present in the environment and from the fact that there is now general acceptance that the genetic effects of low level radiation are only about one-fourth of what they were believed to be a few years ago.

I introduced Mr. Hall as the next speaker. Mr. Hall's prepared remarks the preceding day had required about four and one-half minutes for delivery, and I believe he shortened his text in the actual presentation before the President. The President's brief questions had to do with the specific activities in which the International Atomic Energy Agency is now engaged, and the extent to which reactor fuel was being provided to member nations by the Agency. The discussion appeared to correct an impression of the President that India might have obtained reactor fuel from the Agency. The nature of the Indian reactors and the fact that India's main assistance had come from Canada was explained to him.

At the conclusion of Mr. Hall's presentation and following the lead of Mr. Hollingsworth, all members of the staff except General Manager Luedecke and Secretary McCool left the meeting room.

It was about 11:15 a.m. and I then presented to the President a number of policy questions as follows: 1. requirements for special nuclear materials and weapons and the question of dispersal outside the U.S. as this affects civilian control; 2. the JCAE study of civilian-military control and the question of weapons control in NATO; 3. the question of a decision as to the type of cycle for the ANP; 4. the effects of the weapons test moratorium on our weapons development program; 5. the level of effort in high energy nuclear physics (in which I supported a request for \$115 million for the Stanford Linear Accelerator); 6. the status of cooperation with England and other countries in the area of nuclear submarines; 7. a review of the present approach to civilian reactor construction--the need for new incentives to industrial utilities; 8. our proposed reorganization to cover the regulatory function (this was actually covered earlier when we had coffee); 9. the question of the ROVER test flight; and 10. the question of modifying the New Production Reactor (NPR) at Hanford to give by-product power. This took until about 12:10 p.m., much longer than planned. The President seemed to be very interested and asked many questions throughout.

During the course of the visit, I told the President that Harvey Brooks had turned us down for a commissionership (a fact which I had learned from Bundy earlier in the morning). We again discussed the possibility of Haworth and Weinberg. The President said that Senator Anderson is opposed to Weinberg.

We, therefore, agreed to offer the position to Haworth and if he refuses I should discuss the matter again with the President. I also told the President that I had explored Zinn's interest with him (Zinn) and had learned that Zinn's commitments to Combustion Engineering are such that he couldn't leave until November 1963, at which time he would be interested.

We all returned to the White House by helicopter at about 12:40 p.m.

The Commission continued its discussion of the FY 1962 budget at the D.C. Office at 3 p.m. and just about settled the extent of our request.

I saw Dr. Haworth at 4:30 p.m. in my office. He asked me to attend the next meeting of the AEC Laboratory Directors to be held in Washington in March, and I agreed to it. I told him President Kennedy wants him to be a Commissioner. He was very surprised and said he would give it serious thought. He will let me know his decision as soon as possible.

At 5 p.m. I met in my office with the U.S. Ambassador to the U.S.S.R., Llewellyn Thompson, Mel Manfull and David Klein of the State Department and Harry Traynor, Mel Abrahams and Bill Oakley of our staff to discuss the information exchange program of the U.S.-U.S.S.R. in the area of waste disposal, power reactors, abstracts and reports and accelerators. Ambassador Thompson will discuss these matters with Vasily S. Emelyanov and will mention my interest to Khrushchev. I will write a letter regarding these proposals to Emelyanov.

I had dinner with Mrs. Jane McBaine (Jack Neylan's daughter) at her home, 3401 N Street, N.W. in Georgetown. Other guests were Mr. and Mrs. Arthur Krock (New York Times), Mr. and Mrs. John Kenny (Under Secretary of the Navy under President Roosevelt), Dr. Belt (former Ambassador from Cuba), and Mrs. Clair Engle (wife of Senator Engle from California).

Friday, February 17, 1961 - D.C.

At the Information Meeting attended by the Commissioners and Bill Oakley, it was decided to send a telegram and flowers to Howard Brown's father. It was decided that I should invite James M. Landis (President Kennedy's coordinator of regulatory agencies) to come and discuss our regulatory problem with us; he favors the change we have in mind. We discussed the FY 1962 budget further. The legislative report has gone to Sam Hughes (Dave Bell's assistant) with the reference to the Lawrence Hall of Science deleted. Hollingsworth joined us. We learned that the Florida Nuclear Group, for which Zinn's Combustion Engineering is designing a high temperature, gas cooled, heavy-water moderated, natural uranium reactor, needs more time due to economic difficulties. Cabell (Deputy Director of CIA) reports that no U.S. secret data was involved in England's Dreadnaught spy case. I described my conference with Ambassador Thompson yesterday.

Jim Webb called and invited me to lunch but I had to decline due to another engagement. He said they (at NASA) have given a great deal of thought to establishing an ad hoc committee to study ways of getting into high schools more information on scientific agencies--Atomic Energy, Space and other areas. He asked if I would be willing to participate and I said I would. The date of the first meeting was set for Friday, March 3, 3 p.m. in Webb's office.

At 11 a.m. I called Rabi to discuss with him confidentially the matter of a Commissionership being offered to Dr. Leland Haworth, Director of BNL. Rabi said Haworth had spoken to him about that and that he (Rabi) wanted to support

me on a very wise choice and had urged Haworth to proceed immediately to look into his personal problems such as group insurance, etc. Rabi further said he thought that Dr. Haworth was very much the man; there is no place where he isn't respected. I said I was very pleased that Rabi felt the way he did. Dr. Haworth had mentioned to Dr. Rabi the expiration date of the Commissionership and Dr. Rabi had reassured him that he did not have to worry, that he would get a reappointment.

I had lunch at the White House Mess with Jeeb Halaby, Libby Smith (U.S. Treasurer) and Fred Dutton (Administrative Assistant to the President). The luncheon was Halaby's suggestion for what he calls the California Club. Secretary Day was also invited but couldn't make it today. The idea would be to meet perhaps once a month to compare notes and we agreed to do this. I mentioned to Mr. Dutton the extremely favorable reaction and beneficial effect of President Kennedy's visit to Germantown yesterday and expressed the hope that this feeling would be conveyed to the President which Dutton said he would do. In the course of the conversation, Dutton mentioned the weekly summaries by Agency heads which go to the President on each Thursday (Dutton had seen ours of yesterday already and made some comments on it). The President sees these personally and writes comments or suggestions for action on them and the aim is to have these go right back to the Agency heads without any delay by going through a staff intermediary at the White House. Dutton suggested that when some of the items might be appropriate for use by the President in his press conference or in a press statement or in a response to a press question this might be indicated, and I got the impression that in some cases we could attach a suggested press release.

I mentioned a possibility of a breakthrough in a Livermore controlled thermonuclear experiment (I was referring to TOY TOP but didn't use that name) and our feeling that the President might profitably be involved in any announcement of its success. It was agreed that if I should go to Livermore for an announcement that something might be coordinated with the President in the way of an announcement, or, if I should be in Washington, the President and I might do it together in some fashion.

We also discussed the matter of liaison with the White House on a day-to-day basis and the fact that this may have broken down somewhat in the change over in administrations. Dutton was interested in being sure that this be re-established in the best possible way and wanted to know the identity of the persons in the Atomic Energy Commission who previously carried this on and who would now carry it on, and the identity of the person in the Eisenhower staff who had been involved. Dutton also mentioned the concern in the BOB regarding the Commission reorganization in connection with the regulatory function, and I gave him some background on this matter, including a confidential explanation as to our theory for the origin of the BOB's attitude.

While I was at the White House, about 12:15 p.m., I took a call from Lee Haworth who wanted permission to discuss the question of his being offered a Commissionership with the whole Executive Committee of Associated Universities, Inc. He also had certain questions regarding the continuation of the payments by Associated Universities of health insurance and retirement premiums and I said I would have a Commission attorney call him on this.

At 2 p.m. John McCone called from California and asked how things were going; he said he was anxious to see me confirmed. I said that the Joint Committee has been slow in organizing, but that I thought they would be organized on Monday, the 202 hearings would start on Tuesday and that my confirmation hearing would take place on Thursday, February 23rd. He said he was glad to

hear this and said he felt remiss in not being able to get together with me. He said that he intended to be in the East the week of March 5th, flying to New York on that day; he could come to Washington on Thursday or Friday, March 9th or 10th and fly to California from Washington. I said I would put those dates on my calendar. I told him of the death of Howard Brown's father.

A few minutes later I called Neil Naiden and raised a hypothetical question with him on the fifth Commissioner having to do with payments on retirement and medical benefits; how flexible is the rule? Is this something that can be explored? What if the person were involved with Associated Universities or some organization which is tied in with AEC? Mr. Naiden said we might be able to suspend these benefits and leave them in limbo until he returns; that the question is whether or not these benefits are increased during the time he served with the Commission and this would have to be looked into. He would be willing to do what he could to seek an exception in any given case.

I then called Dr. Haworth in New York and told him I had talked with our General Counsel and the strict interpretation on retirement and medical benefits is as I had surmised--payments involving insurance and retirement shouldn't continue but each case is considered separately. Dr. Haworth said the assumption was the AUI would not carry his benefits from contract funds, that they would use their own funds. I said the fact the AUI would carry his benefits from other funds should make the problem easier, and that an attempt would be made with the help of General Counsel to seek an exception in his case, although no guarantee could be made that this would be successful.

At 2:35 p.m. I talked with David Bell on the phone and asked if AEC could have a little more time to submit our budgetary supplements as we don't see how we can make it by February 20th. Director Bell said that we should obviously take the necessary time and that a week wouldn't bother them too much. He said he would tell his staff to expect to hear from us within a week after February 20th, probably the latter part of the week.

Accompanied by Commissioners Graham, Olson and Wilson, I went to the Hill for a 3 p.m. meeting with Congressman Holifield, James T. Ramey, Executive Director of the JCAE, and Captain Ed Bauser, who is assigned to the JCAE from the Navy. We began with my giving a description of President Kennedy's visit to the AEC Germantown Headquarters on Thursday. We made special mention of the Joint Committee's report on their NATO trip and some of the conclusions reached. This was followed by a discussion of the regulatory reorganization within the AEC in which Commissioner Olson described the AEC position and Ramey described the Joint Committee's staff position as described in a report which is just about to be issued. It was decided that the Commission would study this question for about a week and then try to come to some kind of a resolution. Holifield gave me a proof copy of the JCAE report to aid me in coming to a position on the question. We pointed out that James Landis is in favor of a regulatory reorganization of the type suggested by the AEC and that the Bureau of the Budget feels that there shouldn't be any reorganization. There was some speculation as to the reason for the stand of the BOB on this matter. We also referred to the impending BOB plan regarding further incentives for the development of nuclear power by industry and it developed that Holifield had not heard of this development.

We discussed our proposed Section 202 testimony, a copy of which Holifield had before him. It was decided that I would not participate due to the fact that my confirmation hearing follows the date of the testimony. We discussed the budget changes on the basis of a talking paper that Commissioner Graham had prepared. We went through this matter item by item. No really substantive

disagreements developed except on the question of the building of new reactors; Holifield thought that the budget for reactors was much too small and expressed great concern about the progress on reactors.

The time spent on each item was so small that this should be regarded primarily as an information session and it could easily result that Holifield will find other points of objection when he studies the matter further. At one point Ramey gave me, as he said, informally, a copy of a letter which Senator Anderson had written to President Kennedy on November 21, 1960. This gave Senator Anderson's views on the status of many projects in the AEC and emphasized some inadequacies in the AEC organization and performance. The document which Ramey gave me also had a number of attachments of relevant material.

I raised the question as to the future of the director generalship of the IAEA and referred to the State Department's feeling that this should be rotated to a non-American at the conclusion of Sterling Cole's term. This should be told to Cole as soon as he returns from Vienna (early in March) so that he will realize that he is not going to be re-elected. Holifield said that he had no objection to this procedure and saw no reason why the Joint Committee might object; however, he would question the value of the IAEA and thought that there should be a review of its future status. We also raised the question of Paul Foster's replacement as the U.S. Representative without suggesting any names.

At 5:45 p.m. I had a call from Ms. Lilian Levy of Science Service to confirm with me an incident that occurred in Berkeley when Prince Bertil was visiting this country in 1959--a particular solvent being used to remove a spot from the Prince's suit.

Saturday, February 18, 1961 - D.C.

I worked until about 2:30 p.m. and had lunch at the Metropolitan Club with Commissioners Graham and Wilson. Later, I had a swim and then dinner at the University Club. I am considering moving to the University Club because of its convenient location and the swimming pool. I sent some maps to Helen to show her the location of the Cleveland Park area where we might live.

Sunday, February 19, 1961

I spent the day reading AEC material and the newspapers. I went to the movie, Pepe. I talked to Helen, Lynne and David on the phone.

Monday, February 20, 1961 - Germantown

The 9:30 a.m. Information Meeting was started with Commissioner Graham, myself and Bill Oakley. We discussed the JCAE report on their NATO inspection trip. We decided to invite James Landis to lunch on Friday to discuss the regulatory reorganization (I phoned him later and arranged a 12:30 luncheon appointment with the Commissioners at the Metropolitan Club on Friday.) It was decided I should call Secretary McNamara regarding special nuclear material requirements after Holifield sees President Kennedy on Tuesday. At 10 a.m. Luedecke, Naiden and Ink joined us. We learned that the hearing on Raw Materials last Friday went well. We described our meeting with Holifield et al, last Friday.

We decided that the following would attend the Atomic Energy Act Section 202 hearings tomorrow: Jesse Johnson, Paul McDaniel, Ed Bloch, John Hall, Algie Wells, Al Luedecke, Richard Donovan, Duncan Clark, Eugene Fowler, Harold Price, Frank Pittman, Neil Naiden, Don Burrows, Charles Marshall, Ernest Tremmel,

William Finan, Frank McCarthy, Dwight Ink, Harold Finger, General Branch, Colonel Armstrong and all the Commissioners.

We discussed the question, raised by an article in the Albuquerque Tribune, regarding the possibility of the University of New Mexico taking over the operation of Los Alamos from the University of California; although this may not be a serious threat, the consequences are so serious and detrimental to Los Alamos that it must be carefully watched.

Bundy called and we decided to hold a meeting at the D.C. office at 3 p.m., February 22nd, with Gilpatric, Loper, Wiesner, Bundy, Commissioner Graham and myself attending to discuss Graham's February 7, 1961, letter to President Kennedy and the beginnings of a response to Holifield's NATO Report. We discussed my relationship to the White House. Bundy said the President is still feeling his way, but he didn't think the President would want to have anything in my area discussed without my being there; the President had made plain to me that he hopes to have advantage of my advice and that direct access is available whenever it is necessary. With regard to NSC, it is not clear to the President that a meeting of thirty people once a week is the way to get the job done.

English gave us another progress report on the McCloy group and the State Department's position on the impending (March 21st) test ban negotiations.

At 12:25 p.m. I called Dr. Rabi in New York to ask his opinion of Dr. Henry Smyth as the U.S. Representative to the IAEA. Rabi said he thought he would be a good choice--he is a recognized man and a statesman. He also has been doing some consulting work for Mr. Sterling Cole and he thinks he would be interested.

At 3 p.m. I called Dr. Henry Smyth on a confidential basis to ask if he would be interested in accepting the appointment as the U.S. Representative to the IAEA; that we were going to be in the position to make recommendations and we would like to have a man there with his scientific background, ability and prestige. Dr. Smyth said he would certainly be interested and would consider it seriously enough for me to proceed with the recommendation. I asked him to keep this confidential until he heard further from us.

I then called Mr. Harvey Graham of the University Club to discuss with him the possibility of obtaining a room the first of March. Mr. Graham said he would bring the matter before the Club Manager at their meeting this evening and he asked me to come by around 6:30 p.m. and the Manager would show me around.

At 3:30 p.m. Graham, McDaniel, Luedecke, Burrows and I met to discuss the possibility of adding requests for additional funds in the 1962 supplemental budget for low energy nuclear physics and materials research, at my request. We tentatively decided that we may ask for \$5000,000 more for present low energy physics programs, \$1,000,000 for a new accelerator (tandem Van de Graaff) and \$1,000,000 more for materials research.

I received letters from Lynne and Stephen, including his picture, and a valentine from David.

Harold Brown called me at 9 p.m., from the Executive Office Building to say that Secretary McNamara, Gilpatric and York had talked to him to ask him to take York's job as Director of Research and Engineering in DOD. I told him I had opposed this with McNamara and York because of the problem it posed for Livermore Laboratory, but I now think it is so important a job that maybe he should take it. We both thought that Ken Street would be his best replacement

as Director at Livermore and I agreed to try to persuade him. Harold will see U.C. President Clark Kerr when he returns to Berkeley and explore the possibility of a three-year leave of absence.

Tuesday, February 21, 1961 - D.C.

I attended the Atomic Energy Act Section 202 Hearings before the Joint Committee on Atomic Energy which were held in Room P-63 of the Capitol with Congressman Holifield presiding. Present were Holifield, Senator Clinton Anderson, Congressmen Tom Morris and Jack Westland, Jim Ramey and later Congressmen William Bates and Melvin Price and then Senator Hickenlooper joined us. Commissioner Wilson began the testimony at 10:05 a.m. on the nuclear power program. Senator Anderson expressed dissatisfaction at the fate of the Turrett Reactor at Los Alamos and Holifield emphasized the importance of SNAP to orbiting satellites. Anderson quizzed Luedecke about the delay in appointing an assistant general manager for advanced projects such as SNAP. Holifield and Anderson commended the AEC on the handling of the SL-1 accident. Westland criticized the AEC's discouragement of utilities because of site and safety considerations. Holifield mentioned the Gore-Holifield bill and the advantage of the Shippingport (Government supported) approach. Bates questioned the handling of the Fermi (PRDC) Reactor case by the Commission. There was also criticism of AEC's handling of the siting for the Peachbottom Reactor.

Anderson called me aside during the hearings for a short discussion. He told me that he had seen my FBI report in the President's office and that it was OK, and that although it was available to the other members of the Joint Committee, he doubted that any of them would want to see it. In response to my question, he said he saw nothing in my letter to him of February 7th, in response to his of February 1st, that bothered him. He thought my hearing on Thursday would be straightforward and would be over in about one-half hour. He told me that the reason for his controversial questioning in connection with the question of the delay in choosing a head for Advanced Projects (such as SNAP) was because when Finger was appointed to head the Joint AEC-NASA program over his objections, there was an agreement that Colonel Jack Armstrong would head Advanced Projects and this agreement was not honored. He also expressed unhappiness over the way the Turret Reactor Project was eliminated without the courtesy of notifying him so that he had to read it for the first time in the newspaper.

We recessed for lunch at 12:10 p.m. I then talked with Holifield and told him about the President's decision of February 10th and the President's and our concern as to the excessive secrecy involved and the need for getting this subject into the area of more or less normal secrecy. Holifield recognized the great difficulty here and suggested that we should get together to discuss it carefully; this might even involve my explaining it to the JCAE in an Executive Session. I also mentioned to him the name of Harry Brynielsson, whom he had not heard of, as a possible candidate for the director generalship of the IAEA. He was appreciative and didn't seem to have any particular comments at this stage. I also mentioned the possibility of Harry Smyth as a candidate as the U.S. Representative to the IAEA and Holifield thought this was a good suggestions and should be explored.

We joined Mrs. Cam Holifield and Mrs. Peggy LeBaron in the House Restaurant for lunch and continued our discussion. I said I thought the slowdown in the civilian power demonstration program, which he referred to in the morning's hearings, was no fault of the present Commission but is a consequence of the path which was decided on years ago and the economic difficulties (as well as site and safety difficulties) that had developed in the meantime. Holifield seemed to agree. I also mentioned that I saw some merits in the Gore-Holifield

Bill, particularly in retrospect as things had turned out. I told him about the meeting with Bundy tomorrow for a preliminary consideration of his NATO report and I also told him I thought this was a very important report.

The hearing was resumed at 2 p.m. with Holifield, Van Zandt, John Pastore, Morris, Westland and Aspinall present. Dr. Wilson discussed Isotopes for five minutes, followed by Mr. Olson on the Regulatory program. Mr. Graham gave laudatory statements on Admiral Rickover as well as a statement on controlled thermonuclear research, declassification, patents and international activities. Price complained about AEC's lack of action on the ANP.

After the hearings finished at about 4:40 p.m., I returned to the H Street office to handle correspondence and memos. I received a call from Ken Pitzer in Berkeley with reference to how things were going in general and to discuss matters to which the GAC might give its attention in the months ahead. He plans to be in Washington on March 8th for the Defense Science Board meeting on March 9th and planned to save March 8th for GAC business around the AEC. We then discussed a little about the GAC matters which might be taken up when we meet. I explained that I was attempting to get the people to work here on the last GAC report, and to line up a more definite way of getting action on items. I said I was trying to get a supplemental budget request on materials for research, and low energy nuclear physics.

Also, I checked on the GAC report concerning its recommendations on the homogeneous reactor at Oak Ridge. I found that the Commission is more or less following GAC advice on this matter. Pitzer said the GAC did not pretend to say just when the aqueous homogeneous reactor should be shut down, but they thought it should not be allowed to run indefinitely. They thought that Weinberg should have come up with a firm and definite program; and, if it looked as though it would give enough information to merit an additional \$1 million, or whatever it cost, then it should run longer. At the time there was a proposal for a different prototype and the GAC could not see this. Breeding is a nice idea, but nobody is going to build a Commission-operated plant in the immediate future, so they determined that there was no need for a third reactor experiment unless it was a new experiment. Pitzer added that, to the GAC, the question seemed to be just how long the aqueous homogeneous reactor #2 should run, and not of going into a prototype, but how much can be learned before closing out the experiment. I suggested that perhaps we could discuss AEC organization, possibly national laboratories, and the Civilian Power Reactor program at the next GAC meeting. He agreed that these items should be discussed and added that Phil Abelson thought the GAC should take a look at Plowshare. I said some of these things could be discussed informally.

I received a letter from Helen.

Wednesday, February 22, 1961 - D.C.

Howard Brown has returned from a visit with his mother, following his father's death, so I brought him up-to-date and made a number of plans with him for future actions.

I received a call from Lee Haworth who said he was inclined to accept the commissionership but wanted to come in and discuss several matters with me.

McCloy called at 2:35 p.m. He asked about my confirmation hearing tomorrow and wondered what my answer would be if I got the question of whether or not I would be in favor of the test ban along the lines of the basic U.S. position. I told him that I was going to try to be as non-committal as I could on this

for the moment. He said he was thinking of the dilemma we face of trying to reach an agreement among ourselves, and he pointed out that they don't have an AEC view yet. McCloy said they were shooting for a meeting of the Principals on March 2nd and hoped to have a decision from AEC before that meeting. He said he had talked with both Strauss and McCone and, although their general view is they would like to be testing and are suspicious of the other fellow, Strauss said he didn't see how the Administration could do anything but what they are doing now. He suggested that the delay on a decision not be so long as to become illusory. McCloy said if we weren't able to get our view to them by the Principals' meeting he thought they would have to discuss it with the President. I told McCloy that, from the standpoint of representing the AEC, I had been in a bad spot because I hadn't been confirmed yet, but I made it clear that I would take seriously any position toward which the President leaned. He said he would send the Fisk report over tomorrow.

At 3 p.m. I met in my office with Bundy, Gilpatric, York, Loper, Nitze, Wiesner and Graham. We discussed the proposed draft of a letter from Secretary McNamara to me, transferring responsibility for building and choosing a cycle for the ANP to AEC. I suggested that DOD state their requirements in such a way that the choice of cycle, direct or indirect, is indicated. We also discussed the question of amount and dispersal of nuclear weapons and the response to the JCAE NATO report. We agreed to meet again within two weeks after the impending report from DOD is available.

I had dinner with Herb York at the University Club, primarily to discuss the problems of his LaJolla chancellorship.

Thursday, February 23, 1961 - H Street

At 10 a.m. my Confirmation Hearing was held before the JCAE with Senators John Pastore (presiding), Henry Jackson, Clinton Anderson, Wallace Bennett and Henry Dworshak and Congressman Chet Holifield present. Pastore opened with an introductory, laudatory statement. Then Senators Clair Engle and Thomas Kuchel and Commissioners Graham, Wilson and Olson made laudatory statements on my behalf. The JCAE questions ran along the lines of my intention with keep the JCAE informed, my attitude on high energy nuclear physics as compared to low energy nuclear physics, chemistry and materials research (I spoke for a balance), my attitude toward the development of atomic power (I favored vigorous development but mentioned the possible need for a new approach), my attitude toward the Antarctic reactor (I favored it), my attitude on supporting the authorized projects before BOB (I said I would do so but with the right to react to any new information that might become available). The Senate members recommended my confirmation for a term to end June 30, 1963. The hearing lasted about 30 minutes and went very well. Holifield reported that the House members were unanimously in favor.

At 11:30 a.m. the Commissioners and Howard Brown met to discuss yesterday's meeting with Bundy, et al, McCloy's call of yesterday, next week's hearing on ROVER before the House Committee on Space and Astronautics, and Senator Anderson's views on the director of the SNAP program, which he had given me on Tuesday.

At 2 p.m. Ed McMillan called me to discuss Harold Brown's departure from Livermore and his possible successor at the Laboratory. He said he had talked with Ken Street and he is definitely not eager to take the job. He also mentioned Dr. John Foster and Dr. Teller, saying he felt the latter would be interested in returning. I said I would like to discuss this with the other Commissioners. Street called later and expressed doubt that he would take the

Livermore job--he had been back in teaching for too short a time.

At 4 p.m. I met with Jim Webb and NASA and AEC staff people at NASA Headquarters to be briefed on ROVER and to discuss plans for the hearing next Monday. Webb, McNamara and I are scheduled to appear at 10 a.m. Webb and I agreed that we would say that we are not yet in a position to evaluate ROVER, that we will operate in the intervening time on the assumption that the proposed 1962 budget will be adopted.

At 5:45 p.m. I saw Haworth who agreed to accept the commissionership and to come on duty April 1st with some visits before that time. I told him that his retirement and benefit problem seemed to be solved. He raised certain policy questions such as the need for re-evaluation of the future of the national laboratories to include missions and to broaden their scope. I said I agreed with him.

I had dinner with Jerry Luntz, the Editor of Nucleonics, at the University Club.

Friday, February 24, 1961 - D.C.

I had breakfast with Al Weinberg.

At 9 a.m. Wiesner called regarding preparation for the forthcoming meeting with President Kennedy and Holifield. The items to be discussed will be: 1. the JCAE NATO report; 2. the Stanford Linear Accelerator; 3. the NPR Reactor at Hanford; 4. the so-called slowdown in the development of nuclear power; and 5. Civil Defense. We will cooperate in developing "talking papers."

At 9:15 a.m. I called Phil Farley in the State Department to pass on the names of Smyth for U.S. Representative and Brynielsson as Director General of IAEA. Farley will clear them with Harlan Cleveland preparatory to my calling Secretary Rusk.

I called Holifield, Pastore, Anderson, and Bourke Hickenlooper to inform them of President Kennedy's intention to appoint Lee Haworth as the fifth AEC Commissioner.

At the 9:30 a.m. Information Meeting we discussed the Wiesner and Farley phone calls, the fifth Commissioner, new members for the Patent Compensation Board, and the question of whether Stanford land taxes are reimbursable by AEC. (Apparently they are not.)

At 11:30 a.m. I saw Dr. Chester Van Atta, Paul McDaniel, Arthur Ruark and Mercer for briefing on the present status of the Livermore Toy Top III experiment.

At noon the Commissioners met with Luedecke and Brown preparatory to my ROVER testimony next week. Webb called and we agreed to try to get Chairman Overton Brooks to agree to allow Secretary McNamara, Webb and me to appear together at 10 a.m., Monday, to make general statements of greetings and non-committal statements on ROVER.

At 12:30 p.m., we had lunch at the Metropolitan Club with James Landis to discuss the AEC regulatory reorganization. He seems to agree to the AEC plan as opposed to the JCAE staff or the BOB plans.

At 2:30 p.m. I attended a Commission meeting. We discussed the accident with the 5,000 curie cobalt-60 source at the University of Minnesota--someone had

left the shutter open. We decided to reduce the TVA power contract by 700 MW in steps. We gave final approval to the Supplemental FY 1962 Budget.

I received word that, as the result of Senator Mike Mansfield's asking for and receiving unanimous consent to waive the 24-hour rule, my name was offered for confirmation as an AEC Commissioner to the U.S. Senate this afternoon and I received unanimous approval.

I had dinner with the John Grahams at their home; Mr. and Mrs. James Webb were there also.

Saturday, February 25, 1961 - D.C.

The Commissioners and Howard Brown met in the morning to discuss the JCAE NATO report and our response to McNamara's letter concerning the division of responsibility on the ANP; we decided to ask President Kennedy to be involved in the final decision.

I found a copy of a memo addressed to both Miss Cecil and Miss Janinek on my desk which reads as follows: "Now that Miss Janinek is aboard, and in view of Dr. Seaborg's obvious confidence in both of you, now is a good time to start the practice of alternating in staying late in the evening and in weekend duty. I would suggest that by agreement between yourselves one of you plan to leave each evening around 5:30, or not later than 6 p.m. Also, I believe that at least every other weekend, each of you should get a full weekend. I realize that this may not always be possible, but I think it is a healthy objective for which to strive. I do not think it is necessary to discuss this with Dr. Seaborg, but I shall do so when the opportunity presents itself." (Signed: Howard C. Brown, Jr.)

I had lunch at the home of Mr. and Mrs. Oscar Cox with a group who included Mr. and Mrs. Walter Rostow and the French Ambassador.

I attended receptions at the Sheraton Park Hotel given by Time, Newsweek, Wall Street Journal and Nucleonics before attending the White House Correspondents' dinner. I saw Secretary Rusk and requested him to say something to encourage university students and university administrators in the area of freedom of expression, to counteract the current moves to prevent students to express controversial opinions, in the speech he will give at Berkeley on Charter Day (March 20th). He said he may do so. I attended the dinner as the guest of Nucleonics (Dick Smith and Jerry Luntz). President Kennedy was the guest of honor and he spoke briefly and humorously at the end. The entertainment, with Joey Bishop as Master of Ceremonies, included Ralph Bellamy, the Peiro Brothers, Jerome Hines, Mischa Elman, Dorothy Provine and Julie London.

Sunday, February 26, 1961

I attended a reception at the home of Mrs. Parker West in honor of Chief of Staff of the Army, General and Mrs. George Decker. I met Elvis Stahr, the new Secretary of the Army, who was formerly President of the University of West Virginia.

I also attended a cocktail party at the home of Mr. and Mrs. Walter Lippman, the columnist. I met Richard Harkness, Ernest Lindley and many others.

I had dinner with Ken Street, Art Biehl and Ted Merkle at the DuPont Plaza Hotel.

In the evening I called Helen and told her about my house hunting expedition this afternoon; I am impressed with the possibilities of Chevy Chase, D.C., near Connecticut and Nebraska Avenues, because of the proximity of outstanding elementary, junior and senior high schools.

Monday, February 27, 1961

I had breakfast with Spof English to discuss the Test Ban negotiations.

At 9 a.m. I met with President Fawcett of Ohio State University who wanted to press their request for a Van de Graaff accelerator.

At 9:30 a.m. I attended the Information Meeting (notes attached).

At 10 a.m. I testified in a general, get-acquainted way before Congressman Overton Brooks of the House Committee on Space Science and Astronautics, along with Secretary McNamara and James Webb.

I had lunch with English and his assistants to further discuss the Test Ban questions.

I called Alan Waterman and told him of the discussion I had with President Fawcett of Ohio State. I told him I was interested in low energy nuclear physics but that our 1962 budget had been drawn up; however, we could give him an increase in operating expenses under their AEC contract if he could give them the machine. He said he would check into it and call me. He advised me that our General Counsel and his General Counsel have come to an agreement that I cannot continue to serve on the National Science Board. I told him I would send my resignation today.

At 2 p.m. I met with McCloy and a large group from Disarmament and State Department to discuss Plowshare and our attitude toward it in Test Ban negotiations.

I sent a letter today to Dr. Alan T. Waterman, Director, National Science Foundation, telling him that I submitted my resignation, effective immediately, from the Board of the National Science Foundation, to the President today. I explained that this action was necessary due to my appointment to the Atomic Energy Commission, which will take all of my time and energy.

In the evening I attended a reception at the State Department given by Mr. and Mrs. Robert Helyer Thayer, as well as one at the Mayflower Hotel in honor of the Japanese space scientists.

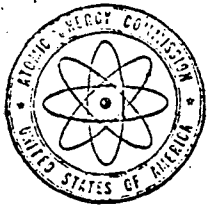
During the day I moved into Room 412 at the University Club.

Tuesday, February 28, 1961 - D.C.

At 7:45 a.m. I had breakfast at the White House Mess with Wiesner.

From 8:30 to 9:30 a.m. I attended a meeting of the PSAC Panel to evaluate the ROVER project. The meeting was chaired by Harvey Brooks and attended by Wiesner, Ted Merkle, Art Biehl, Eugene Wigner, Stan Ulam, Wally Zinn and others. They concluded that there is no foreseeable space mission that could be done by a nuclear rocket that couldn't be done by a chemically powered rocket; nevertheless, they seemed to conclude that the ROVER Project should go ahead and agreed with my plan to so state in my testimony, emphasizing the importance of the safety aspects.

Files 47



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

February 27, 1961

MEMORANDUM FOR THE COMMISSIONERS

Subject: MORNING MEETING NOTES, FEBRUARY 27, 1961, CHAIRMAN'S OFFICE, D. C.

Lawrence Awards - The Commissioners requested the Secretary to take appropriate action on their decision. (Secretary)

Fiske Panel Report - Dr. English has been requested to consider two questions.

Designation of Dr. Haworth as Commissioner

Letter to the DOD on the ANP Program - The General Manager will review the draft letter.

NATO Visit - Mr. Graham said he had sent the General Manager a copy of the Joint Committee report.

ICEMR Records- Mr. Graham said Congressman Holifield had agreed that this request was moot and that he, Holifield, would speak to the GAO about it.

Meeting with Westinghouse, Southern California Edison officials - A date for the meeting will be established during discussion of the Company's proposal on March 1.

Patent Compensation Board - The Commissioners said they accepted the General Counsel's recommendation contained in his memo of the 23rd of February. Mr. Naiden will arrange for interviews of the prospective members with the Commissioners and inform the Secretary of the Commissioners' decisions. The General Manager reported that a compensation of \$100 a day would be established for Board members.

Small Pulse Reactor, Sandia - The General Manager said the hazards evaluation was now in process and that he would keep the Commissioners advised on this matter.

Incident at University of Minnesota Medical School - The General Manager gave an interim report which will be followed by a more detailed report today or tomorrow.

USSR Visit of U. S. Chemists - The General Manager is to check the scope of the Conference and discuss the matter again with the Commissioners.

19-6-8-2

Meeting with the ACRS on March 3 - The Commissioners requested consideration of possible discussion items, including a question of the ACRS' views on the need for a HTGCR prototype.

Meeting with the ACB&M on March 10 - The General Manager said a draft agenda of items for discussion will be circulated.

Joint Committee letter of February 20, requesting information on Division Directors' Budget Requests - The General Manager thought early discussion of this matter with Congressman Holifield should be arranged.

Senator Anderson's letter of February 18 on Turret - Mr. Graham requested preparation of a draft letter and said he and Dr. Wilson would discuss the matter with Senator Anderson. Commissioners will consider the request for the GAC report.

FY 1962 Budget Supplemental - The General Manager commented that early inter-departmental cooperation is desirable and the Joint Committee should be informed at an appropriate time.

Maritime Convention in Brussels - The General Counsel thought an AEC representative should attend.

Commonwealth Edison Company, Docket No. 50-10 - the General Counsel said this matter would be brought to the Commission today or tomorrow.

Hanford Strike Negotiations - Messrs. Bloch and Smith made a report on their weekend discussions with Mr. Johnson of GE and Peterson of the Conciliation Service.

cc: General Manager
General Counsel

W. B. McCool

~~Mr. Anderson~~
~~Commissioner Calkins~~
~~Commissioner Wilson~~
~~Commissioner Cison~~
~~Dr. Paulberg~~

Mr. Neil Molden

Mr. E. J. Bloch
Mr. Oscar Smith

Gen. Lucenko
Mr. W. B. McCool

At 10 a.m. I testified before the House Committee on Science and Astronautics along with Norris Bradbury, Harry Finger and General Branch. I emphasized the technical aspects and generally favored going ahead with the project.

I met with Ros Gilpatric, Herb York, Harold Brown and Luedecke at 2 p.m. We accepted the DOD letter signed, by Gilpatric, dividing the responsibility on ANP, with the modification that the letter designate the indirect cycle as the one meeting DOD needs. I also informed them of our budget cut in the amount of product, the TVA power cut and our plans to proceed with the Antarctic and Guam reactors with DOD cooperation.

I wrote letters to Clark Kerr and to Edwin Pauley today and thanked them for the resolution passed by the Board of Regents, Friday, February 17th, commending me for my new appointment with the AEC.

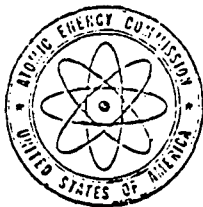
At 5 p.m. I met with McCloy, Adrian Fisher, Arthur Dean, English and others to iron out the position on Plowshare and other matters prior to the Thursday meeting of the Principals. I found myself in a difficult position--between that of McCloy and Dean on the one hand, and of the AEC Commissioners and the JCAE on the other, on many of the crucial issues in the U.S. position concerning the test ban negotiations.

Phil Farley called and said he had discussed the IAEA positions (Smyth and Brynielsson) with Secretary Rusk, and the Secretary is agreeable to our recommendations. Farley suggested that he and John Hall discuss with Mr. Holifield his feeling about Brynielsson. He said that, if it were agreeable with me, they would go ahead with Holifield, satisfy themselves with the British and the Swedes and proceed with the Russians concerning Brynielsson for the director generalship of the IAEA. I agreed to this.

In the evening I attended a reception for Thomas Carroll, the new President of George Washington University, given by Mrs. Eugene Meyer (wife of the former editor of the Washington Post). I met Howard K. Smith there as well as many others.

I received letters from Helen and David.

(Notes of Information Meeting held in my absence attached.)



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

February 28, 1961

MEMORANDUM FOR THE COMMISSIONERS

Subject: MORNING MEETING NOTES, FEBRUARY 28, 1961, MR. GRAHAM'S
OFFICE, GERMANTOWN

Discussion of the 1962 Budget Supplemental with the Bureau of the Budget - Mr. Graham reported that a time had not been set but that it was hoped that we could meet with the BOB tomorrow morning. Commissioners Wilson, Olson and staff will attend.

Hearings on the Military Bilateral with Italy - Mr. Graham will have a short statement to make, if it is desired, but DOD is the prime witness. Adm. Waters, Mr. Wells, Frank Parks, Col. Goldenberg will attend.

Letter to DOD on the ANP Program - The Commissioners will review the letter in Germantown before Dr. Seaborg's meeting with Deputy Secretary Gilpatric at 2:00 PM in the D. C. Office.

Letter from International Brotherhood of Electrical Workers on the SL-1 Accident - I will circulate the letter.

Interim Report on the SL-1 Accident - The Commissioners request submission of an interim report on the problems which have now been identified and corrective action taken.

The ECMG-F-NG Proposal - The Commissioners requested discussion of this proposal next week (See AEC 777/93).

202 Testimony of Frederick deHoffman -

Report on McVey Family Examination - Mr. Ink said a report had been received from the Mayo Clinic and that the Joint Committee, Vice President Johnson, Texas Congressional representatives and the McVey attorney would be informed.


Joint Committee Executive Briefing on the Weapons Program - Monday, March 6. - The Commissioners said they wished to attend. The General Manager is to ask the Joint Committee if they wish Sandia Corporation witnesses to be present.

Hearing on the ANP Program, Wednesday, March 8 - The Commissioners said they wished to attend.

Briefing on the Rover Program - The General Manager said a briefing would be scheduled for the week of March 6. Mr. Graham requested information on the program to demonstrate the safety of nuclear rockets.

Attendance

Commissioner Graham
Commissioner Wilson
General Luedecke
Mr. Hollingsworth
Mr. Oulahan
Mr. Ink
Mr. McCool


W. B. McCool
Secretary

cc: General Manager
General Counsel

Wednesday, March 1, 1961 - D.C.

At 9:30 a.m. I, Commissioners Wilson and Olson, General Luedecke, Howard Brown and others met with Budget Director David Bell and Elmer Staats, his deputy, to comment on the philosophy of and to defend our FY 1962 supplementary budget. We commented on weapons and the TVA power cut, the plan for ANP, the program for ROVER, the decision to ask for funds for the Stanford accelerator, the status of thinking on the NPR, Plowshare, and our request for the Antarctic and Guam reactors, our increase for low energy physics, metallurgy and materials research and our program to absorb ORNL scientists released from the homogeneous reactor project.

I received a call from Henry Smyth telling me he had decided he could not be a candidate for the position of U.S. Representative to the IAEA; I told him I was sorry because he was the unanimous candidate and asked him for suggestions. He mentioned Isidor Rabi. Harry said he thought it might be worthwhile looking into the job to see whether it is really a full time job. It is his impression that the U.S. position is about the only full time one, the others coming in periodically. He said that Bob Wilson had looked into this rather carefully and he believed he thought it was not a full time job. I asked him if he would be interested if it were part time and he said he did not think so.

I had lunch with Commissioner Wilson.

At 3 p.m. I was sworn in as Chairman of the Atomic Energy Commission by Secretary W. B. McCool. Jerry Wiesner was present as President Kennedy's Representative. Commissioners Graham, Wilson and Olson and Wiesner made nice speeches to which I responded. About 50 to 75 Commission employees attended.

At 3:30 p.m. I presided over my first Commission Meeting (1707-action summary attached) as Chairman. The main item of discussion was the AEC's position on test ban negotiations preparatory to my meeting with the Principals tomorrow.

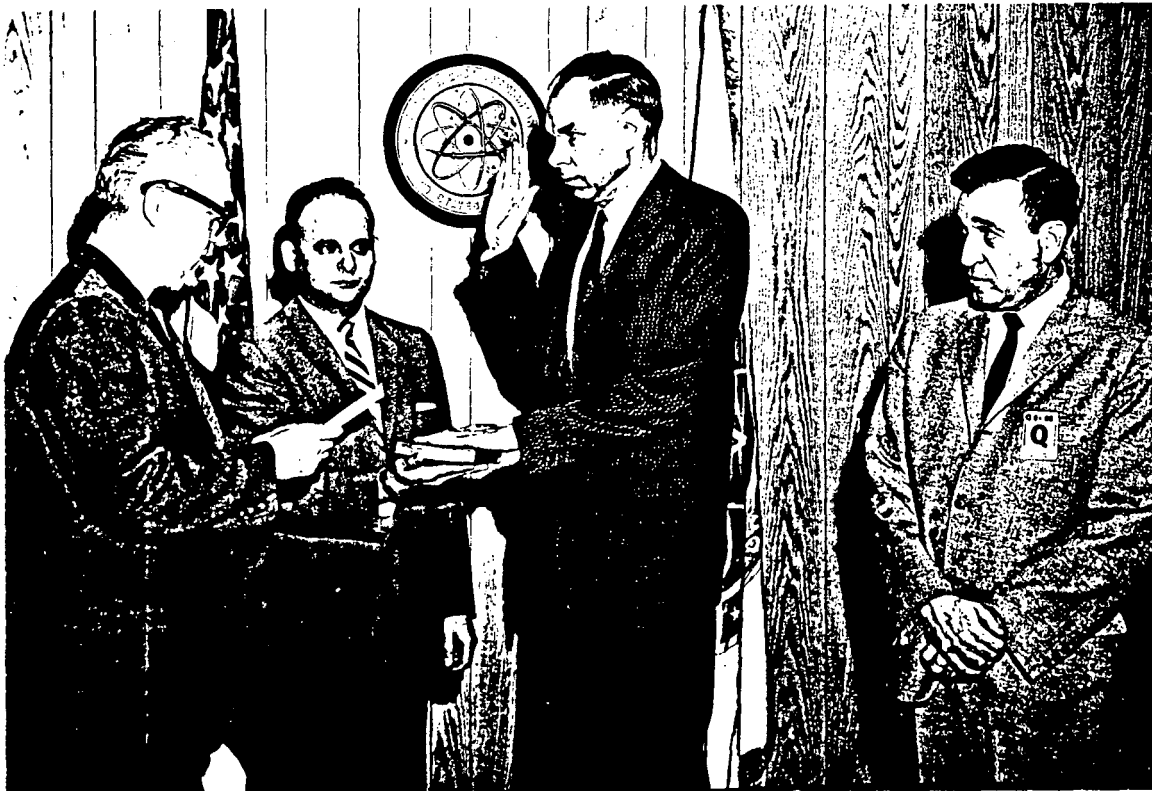
I attended a dinner in honor of Jerry Wiesner and George Kistiakowsky at the National Academy of Sciences Great Hall. (Kistiakowsky missed the dinner due to a plane delay.)

Attached is a letter to Clark Kerr concerning my request to repay into the Pension and Retiring Annuities System the appropriate sum to cover the period of my leave from the University during the war years.

Lynne sent me a letter and her picture.

Thursday, March 2, 1961 - D.C.

From 8:50 to 10:30 a.m. Howard Brown and I met with Congressman Holifield and Jim Ramey in Mr. Holifield's office. I informed him of our budget policy on the weapons cut, the TVA power cut, the status of secrecy of special laboratory weapon experimental program, the status of the McCloy group on test ban negotiations, the DOD-AEC plan on ANP, the status of plans for the ROVER test flight, our regulatory reorganization status, the status of candidates for the director generalship and U.S. representative to the IAEA, Plowshare, our requests for Antarctic and Guam reactors, the plans for the President Kennedy-Holifield-Seaborg-Wiesner meeting on the Stanford accelerator, the ANP, NPR, the nuclear power program and ROVER.



Seaborg being sworn in as Chairman, AEC, H Street Office, March 1, 1961

L to R: W. B. McCool (Secretary to AEC), William Vitale (Administrative Branch of Secretariat of AEC), Seaborg, Jerome Wiesner



L to R: Commissioners Loren Olson, Robert Wilson, Seaborg, John Graham and Jerome Wiesner, March 1, 1961

UNITED STATES GOVERNMENT

UNCL. BY DOE
NOV 86

Memorandum

TO : A. R. Luedecke, General Manager

DATE: March 1, 1961

FROM : W. B. McCool, Secretary 

Approved 

A. R. Luedecke

Date 3/1/61

SUBJECT: ACTION SUMMARY OF MEETING 1707, WEDNESDAY, MARCH 1, 1961, 3:00 P.M.,
ROOM 1113-B, D. C. OFFICE

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Commission Decisions

1. Minutes of Meetings 1701, 1702, 1703, and 1704

Approved as revised.

2. AEC 374/69 - Joint AEC-DOD Nuclear Weapon Vulnerability Program

Approved. (Betts)

3. AEC 154/11 - Australian Request to Transport Fuel Elements
Across the United States

Approved as revised.

Mr. Graham requested the Australian Government be informed by letter this decision does not commit the Commission to approval of the return shipment of irradiated fuel elements. (Wells)

4. Ernest Orlando Lawrence Award

Approved. (Secretariat)

5. Test Cessation Negotiations and AEC 226/276 - Draft Instructions
For Guidance of U.S. Delegation at Geneva Conference

Approved as revised. (Betts - English)

Other Business

1. Hanford Labor Contract Negotiations

Mr. Seaborg requested you provide him with a progress report on the negotiations by Friday.

Mr. Seaborg said he would report to Senator Jackson on the status of negotiations on Friday. (Secretariat)

2. Rover-SNAP Hearings

Mr. Olson requested a report on the Commission consideration of the Rover Project. (Secretariat)

Mr. Seaborg requested that Mr. Olson be provided a copy of Mr. Dryden's testimony on Project Rover. (Donovan)

You said you would schedule a staff paper and a briefing on Project Rover for next week.

Items of Information

1. CIA Briefing of JCAE
2. Senator Anderson's Letter to the Secretary of the Navy
3. Hearings on the Proposed Military Agreement with Italy

March 2, 1961

Dear Clark:

I was very disappointed to learn in your letter of February 27 that I have been again turned down in my request for the opportunity to repay into the Pension and Retiring Annuities System the appropriate sum to cover the period of my leave from the University during the war years. I have the feeling that my problem in this connection has never been really understood.

I do appreciate, of course, the opportunity to pay into the System during my current leave of absence so as to obtain service credit.

I have had the opportunity to talk to both Secretary McNamara and Under Secretary Gilpatrick regarding the Operation Abolition film question that Gloria raised with me by phone several days ago. I believe that steps will be taken either to cancel plans for a film to be issued by the Department of Defense or, failing this, at least to leave out the Daily Californian episode in such a film.

With kindest personal regards,

Cordially,


Glenn T. Seaborg

Incl.:
cc 3/2/61 Ltr to G. Tyndall

President Clark Kerr
"University of California"
Berkeley 4, California

On my return to the office I went into the Information Meeting (notes attached).

I had lunch in my office with Dr. English, Colonel Sherrill, Captain Rosen and Dr. Carl Walske.

From 4:40 to 6:40 p.m. I attended a meeting of the Principals. Also present were Secretary Rusk (the Chairman), Allen Dulles, Jerry Wiesner, Mac Bundy, Chester Bowles, John McCloy, Secretary McNamara, Paul Nitze, General Lyman Lemnitzer, Jim Fisk, Arthur Dean, plus many observers, to hammer out the final or near final agreement on the U.S. position for the Geneva test ban negotiations; I have the impression that the meeting went very well. I made about a half dozen substantive suggestions for changes in the draft paper of instructions to our negotiator, Arthur Dean; these were accepted.

I wrote a letter to Helen (attached) and enclosed the UPI news release of my swearing in today so she could see it is official.

Friday, March 3, 1961 - D.C.

I presided for the first time at the Information Meeting (notes attached). Commissioners Graham, Olson and Wilson and Howard Brown were present. I described my philosophy for this daily meeting as follows: 1. I will attend from 9:30 to 10:15 a.m. when Mr. Graham will take over if it is not finished; 2. inasmuch as the meeting is primarily for the exchange of information, no regular Commission business will be transacted; McCool will take brief action minutes; 3. General Luedecke and McCool will attend the whole meeting except for the first few minutes which will be confined to private business if there is any. Luedecke and McCool then joined the meeting and I explained my plan to them. Then I described yesterday's Principals' meeting. We okayed a letter from me to Vasily S. Emelyanov regarding the U.S. visit to the U.S.S.R. on waste disposal problems, on the exchange of reports and on a joint U.S.-U.S.S.R. accelerator for 300-1000 Bev energy; I sent the letter later in the day (copy attached).

At 10:45 a.m. I had a call from Jim Reynolds, Assistant Secretary of Labor, regarding the labor situation at the plutonium plant at Hanford. The panel assigned to this case made recommendations regarding a basis for settlement and urged the parties to use that as a subject of discussion, but GE is taking a very rigid position. Reynolds said we are up to a delicate point in this matter and thinks the Secretary of Labor, the Chairman of the JCAE and I should get together for a briefing session. A meeting was arranged for March 6th.

At 11:20 a.m. I presided over Commission Meeting 1708 (action summary attached).

I had lunch with John Hall and Howard Brown to discuss IAEA staffing and problems.

At 2 p.m. the Commissioners met with the ACRS. Theos J. Thompson (Chairman) presided over a discussion of safety problems of the Peachbottom Reactor, the ICBWR (ATomics International) and the SL-1 accident.

At 3 p.m. I met at NASA with Jim Webb, Wiesner, Jerrold Zacharias, Alan Waterman, David Beckler, Bentley Glass, Hugh Dryden, Selby Thompson, Dael Wolfe, Bown Dees (NSF) and Bill Oakley (Administrative Vice President of Educational Services, Inc. [ESI]), in Webb's office, to discuss a summer program, to be headed by Brandwine, coordinating all the high school curriculum

UNITED STATES
ATOMIC ENERGY COMMISSION
Washington 25, D. C.

*Mr. Anderson
and then
Files*

UNCL. BY DOE
NOV 86

March 2, 1961

MEMORANDUM FOR THE COMMISSIONERS

Subject: MORNING MEETING NOTES, MARCH 2, 1961, CHAIRMAN'S D. C. OFFICE

Joint Committee's Letter on ICBWR Records - Mr. Graham called attention to Mr. Ramey's letter enclosing Congressman Holifield's letter of February 23rd to GAO withdrawing the Joint Committee's request for a review of the ICBWR record.

Review of Fiscal '62 Budget Supplemental with BOB on March 1 - The Commissioners and General Manager reported on the meeting.

Israeli Reactor - The General Manager is to consider AEC participation in a visit.

Anti Trust Indictments - The General Counsel is to determine the effect on AEC contractors.

Employment Discrimination in Government - General Counsel is to determine the effect of a forthcoming Executive Order on AEC contracts and Grants in Aid.

Southern California Edison-Westinghouse Proposal - The General Counsel will be prepared to speak to proposed Commission expenditures for additions resulting from regulatory requirements and to the propriety of some requested allowances. The meeting on this matter is scheduled for 10:30 a.m. Friday, March 3rd, D. C. Office.

Power Transmission Lines - The General Counsel is to ascertain status of legislation providing for Government expenditures for power transmission lines.

French Nuclear Test - The General Manager is to make a progress report on Friday, March 3rd.

Classification of Plutonium Recycle Reactor - The General Manager will submit an Information Paper.

Budget Actions on Weapons and Power - The Commissioners said a report to the Joint Committee need not be made at this time.

ICBWR Project - The Commissioners said action on the budget supplemental was not to cancel this project.

The Chairman's Meeting with Mr. Holifield - The Chairman reported briefly on the discussion this morning.

Letter to DOD on ANP - Unanimously approved by the Commission and will be read into the record of the next formal meeting.

Chairman's Meeting with the President - The General Manager is to prepare reports on the following programs for the Chairman's meeting with the President next week: Stanford Accelerator, ANP Program, status of Civilian Nuclear Power Programs, the NPR, and the Rover Program.

Attendance

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
General Luedecke
Mr. McCool
Mr. Oakley

W. B. McCool
Secretary

cc: General Manager
General Counsel

March 2, 1961

Dear Helen:

In addition to a statement from the Dutton Company, I am enclosing a UPI news release. So, you can see that it's all official now. I was sworn in yesterday afternoon just prior to a Commission meeting. I expected it to be a very simple ceremony, but it turned out to be much more elaborate than I had anticipated. To my surprise, Jerry Wiesner was there, along with about 50 members of the top staff of the Commission. Jerry brought along my official commission scroll from the President and expressed his good wishes. I was only sorry that you and the kids weren't present.

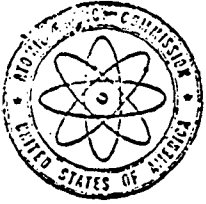
It was good to hear your voice Sunday when I telephoned. Also, I have enjoyed your letter, along with the newspaper clippings. The letters from Lynne and David were most welcome, and I was particularly happy to receive their photographs.

I hope you are all keeping well and happy; I think of you very often.

With love,

151
(Signed) Glenn T. Seaborn

MJ



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

March 3, 1961

UNCL. BY DOE
NOV 86

MEMORANDUM FOR THE COMMISSIONERS

Subject: MORNING MEETING NOTES, MARCH 3, 1961, CHAIRMAN'S OFFICE, D. C.

Commissioners' Morning Meetings - Dr. Seaborg discussed briefly the continuing arrangements for the meetings.

Report on Regulatory Study - The General Manager said this paper would be issued today.

Chairman's Report on Meeting of the Principals, March 2, 1961

The Chairman's Meeting with Dr. Weisner - Dr. Seaborg said he would meet with Dr. Weisner on Monday afternoon in preparation for the meeting with the President and Congressman Holifield.

Letter to Professor Emelyanov - The letter was approved by the Commissioners. The General Manager is to remind the staff that this involves no Commission commitment to a joint accelerator project. The Chairman said he would mention the matter to Congressman Holifield.

Letter to the Interstate Commerce Commission on Radiation Levels re Shipment of Radioactive Material - Commissioners approved Dr. Wilson's proposed letter.

National Science Foundation on Byrd Reactors - In a telephone conversation with Mr. Olson, Dr. Waterman said the Foundation had no objection to the installation of a reactor at Byrd Station.

Materials Research Laboratory at University of Illinois - Mr. Graham reported on calls from the University of Illinois representatives and Congressman Cannon's letter of February 28, 1961. The General Manager will give the Chairman a report on the meeting including the names of the University of Illinois persons concerned with the matter.

Commission Letter to the U. S. Chamber of Commerce (Committee on Atomic Energy) - The General Manager said this matter was in staff and Mr. Graham requested Dr. Wilson to assure timely Commission action.

March 3, 1961

Draft Bill on Absolute Liability re Gnome Shots - Mr. Graham Claytor will discuss a draft bill with Mr. Parks. The General Counsel will keep the Commissioners informed.

Joint Committee Letter on Section 91.b (See AEC 1041/9) General Loper's testimony on February 27 will be circulated.

Southwest Graduate Research Center - The Commissioners will meet with Mr. Stohl and Associates in mid March contingent on development of a definitive agenda.

Senator Jackson's Letter to the President re Antarctic Reactors The General Manager is preparing a reply which will be coordinated with the DOD.

Fourth French Nuclear Shot - The General Manager reported on the matter.

Chairman's Report to Senator Jackson on Hanford Strike - The General Manager is providing a talking paper.

Press Release on Hanford Strike - Commissioners approved the proposed press release for Mr. Travis' use. The Joint Committee is to be informed. The Chairman is to meet with Secretary Goldenberg and Congressman Holifield, 5:00 PM, March 6 on this matter.

Hearing Examiners' Move - Mr. McCool reported that the General Manager's staff had agreed to proposed space allocation for Hearing Examiners in A Wing, Third floor.

Attendance

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Gen. Luedecke
Mr. Naiden
Mr. Oscar Smith
Mr. McCool

W. B. McCool
Secretary

cc: General Manager
General Counsel
Mr. Hollingsworth

3-3-61

Dear Professor Smolyanov:

Since my nomination by the President to be Chairman of the Atomic Energy Commission, I have reviewed the progress that has been made under the Memorandum on Cooperation in the Utilization of Atomic Energy for Peaceful Purposes between our countries, and have discussed the subject within the new Administration. I have also given careful consideration to the discussions which took place with respect to our exchanges of visits.

It has long been my view that scientific and technical exchanges increase understanding and friendship between our two nations and I am looking forward to further contacts which I am certain will be mutually beneficial. In this regard, I should like to submit for your consideration my thoughts on several matters which have been under discussion, looking toward early consummation of them.

The Atomic Energy Commission is prepared to implement an exchange of visits by U.S. and U.S.S.R. scientists to radioactive waste disposal installations. I hope that these visits can take place at an early date. For our part, we are prepared to proceed before the end of March, if that were convenient to you and the details could be worked out in time. These visits, we feel, should come about prior to any conference on the subject because they would provide the basis for discussion of information on our respective programs which would be both current and meaningful. In this connection, I am referring to discussions which we understand you had with Mr. Sterling Cole regarding an Agency conference on the subject to which we would be agreeable. Also, I would like to indicate our continued interest in including visits to operational waste disposal facilities if this can conveniently be arranged by you.

It also seems appropriate that we receive consideration of the scheduling of exchanges of visits by our scientists in the fields of fast breeder and nuclear superheat reactors later in the spring of 1961.

Details of the exchanges in the area of waste disposal and in the two reactor fields can be arranged through the usual diplomatic channels. However, I should appreciate any suggestions you might have now for scheduling these visits.

I understand that Dr. Victor Spitsyn may be among the Soviet scientists who would comprise a waste disposal delegation to the United States. In this connection, please convey my continued good wishes to Dr. Spitsyn and my hope for the success of his published, translated papers on radiation chemistry. I hope that I shall have the opportunity to see him again in the near future.

The Commission is prepared to initiate the exchange of information provided for in the Memorandum on Cooperation. I have directed that the first group of the Commission's abstracts of unclassified current work in atomic energy be dispatched to you within the next two weeks. We shall welcome receipt of abstracts from the Soviet Union. In addition, we are prepared to provide copies of reports in the reactor field which you may request from our abstracts.

I have reviewed the report of the U.S. and U.S.S.R. scientists on their New York meeting in September 1960 pertaining to their discussion of the scientific feasibility of constructing a large and novel accelerator. I am hoping that scientists in our country will be able to proceed with the studies recommended by the group on a time schedule that will afford the opportunity of discussing their results at the time of the 1961 International Accelerator Conference. I would be interested in learning of the action you are taking in connection with the group's recommendations and of your views on the best means of coordinating our respective studies and arranging for informal exchange of results.

I am looking forward to meeting you again in the near future and hearing from you on the matters discussed above. I should like once more to express the hope that both of our countries will continue to benefit from the contacts arising from the Memorandum on Cooperation. I am sure we will have the opportunity to consider other matters of cooperation in the field of

the peaceful uses of atomic energy in the course of the further implementation of the already agreed upon program.

My best wishes.

Sincerely,

Chairman

Professor V. S. Smolyakov

Chairman

State Committee of the Council of
Ministers of the U.S.S.R. on the
Utilization of Atomic Energy

Moscow, U. S. S. R.

Memorandum

TO : A. R. Luedecke, General Manager

DATE: March 3, 1961

Approved A. R. Luedecke
A. R. LUEDECKE

FROM : W. B. McCool, Secretary *W. B. McCool*

Date 3/3/61

SUBJECT: SUMMARY ACTION OF MEETING 1708, FRIDAY, MARCH 3, 1961, 10:30 a.m.,
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:

Discussion of Evaluation Board Report on Southern California
Edison-Westinghouse Proposal (See AEC 1042/5 - Contract Clause -
Southern California Edison-Westinghouse Proposal)

Discussed.

Copy filed: SRAC - Large Nuclear Power Plant

3.3.61

studies (such as PSSC, CHEM, etc.) to be followed by integrated use in a number of trial high schools next fall.

While I was still at NASA I had a telephone conversation with Senator Henry Jackson; I told him that the General Manager had written both General Electric and the Union and asked them to undertake negotiations in good faith, looking toward a new contract prior to the expiration of the present so-called cooling-off period on March 14th. I said I believe negotiations will be reopened by the first of next week and I would keep him informed. I mentioned my forthcoming meeting with Secretary Arthur Goldberg to further explore the situation.

At 4:15 p.m. in a continuation of the Commission Meeting (1709 action summary attached) we decided to go ahead with the flight test program for ROVER, subject to Presidential approval. I called Bell and also Webb and Dryden to advise them of this decision.

I had dinner with Art Campbell at National Airport to plan the agenda for the CHEMStudy Steering Committee to be held in Chicago on March 27th.

I had a call from Emilio Segrè saying we have an offer of \$50,000 for our jointly owned property in Orinda; we decided on a counter offer of \$57,000.

Mr. Harrison, the real estate agent, called me regarding a house I saw in Chevy Chase, D.C., last Sunday; the owner will sell, including drapes and rugs, for \$49,000. I asked Harrison to get a price on the furniture.

Saturday, March 4, 1961 - D.C.

Harry Smyth came in at 9:30 a.m. to discuss further the possibility of his becoming the U.S. Representative to the IAEA. He expressed interest in the position on a part-time basis. He said he wondered what kept Paul Foster occupied full time. I said that Paul Foster is coming in to see us next weekend and that I would explore this question with him at that time. I pointed out that arranging the periods to be spent in both places would be very important. I further pointed out the uncertainty as to Rabi's functions in his capacity as a member of the Science Advisory Committees of the IAEA and the U.N., and that we might get clarification as to the extent of his attendance at the critical ISEA meetings. It was left that we will explore the above points and get in touch with him.

From 10:35 a.m. to about 11:45 a.m. I attended a meeting with the President to discuss the U.S. position on the forthcoming test ban negotiations to be held in Geneva. It was held in the Cabinet Room of the White House and present were: President Kennedy, Mr. Bundy, Mr. Fisher, Mr. Arthur Dean, Mr. McCloy, Mr. Paul Nitze, General Lemnitzer, Mr. Dulles, Dr. Wiesner, Mr. Spurgeon Keeny, Mr. Rusk and myself.

Mr. McCloy made the opening statement by saying that there had been general agreement on the instructions to be given to the U.S. Delegation, as brought out in a meeting of the Principals, and others (total people present, according to Mr. Bundy, were 32), held on Thursday, March 2nd; however, a difference of opinion had developed on the point of the number of on-site inspections, with the AEC holding a different point of view from the others, and we thought this was important enough for the President to resolve.

Memorandum

TO : A. R. Luedecke, General Manager

DATE: March 3, 1961

Approved *A. R. Luedecke*FROM : W. B. McCool, Secretary *W. B. McCool*

A. R. Luedecke

Date 3/4/61SUBJECT: ACTION SUMMARY OF MEETING 1709, FRIDAY, MARCH 3, 1961, 3:30 p.m.,
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:WLW

Commission Decisions:

1. AEC 855/40 - Nuclear Rocket ProgramApproved, subject to Presidential determination.
(Pittman)Chairman Seaborg said he would inform the BOB and NASA of the
Commission's decision. *Done*2. Agenda for the week of March 6, 1961

Approved, as revised.

Items of Information:

1. Bonneville Proposal2. Proposed Bill re: Gnome Liability

Mr. McCloy proceeded to explain the present U.S. position, with its formula of a minimum of ten on-site inspections and the possibility of ten more with a proportionality factor of one per five suspected events to a maximum of 20. In the course of this he mentioned the AEC position, although I had the impression that he referred to it more in the way of opposition to an upper limit, rather than to AEC preference for strict proportionality with no ceiling.

Mr. Bundy and Dr. Wiesner, and others, supported the point of view of 10 minimum, plus 10 additional on a proportional basis; Mr. Bundy made the point, supported by statistical arguments, that if you inspected some 10 or 20 events, even though each had a probability of only one in three or four of uncovering a clandestine operation, after you had done 10 or 20 of them, the chance that you had missed a true event is very small.

The President asked General Lemnitzer for his point of view, and he said, but not very forcefully, I thought, that he thought the Joint Chiefs of Staff would prefer the concept of strict proportionality with no ceiling.

Mr. Nitze made some comments, but they were not of the nature that threw much light on the subject of on-site inspections. He said that the Department of Defense didn't regard the matter of on-site inspections of paramount importance, but they were more concerned with the composition of the Control Commission and the methods by which certification of an event for inspection was made. DOD sees loopholes there that might negate the purposes of the treaty.

I then said that I wanted to be sure that the difference of point of view of the AEC and the rest of the group was completely understood: that we felt that the position of settling on some arbitrarily negotiated number like 20, 3, 10, or 17 was a political solution; that we thought a more logical and scientific basis existed for adopting the principle of proportionality throughout, and that this would lead to more support by the American public, by Congress, and by scientists. I said that the average number of detectable seismic events per year appeared to be about 100. On the basis on an inspection ratio of one to five, this would result in 20 inspections. But this varies from year to year by something like a factor of 2; that is, you might have as few as 50, or as many as 200 detectable seismic events. Therefore, according to our formula, in some years, there would be less than 20 inspections.

As the discussion began to move into other channels, Mr. McCloy brought it back to the issue of the differences on the number of on-site inspections, and the President then said that he thought that we should stay with the position of 20, as defined.

At this point, and also at various times earlier, there was discussion of the importance of approaches to the Members of Congress. In this connection I mentioned specifically the great importance of correct approaches and approaches at the right time to the Joint Committee on Atomic Energy. I mentioned specifically the difficulty last summer when a discussion with them revealed their stand that they would require reciprocity, whereas the present U.S. position is unilateral disclosure in connection with seismic experimentation.

Mr. Bundy pointed out that there was a luncheon set up for next Tuesday on this matter to discuss it with a number of Democratic Members of Congress. The President asked whether it wouldn't be better to include Republican members. In answer to Mr. Bundy's observation that this would make the group unmanageably large, the President suggested that it could be divided into two luncheons.

In the discussion of who might attend--and I am not particularly sure who will attend which of the two luncheons--the names of Holifield, Pastore, James Van Zandt, Anderson, Jackson and Hickenlooper of the JCAE were mentioned, as well as other key members of Congress, such as Mansfield, John McCormack, Charles Halleck, etc.

This was followed by a discussion of the question of the duration of the negotiations. The President, and many of us, had noticed the article in this morning's Washington Post by Murray Marder, pointing out that President Kennedy was departing from his campaign promise that he would set a definite time limit on the negotiations. The President observed that the article was rather vague on this point. It seemed to be agreed that there wouldn't be any hard and fast time limit; but, on the other hand, the negotiations would, in effect, come close after a reasonable time.

There was also discussion here, as well as at other times during the meeting of the John Finney article (New York Times, March 3, 1961, "U.S. Easing Stand on Atom Test Ban") and of the Marder article, in which discussions of the U.S. position, including the statement that we had decided to fall back to 17 inspections, were disclosed. There was much speculation as to the origin of these leaks. These articles indicated that a high official in the State Department had made these statements.

Mr. McCloy then went on to describe very briefly the Fisk Report, and raised the question of whether it should be made available to the JCAE, pointing out the need for keeping them informed if their subsequent support is to be forthcoming. President Kennedy said he would like to study the Fisk Report over the weekend before deciding on this matter.

The President then remarked on the time remaining before Mr. Dean's departure for Geneva, and therefore, on the need for rapid progress. He asked Mr. Dean who was going with him to Geneva, and Mr. Dean mentioned, among others, Messrs. Stell, Popper, Doyle Northrup, etc.

The President asked whether Mr. Dean had passed on to Dr. Fisk his request that he (Fisk) be with the delegation. Mr. Dean replied that Dr. Fisk has requested that he come after the start of negotiations, on invitation, as needed, so that if he couldn't remain for the entire time, it wouldn't appear that he had lost interest in the negotiations.

After the meeting I took Mr. McCloy and Mr. Dean aside and said there were three broad areas of possible pitfalls, or at least potential points of public attack upon the treaty that I think they should call to the President's attention even before he met with the Members of Congress. These are areas which I would have identified at the meeting had the opportunity presented itself.

I pointed out that the upper limit of 4.75 (on the seismic detection scale) in the treaty, below which there would be a moratorium on testing, left the possibility of cheating in the development of small weapons, and even of rather large ones in the event decoupling was resorted to. I told him I thought this would be a matter of much public comment.

I pointed out what was basically a point of illogicality in the treaty in the area of high altitude explosions. I said that here we have in the treaty itself a prohibition for which there are in certain cases no enforceable safeguards,

and hence we have deviated from a principle which might come back to plague us. I pointed out that a way out of this might have been to have a moratorium for explosions above a certain altitude, below which we could definitely police the treaty provisions.

I pointed out that some people, and I cited Teller as an example, would disagree with the statements made earlier in the meeting that a treaty of this sort couldn't place the U.S. in a very vulnerable position with respect to its future existence vis-a-vis the Soviet Union because only certain small changes, factors of 2 or 3, could be made in relation to yields, weight ratios, etc. I said that there are those who would disagree with this, that there is the possibility of the next large step--or possibly you might call it the third stage of weapons development--namely, that in the course of a few years such weapons systems as the Polaris-carrying nuclear submarine might be negated (for example, by the Soviets having a sufficient number of submarines to put them on the tail of each of ours, in cooperation with surface ships, and effectively rendering them inoperative). Concomitant with such steps to negate our striking power, the Soviets would continue to develop new concepts which could, in fact, take the next step as breakthrough in a decisive way in their ability to wage war on us.

At 1 p.m. I met in Wiesner's office with him, William Carey and Fred Schuldt of BOB, Manny Piore, Paul McDaniel, Alan Waterman, David Beckler and George Lukes to discuss the Stanford linear accelerator. We decided that the Administration should support it and that it would be built under AEC jurisdiction.

At 3 p.m. also in Wiesner's office, I met with Fred Dutton and Wiesner to prepare for a meeting with President Kennedy and Mr. Holifield next Tuesday to discuss: 1. the Stanford accelerator, 2. the future of nuclear power development in the U.S., 3. the ANP, 4. the Rover flight test date, and 5. Hanford NPR power development.

Al Weinberg and I had dinner at the University Club. I called Helen to describe the Chevy Chase house (3825 Harrison Street).

Monday, March 6, 1961 - D.C.

I had breakfast at the University Club with Norris Bradbury and John Foster.

At 10 a.m. I attended an Executive Session of the Weapons Subcommittee of the JCAE under the chairmanship of Senator Jackson which was followed by testimony by Austin Betts and Norris Bradbury. After that I met with Congressman Melvin Price and showed him letters from Deputy Secretary Gilpatric regarding the ANP and my reply (copy attached). He agreed with the concept that the AEC should assume responsibility for the development of the reactor and the choice of the cycle, but said he disagreed with the DOD implication that it should be the indirect cycle and gave the arguments of propaganda and psychological effect of an early flight which could be obtained with the direct cycle. His clear implication was that both cycles should be further developed. I told him we would let him know the President's reaction to this. He said in view of this pending matter before the President he saw no reason for my testifying at the Executive Session of the ANP hearings on March 8th.

Lewis Strauss and I had lunch at the Metropolitan Club and enjoyed a discussion of the Chairman's Office, methods of operating and the qualifications of people in the AEC.

Dear Mr. Secretary:

I am writing in response to your letters of February 28, 1961, concerning the Aircraft Nuclear Propulsion program. Your letter proposes that the Atomic Energy Commission assume full responsibility for the complete power plant development, including the nuclear reactor, and for selecting a cycle which in the Commission's judgment is more capable of meeting Department of Defense objectives as stated therein.

The Commission has considered your proposal and believes it has merit. We also believe, however, that the decision to proceed with a cycle selection is of sufficient importance to the national security and the national economy that the implications of such a decision be fully recognized by the President and the Bureau of the Budget. The Commission feels strongly that a cycle selection should also involve a firm resolve to provide adequate funding for the cycle selected in order that reasonably early flight may be achieved. Such a decision involves a commitment which may result in the expenditure of approximately \$700-\$800 million in addition to the approximately \$940 million that had been invested by the AEC and DOD in the program at the end of FY 1960.

Consequently, the Commission would not wish to accept the delineation of responsibility which you suggest, without assurances that the program is approved by the President. In this connection, it is our understanding that the time required for a reasonable development program and for subsequent aircraft production indicates that such aircraft could not be available in significant numbers for employment in operational units until about the end of this decade.

In the event of affirmative decision on such delineation of responsibility the Commission will require continued support from the Air Force in technical personnel qualified in engine development and in dealing with the interface problems of integrating the nuclear power plant and the airframe.

I should like to suggest that we arrange a meeting with the President.

Sincerely,

/s/ GLENN T. SEABORG

Glenn T. Seaborg

DISTRIBUTION:

- 1A - Addressee
- 2A - Commissioner Graham
- 3A - Commissioner Wilson
- 4A - Commissioner Olson
- 5A - DC Reading
- 6A - DC File
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- 9A - Follow-Up
- 10A - Distribution

- 1B - General Manager

James Gavin, the new American Ambassador to France, paid me a courtesy call in the afternoon.

At 5 p.m. I met at the Department of Labor with Secretary Arthur Goldberg, Assistant Secretary Jim Reynolds, Congressman Holifield, Jim Ramey, Ed Bloch, Oscar Smith and Commissioner Olson to discuss the impending strike at Hanford. The month deadline expires on March 14th, so we discussed possible courses of action in case there is no settlement.

I negotiated further with Mr. Harrison (the real estate agent) regarding the terms for the purchase of the house at 3825 Harrison Street.

In the evening I attended and spoke at the Westinghouse Talent Search Winners Banquet (40 winners) at the Statler Hotel to a crowd of about 500 people on "The Making of a Creative Scientist."

Tuesday, March 7, 1961 - D.C.

At the 9:30 a.m. Information Meeting (notes attached) I brought the Commissioners, the General Manager, the Secretary, the General Counsel and Mr. Dwight Ink up to date on my White House meetings, etc., and we discussed current issues including Finney's article in Sunday's New York Times claiming that AEC has recaptured its staff. (Later we prepared a possible response to the press refuting much of this article; this was done over Commissioner Olson's objections.) After I left this meeting at 10:15 a.m., Commissioner Olson had a heated exchange with General Manager Luedecke over their increasing differences of opinion over the AEC organization, the method of operation, the degree of information furnished the Commission by the staff, etc. This difference of opinion is potentially serious.

At 11:10 a.m. I presided over Commission Meeting 1710 (action summary attached) to consider questions of furnishing weapons information (of differing types) to Canada, West Germany and England.

At 1 p.m. (until 3:15 p.m.) I attended a lunch in the Gold Room at the White House with President Kennedy. Other guests at the luncheon were Vice President Johnson, Secretary of State Rusk, Secretary of Defense McNamara, Mr. Bundy, Mr. McCloy, Mr. Dean, Dr. Wiesner, General Lemnitzer, Senator Jackson, Senator William Fulbright, Senator Hubert Humphrey, Senator Anderson, Senator Hickenlooper, Senator Pastore, Congressman Holifield, Congressman Van Zandt, Congressman Thomas Morgan (Chairman of Foreign Relations Committee), Congressman Albert Gore, Congressman Price, Mr. Ramey and Mr. Adrian Fisher.

The guests assembled in the Red Room of the White House as they arrived, and after the President arrived and greeted each one individually, we went into the Gold Room for lunch.

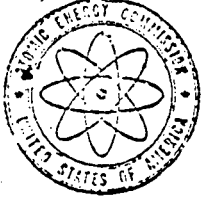
After lunch, at perhaps 2 p.m., President Kennedy rose and opened the subject by praising Mr. McCloy and Mr. Dean in a review of their record of patriotic contribution to the government during the last decade. He underlined the importance of the present Geneva test ban negotiations and then asked Mr. McCloy to introduce the subject in further detail.

Mr. McCloy rose and began by saying that he had talked to people all over town, including especially those most particularly involved, and said that general agreement had been reached and that there were no outstanding disagreements. He



Winners of Westinghouse scholarships are congratulated by Dr. Watson Davis, director of Science Service and Seaborg, March 6, 1961

L to R: Edward Charles Jones, William Milton Adkins, III, Dr. Davis, Daniel Ellis Kleinman, Seaborg, Joshua Wallman (top winner) and Harriet Jane Fell



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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March 7, 1961

UNCL. BY DOE
NOV 86

MEMORANDUM FOR THE COMMISSIONERS

Subject: MORNING MEETING NOTES, MARCH 7, 1961, CHAIRMAN'S
OFFICE, D. C.

U. S. Representative to the IAEA - The Commissioners will discuss this with Adm. Foster on Friday.

McCloy Panel on Materials Production - The General Manager has in process the requested information.

Chairman's White House Meetings - The Chairman met yesterday with Messrs. Dutton and Weisner on the Stanford Accelerator, following his meeting with BOB officials and later with Messrs. Weisner and Dutton on the five items for discussion at the President's meeting with Congressman Holifield. A meeting with the President prior to the meeting with Holifield is scheduled for 10:00 A.M., Thursday, March 9. The Commissioners will review the proposed suggestions on additional incentives for the nuclear power program prior to that meeting.

A Meeting with the President on Geneva Negotiations - The Chairman will attend the 1:00 luncheon meeting today at which key members of the Joint Committee and Congressional leaders will be present.

Chairman's Report on Meeting of the Principals with the President on Saturday, March 4.

Dispersal Data - The document is on file in the Chairman's office, accessible to the Commissioners.

March 5, New York Times Article by John Finney - The Commissioners will review the draft material.

Hearing on the ANP Program, Wednesday, March 8 - Dr. Wilson will make an introductory statement. Mr. Olson will attend and the Chairman hopes to attend for a portion of the Hearing. The recent technical report (See AEC 17/200) will be referred to by General Branch and furnished the Joint Committee later if they wish copies.

ANP Cycle Selection - The General Manager circulated a memorandum on this subject to the Commissioners yesterday.

Joint Committee Executive Hearing on the Weapons Program -
Mr. Graham reported that the special laboratory experiments were referred to by the Commission for Joint Committee information.

Dresden Fuel Elements - Commissioners asked that the General Manager assure that the Joint Committee were currently informed on this and on the EBWR Project.

Financial Review by the Controller - This will be scheduled for 4:00 P.M., Thursday, March 9, D. C. Office.

Meeting with Westinghouse officials - Commissioners asked for a report on the unallowable items. The meeting will be scheduled for 2:30 P.M., March 9, D. C. Office

TVA Power Cuts - Commissioners asked the General Manager to inform the Joint Committee by letter.

Area Los Alamos Area
Appointment of Manager, Albuquerque Operations Office

Reorganization of the SNAP Program - Commissioners said they would meet with General Loper on this matter.

Attendance

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Gen. Luedecke
Mr. Brown
Mr. Ink
Mr. McCool

W. B. McCool
Secretary

cc: General Manager
General Counsel
Mr. Hollingsworth


Memorandum

UNCL. BY DOE
NOV 86

TO : A. R. Luedecke, General Manager

DATE: March 7, 1961

Approved A. R. Luedecke

FROM : W. B. McCool, Secretary 

Date 3/7/61

SUBJECT: ACTION SUMMARY OF MEETING 1710, TUESDAY, MARCH 7, 1961, 11:05 A.M.
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY: JCH

Commission Decisions

1. Minutes of Meetings 1705 and 1706

Approved as revised.

2. AEC 781/121 - Transmittal of Information to Canada and
AEC 781/122 - Transmittal of Information to Canada

Approved. (Betts)

3. AEC 996/4 - Transmittal of Atomic Information to the Federal
Republic of West Germany

Deferred.

Mr. Graham requested this matter be studied in connection with the JCAE Report on its recent tour of NATO facilities. (Betts)

I will schedule this next week.

4. AEC 988/112 - Exchange of Atomic Weapon Information With the
United Kingdom

Approved.

Mr. Olson requested he be informed of the U.S. weapon recently evaluated by the U.K. (Betts)

Other Business

1. Briefing by Dr. Bugher on the Puerto Rican Nuclear Center
2. FPC Report on NPR Economics

The Commission had no objection to Mr. Luce's studying the report contingent upon his understanding that this report is under study by the Commission. (Bloch)

then went on to point out some of the main points in the agreement that would be of special interest to Congress.

He mentioned first the seismic research program to be conducted in order to increase our capacity to detect clandestine nuclear explosions in the Soviet Union. He said that the Soviets were not participating in this program because they are standing by their view that they did not want to conduct nuclear explosions of any kind. Mr. McCloy said that if the Russians should change their mind about carrying on nuclear explosions in the seismic research program, the provisions of the treaty would be such that we could inspect their weapons.

Mr. McCloy pointed out that it was contemplated that we would use obsolete weapons whose disclosure to the Russians would not constitute an undue risk. He also pointed out that a similar problem of disclosure arises in connection with the contemplated U.S. program of peaceful uses of atomic energy (Plowshare); in this case, although obsolete weapons would be used at the beginning, as the treaty was carried on it might be possible in a few years to modify it so as to make use of more sophisticated devices in order to make it possible to carry out the program that the U.S. would like to carry out. In this regard he mentioned that the joint resolution was so worded as to make this possible.

Mr. McCloy went on to say he wanted the reactions of those present, especially the members of the Joint Committee on Atomic Energy, since their support would be necessary in any Congressional action which legalized any disclosure of obsolete weapons that is required in the proposed treaty.

He then went on to the question of on-site inspections. He said that there are perhaps 100 earthquakes per year in the Soviet sector. He said the Soviets wanted to limit the on-site inspections on their territory to 3 per year; whereas the present position of the United States is 20 per year. He said we might modify this, if pressed, to a minimum of 10 inspections per year, increased by inspections for one out of each 5 events, up to an additional 10, for a maximum of 20. He said that there had been discussions with British negotiator David Ormsby-Gore, and he apparently will support this stand.

At this point the President suggested to Mr. McCloy that he make the Fisk Report available to those interested, through Congressman Holifield.

Mr. Dean then arose to continue the discussion. He said that the delegation would spend two to three weeks in Geneva outlining the program in detail and then would ask for U.S.S.R. reaction. He said that overall it was a well thought out and fair program. He said it was designed on the philosophy of trying to get agreement, which he thought would be inconsistent with announcing ahead of time a time limit on the negotiations.

From this point on the discussion was carried on with the people remaining in their seats and just speaking as the opportunity arose.

Senator Humphrey said he had two questions, concerning: 1. the composition of the Control Commission; 2. the question of veto over the budget. Mr. McCloy replied that the treaty contemplated 4-4-3 composition for the Control Commission, and it was possible to veto the overall budget, but not details.

In response to the implication that we would accept the 4-4-3 ratio, Senator Anderson spoke up and said, of course, we would accept it as it was our (i.e., U.S.) proposal. There was an exchange along these lines, including the question

of what might be done if the Russians failed to agree, and Mr. Dean essentially repeated our philosophy of attempting in good faith to go as far as we can, so that, as a minimum if we fail we will have a good position in the eyes of the world.

Senator Fulbright raised the question of the French, and then immediately raised the question of the Chinese. The reply was along the lines that it is necessary to determine first whether we can get an agreement which is worth anything, and then proceed from there to consider the difficult question, especially of the Chinese. (In this respect, somebody mentioned that Soviet Ambassador Mikhail A. Menshikov asked whether we could deliver the French, to which, he, in turn, was asked whether he could deliver the Chinese. The partial reply was that they probably couldn't do anything about that until the Chinese were admitted to the United Nations.)

Senator Anderson questioned the upper limit of 20 on-site inspections and asked if it would apply to a year when there would be 300 events in the Soviet Union. The reply was that it would. At this point the President asked if we couldn't start in our negotiations with a number greater than 20, proportional to the actual number of events. At this point I broke in to say that that was precisely my position. Senator Anderson raised the question of what we would do if the U.S.S.R wouldn't agree. In the course of the following discussion, Senator Humphrey made the following point: that they haven't yet rejected our number of on-site inspections.

The discussion then got into a rather spirited exchange, during which Senator Anderson kept pressing on the question of the difficulty of getting the Soviets to agree, and at this point the President rose to thank those assembled, saying with a bit of a twinkle in his voice that he was glad to see there was agreement on the U.S. side, and now we would see if we couldn't get the Russians to agree also.

The President then suggested that Mr. McCloy and Mr. Dean make themselves available to the Joint Committee on Atomic Energy right up to the time of Mr. Dean's departure for Geneva. He emphasized that we must do the best we can in this area; that much more was at stake than just the test ban negotiations: this would have a great influence on world opinion; if we could agree on this, it might enable us to move toward agreements on Berlin and Laos--conversely, failure to agree here would lead to possibly greater difficulty in getting agreement on Berlin and Laos, etc. The President suggested that Mr. McCloy and Mr. Dean give as much time to the JCAE as possible, beginning next Thursday, March 9th, looking to them for advice.

During the ensuing conversation at the luncheon I took the occasion to mention individually to Rusk, Fisher, McCloy, Wiesner and Bundy the advantages of the logical position of having the number of on-site inspections proportional to the number of observed seismic events, even in the event we were forced to a reduction in total number. I suggested it would be better in that case to reduce the ratio below 1 to 5--say, 1 to 6--and, hence, be able to maintain a logical, more scientific, and less purely political position. I said I thought this was more important than people seemed to realize; that a logical solution to this question would do much to get acceptance by the Congress, the scientists and the nation, as well as giving us a stronger position internationally.

As we were leaving the White House, a group consisting of the President, Senator Jackson, Mr. Rusk, Mr. Bundy, Mr. McCloy, Mr. Dean, Dr. Wiesner and me gathered

in the main White House entrance and continued the discussion. At this time Senator Jackson emphasized the need for a clear, "intellectually honest" position. The President agreed and emphasized again the fact that more was at stake here than just the test ban agreement. We have to think of the other path, the alternatives: the increasing (without limit) stockpiles of weapons not only in the United States and the U.S.S.R. but in other countries, and the possible consequences of this. He also mentioned as an example Israel. He emphasized again that we should make a really serious effort so that, even if we fail, in the eyes of the world we will be in the position of having done the best we could.

At the luncheon I sat next to Congressman Holifield and took the opportunity to mention to him the following matters. I mentioned the continuation of Mr. Ink's liaison responsibilities with the Congress and he thought that was fine. We discussed again the fact that there would be five points for our meeting with the President which now seems to be set for next week. These are 1. the question of the future of the civilian nuclear power program, that is, the question of incentives in order to get it moving faster; 2. the NPR question, for which he would like to have Senator Jackson present; 3. the ANP question, for which he would like to have Congressman Price present; 4. the question of taking the road of any early test flight in the ROVER program, with its implication of spending some three-quarters of a billion dollars; and 5. the question of the JCAE-NATO report, which Mr. Holifield said might have been taken care of before the meeting.

I also told him I had written Professor Emelyanov in continuation of the McCone-Emelyanov Agreement to suggest that we go forward with the matter of exchanges, and, in particular the coming visit in connection with the radioisotope waste disposal program, an exchange of information in the form of reports and the question of joint construction of a large accelerator.

Congressman Holifield raised with me the question of the status of the AEC General Manager. I replied that I had decided to keep him on, subject, however, to close observance by me. I intend to provide direction and guidance in order to give the General Manager an opportunity to demonstrate whether or not he can be effective if given a clearer charter of his responsibilities and authority. If he does not perform well within a few months' time, I will take appropriate action. I said I do not intend to let the matter drag on.

During the day I signed an agreement to buy the house at 3825 Harrison Street for \$47,000 (\$35,000 mortgage at 5 3/4% for 20 years) plus \$2,000 for rugs and drapes and about \$2,000 for much of the furniture in the house.

Wednesday, March 8, 1961 - D.C.

I attended the Executive Session hearings on the ANP, chaired by Congressman Price at the JCAE Hearing Room. The DOD letters to AEC were introduced into evidence, which evoked much heat from Congressman Price and other JCAE members because of their displeasure over the possible choice of the indirect cycle.

I had lunch with Ken Pitzer at the University Club to discuss possible areas in which the GAC might be asked to give advice to the AEC. I suggested and we agreed upon the following: 1. the matter of long-range objectives and missions of the national laboratories and the possibility of their working in some thoughts on the setup for their administration by the AEC with suggestions for improvement; 2. the role of safety in deciding on nuclear power reactors and in

particular as this concerns the AEC-owned and operated reactors. It was agreed that Pitzer would explore this area with Dr. Theos Thompson, Chairman of ACRS, in order to be sure that he could develop an area in which to advise which will not be in conflict with the responsibility of the ACRS; 3. the question of whether more budgetary support should go into the AEC isotopes program; 4. the question of the future of nuclear power, particularly an evaluation as to whether there is some approach with long-range potential for economic power that is not adequately supported; 5. although it wasn't thought necessary to give the GAC a specific charge to look into the balance of the research program as between high energy nuclear physics on one hand, and low energy physics, chemistry and materials research on the other hand, it was thought this should be considered to be a continuing charge to the GAC upon which they could give advice as particular situations develop.

We agreed that this probably wouldn't be the right time for the GAC to make a review of Plowshare and that I should mention this to the GAC in my opening statements at their next meeting. We also agreed that there probably wouldn't be any value in having the GAC look into the ANP, ROVER or NPR questions at this time.

I received a briefing on the NPR power costs from George Quinn.

At 2:30 p.m. I met with William Webster, President of the New England Electric System, in my office. He gave me a status report on Yankee and also mentioned his interest in the Davison Chemical Company's operations in the area of chemical fuel processing. Then he went on to the main purpose of his visit, which was to report on the plans of the Panel on the cut-off of production of fissionable materials, which he has been heading temporarily and which will proceed now under the direction of Jim Perkins.

He said they are proceeding on the assumption that the Soviets have one-seventh to one-third as much fissionable materials in their stockpile as the U.S. They are studying the problem of the relative gain by the USSR and the U.S. in case a cut-off is agreed to. That State Department has asked them to determine whether a cut-off would be in the national interest, but they want to avoid a direct answer to this problem. They are divided into a number of task forces which will report in a couple of weeks because McCloy wants a quick, approximate answer on a number of questions, such as the effect of the cut-off, the possibilities of detection of violations by inspections (and in this connection, they would like to have a certain number of inspections in the U.S.S.R. without having to give reasons for looking into any particular area).

They may try to include in their conclusions some judgment as to whether it would be safe for the U.S. to go ahead and agree on a cut-off program, and they certainly will put it into their conclusions if they decide it would not be safe for the U.S. to go ahead. He said he wanted me to know the present state of their planning and asked whether I had any objections to their method of procedure, which I said I did not, and he stated that he would report back in two or three weeks in order to keep me, as one of the Principals, fully informed.

I met with Commissioners Graham, Olson and Wilson and we decided to place Colonel Jack Armstrong in charge of the SNAP program and Harold Price as Acting Director of the new Division of Regulation (separate from the General Manager's responsibility).

I attended a buffet dinner given by Chief of Staff of the Army and Mrs. George

H. Decker in honor of the Secretary of the Army and Mrs. Elvis J. Stahr.

Today's mail brought me a letter from David.

I wrote my mother a letter and sent her "News from Sweden." I also told her we bought a house with sufficient space for our family.

Thursday, March 9, 1961 - D.C.

At 9:15 a.m. I welcomed the Advisory Committee on Isotopes.

From 10:10 a.m. to 11:20 a.m. I attended a meeting with President Kennedy, Mr. Bell, Dr. Wiesner and Mr. Dutton in the President's Office. We first discussed the Stanford linear accelerator. Mr. Bell gave a short history of the ups and downs of the project. It was brought out that the funding would be spread out over some 4 or 5 years, and that it would only cost some \$10 - \$20 million in FY 1962. It was also brought out that the Joint Committee on Atomic Energy (or at least some members) now apparently supports the project. Mr. Bell showed the President a draft of a letter that he might send to him (copy attached).

The President asked if it were in the Eisenhower budget, and Mr. Bell told him that it was. He asked what are some of the competing items, and Dr. Wiesner mentioned the \$102 million in the supplemental NSF budget, ships for oceanography, etc. Mr. Bell suggested that there be a full review, in the fall, of the 1963 budget so that a comparison could be made as to the levels of support of various fields, and it seemed to be implied that maybe PSAC would finally tackle this problem. Dr. Wiesner and I both pointed out that we are in favor of this project and that there is general agreement among scientists in the U.S. that it is needed if we are to get ahead in high energy physics. The President then said, "Let's go ahead with it."

Our next item for discussion was the New Production Reactor (NPR) at Hanford. I gave the President the background on the NPR, pointing out that it might be economically feasible for the first 10 years, when operation could be charged at least in part to plutonium production cost, but that in the following 25 years of its 35-year life the economics was marginal, and that the same is true for the whole 35-year period. Mr. Bell said that he doubted it was economically feasible for any period, and it depended on how you judged the costs.

Senator Jackson's interest was emphasized, but the President, of course, knew about it. I pointed out that the importance of a prototype dual purpose reactor of this type depended upon whether there would be increased plutonium production via new reactors or a need to replace old plutonium producing reactors so that there would be future opportunities for the building of such reactors for the production of power. Mr. Bell said that the AEC was in the course of studying all the facts and coming up with a recommendation. I said that I thought political factors were involved in this and I didn't think it was basically a matter for the AEC to recommend and, furthermore, that I thought the President should resolve the issue. It wound up with the suggestion that the facts as to the economics of the operation and other pertinent items would be put together in a joint Bell-Seaborg memorandum for the President to see. Mr. Bell pointed out that additional hydroelectric power is being built in the Northwest and that this is very cheap. I said I understood that additional power for the next 10 years in the Northwest would cost about 5.86 mils per kilowatt hour, on the basis of our early perusal of the latest FPC report.

EXECUTIVE OFFICE OF THE PRESIDENT

BUREAU OF THE BUDGET

WASHINGTON 25, D. C.

UNCL. BY DOE
NOV 86

MEMORANDUM FOR THE PRESIDENT

Subject: Stanford Linear Electron Accelerator

The Atomic Energy Commission has requested clearance of legislation to authorize appropriations for the construction of a linear electron accelerator at Stanford University at a cost of \$115 million. Although AEC has not yet actually requested funds, an appropriate amount to carry development forward in 1962 and to initiate construction should be included in the 1962 budget if the project is approved. It appears that this would involve about \$10 million of RDA and about \$10 million of expenditures in 1962. Future operating costs are estimated at \$15-20 million annually.

The machine would be two miles long and would accelerate electrons to an energy level of 10-15 billion electron volts (EeV's), about twice the energy level to be obtained with the Cambridge (Mass.) machine and the highest electron energy in the world. (The new accelerator at AEC's Brookhaven Laboratory accelerates protons to an energy level of 32 EeV's.) The electron beam would be used for research in high energy physics, the study of ultimate structure of matter. The machine was three times recommended to the Congress by President Eisenhower, most recently in his 1962 budget message. Dr. Lawrence, Dr. Serber, and Dr. Watsonman recommend approval, based in part upon the recommendation made last December by the joint panel of the President's Science Advisory Committee and the General Advisory Committee to the Atomic Energy Commission.

My concerns about the project related (1) to questions about its priority in the field of high energy physics, and (2) to questions about its relative value to invest in other fields of basic research. These concerns were intensified by the dollar magnitude of the Stanford machine and its impact upon other scientific manpower.

As to my first concern, the scientific consensus (although it is not unanimous) is that the machine is the most important next step to be taken in high energy physics and that, although there are ideas for other machines in the offing, firm proposals for such machines will not materialize for several years to come. It seems clear that, if the Stanford machine is

approved, no other major machine can be seriously considered for some years to come. As to the intrinsic scientific promise of the machine, no guarantees can be made as to what major discoveries, if any, it may yield. Also, it appears unfortunate that the interest in the machine depends primarily upon the scientific leadership at Stanford of a single man, Dr. Panofsky.

As to my second concern, the scientists are not prepared to say that this project represents the highest priority among the various needs for increased support for basic science. They do say that the urgent needs in other fields of basic science can be met with very much less money. They say that choices cannot be made among fields of science, but a choice will in fact be made if the Stanford machine is approved. There is evidence of concern that the national effort in high energy physics may be getting out of balance with other disciplines, not only in terms of dollars but also in terms of scarce scientific manpower. I think that a more serious effort will have to be made than has been made in the past to assign priorities among the many competing needs for support in basic science.

In summary, it appears that a completely compelling case for the machine cannot be made. On the other hand, it is not possible to make a compelling case against the machine, either. On balance, I do not object to proceeding with the machine, but I think that, in so doing, it needs to be recognized by all concerned that this action represents a very substantial commitment of resources to the increased support of basic science and that the resources now allocated to an expansion of high energy physics cannot also be committed to other fields of science.

(Signed) David E. Bell
Director

We then discussed government-constructed nuclear reactors for electricity. I reviewed again for the President the present status of civilian nuclear power development, that in the view of many of the members of the Joint Committee it had ground to a halt. I pointed out that some new incentives were needed, bearing all the way from the possible construction of entire plants by the government, as in the case of TVA (and the Hanford NPR would, in fact, be an example of this) to increased incentives to private utilities. The latter might take the form of some subsidization of construction, reduced nuclear fuel costs, or government financing of power transmission lines and costs of transmission when the reactors, due to safety considerations, have to be located at some distance from cities.

I explained that this matter of locating reactors away from cities due to safety considerations was essentially a new factor and it alone justified a new look at the picture. In the course of the discussion, the President said that he had no objection to the government's building operational nuclear power plants. At one stage of the conversation he asked me what I would do, and I said that, within the confines of this room, I would be willing to say that I would be willing to use both approaches; some government construction and operation of power plants, like the TVA, and some carefully-thought-out additional incentives to private industry. This seemed to be left for further determination, possibly in the form of some explicit suggestions from Congressman Holifield at the time of the later meeting between the President and Mr. Holifield.

Regarding Project ROVER, Dr. Wiesner and I described briefly the various merits of the nuclear and the chemical approaches to rockets. Wiesner perhaps indicated less potential for nuclear, as compared with chemical, than I did; I emphasized that I thought that in the long run there were probably things that the nuclear could do that the chemical could not. Wiesner pointed out that their PSAC Panel is still working on this and that there is a strong difference of opinion within the Panel. I emphasized that the issue had come up because the AEC has \$7 million (matched by \$19 1/2 million from NASA) in a supplementary 1962 budget, and that this represented a sort of turning point going toward the spending of a much larger sum of three-quarters of a billion dollars because this supplemental item was for the starting of the flight testing.

At one stage the President asked me what my recommendation was, and I said that I would probably do it; i.e., go ahead with the program for the ROVER nuclear rocket. It was left that the BOB would bring forward to the President the recommendation for the approval of the AEC supplemental budget of \$7 million (and, by implication, the corresponding NASA supplemental budget), pointing out the implications for the probable future spending of three-quarters of a billion dollars, so that the President would know what the decision meant.

We then discussed the manned nuclear-powered aircraft (ANP). I explained as briefly as I could the status and the potentiality of the indirect and direct cycles, the companies involved, the amounts of money that had been spent, and how much it would cost to carry each of them to completion. I mentioned the hearings before the JCAE yesterday, in which there had been rather heated discussions of this issue. I discussed Congressman Price's position, and also Congressman Holifield's final view that the indirect cycle is probably best for actual use for as yet undefined missions by the military, but the propaganda and psychological value of an early flight was sufficient reason for also spending the money required to develop the direct cycle. No conclusions were reached, but I had the impression that the President was not very much inclined to spend this much money for a propaganda effort. The way the matter was left was that a

Presidential decision is yet to come. My understanding would be that the BOB budget which goes to the President would have the present provisions in it for the indirect cycle, including the transfer of the funds from the DOD, and would point out that there is essentially nothing in it for the direct cycle.

Our next topic was devices for use in the seismic research program. We discussed again the question of revealing devices to be used in the seismic research program and explained the difficulties involved in doing this through declassification (that is, revelation to other non-participating countries, thus changing our course after having discussed a joint resolution approach with the Congressional representatives, at the luncheon-meeting with the President on March 7th, etc.). The President said that in view of the reaction of the JCAE members at the luncheon he felt that Mr. McCloy shouldn't press for a decision on the matter of a joint resolution before Mr. Dean left for the negotiations in Geneva, but that he should come back to Congress to get this after there had been shown some progress in Geneva. Then if there had been no progress in the negotiations, he and the President will not have been in the position of risking a turn-down by Congress before their agreement was needed. I reminded the President that Mr. McCloy was testifying before the JCAE this afternoon, and at the end of our conference, but in our presence, he telephoned Mr. McCloy and suggested the above method of procedure to him, to which Mr. McCloy, at the other end of the line, seemed to agree.

We didn't discuss the Antarctic nuclear research project. I had discussed it with Mr. Bell before the meeting, and we discussed it further after the meeting with the conclusion that this was pretty much in hand and that there was no need to go into it further. The President did refer to the letter of February 26, 1961, which he received from Senator Jackson on this subject.

On the subject of civil defense, it was pointed out that Mr. Holifield is very interested in this subject, speaking in terms of spending some \$30 billion in the next few years.

In the course of the meeting the President suggested that he be given a summary of total costs for all of these items; that is, Stanford linear accelerator, NPR, government-constructed nuclear reactors, Project ROVER, ANP, Civil Defense, and other items which Mr. Bell mentioned so that he could use this when he was talking to the individual proponents, such as Senators Jackson, Price, Anderson, etc. This is going to be drafted by BOB, with our participation and advice.

After the meeting with the President, the four of us also decided that the President should be given a briefing book to study a day or two before the meeting with Congressman Holifield, and Mr. Dutton said he would take primary responsibility for its preparation. It was agreed that Wiesner and I, and maybe Mr. Bell, should be present at the meeting of the President with Congressman Holifield, and Mr. Dutton tentatively suggested that this meeting take place on March 22nd, but possibly on March 23rd or 24th. Mr. Dutton said that someone called from Congressman Holifield's office suggesting that the JCAE have a representative at our meeting today so that we might all go forward together, but Mr. Dutton apparently had replied that he didn't think this was necessary.

At 12:25 p.m. I met with General Herbert Loper, Chairman of the Military Liaison Committee, Frank Pittman, Luedecke and Branch in my office. Loper wanted to protest our placing SNAP directly under the AEC. Loper didn't want to do this until we had hammered out a written agreement as to the use of their personnel and the handling of safety aspects. I said I thought it had to be done before

Monday and that Luedecke and Loper could go ahead and try their luck at a written agreement if Loper thought this was essential; that I didn't see why it was, but it should be done right away. Pittman gave arguments for having this under him in the Division of Reactor Development.

I had lunch with Jim and Alice Robinson (my cousin) at Duke Zieberts, 1730 L Street, N.W.

From 2 p.m. to 4 p.m. I heard the testimony of Secretary Rusk and Mr. McCloy before the Joint Committee on Atomic Energy on the U.S. position regarding the test ban negotiations.

I sent my weekly report to President Kennedy today (copy attached).

This evening I had dinner with John McCone, Commissioners Graham, Wilson and Olson at the Metropolitan Club.

I received letters from Helen and my mother today.

Friday, March 10, 1961 - D.C.

At the Information Meeting we exchanged information on the events of the last few days, e.g., my meeting with the President, my meeting with Pitzer, the appointment of John Foster as Director of the Livermore Laboratory, the Lawrence Award winners, the appointment of Colonel Armstrong as director of the SNAP program reporting to Pittman, etc. We also met officially as a Commission to adopt the new regulatory program with Price as Acting Director of the new Division of Regulation (position is parallel to that of the General Manager).

I presided over Commission Meeting 1711 (action summary attached).

I talked to Paul Foster, just returned from Vienna where he served as U.S. Representative to the IAEA, regarding the status and progress of the IAEA and possible successors as U.S. Representative. Although Foster feels that Smyth at half time would be feasible, he would prefer a person of primarily political ability and on full time basis because of changes in the statutes and reorganization problems which are pending.

I talked further with John McCone, who dropped in for a visit, on general AEC problems.

I had lunch with Earl Warren in his study in the Supreme Court Building; our discussion mainly concerned University of California at Berkeley matters.

Later I met with, greeted, and heard a report from the Advisory Committee on Biology and Medicine. They said this is the first time they have met with the Commission and they want to do it regularly. I said I would look into the possibility, it is clear that this should be adopted as a regular procedure.

The Hanford strike is reaching crisis stage as the March 14th deadline approaches with no settlement; Dr. Wilson phoned President Cordiner of the General Electric Co., to urge him to accept the Panel's recommendations, which the Union has essentially accepted, and to say that AEC probably will not allow the plant to operate if a strike takes place.

At 5 p.m. I met with Holifield, Senator Jackson, George Quinn, Ed Bloch, Jim Ramey, and Ed Bauser to discuss the NPR; this power project, according to the JCAE group, is economically feasible. I expressed some skepticism and said a

March 9, 1961

PERSONAL AND CONFIDENTIAL

Dear Mr. President:

The following is an informal report on developments in the atomic energy program which I believe will be of interest to you.

1. Nuclear Rocket Program (Project ROVER)
(Official Use Only)

Mr. Webb, Administrator of NASA, and I have agreed to request supplemental funding in the FY 1962 budget for the nuclear rocket program directed toward a flight test objective, subject to your approval and your understanding that this would be the first step toward commitment of a larger sum of money over the next few years to meet this objective; this is one of the questions we discussed with you in our meeting this morning. Hearings will be held by the JCAB on Monday, March 13, 1961, on this program.

2. JCAB Hearing on Weapons Research and Development
(Unlassified)

On March 6, the JCAB's Subcommittee on Military Applications heard the directors of AEC weapons laboratories discuss the current status of nuclear weapons research and development. Testimony was also received on what further developments could be achieved without resumed testing, and what weapons would require testing before entry into stockpile. There was little or no discussion of the national policy regarding nuclear test cessation apart from its technical aspects.

3. JCAB Hearing on Planned Nuclear Aircraft Program
(Official Use Only)

The JCAB on March 8 held an all day executive session on the status and future of the AMP program. Subcommittee Chairman Price, supported by Representative Hollifield, argued for an early flight test (which would probably mean the direct cycle); this was another of the topics

was discussed at our meeting this morning. Representative Hollifield, however, did state that useful military applications, on the longer term scale, could only be accomplished through the development of the indirect cycle; and that the additional development of the direct cycle approach would be primarily for propaganda and psychological purposes. Chairman Price also argued in favor of continuing the research and development program on HGH chemical approaches. (This could require a substantial increase in the FY 1962 budget request.) Varying degrees of opposition to reservation to the AEP program were voiced by Senator Durrback and Representatives Harner and Bates. Following the government testimony, representatives of General Electric and Pratt & Whitney argued the advantages of their competing propulsion systems. Representatives of Convair testified concerning the aircraft Engine.

4. Reduction in AEC Contractor Personnel (Unclassified)

As a result of various program adjustments, a reduction in contractor employment at the Oak Ridge, Tennessee; Portsmouth, Ohio; and Paducah, Kentucky; installations will be taking place during fiscal year 1961 - about 590, 240 and 85 employees, respectively, will be involved. While these reductions should not unduly impact the local labor situations, we are keeping the Department of Labor advised.

5. Status of Items Reported in Previous Reports (Unclassified)

a. JCAR R&D Activities:

The JCAR concluded its hearings concerning the status of the atomic energy industry. The Committee appeared to be particularly responsive to those non-government witnesses who supported the acceleration of the nuclear reactor program, and a Federally-sponsored program for the development of competitive nuclear power.

b. Insford Labor Situation:

The Federal Radiation and Comminication Service encountered the dispute on March 6, 1961, and resumed negotiation sessions with the General Electric Company and the Insford Atomic Metal Trades Union. The date set by the Union for work stoppage still is March 14 in the event settlement has not been reached by that

date. I met with Secretary Goldberg on this matter earlier this week and will continue to work closely with him.

c. International Atomic Energy Agency:

Ambassador Paul Foster, U. S. Representative to the International Atomic Energy Agency (IAEA) will arrive in Washington this evening to discuss (1) the status of the IAEA, (2) appointment of a new Director General of the IAEA to replace Sterling Cole, and (3) a replacement for himself in view of his imminent retirement. Currently the Department of State and the Commission are considering Dr. Henry Smyth, a former Commissioner and author of the 1945 "Smyth Report" on the military application of atomic energy. Dr. Smyth would only be able to spend 50% of his time serving in this capacity. Therefore, his appointment would depend upon changing our policy which, to date, has been that we should have a full time representative.

Respectfully submitted,

Glenn T. Seaborg

The President
The White House

Memorandum

UNCL. BY DOE
NOV 86

TO : A. R. Luedecke, General Manager

DATE: March 10, 1961

FROM : W. B. McCool, Secretary

Approved A.R. Luedecke
A. R. Luedecke

Date 3/14/61

SUBJECT: ACTION SUMMARY OF MEETING 1711, FRIDAY, MARCH 10, 1961, 9:30 A.M.,
CHAIRMAN'S D. C. OFFICE

Commission Business:

1. Designation of Acting Director of Regulation. The Commission requested a report from the General Manager, the General Counsel, and the newly designated Acting Director of Regulation on the Regulatory reorganization by April 15th. (GM, GC, and DR) - I will draft a letter to the Joint Committee for the Chairman's signature.

Other Business

1. Southern California Edison-Westinghouse Proposal -

The Commissioners requested submission of your statement of the issues. (Pittman)

2. Stanford Accelerator Project

Required money levels are to be transmitted to EOB today. *done*
(Burrows)

3. ANP Program

BOB is to be informed of the discussed money level contingency language relating to other early discussion. (Burrows) *done*

4. Letter to DOD on SNAP Program

The letter is to include an appropriate reference to the DOD October 31, 1957 letter, and a copy is to be sent to the Joint Committee today. *done*
(Pittman) NO

5. Joint Committee request for Information

The Commissioners requested an analysis of past actions. (Secretariat)

6. GAC Advice

Do you wish to formalize the Chairman's discussion with Pitzer on this matter? *No*

Information Items

1. Lawrence Awards
2. Director Livermore Laboratory
3. Joint Committee Hearing on Test Ban Negotiations
4. Chairman's Meeting on NPR
5. Director General of the IAEA

final decision will probably come at the Holifield-President Kennedy meeting. The discussion continued with Holifield and Ramey alone on 1. the AEC decision to place Armstrong in charge of SNAP, 2. the ANP (I expressed skepticism as to the value of this project), 3. the AEC decision to make Harold Price the acting director of the new Division of Regulation, and 4. the ROVER hearings to be held on Monday. (A controversy is brewing over whether AEC can do part of the research at Lewis Laboratories in Cleveland through NASA).

I had dinner at the Larry Olsons'. After dinner the Luna Leopolds dropped in for a visit. Luna is a brother of Starker Leopold, who was my faculty assistant when I was the Chancellor at Berkeley.

Saturday, March 11, 1961 - D.C.

At 9:30 a.m. I had my picture taken by Mr. Tibor Hirsch for a Business Week story on arms control. I also had interviews with Don Shannon of the Los Angeles Times and John Lear of Saturday Review. I had a further conference with McCone regarding his conversations with various people during his visit on AEC matters and test ban negotiations; he is trying to pave the way for acceptance by Congress of the U.S. proposed policy of unilateral disclosure of obsolete weapons to be used in the U.S. Seismic Research Program.

I talked on the phone with Holifield and told him I thought it would be well to extend Webb the courtesy of an invitation to appear before the Committee hearings on SNAP and ROVER on Monday if this was agreeable to him. He said this was all right with him. I advised him I had discussed the U.S. Representative to the IAEA with Foster and that he (Foster) has some interesting views which he would like to talk about with him. Holifield said he would like very much to talk with Foster. I told him I had raised the question with Foster of appointing a scientist part time in order to get Harry Smyth if he is interested; that I felt it important that a scientist be appointed to this job. I said that Foster feels this is feasible but pointed out the great political problems such as the change in the Statute and in the Secretariat. Holifield said he would be quite pleased if Smyth would take the job and suggested we explore the possibility of appointing Sullivan of State Department on a full time basis and Smyth on a fifty percent basis. I told him we would think about this and asked him to discuss this angle with Foster. Holifield said he had received a letter from Cole which he would show me the next time I was in his office. Holifield said he felt the rotation plan was the proper one for the director generalship.

I called Webb and invited him to attend the JCAE hearing on ROVER and SNAP with me on Monday at 10 a.m.

I had lunch at the University Club with Emilio Segrè.

In the afternoon I received a phone call from Secretary of Labor Goldberg; he said that the negotiations between G.E. and the Union had reached the point where the only remaining point of difference was the wage increase to become effective April 2, 1962. The Union would like to have this open to negotiation that time; G.E. wants no increase at that time. I told him about Commissioner Wilson's call to President Cordiner of G.E. on Friday, March 10th, he felt that this probably had been helpful. He said he would call me back now to report any progress.

and the house at 3825 Harrison Street, carefully inspected the furniture I

am purchasing, and signed the final agreement to purchase under the following terms: \$47,000 for the house (\$33,750 at 5 1/2% interest loaned by Riggs Bank), \$2,000 for the rugs and drapes, and \$1,880 for specified furniture.

I attended a stag dinner at the German Embassy given in honor of Mayor Willy Brandt of West Berlin by Ambassador Wilhelm Grewe.

Sunday, March 12, 1961

A large part of the day was spent reading and preparing material for the ROVER-SNAP Hearing before the JCAE and my appearance on the Dave Garroway show tomorrow.

Secretary of Labor Goldberg called and said the labor negotiations, with the help of the Mediation Service, had still not resolved the remaining question. The Panel recommends a 1% increase (on top of the 3% increase) effective April 2, 1961. The Union is willing to settle for 3/4% or even perhaps for 1/2% but G.E. will not budge. He will talk with the President on Monday to decide on the next move and will let me know the result.

I called home and talked to Helen, Dave, Steve and Eric. Pete and Lynne are on a ski trip with Dan Wilkes.

Monday, March 13, 1961 - D.C.

At a little after 8 a.m. I appeared on live broadcast for the Dave Garroway NBC TV show in the Washington Studio. I was interviewed by Martin Agronsky on various atomic energy matters, including the test ban question. I mentioned my letter to Vasily Emelyanov regarding a U.S.-U.S.S.R. program on the exchange of scientists, scientific information and a cooperative accelerator(300 Bev) program.

Before going to the Hearing I called Dave Bell to tell him we would have to mention at the Hearing that we have asked for a budget supplemental for ANP going toward flight testing, but that we will try not to bring the President into it. Bell said that we are not even supposed to tell the JCAE how much we are asking for. He suggested that I say that this matter is under discussion with the President and that he will be sending recommendations to the Congress within a very few days. I said that this is difficult because the figure is probably well known by them and also because we are trying to maintain good relations with the Joint Committee. We discussed the advisability of mentioning to the President this matter of AEC-JCAE relations in connection with his meeting with Congressman Holifield next week.

I also told Bell that Mr. Holifield and Senator Jackson asked me to talk to them last Friday, March 10th, about the NPR - the basis was the FPC study and the feeling that it is now financially feasible. In the course of our meeting, Mr. Ramey gave me a copy of a memorandum that he prepared for Jackson and Holifield analyzing the report from a cost standpoint. Letters from Secretary Stewart Udall to Jackson and from Charles Luce (FPC) to Jackson were referred to. I told him that I had JCAE approval to send copies to him.

At 10 a.m. I testified before the Joint Commission on Atomic Energy on the ROVER program; this seemed to go quite well.

I had lunch with Norris Bradbury at the University Club.

I talked on the phone with Jerry Wiesner and advised him of our ROVER hearing before the JCAE this morning and their interest in the possibility of flight testing. Mention was made of the fact that this is in the supplementary budget, but the President was not brought into it and no mention made of the amount.

I told him that Paul Foster, U.S. Representative to the IAEA, is back and has some ideas which he would like to discuss with him and that I had asked him to contact him. I said that Foster emphasizes the political nature of the job with more emphasis now on proposed changes in the Statute and reorganization of the Secretariat and that I had pointed out that this is one of the reasons the Agency isn't held in the highest regard--we have no scientific representation.

I mentioned our idea that perhaps someone like Smyth could be appointed to the top job and have someone with other background take the full time job with Smyth giving only half of his time to it. I said I had discussed this with Holifield and he felt Sullivan at the State Department would be a good man for the full time appointment. Jerry said he understood Sullivan was campaigning for the job and he had heard from several people that he was not the right one. I told him the AEC rumor was that Frank Pace is pushing him and he plans to see the President about him; also, that he is a Douglas Dillon candidate.

At 3:50 p.m. Secretary Goldberg called me from New York to report the latest developments on the Hanford labor situation. He said the parties are going back into discussion about 6 p.m. and in the meantime, the Union has given assurances that they will give us an orderly shutdown after midnight tonight, if needed. He said the AEC people at Hanford have already issued orders to start shutting down about 3 p.m. or 4 p.m.. He feels this creates a strike atmosphere and thinks that order should be reversed. Goldberg will check with Hanford again about 6:30 p.m. and then will call to report to the President. If we don't get a two-week extension, the President will send to both parties the wire directing a two-week extension.

Beginning at 4 p.m. the Commission met for two hours to determine the AEC position on the possible Hanford strike which has a deadline of midnight. We decided that we would permit no production operations. Assistant Secretary of Labor Jim Reynolds called me at 11:45 p.m. (at home) to tell me that President Kennedy has wired the Union and G.E. asking them to continue negotiations until March 31st, thus averting a strike.

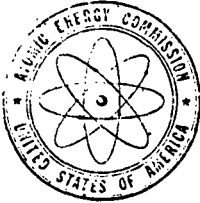
Tuesday, March 14, 1961 - Germantown

W. B. McCool, the AEC Secretary, rode with me to Germantown this morning so he could brief me on the history of the Commission and the Office of the Chairman's method of operation.

I called Congressman Holifield to bring him up-to-date on the Hanford strike.

At 9:30 a.m. I presided over the Information Meeting (notes attached). We discussed the Hanford strike situation and the ANP testimony among other things.

I called Senator Anderson to advise him that in my many chats with John McCone on his recent visit he (McCone) had alluded to some concern he might have regarding the way our Congressional liaison is working and the role of Mr. Ink. I said I would like very much to talk with him first hand if there is anything he thinks we should discuss. Anderson said his concern was for me and my



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

UNCL. BY DOE
NOV 86

March 14, 1961

MEMORANDUM FOR THE COMMISSIONERS

Subject: MORNING MEETING NOTES, MARCH 14, 1961, CHAIRMAN'S
OFFICE, GERMANTOWN

Hanford Strike - The Chairman drew attention to Presidential request to continue negotiation to March 31 and GE and Union compliance. The instructions to Travis will be reconsidered.

Letter from Congressman Holifield re Finney March 5 Article - Mr. Graham is drafting a reply.

Press Announcement on Regulatory Reorganization - Will be cleared with Commissioners for issuance tomorrow or Thursday.

ANP Hearing Wednesday, March 15 - Dr. Wilson will attend. I will circulate the letter from Congressman Price.

Rover - Snap Hearing, March 13

Meeting with President to Discuss NER - The Chairman expects an early meeting on this matter. The FPC report has been distributed to the Commissioners and to Bonneville, Burns & Roe and the unclassified version will be released to Public. I will circulate the letter from Senator Jackson to the President.

U. S. Representative to IAEA

Draft Letter to GAC - Will be considered tomorrow. It is to include a reference to the Chairman's recent discussion with Dr. Pitzer.

McVey Case

New Mexico Tax Case

Westinghouse Meeting Transcript - Will not be made available to Mr. Weaver for review.

Attendance

Dr. Seaborg	Gen. Luadecke
Mr. Graham	Mr. Naiden
Dr. Wilson	Mr. Howard Brown
Mr. Olson	Mr. McCool

cc: General Manager
General Counsel
Mr. Hollingsworth

W. B. McCool
Secretary

administration and he wanted to try to prevent anything like the situation that existed when Mr. Strauss used an assistant as a "spy." I told him he didn't have anything to worry about on that front. He suggested the next time I was on the Hill that I come up about fifteen minutes early and chat with him and in the meantime not to worry.

He asked me to keep an eye on ROVER. I told him I would and mentioned that we had put SNAP under Armstrong. Clint said that he had not pushed Armstrong, that Holifield is a present admirer of his.

In the morning I presided over Commission Meeting 1713 and Regulatory Meeting 95 (action summaries attached).

I had lunch with Harry Smyth, Ambassador Paul Foster, the Commissioners and others to explore the possibility of Smyth's accepting the position of U.S. Representative to the IAEA on a part-time basis.

At 2 p.m. I talked to a group of about 125, consisting of assistant general managers, division directors, assistant division directors and other administrative personnel, as a get-acquainted measure and as a means of telling them something about my philosophy of the administration of the Atomic Energy Commission.

I called Holifield to inform him of our proposed announcement on the establishment of the Office of Regulation and the designation of Harold Price as the Acting Director, and read to him the release.

At 4:30 p.m. I attended a reception in my honor held in the cafeteria area, given by the Commission's Recreation and Welfare Association. It was attended by at least 1,000 people to whom I spoke words of greeting and explained my philosophy of administration; this was followed by a marvelous program of songs in a parody vein by the AEC Chorus (copy attached).

I received a letter from David.

Wednesday, March 15, 1961 - D.C.

At the morning information meeting (notes attached) we discussed our reply to Holifield's letter asking for an explanation of John Finney's New York Times article on Commission reorganization; we discussed Dr. Wilson's ANP testimony this afternoon, a B52 accident while carrying nuclear weapons, the contents of a letter to the GAC, the Commission's decision to recommend Harry Smyth for U.S. Representative to the IAEA, etc.

I had a chat with Charter Heslep regarding some forthcoming speeches.

At 10:40 a.m. I met with Lloyd Berkner regarding the Southwest Graduate Research Institute in Dallas and their plan to support graduate education in science in Texas and the Southwest.

Just after that I had an appointment with J. Lorne Gray, President of the Atomic Energy of Canada, Ltd. in my office. It was primarily a get-acquainted call although he did mention the problem of the renewal of our cooperative arrangement with Canada regarding the National Research Universal, a 200 MW reactor. This agreement, whereby we furnish the enriched fuel and receive it back after irradiation in order to extract the plutonium is up for immediate

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 86

TO A. R. Luedecke, General Manager

DATE: March 14, 1961

Approved *A. R. Luedecke*

FROM W. B. McCool, Secretary *W. B. McCool*

Date 3/14/61

SUBJECT ACTION SUMMARY OF MEETING 1713, TUESDAY, MARCH 14, 1961, 11:10 a.m.,
ROOM A-410, GERMANTOWN, MARYLAND

SYMBOL: SECY:JCH

Commission Decisions

1. Minutes of Meeting 1707, 1708, 1709

Approved as revised subject to the Chairman's comments.

2. AEC 996/4 - Transmittal of Atomic Information to the Federal Republic of West Germany

Approved contingent upon Presidential determination on the placement of the weapons. (Betts)

3. AEC 587/7 - Extension of Contract with Monsanto Chemical Company for Operation of Mound Laboratory

You withdrew this paper from Commission consideration. Shall we reschedule it on next week's draft agenda? *NO*

4. AEC 994/7 - Supply of Cobalt-60 by Industry

Discussed.

Mr. Graham said he would discuss this matter with Mr. Tammaro and Dr. Aebersold. (Secretariat)

Other Business

1. Operation of Reactors at Brookhaven National Laboratory

Noted the action of the 6/17 to permit
The Commission approved operation of the BNL Research Reactor through scheduled shutdown on March 16 subject to assigning operating responsibility to a professional operator. (~~Planned~~)

To direct shutdown of

4. ~~The Commission requested the BNL Medical and Source Reactors be shut down immediately. (Pittman)~~

5. ~~The Commission requested the JCAE be informed of this decision and that an appropriate statement would be prepared in anticipation of press inquiries. (Pittman and Ink)~~

2. Geneva Negotiations

The Chairman said he would affirm with Mr. McCloy today AEC's position on this matter. (Secretariat)

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 86

TO Harold L. Price, Acting Director
of Regulation

DATE: March 14, 1961

Approved

FROM W.: B. McCool, Secretary



H. L. Price

Date March 15/61

SUBJECT: SUMMARY OF REGULATORY MEETING 95, TUESDAY, MARCH 14, 1961,
12:30 p.m., ROOM A-410, GERMANTOWN, MARYLAND

SYMBOL: SECY:WLW

Commission Business

1. AEC-R - ^{30/21} Petition to Amend 10 CFR 30 to Exempt Lock Illuminators Containing Tritium

Discussed.

in the thing pet

The Commission requested ^{that a petition be submitted by public comment} ~~a proposed rule for public comment~~ amending 10 CFR 30 be submitted for their review. (Lowenstein)

The Commission requested the comments of interested agencies be solicited on the proposed rule. (Lowenstein)

2. AEC-R 29/18 - Indemnification for Materials Licensees

The Commission approved the revisions to the proposed rule.
(Lowenstein)

RECEPTION FOR THE CHAIRMAN

For your fun and enjoyment we're reproducing the songs and patter from the March 14, 1961 welcome reception for Dr. Seaborg. Lyrics and introductions were written by our incomparable and versatile Ed Wilber; the MC with the terrific personality was Charlie Edwards; the man at the "hot piano" was Ed Ferguson; and last, but not least, was the knock-out performance by our hard-workin' AEC Choral Club. A vote of thanks to all of these able and talented folks for a memorable program.

Master of Ceremonies: "The Choral Club is happy to join in this welcome to Dr. Seaborg. We remind everyone of an old Washington tradition. Every year the Gridiron Club pokes ironic, musical fun at the President, Cabinet members and various other big wheels in Washington. We did something similar ourselves last June in our comic operetta, "Nuclear Ship Pinafore". Gently kidding Dr. Seaborg -- and ourselves -- is really a measure of our affection for him and the AEC. We know that Dr. Seaborg has a sense of humor --- he'll certainly need it at AEC!

Our first song is a farewell to John McCone, who was a very successful shipbuilder in California before he came to AEC. During the war, tankers were his specialty. At AEC, Mr. McCone was plagued by the problems of the economics of nuclear power and a thousand other headaches. And, in addition, Mr. McCone had to pick up the Washington Post hurriedly every morning to see if Drew Pearson approved of the decisions made the day before. Therefore, it is understandable why many people here swear that Mr. McCone happily sang the following song as he packed to return to California on January 21st."

CALIFORNIA HERE I COME

California, here I come --
Right back where I started from:
Where tankers, with anchors, built in the sun.
No atomics, economics -- oh those scientific comics!
Democrats said "Haul your freight!"
That's a thing to celebrate!
Open up that Golden Gate --
California, here I come!

California, here I come.
Boy, that Washington is bum!
They cheer you, then smear you; make you so glum.
Each morning at dawning, Pearson's news gives us blues,
And Congress will investigate;
That's the time to abdicate.
Open up that Golden Gate!

Master of Ceremonies: "Dr. Seaborg was Chancellor of the University of California at Berkeley, and is internationally known for his work in discovering a series of trans-uranic elements. Naturally, his colleagues at the Radiation Laboratory didn't want him to come to Washington. The story goes that the night before Dr. Seaborg left Berkeley, his colleagues got together to sing a few sad songs to him. Dr. Seaborg told them that they weren't to feel that they'd lost a Chancellor, but rather that they'd gained a University-extension. And so, in hopes that their good friend Glenn Seaborg wouldn't be in a fight with that Southern California Chet Hollifield of the Joint Congressional Committee on Atomic Energy -- the JCC -- the Berkeley scientists sang the following:"

THE BERKELEYPOOF SONG

(To the tune of the "Whiffenpoof Song")

Verse

From the hills above the campus,
To the lab where Seaborg dwells,
To the dear old Bevatron he loves so well --
Sing we Berkeleyites assembled,
With our test-tubes raised on high,
And the test-tubes filled with beer for this farewell.

Trans-uranic is a panic
At the University,
But they sure won't understand at AEC.
So, we serenade our Seaborg
Till the red tape strangles him,
And the Congress takes away his P H D!

Chorus

He's a poor P H D
Who has lost his way;
Baa, baa, baa.
A nuclear chemist
Who has gone astray;
Baa, baa, baa.
Oh how we wish he'd stay at Berk-lee.
He'll get the heave by J-C-C.
Chet -- have mercy on such as he;
Baa, baa, baa.

Master of Ceremonies: "We mentioned before that Dr. Seaborg was the discoverer or co-discoverer of a series of trans-uranic elements: Plutonium -- which we call Pu -- and many others including Americium, Curium and, finally, Geritol...As a matter of fact, he won a Nobel Prize for his work. It was very lucky for the country that Jack Kennedy found Chancellor Seaborg, and it may be lucky for us, too. Dr. Seaborg probably realizes that the fastest way to employees' hearts is to give them a raise. With this hope in mind, the Choral Club offers the following number:"

IT HAD TO BE YOU

It had to be you -- just had to be you.
Jack hunted around and luckily found
The Chancellor who
Discovered P-U, and Curium too.
Berk-lee may be sad, but we're mighty glad,
Thinking of you.
Some others we've seen were awfully mean;
Have always said no to giving us dough,
So they wouldn't do!
For, Chairman McCone just gave us praise;
Keep the No-bel, we'll take the raise!
It had to be you, chemical you!
It had to be you.

Master of Ceremonies: "And now we switch to a couple of problems that face Dr. Seaborg in the years ahead. One thing he'll find about the employees is that they just love the rustic, country life at Germantown! So, in tribute to us -- the Foreign Legion of the national atomic energy program -- we sing our Alma Mater:"

AEC ALMA MATER

(To the tune of the Cornell Song)

Lost among the Maryland hilltops is our lonely lair;
Hail the AEC Headquarters -- miles from anywhere!
No one ever comes to see us; so, we're busily
Holding up atomic progress -- dear old AEC!

Isolation
Is our station --
That is our renown.
Hail to AEC Headquarters,
Hail to Germantown!

Master of Ceremonies: "There's really no doubt about our isolation out here in Germantown. That is, for some of us. Others are lucky enough to spend most of their time down-town at the Matomic Building in Washington where -- as the saying goes -- the tail wags the dog.... So, to those of us who ride the cold car pools to Germantown, the following song is dedicated:"

IN A BUILDING IN OLD GERMANTOWN

(To the tune of "A Shanty in Old Shantytown")

It's only a building in old Germantown:
The country's deserted -- there's no one around.
That's why ex-Chairman-Mac set his meetings all back
At the Ma-Tomic Building, on the Po-to-mac.
Let's give up this outpost -- get back to D.C.;
If we wanted to travel, we'd join the Nay-vee!
Demolition's the answer -- oh, please tear it down:
Brick igloo in old Germantown!

Master of Ceremonies: "As representative of the major problems facing Dr. Seaborg, please consider Aircraft Nuclear Propulsion -- The A N P program. One of the headaches of this joint AEC-DOD project is that by the time you get enough shielding between the reactors and the crew, the atomic airplane is somewhat heavier than a battleship. How to get a battleship off the ground is something that Dr. Seaborg can think about when he's playing touch football with Jack on the White House lawn. And, so, to the ANP program, we dedicate our next number:"

IN OUR ATOMIC AER-O-PLANE

(To the tune of "In My Merry Oldsmobile")

Verse

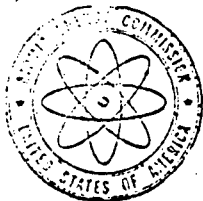
The A N P, you can't disagree
Has problems all sna-fu:
Their aeroplane won't leave terrain;
Reactors cook the crew.
Oh, Congress scream and the Russians beam
At AEC's fantastic scheme:
So D-O-D and the A-E-C
Sing this of their machine:

Chorus

Soar away with us, in vain,
In our atomic aeroplane.
Off the ground we'll never fly:
Radioactive, you and I.
Oh, the ANP's insane:
All the shielding's in our brain.
You'll stay on the ground when you fly around
In our atomic aeroplane!

Master of Ceremonies: "And, now, Dr. Seaborg -- all kidding aside -- we want to welcome you seriously and sincerely. With great respect for you and the great University in which you take pride -- and which understandably takes great pride in you -- we offer one of the famous University of California songs:"

(The AEC Choral Club then sang
"The California Marching Song")



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Anamata
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Files

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

UNCL. BY DOE
NOV 86

March 15, 1961

MEMORANDUM FOR THE COMMISSIONERS

Subject: MORNING MEETING NOTES, MARCH 15, 1961, CHAIRMAN'S OFFICE, D.C.

Letter to Congressman Holifield re Finney March 5 New York Times Article - The Chairman said the Commissioners' draft would be given to the General Manager for clearance today.

Morning Meeting Procedure - The Chairman took note of the revised procedure for the morning meeting.

ANP Hearing Today

Yuba City Aircraft Crash - The General Manager reported on the accident.

U. S. Representative to the IAEA - The Chairman will convey the Commission's recommendation in his meeting with Assistant Secretary Cleveland today.

Letter to GAC re Forthcoming Meeting - The Commissioners approved the letter with revisions.

Hanford Strike - The Commissioners noted that the initiative now rests with the Secretary of Labor in consonance with the President's telegram.

New York Agenda Planning Session on USAIF - Japanese AIF Meeting - An AEC Representative will attend.

Assignment to Disarmament Staff - The Commissioners had no objection to the General Manager's proposal.

✓ Geneva Conference on Test Cessation - The Chairman said he was unable to reach Mr. McCloy yesterday. The Commissioners requested the State Department be informed of their position, as discussed yesterday, at the appropriate staff level.

Press Release on Brookhaven Reactors - The General Manager recommended that a release be made.

Attendance

Dr. Seaborg	Gen. Luedecke
Mr. Graham	Mr. Brown
Dr. Wilson	Mr. McCool
Mr. Olson	

cc: General Manager
General Counsel
Mr. Hollingsworth

W. B. McCool
Secretary

decision as to renewal, and this will offer some problems. He also mentioned the success of their high burn-up natural uranium, heavy water reactor. In the course of the conversation he said that their relationships with the U.S. are better than their relationships with the U.K.

Around noon Joseph Alsop came in to see me. He just wanted to chat, chiefly about the test ban negotiations. He asked whether I was optimistic and I indicated that the estimates I had heard were 60-40 or 50-50 chances that the negotiations would be successful. He indicated that the discussion was completely off the record. He wondered as to my estimate of the JCAE's willingness to agree to the disclosure of obsolete weapons for the seismic research program, and I indicated that this was very difficult to assess but that all logic pointed in the direction that they would agree. I also indicated that disagreement between the President and the JCAE members at the luncheon on March 7th, to which he (Alsop) referred, was not so serious as he seemed to have gathered. He indicated that one of the difficult areas in the negotiations would be in determining the number of inspections, and I indicated agreement.

He was interested in whether improvements in weapons could be made by clandestine testing, and I indicated that they could. He asked whether big weapons could be tested, and I pointed out the possibility of decoupling, although this increases the possibility of detection of the experiment. He asked how long I thought the U.S. should permit the negotiations to go on. I replied that I thought they should continue as long as the Russians seemed to be negotiating seriously and not stop until it seemed as though they were no longer interested in obtaining an agreement. I indicated that the success of the negotiations would depend a great deal on whether Khrushchev was serious in his desire to obtain agreement.

He closed by indicating he was buoyed up by my feeling that there was some hope for the negotiations, and I countered that I hoped I hadn't been too unrealistic in the appraisal because there surely were great difficulties to be overcome.

I had lunch at the University Club with the President of their Board of Admissions, other Board members and other potential new Club members preparatory to my acceptance into membership.

Ed McMillan called to inform me that the recommendation of Johnny Foster to head the Livermore Laboratory had been made and is on the agenda for the Regents' meeting.

From 4:45 to 5:15 p.m. I met with Harlan Cleveland and Phil Farley at the State Department to discuss the general value of the IAEA. I tried to indicate the areas in which it is useful and to indicate especially that it would be a severe blow to other negotiations and points of contacts with the U.S.S.R. if the Agency were to fold up. I indicated the value of having a scientist like Smyth as the U.S. Representative, a man of international reputation, that even though he would be in Vienna only three months of the year he would have the advantage of being in the United States to have contact with the Atomic Energy Commission and with Rabi (on the Scientific Advisory Committee) and with American scientists in universities in general to help develop a useful program for IAEA. Cleveland seemed to be in complete agreement and didn't feel there would be any problem of giving Smyth the rank of special ambassador. I also indicated the need to provide proper remuneration and Cleveland seemed to understand this also. We discussed the value of having a full time backup man with political experience and we seemed agreed that this would adequately handle Foster's

concern about the changes in the statute and the reorganization of the Secretariat that is under way.

I had dinner at the Cosmos Club as the guest of Cabot Colville (it was "Book and Authors" night) and heard Lee DuBridge speak on space exploration--a good talk.

Attached is some of the correspondence I sent out today.

Thursday, March 16, 1961 - D.C.

I presided over the Information Meeting. We discussed: 1. my appointment with Harlan Cleveland yesterday, 2. today's press release on the Regulatory reorganization, 3. my reply to Holifield's letter re the John Finney article in the New York Times (mentioned in March 15th notes), 4. yesterday's ANP hearing, 5. the formal approval of John Foster as Director of the Livermore Laboratory and a telegram to Clark Kerr so stating, 6. work on the device for the seismic research program, 7. modification of Livermore Laboratory special experiments and letter to the President pertaining thereto, 8. broader use of the Adrian, Michigan, plant in view of White House interest, 9. the appointment of a committee to recommend candidates for the position of ANL director, and 10. Teller's forthcoming book.

I called Holifield and informed him that we had formally approved the appointment of John Foster as Director of Livermore and that the University will make a public announcement today or tomorrow.

Around noon, Lyman Fink of General Electric called me from Palo Alto to touch base with me on the Hanford situation and to ask for my comments. I told him we were giving the situation thought and we feel the Commission should have a position on such matters and that we probably will have such a position, especially on the matter of stopping production, before the deadline this time, but we hope there is no strike. He said he hoped so too, but he thought the whole question was whether the Union thinks it can get more by further intervention; that had there been no intervention or expectation of intervention it might have been settled last October. I asked if it would have been settled in the way of an agreeable compromise from the standpoint of the Union. He said it was agreeable to ninety other Unions. I said there was a difference in that this is an operation in which the government is involved and, therefore, somewhat different from their other operations, and to tie it in with their settlements on a national basis at other places might not be entirely right.

I told him we understood G.E. was fearful of setting a precedent for other operations, when in reality it is different from other operations they might have. He agreed that arguments of this nature could be made. I told Lyman that in a sense this situation was beyond us, that the Secretary of Labor and the President are involved and there is great concern over the possibility of shifting personnel from one job to another in order to keep the operation going as this would mean crossing the picket line and putting the government in the peculiar position of working against the strikers. He mentioned absolute safety's being assured by the company, and, hence, they would keep the operations going, but I told him we felt that the problem involved more than safety--that it was more a matter of crossing a picket line on a government project. Lyman feels if there is no encouragement from us a settlement will be forthcoming. He said they were doing their best to keep it all from coming to bother us. I told him we had been staying out almost to the limit but, as I saw it, it might not be possible to stay out in the next interval.

March 15, 1961

Dear Gloria:

In view of your letter of March 10 and its enclosure, I investigated further the matter of the Defense Department film.

I talked to Under Secretary Gilpatric by phone, and he assured me that he and Secretary McNamara had passed on to Carlisle P. Runge the substance of the conversation on this matter that I had had with them. Runge is the Assistant Secretary for Manpower, Personnel and Reserves, and he came to Washington with the new Administration from his position as Dean of the University of Wisconsin Law School.

I then talked to Runge by phone and he said that he shares our concerns about the film "Operation Abolition" and its distortions. He said that a memorandum has been issued to the Secretaries of the three Services, directing that their copies (of which they have 75) of this film was not to be used for prescribed training purposes.

Runge went on to describe the film which the Defense Department has in preparation, and which was conceived before the advent of the present Administration. This film, "Communism -- Tadget Youth," is being produced within the general framework of FBI Director Hoover's report and has to do with the manipulation of students from all parts of the world in the advancement of Communism. (I gather that the present Administration would just as soon have stopped this undertaking, but it is not feasible to do so.) He said that they do not intend to take any clips out of the "Operation Abolition" film, but will go to the original footage for this purpose. He said that a very capable man from the FBI, named Sullivan, is advising in order to insure that this will represent a very sophisticated analysis. Edward L. Katzenbach (formerly of Harvard), Deputy Assistant Secretary for Education and Manpower Resources will be in immediate charge of the production of this film.

Runge reaffirmed that, in particular, they would be very careful to see that the sequence involving the "Daily Californian" would not be used.

With best personal regards,

Cordially yours,

Glenn T. Seaborg

Glenn T. Seaborg

Miss Gloria Copeland
Office of the President
University of California
Berkeley 4, California

March 15, 1961

Dear George:

I was delighted to receive your letter on behalf of the students of the University of California at Berkeley, expressing appreciation for my consideration of the interests of the students while serving as Chancellor of the Berkeley campus.

This expression means more to me than you can imagine because I regard an indication of some success in this area as the first consideration in determining whether my tenure as Chancellor was effective and successful.

I have not lost interest in the Berkeley campus and, I might add, I continue to receive copies of especially interesting issues of the Daily Californian, sent to me by my friends in the Chancellor's Office, by Mrs. Seaborg as well as others. These convince me that many of the same problems are still with you.

Mrs. Seaborg and the children are remaining in our Lafayette home (of which we shall retain ownership during our temporary absence in Washington) until the close of the school year, before joining me in Washington in the early summer. I assure you that it is our intention to return to California and to the Berkeley campus in the not too distant future after this interesting assignment in Washington has been completed.

With kindest personal regards,

Cordially yours,

(Signed) Glenn T. Seaborg

Glenn T. Seaborg

Mr. George H. Link
President, Associated Students
University of California
Stephens Union
Berkeley 4, California

March 15, 1961

Dear Mom:

I thought you would enjoy seeing the resolution of appreciation that I received from the University of California; therefore, I am enclosing a copy for you.

Yesterday afternoon I met the AEC employees in a very informal get-together in our cafeteria at Germantown. The Choral Group rendered several well-known songs with very original lyrics pertaining to my taking over this job, which we all found most delightful.

I hope you are keeping well and that you are beginning to enjoy the first days of spring.

With love,

Richard A. ...

I had lunch at the White House Mess with Najeeb Halaby and Postmaster General Edward Day to discuss future plans involving the California group.

I was interviewed by Earl Voss, a Washington Evening Star reporter, about test ban negotiations. (This was a background talk and off the record.) We went into such questions as the number of on-site inspections, the importance of this to the U.S., and the potential difficulties with the U.S.S.R. in this connection. I told him that the whole matter seemed to me to be a balance of risks: on the one hand, the risk of participating in a test ban treaty in which there were violations by the Russians; on the other hand, the risk of going on with growing unlimited stockpiles of nuclear weapons and growing numbers of countries having possession of them. We also discussed the problem of the seismic research program and the difficulties attendant with disclosure of the weapons.

He was particularly interested in how we would locate the points where explosions had taken place in violation of the agreement. I agreed that this presented a grave difficulty, stating that, statistically, a large number of inspections, each of which had only a nominal probability of detection, would in the course of a year probably uncover a violation. I cautioned him that I was not overly optimistic but thought it was worth trying to get an agreement, but that it had to be an enforceable agreement and that, if this were not possible, we should not be misled and would probably have to proceed without an agreement.

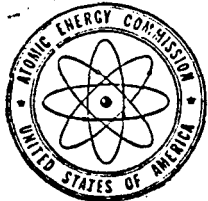
I was also interviewed by a Chemical and Engineering News reporter, Lou Angello, mainly on my program and my views.

Dr. Milton Muelder, Dean of Michigan State University, came in to see me about getting AEC money to build and support a 65-inch spiral ridge, proton cyclotron.

I sent my weekly report to President Kennedy (copy attached).

Friday, March 17, 1961 - D.C.

At the 9:30 a.m. Information Meeting (notes attached) we discussed: 1. my conversation yesterday with Lyman Fink, 2. the need for the Commission and staff (such as the general manager and his people) to work together in good faith (there has been too much unwarranted suspicion on both sides), 3. the five items before the President (ANP, NPR, future incentives for nuclear power, ROVER and the Stanford accelerator), 4. a permanent AEC civilian staff on disarmament (Spofford English, George Kavanagh, Armstrong, Rosen), 5. the designation of Bill Finan as temporary Assistant General Manager for Safety, 6. AEC support of a conference on applied mathematics (50-60 participants including five Soviet nationals on a reciprocal basis), 7. the Allis-Chalmers project to develop a process heat reactor for paper companies, 8. the possibility of ORNL working on desalination and continuing the HRE-2, 9. a letter to 50 governors on states' role in atomic energy regulation, 10. AEC's role in a government suit against price-fixing companies, 11. the plan of Solicitor General Cox, a PRDC lawyer and Neil Naiden to look at the breeder reactor site in Michigan, and 12. question of weapon safety raised by Harold Agnew. We decided to schedule the availability of supporting documents needed at Commission meetings at these agenda planning sessions. We decided to go to Germantown every Monday and Tuesday, when possible, and we will make an effort to schedule appointments accordingly.



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

UNCL. BY EOE
NOV 86

March 16, 1961

IN REPLY REFER TO:

PERSONAL AND CONFIDENTIAL

Dear Mr. President:

The following is an informal report on developments in the atomic energy program which I believe will be of interest to you.

1. Brookhaven Reactors Shutdown (Unclassified)

On March 14 the Commission ordered three research reactors at Brookhaven National Laboratory shut down. This order was based on a special safety report that indicated certain administrative practices and procedures in the operation of the reactors were not in conformance with revised policies established by the Commission. Two of the reactors were shut down on Tuesday and the third will be shut down today. Special safety reports were requested from all facilities following the accident in the Stationary Low Power Reactor in Idaho on January 3, 1961. A committee of experts was sent to the Laboratory yesterday and we are awaiting their report. While we believe that the decision to shut down these reactors is the only prudent course of action, it is noted that these reactors have been in operation many years, the oldest for a period of 11 years, and the newest for a period of 2 years. Further, the shutdown was not based on any malfunction, but rather on the procedures under which they were being operated.

2. Hanford Labor Situation (Unclassified)

Both parties acceded to your request that there be no work stoppage on March 14, the deadline date for work stoppage which had been set by the Hanford Atomic Metal Trades Union. Although preliminary shutdown on some of the reactors had been started late Monday night in anticipation of a work stoppage on Tuesday, there was only a minor loss of production. The facilities are being operated normally and mediation sessions by the Federal Mediation and Conciliation Service are continuing.

3. JCAE Request for AEC Views of Commission-Staff Relationships
(Official Use Only)

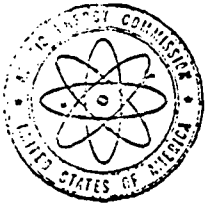
Representative Hollifield, Chairman of the JCAE, in a letter of March 3, requested an explanation of Commission-Staff relationships which were portrayed unfavorably by Mr. John Finney in a New York Times article of March 5, 1961. I am informing Mr. Hollifield today that the Commission considers that the article over-dramatizes the effect of a procedural change--namely, the scheduling of daily informal meetings of the Commission with key members of the staff for the purpose of improving communication and assuring the orderly planning and execution of Commission work. (For your personal information, there is concern about the effect of "strong-willed" Chairmen on the equal authority status provided by the Atomic Energy Act to each of the five Commissioners, including the Chairman.)

4. JCAE Hearing on Manned Nuclear Aircraft Program (Official Use Only)

The JCAE met in executive session on March 15 to hear testimony on the ANP program. This was a continuation of the Hearing held on March 3, which I mentioned to you last week. I was not present but Commissioner Wilson tells me that most members of the JCAE continued to indicate their strong desire for early flight, for psychological as well as technological reasons. Some press accounts of the Hearing were misleading in that they implied the Department of Defense is asking for delay in the program. Actually, that Department has established criteria which would lead to the selection of only one cycle, (the Pratt & Whitney Indirect Cycle) which in Defense's judgment has the greatest growth-performance potential, even though this might involve the possibility of roughly a year's delay over the Direct Cycle for first flight.

5. New Regulatory Organization Announcement (Official Use Only)

The Commission will announce today a decision to separate internally within the Commission at the General Manager level its regulatory responsibilities from its operational and developmental activities. There will be a Director of Regulation who will report directly to the Commission. Previously, regulatory matters were channeled through the General Manager to the Commission.



067-10
(1) Mr. Hollingsworth
(2) Dr. Wilson

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

UNCL. BY DOE
NOV 86

March 17, 1961

MEMORANDUM FOR THE COMMISSIONERS

Subject: MORNING MEETING NOTES, MARCH 17, 1961, CHAIRMAN'S OFFICE, D. C.

Chairman's Discussion With Mr. Fink of GE re the Hanford Labor Negotiations

Outstanding Items for Discussion With the President - The Chairman said he anticipated another meeting with the President and Mr. Bell and Dr. Weisner prior to the President's meeting with Mr. Holifield.

Organization of the Disarmament Staff - The Commission approved a proposed assignment of personnel.

Letter to the Joint Committee re Mr. Fink's 202 Testimony - The letter is to include reference to the Commission's active consideration of the uranium price structure during the last year.

General Manager's Detail of Personnel - Mr. Hollingsworth reported that this would be a matter of recommendation in the April 15 report on organization.

Gatlinburg Conference. The Society of Industrial and Applied Mathematics - The Commissioners had no objection to AEC sharing financial support with NSF contingent on reciprocity with respect to participation of Soviet Nationals.

Process Heat Reactor - The Commissioners agreed that the Beloit Iron Works group should be encouraged to submit a proposal.

Project on Desalinization of Sea Water - The Chairman suggested possible assignment to an AEC laboratory and suggested discussion with the GAC.

Incentive for the Nuclear Power Program - The Chairman requested consideration in light of the Fiscal 1963 Budget.

Development of Breeder Reactors as a Long Range Objective - The Chairman asked Dr. Wilson to discuss the Aqueous Homogeneous Reactor With Dr. Weinberg next week.

ECNG-FWCNG Proposal - The Chairman asked for submission of material for use in discussions with Dr. Zinn on Monday, March 20. Mr. Sporn is to be invited to discuss the matter with the Commission on March 24th. The General Manager said that a paper on the subject would be available to the Commission on March 20.

11:30 AM

Letters to the Governors re Regulatory Transfer Criteria
Mr. Graham said that the letters would be sent today.

Safety Studies on the Mark-7 - Mr. Graham said that Gen. Betts had been requested to develop revised instructions.

Solicitor General's Visit to PRDC and Dresden - Mr. Naiden reported that he would accompany the Solicitor General to PRDC on March 28 and Dresden March 29.

Antitrust Indictment Case

The State of Washington Tax Case re Hanford

Commissioners' Schedules re Germantown and D. C.

Agenda - Approved as revised

AEC/MLC Joint Conference Agenda - Approved as revised.

Attendance

- Dr. Seaborg
- Mr. Graham
- Dr. Wilson
- Mr. Olson
- Mr. Hollingsworth
- Mr. Brown
- Mr. Chris Henderson
- Mr. McCool
- Mr. Naiden

W. B. McCool
Secretary

cc: General Manager
General Counsel
Mr. Hollingsworth

Jerry Wiesner called to ask if I had any idea what an ANP research program would cost aimed only at research without the flying hardware. He said the boss is thinking about the possibility of a complete shutdown and he would like to suggest keeping the research program alive on the basis that AEC has a long range interest. He asked if I could do this quietly. I told him I thought I could get some figures to him. I also told him there is a lot of unrest here in the staff because we aren't getting our budget settled.

Harry Wellman called from Berkeley to bring to my attention a situation which has developed affecting the Lawrence Memorial. The University of California is getting a \$15 million loan from the federal government for the residence hall program to be matched by a 50% subsidy. The Governor will obtain \$3.5 million from the State of California, but he has insisted that the Lawrence Memorial be deferred for two years and that the \$4 million collected from A.E.C. overhead funds in 1959-1960 and 1960-1961 (\$2 million each year) be put into the subsidy. The Finance Committee will recommend this to the Board this afternoon. It will also recommend that the funds (\$2 million each year) for the years 1961-1962, 1962-1963 and 1963-1964 be set aside for the Memorial. I expressed my serious concern that this would be the end of the Lawrence Memorial. He said this was not the intention of the Regents, but it is possible that this would be the result. I also stated that I thought this would amount to killing NSF support, which is predicated on University support. Dr. Wellman said he would report my feelings to the Finance Committee.

I called Ed Pauley at 1:30 p.m. from the University Club to express my concern over the Wellman call earlier; he felt that Wellman hadn't represented the true situation: that the \$4 million designated for the Lawrence Memorial was only to be used as back-up money in case the money promised by the State didn't come through. He thought that the latter funds would be available because the Governor had promised to find them.

Professor Walt Whitman called to suggest the name of Eger Murphree, President of Esso Research & Engineering, as a candidate for the job as U.S. Representative to the IAEA. He doesn't know whether there is any possibility of attracting him or not, but he thinks with a good State Department backup man he might be excellent. I told Walt that I know Murphree, but that Smyth is considering the job. Walt said he was not enthusiastic about Smyth because he feels at the present time he is harried and indecisive. Walt said he had approached Harry last October to go to London as the Scientific Attache and was told in confidence that his wife was not well, and he feels Harry is too occupied with his own troubles to take a really active role. I explained to him that Smyth would only be spending enough time in Vienna to cover the meetings.

George Boyd called from ORNL to protest the shift of George Kavanagh from the reactor program to disarmament. He feels this would be a great loss to the reactor program.

I presided over Commission meeting 1714 (action summary attached). We considered the coming international convention on nuclear ship liability and the question of reducing the price of U²³⁵ to industrial users.

At 5 p.m. I met in my office with Charles Robbins of the Atomic Industrial Forum to discuss: 1. the U.S. Japanese AIF Conference to be held in Japan in December, 2. industrial dissatisfaction with AEC's patent policy, 3. the AIF public understanding program, and 4. the future of economic nuclear power and AIF studies forthcoming in this connection.

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 86

TO : A. R. Luedecke, General Manager

DATE: March 17, 1961

Approved A.R. Luedecke

FROM : W. B. McCool, Secretary *W. B. McCool*

A.R. Luedecke

Date 3/20/61

SUBJECT: ACTION SUMMARY OF MEETING 1714, FRIDAY, MARCH 17, 1961, 2:30 P.M.,
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:WLW

Commission Decision

AEC 785/61 - Proposed U.S. Position on Nuclear Ship Liability
Convention

Approved. (Naiden-Wells)

Other Business

Discussion of AEC Pricing Policy

The Commissioners requested the charts employed by Mr. Fine
be circulated for their information. (Fine)

He said there was some general dissatisfaction and feeling that the AEC was too restrictive in their patent rules. I said I had learned of the same feeling in an article that I read last night in Chemical and Engineering News. He also mentioned the Committee, composed of Commissioner Olson, Roland Anderson and members of the Forum, that is investigating this.

He mentioned the Forum's program on public information and understanding, with particular attention to radiation and its effect. They are trying to place this in proper perspective.

He mentioned the Forum's study of the economic future for nuclear power and said that this was particularly discussed at a meeting of the Board of Directors today and that such people as Philip Sporn, Chauncey Starr, Ken Davis and others are involved in the study, with the plan to come up with a report within about four months. I told him that I was very much interested in this and that the Commission hoped definitive progress would be made in this in the near future.

At 5:30 p.m. Neil Naiden came in to discuss the Gofman claim for compensation on early U²³³ work at Berkeley. I said Gofman has a good case, that I wasn't participating in this claim although I was a co-inventor and that I might reserve the right to make a claim later.

I had dinner at the home of Dr. and Mrs. Matthew Ross. Other guests included Dr. Janet Travell (President Kennedy's physician) and her husband, Judge and Mrs. David Bazelon, Mr. and Mrs. Wendell Lund (neighbors of the Rosses) and Rear Admiral and Mrs. Bartholomew W. Hogan (retired Surgeon General of the Navy).

Saturday, March 18, 1961 - D.C

James Reynolds, Assistant Secretary of Labor, called me at 10:25 a.m. to tell me that the Hanford labor situation was resolved completely at 4 a.m. The economic settlement is slightly below the overall Panel recommendation. I told him of my call (on March 16th) from Lyman Fink and when I told him of what might lie ahead, Fink was somewhat taken aback. Reynolds said he's certain that this was the turning point. He said that Secretary Goldberg had asked him to call me to express his appreciation for our cooperation. He is also calling Admiral O. S. Colclough and Mr. Cyrus Ching. I said that I would call Lyman Fink.

I called Fink to tell him how pleased we were that the Hanford situation seems to be settled, and thanked him for his cooperation.

From 11 a.m. until 1 p.m. I visited with Admiral Hyman Rickover and his top aides--Milton Shaw, Harry Mandil, Ted Rockwell and Robert Panoff--in the Model Room on the second floor of Temporary N Building. He showed me models of the Nautilus, Skipjack, Seawolf, and other submarines, models of nuclear powered aircraft carriers, destroyers, etc., and briefed me thoroughly on nuclear power plants for these ships. I told him I thought we should expand our use of nuclear power for Navy ships of all kinds and he, of course, was pleased and said he might call for my support. This is obviously one of the best uses, if not the best, for nuclear power. We discussed natural reactor and Soviet nuclear submarine capability.

I had dinner with Leo Szilard at the University Club. He thinks that attempting to obtain a nuclear test ban treaty is the wrong approach to disarmament. He thinks that the U.S. and the U.S.S.R. should first explore the ways and means of

getting along in the world by disarming or meeting the arms problem in some way. He thinks this might be done by each side having a high level, non-government group meet to explore many alternate ways of doing this. Another, perhaps even better, way would be to have President Kennedy and Khrushchev meet to explore these problems on a broad basis, not on a narrow negotiating basis. He described to me his recent two-hour meeting with Khrushchev in New York; he will send me his memorandum covering this meeting. He also gave me an advance print of his forthcoming book, The Voice of the Dolphins. (Coincidentally, I also read in part today Ed Teller's manuscript of his forthcoming book on the world armament problem; it includes a number of his historical recollections in connection with the development of the atomic bomb during the war.)

Attached is a letter I wrote to Professor Heinz Haber today in response to a letter I received from him.

Sunday, March 19, 1961

I spent the day working on and reading various AEC papers. I went to Arlington and had dinner at Hilma Howser's; Esther and Dan Arnott were there. Afterwards I visited Alice and Jim Robinson, their daughter Joan and Aunt Esther at their home in Annandale.

I called home and talked to Helen, Lynne, Peter, David and Eric.

Monday, March 20, 1961 - D.C.

I did not attend the Information Meeting today (notes attached) as I attended the PSAC meeting. Dr. Wiesner reported that the National Science Foundation is implementing the Seaborg Panel Report and the Bureau of the Budget has approved, in that connection, \$3.5 million for institutional grants and \$30 million for graduate laboratory construction, also \$10 million for a course content improvement program. He also told about an impending Kennedy message to Congress on support of oceanography and the possible plan of Kennedy to eliminate the ANP program. Zacharias wants a one-half day presentation on education at the next PSAC meeting.

Harvey Brooks told me he has no interest in the Argonne Laboratory directorship.

I talked with Rabi who is Acting President of the Associated Universities, Inc., presumably until Dr. Haworth returns. He has tried without success to get Edward Purcell or Norman Ramsey as Director of Brookhaven and is now negotiating with Bob Bacher. Other possibilities include Hans Bethe, Pief Panofsky and Frank Long. They have considered Dick Dodson and Jerry Tape but feel they would not be suitable.

I had lunch at the White House Mess with Dave Bell, Elmer Staats and Jerry Wiesner. Bell told me of many cuts from the AEC supplemental budget that he has put into effect. He also said that he leans toward eliminating the ANP (both cycles), turning down the NPR project and the Rover budget for the flight test (all to be discussed with the President). He thinks the future of nuclear power should be studied by an interdepartmental committee or an ad hoc outside committee. He also said the complete authorization of the Stanford accelerator won't be in this year's (1962) budget but will probably be in the FY 1963 budget.

In the afternoon session of the PSAC meeting (Bell and Staats attended parts) a

March 18, 1961

Dear Heinz:

I am glad to learn that you feel that the film on element 103 turned out satisfactorily.

You probably didn't know that the phone calls that kept interrupting me during the filming were concerned with asking me to accept the position as Chairman of the Atomic Energy Commission, including one from President Kennedy. This had some effect toward distracting my mind from the task at hand.

My family is remaining in Lafayette until the end of the school year, so that I am living the lonely life of a bachelor in the meantime. I am certainly looking forward to their arrival early this summer.

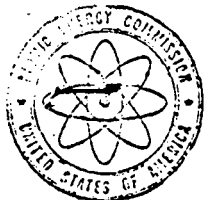
It was good to hear from you and I would like again to express my admiration for the good work you are doing in the field of educating the public in the area of science.

With best personal regards,

Cordially yours,

Glenn T. Seaborg

Prod. Prof. Heinz Haber
Nord- Und Westdeutscher Rundfunkverband
Fernsehen, Hamburg-Lokstedt 1, Casellenkamp
Germany



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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UNCL. BY DOE
NOV 86

March 20, 1961

MEMORANDUM FOR THE COMMISSIONERS

Subject: MORNING MEETING NOTES, MARCH 20, 1961, CHAIRMAN'S OFFICE, D. C.

Hanford Labor Negotiations - The Commissioners noted with pleasure the settlement.

Hearings on the N. S. Savannah - The Commissioners requested a report on the action taken by Reactor Development on a fuel element test program.

Joint Committee Report on the Regulatory Program - Answers to any queries should be low key and refer to the Commission's press release of March 16th.

Weapons Safety Rules - Mr. Graham said that Gen. Betts had safety rules procedures under review.

AEC Comments on Joint Committee Report on NATO Visit - The Commissioners will meet with the Gen. Manager and Gen. Betts tomorrow morning, in D.C., to discuss this. I will circulate Mr. McCone's letter of last Spring. 867/47

Report on SL-1 Accident - The Gen. Manager will discuss administrative changes with the Commissioners at the Wednesday morning meeting.

Technical Assistant to the Hearing Examiners - The Commissioners approved the establishment of this position. I will proceed with the arrangements.

Brookhaven Reactors - Mr. Ink noted that the research reactor had started up Saturday under revised procedures. A press release will be issued.

Letters to Governors re Regulatory Transfer Criteria - Mr. Graham said that the letters had gone out on Friday and to the Joint Committee on Saturday.

IAEA Board of Governors Meeting April 5 - Mr. Hall is to attend and to discuss representation with the State Department. The Commissioners suggested the Chairman make a telephone call today on this matter.

Joint Committee Consultant on Rover - The Commissioners requested a letter to the Joint Committee assuring them of our cooperation.

Staff Paper on Nuclear Power Program Incentives - Mr. Ink said this paper should be issued by the weekend.

Attendance

Mr. Graham
Dr. Wilson
Mr. Olson
Mr. Naiden
Mr. Ink
Mr. Henderson
Mr. McCool

W. B. McCool
Secretary

cc: General Manager
General Counsel
Mr. Hollingsworth

national program for basic research and a method of arriving at priorities in PSAC were discussed; these will be on the agenda again at the next meeting.

At 4:30 p.m. the Commission met (Meeting 1715-summary action attached) to discuss the BOB cuts of our supplemental requests which included such items as the Antarctic and Guam reactors, the ROVER flight test program, low energy nuclear physics, materials research, etc. We decided to appeal essentially all items.

I had dinner at the University Club with Fred Albaugh.

Tuesday, March 21, 1961 - D.C.

I attended the PSAC meeting in the morning. (Notes for morning Information Meeting are attached.) The problem of technical aid to underdeveloped areas was discussed.

I talked to Rabi who has doubts about Smyth's taking the position as U.S. Representative to the IAEA.

I had lunch with Alan Waterman who said NSF may get into the business of building accelerators at universities for low energy physics and maybe high energy physics (they have \$6,000,000 for FY 1962). I raised no objection to this from an AEC viewpoint.

At 2:15 p.m. to 3:30 p.m. I met with Dave Bell, Elmer Staats, Fred Schuldt, Commissioner Wilson, General Luedecke and Don Burrows; we may have convinced Bell to restore the Guam reactor, materials research, low energy physics support, and the Vela research program to the supplemental 1962 budget.

I then attended another session of the PSAC meeting where Brooks presented his panel report on Rover; it doesn't favor a program aimed at early flight testing.

I talked to Zinn about the gas-cooled, D₂O moderated, Be-clad, low enriched U²³⁵ reactor being studied by Florida and East Central Utility groups. This is preparatory to meeting with Phil Sporn and other representatives of this group later this week.

Wednesday, March 22, 1961 - D.C.

At 9 a.m. I met with W. L. Felsen, Assistant Editor of Electrical World. He said he was interested in whether we were going to make any future changes in our nuclear power program and I indicated not in the immediate future. I mentioned the possible need for greater incentives for private utilities. He also asked about the adequacy of our educational system in science, and I said there was room for improvement, but pointed to the encouraging steps in high school curriculum to be followed by upgrading in elementary school science and collegiate science.

I presided at the Information Meeting No. 1 (notes attached). I brought them up to date on my various conferences and phone calls. Mr. Graham told us about his meeting with the Joint Committee yesterday regarding plutonium production needs and the NPR.

At 11 a.m. the Commission met with the GAC (for report of meeting see April 12); we gave them a list of areas to advise us on--1. long range laboratory

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 86

TO : A. R. Luedecke, General Manager

DATE: March 20, 1961
Approved: A. R. Luedecke

FROM : W. B. McCool, Secretary 

A. R. Luedecke
Date: 3/22/61

SUBJECT: ACTION SUMMARY OF MEETING 1715, MONDAY, MARCH 20, 1961, 4:30 p.m.,
CHAIRMAN'S D. C. OFFICE

Commission Decisions

1. Analysis of EOB Markup on Proposed Amendments - FY 1962 Budget -

Approved as revised.

The Commissioners requested attendance of other agency representatives at the EOB Conference during consideration of Byrd and Guam reactors. (Burrows)

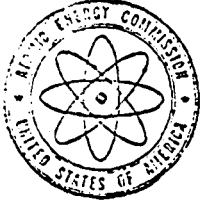
You were requested to call Adm. Rickover to obtain his comments on the proposed cut in LSR Funding.

Commissioners asked for clarification of AEC or NSF support of research equipment for universities. (Burrows)

The weapons carryover funding cut was accepted with the understanding that the amount need not be assigned to weapons alone. (Burrows)

Other Business

1. Discussion of the NPR.



UNITED STATES
ATOMIC ENERGY COMMISSION

WASHINGTON 25, D. C.

March 21, 1961

Answers
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UNCL. BY DOE
NOV 86

MEMORANDUM FOR THE COMMISSIONERS

Subject: MORNING MEETING NOTES, MARCH 21, 1961, CHAIRMAN'S
OFFICE, D. C.

1. Department of State Cable from Geneva re Test Cessation Negotiations - Mr. Graham emphasized the desirability of AEC initiative in keeping the main considerations before the Conference.
2. NPR - Messrs. Graham and Olson will attend the Joint Committee discussion of this at 3:00 PM today. Mr. Schwartz is to accompany at the Joint Committee's request. Results of this meeting and meetings of AEC/Joint Committee staff will be discussed at tomorrow mornings meeting.
3. Letter to the DOD on the PM-2A Reactor - I will circulate the letter today for consideration at tomorrow mornings meeting.
4. Public Comment on Access to Centrifuge Process Information
5. Lockheed Reactor
6. Personnel - The General Manager said that he and Mr. Price would discuss possible assignment.
7. Walker Trucking Company - Docket No. 27-5 - A memorandum on this appeal is to be distributed to the Commissioners on Wednesday for informal discussion at conclusion of the Regulatory Session scheduled for Thursday morning, March 23.
8. Press Release on Reactor Survey - Mr. Ink said that it would go out today. The AEC Survey Reports are not to be released.
9. Twenty-four Hour Advance Notice to the Joint Committee on Press Releases
10. EOB Mark-up of Fiscal 1962 Budget Supplemental - The General Manager said Navy officials had confirmed their support of the Guam reactor project but he had not obtained support statements of ranking NSF officials on the Byrd reactor. He suggested the Chairman discuss this matter with Dr. Waterman today.

11. Non-nuclear Incident at Oak Ridge - The General Manager reported on serious injury to a technician working on the controlled thermonuclear device.
12. Claims Arising from SL-1 Accident - The Commissioners requested careful drafting of all reports in connection with this accident.

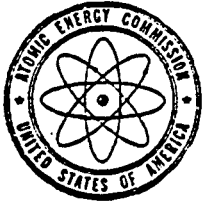
Attendance

Mr. Graham
Dr. Wilson
Mr. Olson
Gen. Luedecke
Mr. Ink
Mr. Naiden
Mr. Brown
Mr. McCool

W. B. McCool
Secretary

cc: General Manager
General Counsel
Mr. Hollingsworth

Files



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

March 22, 1961

INFORMATION MEETING NO. 1

(Regulatory)

10:00 AM, March 22, 1961, Chairman's Office, D. C.

1. Letter to the DOD on the PM-2A Reactor - The Commissioners asked Mr. Price to give Mr. Loper a draft copy of the letter and inform him that this would be discussed at the Joint AEC/MLC Conference on Thursday, March 23, (Price)
2. Letter from Mr. Ramey re Townsend Testimony on Site Criteria
Mr. Price reported that in response to Ramey's query re need for hearings on site criteria he referred to the recent rule making decision and said that the Commission would not request a hearing on the matter.

Attendance

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Mr. Price
Mr. Naiden
Mr. Brown
Mr. McCool

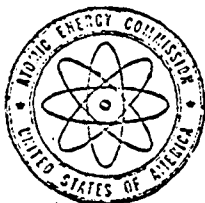
Distribution

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olsen
Mr. Price
Mr. Naiden
Mr. McCool

W. B. McCool
Secretary

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NOV 86



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

March 22, 1961

INFORMATION MEETING NO. 1

10:10 AM, March 22, 1961, Chairman's Office, D.C.

1. Director at Argonne - The Chairman requested suggestions prior to his trip to Chicago Sunday. (Secretary)
2. U. S. Representation at the April IAEA Meeting - Commissioner Wilson and Mr. Hall will attend if other arrangements can not be confirmed (General Manager)
3. Chairman's Meeting with the President and Mr. Holifield - The meeting is scheduled for 3:00 PM, Friday, March 24 and the Chairman meets with the President and Mr. Bell at 3:45 today.
4. March 21st Meeting with BOB Officials re Budget Appeal - The Chairman reported on BOB reaction to the Commission's appeal items. The U-233 Metallurgical Laboratory, though not accepted for inclusion in the '62 supplemental, should be included in the Fiscal 1963 Budget submission. (Secretary)
5. Chairman's Discussion of ECNG-FWCNG With Dr. Zinn
6. Hearings on Radioisotopes on Monday, March 27- At 2:00 PM Commissioner Wilson will testify. (General Manager)
7. IAEA Candidacy - The Chairman said that he would telephone Mr. Brynielsson today and will ascertain whether he (Brynielsson) will attend the April IAEA Meeting. (Secretary)
8. D. C. - G. T. Schedule for Week of April 10. (Secretary)
9. General Manager's Report on the SL-1
10. PRDC Case - Mr. Naiden reported that argument would probably be scheduled on April 17, 18, or 19.

Messrs. Bloch, Quinn and Ink entered

11. Meeting with Joint Committee Members on NPR - Mr. Graham reported on yesterday's meeting on this matter and said Commission staff was coordinating with JCAE staff in preparation of an analysis for submission to the Joint Committee by 3:00 PM today.

Attendance

Dr. Seaborg
 Mr. Graham
 Dr. Wilson
 Mr. Olson
 Mr. Naiden
 Gen. Luedecke
 Mr. Brown
 Mr. Bloch
 Mr. Ink
 Mr. Quinn
 Mr. McCool

Distribution

Dr. Seaborg
 Mr. Graham
 Dr. Wilson
 Mr. Olsen
 Mr. Naiden
 Gen. Luedecke
 Mr. McCool

W. B. McCool
 Secretary

objectives, 2. safety, 3. isotopes, 4. the future of nuclear power through new approaches, 5. balance in research program, 6. directors for ANL and BNL. We also told them about the special laboratory experiments at Livermore and Los Alamos and asked for a recommendation for the Fermi Award.

At 1:40 p.m. I presided at Commission Meeting 1716 (action summary attached). Much of the time was spent on a description of safety regulation changes as a result of the SL-1 accident.

I called Dr. Harry Brynielsson in Stockholm to try to convince him to accept the director generalship of the IAEA. I told him we were looking to him as a World candidate and we had very strong hopes that this could be brought to fruition and that he would accept. He said he didn't think he would be happy with the job. He said this job might fit Sigvard Eklund and thought he would be interested and available. I told him it was Eklund who so enthusiastically supported him (Brynielsson). He then stated that the Russians were not too happy with his name. I told him we would, of course, try to ascertain their attitude toward him before it went too far; that this was why we are looking toward him not as a Western candidate but as a World candidate. He said he didn't think he could accept it even in that instance. He thanked me for calling to discuss the matter. He said he might visit the U.S. this spring or fall and if he did he would certainly try to meet with me in Washington.

I called Harlan Cleveland and asked him whether he had any definite word from Dr. Smyth on the IAEA job. He said he saw Smyth last week and it was left that he would think about it and give his answer within a week or so. He felt that Smyth was favorably inclined. Since it is doubtful that Dr. Smyth would be able to get appointed before the April IAEA meeting, and since Admiral Foster doesn't feel that he could do it, I suggested the possibility of having Dr. Wilson attend with John Hall as backup. I pointed out that Dr. Wilson was actually considered for the job before Admiral Foster's appointment to it. He said he hadn't understood that Foster didn't want to go back and that the State Department is inclined to have him go back. He said he would check on the situation and if Foster can't go he will call me back about Dr. Wilson backed up by John Hall.

From 4:15 p.m. to 4:40 p.m. and from 5:30 p.m. to 5:50 p.m. I met with President Kennedy, Budget Director Bell, Elmer Staats, Dr. Wiesner and Mr. Dutton. The meeting was interrupted between 4:40 and 5:30 p.m. by other appointments that the President had, such as receiving the Brazilian Ambassador.

We went over the supplementary items for the 1962 budget, one by one, that were in dispute between me and BOB. With respect to the \$10 million for VELA UNIFORM, the President agreed with Bell that this could be embarrassing to the negotiations and, furthermore, we would know more in about six weeks so that it could be deferred for that length of time. With respect to the Guam reactor, he agreed with me that it should be in the budget. He did not approve the Byrd reactor but indicated that he might change his mind after hearing Holifield's arguments in the meeting with him tomorrow (March 23rd).

With respect to the additional \$7 million, which would allow a flight test for ROVER to begin, the President decided to defer decision until after we had met with the NASA people, which was scheduled for later in the afternoon.

He indicated that he would probably discontinue both cycles of the ANP; but after hearing my arguments, he decided to allow \$25 million, rather than the \$15

UNITED STATES GOVERNMENT

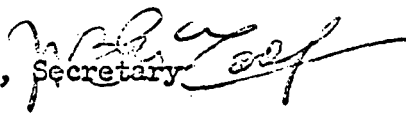
Memorandum

UNCL. BY DOE
NOV 86

TO : A. R. Luedecke, General Manager

DATE: March 22, 1961

Approved A. R. Luedecke

FROM : W. B. McCool, Secretary 

A. R. Luedecke

Date 3/23/61

SUBJECT: ACTION SUMMARY OF MEETING 1716, WEDNESDAY, MARCH 22, 1961, 1:40 P.M.
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:DCR

Commission Decisions

1. Minutes of Meeting 1710

Approved as revised.

2. AEC 132/36 - Functions and Delegations of the Hearing Examiner

Approved. (Naiden)

3. AEC 328/29 - Declassification of Isotopic Content of Plutonium

Approved. (Marshall)

4. AEC 988/113 - Exchange of Atomic Weapons Information with the U. K.

Approved.

Mr. Graham requested a report on the status and probable development of weapons information exchange agreements. (Betts)

5. AEC 177/6 - Payment in Lieu of Taxes to Pinellas County, Florida

Deferred.

The Commissioners requested they be provided an analysis of the burdens incurred by and the benefits accruing to Pinellas County as a result of operations of the Commission's Pinellas Peninsula Plant. (Betts)

Other Business

1. Briefing on Executive Order 10925

Discussed.

The Chairman requested designation of appropriate staff to assist him in his functions as a member of the President's Committee on Equal Employment Opportunity. (Traynor)

The Commission requested recommendations pursuant to the Order be submitted for Commission consideration by March 28, 1961. (Traynor)

2. Technical Assistant to the Hearing Examiners

The Commissioners approved the establishment of the post of Technical Assistant to the hearing Examiner. (General Manager-Secretariat)

3. Briefing on SL-1 Accident

million recommended by Bell, for continuing R&D on the two reactor concepts not directed toward airplane usage.

After hearing us describe the situation with respect to the NPR, he decided that he would wait to hear Holifield's arguments at the meeting tomorrow before deciding its status.

From 5:55 p.m. to 7 p.m. I attended another meeting with President Kennedy and Bell, Staats, Wiesner, Bundy, Vice President Lyndon Johnson, James Webb and Hugh Dryden (NASA), Willis Shapley (BOB), Bob Seamans (NASA) and Edward Welsh (Executive Secretary Space Council).

Webb and Dryden described the forthcoming Mercury flight experiment in which a man would be projected into space by ballistic means for a relatively short time--not into orbit. The point was made that the responsibility for the decision to do this would lie with NASA, and not with the President, so that the President would be in the position of being able to investigate the situation if something went wrong.

Dryden gave a resume of the arguments in favor of having our expensive space program, such as increase in human knowledge, practical military value for satellites and reconnaissance, build-up of national technological capability, prestige value, etc. The President at one stage indicated it might be a choice between \$500 million required for one part of the B-70 program which is under consideration, or the \$300 million or so which is at issue in the NASA budget.

There was considerable discussion as to the relative value of ROVER, and it seemed to be agreed that this development would be important only for missions in the distant future, such as taking a man to the moon, or even further into space. At one point the President asked Webb and Dryden what their choice would be as between SATURN C-2 and ROVER, and they indicated that it would have to be SATURN C-2. It was pointed out to the President that a decision to go ahead with ROVER and some of the other NASA projects meant that he was taking steps to go into the very expensive advanced man-in-space projects.

The president asked for further comparisons of costs with the Eisenhower budget, etc., and then said he will meet again tomorrow with BOB before he makes a decision. (Note: A report of the President Kennedy review of the space budget appeared in the March 22, 1969 issue of Science attached.)

Thursday, March 23, 1961 - D.C.

At the Information Meeting No. 2 (notes attached) I told the other Commissioners, Luedecke, Naiden and McCool about the meetings with President Kennedy yesterday. I also described my call to Brynielsson.

I called Holifield to tell that BOB had finally come to serious consideration of our supplementary budget and that Bell was disallowing a number of things he found unacceptable. I said we went to the President yesterday to try to resolve some of them. I said Bell had disallowed \$10 million for the VELA UNIFORM, the Byrd reactor (which I convinced the President to put back in), and the Guam reactor. I said I didn't quite make the grade on the latter and thought a boost from him might put it over the top at his appointment with the President coming up today.

At 10 a.m. I met with Robert E. Ginna, Chairman of the Board of Rochester Gas

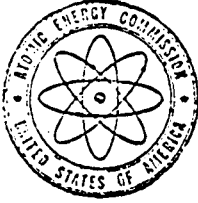
The First Kennedy Review

President Kennedy called upon NASA to recommend significant changes in the Eisenhower space budget. Administrator Webb proposed an increase of \$308 million, including \$173 million for vehicles and propulsion, \$48 million for Apollo (presumably spacecraft design) and \$25 million for interplanetary exploration. The agenda for the meetings on this subject, prepared by the Bureau of the Budget, focused on the "rate" the Administration wished to pursue in closing in "on the USSR's lead in weight lifting ability; and advancing manned exploration of space beyond Mercury" (11).

There is broad agreement on what transpired at the key meetings of 22 and 23 March. The Bureau of the Budget was prepared to recommend an increase of only \$50 million. At 5:15 p.m., 22 March, the President entered the meeting. Present were David Bell (Bureau of the Budget), Glenn T. Seaborg (Atomic Energy Commission), Johnson, Webb, Dryden, Seamans (associate administrator of NASA), and Edward C. Welsh, who had just been designated executive secretary of the Space Council.

Dryden addressed himself to the advantages of space exploration: science, military "insurance," avoidance of technological obsolescence, and the economic return. Seamans explained that an early version of the Saturn vehicle would make possible Apollo flights in 1964, circumlunar effort in 1967-68, and lunar landing in 1970. Seaborg spoke up for a nuclear role in any accelerated space program. The President expressed disappointment over our second place in big space programs (11). Some idea of the President's attitude and of the pace of decision-making in this period was indicated when, half an hour after the meeting, the Bureau of the Budget called Seamans and asked whether the Saturn upper stage cost was estimated at \$67 or \$77 million (9, p. 6).

The final decision was to go ahead on the booster program. Important emphasis was given to the early Saturn stage and nuclear rocketry. This action was consistent with the Wiesner report. An additional \$125 million was requested of Congress. Apollo was deferred for a more comprehensive review.



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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March 23, 1961

INFORMATION MEETING NO. 2

10:00 AM, March 23, 1961, Chairman's Office, D. C.

1. Director General of the IAEA - The General Manager is to prepare a memo to the State Department on the Commission's support of Mr. Eklund. The Chairman said he would telephone the State Department. This decision will be a matter of record at the next Commission meeting. (GM and Secy.)
2. The Chairman's Meeting with the President and Mr. Bell - The Chairman reported the results of his discussion of the several outstanding items.
3. Dr. Thompson's Report on General Dynamics' Gas Cooled Reactor Project - Dr. Wilson pointed out the need for additional data for purposes of safety review.
4. Oak Ridge Aqueous Homogeneous Reactor - Dr. Wilson reported on his discussion of this project with Dr. Weinberg.
5. News Release on the Brookhaven Reactor Shutdown - The General Manager said Brookhaven officials reported that they did not make the statement ascribed to them in the March 22 news story.
6. IAEA Certification Safety of Nuclear Ships - Mr. Graham said Mr. Sterling Cole expressed to him yesterday the hope that the U. S. would support this proposal at the Brussels meeting. (GM - GC).
7. IAEA Research Reactor Grants - Mr. Cole suggested to Mr. Graham the U. S. should reserve its position on recipients until the end of 1961. (GM)
8. Discussion of SL-1 Accident - This discussion will continue today or tomorrow.

9. Application of Nuclear Ship Convention to Nuclear Submarines - The Commissioners said this was a State/Department of Defense matter. (GC)
10. Cooperation with Australia on Plowshare - The Commissioners said cooperation at this time should be limited to an offer of a definitive briefing on the program. (GM)
11. Nuclear Materials Study - Dr. Wilson and Mr. Olson will review the correspondence and meeting record. (GM - Secy.)
12. Memorandum on NPR Economics - The General Manager said that he had circulated a memo on the AEC-Joint Committee staff figures.
13. Treaty Language on Peaceful Uses - The Commissioners said that State should be informed that AEC had no objections if the proposed language is consistent with their previously stated position. (GM)

Attendance

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Gen. Luedecke
Mr. Naiden
Mr. Brown
Mr. Henderson
Mr. McCool

Distribution

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Gen. Luedecke
Mr. Hollingsworth
Mr. Naiden
Mr. McCool

and Electric Company, George Rincliffe, President of Philadelphia Electric Company, and others who pressed hard for the right to proceed with the Peachbottom reactor.

Harlan Cleveland called me around noon to tell me that Admiral Foster is not available to go to Vienna for the April IAEA meeting and that it would be fine to go ahead with Commissioner Wilson. I told him that, relying on personal friendship, I called Dr. Brynielsson yesterday to try to persuade him on the Director Generalship of the IAEA, but he is firm in his resolve that this is not what he personally wants to do. I mentioned that Brynielsson kept urging that we consider Dr. Eklund; this might be an indication that the two of them have discussed this and that Eklund would be receptive to the idea. I said that it is our feeling that Eklund is the best man to go after now, and that we will send to State a formal recommendation.

I had lunch at the Mayflower Hotel with Ed Pauley, Victor N. Agather (one of his employees in Mexico) and two other of his friends.

From 2 p.m. to 3 p.m. I was briefed by Allen Dulles' people on various intelligence matters.

At 3:40 p.m. and until 4:40 p.m. I attended a meeting with President Kennedy, Bell, Wiesner, Vice President Johnson, Senators Pastore, Anderson and Jackson and Congressmen Price and Holifield, as well as Jim Ramey, JCAE.

The President opened the discussion with a general summary of the great demands that the various projects make on the budget, that the Eisenhower Administration had underestimated income and expenditures so that all in all a deficit was impending. He said that many of these large projects have to be regarded as competing with each other for limited funds. He then asked Representative Holifield for his views.

Holifield pointed out that the Joint Committee found it necessary to force a number of projects on the Administration such as the nuclear submarine, the hydrogen bomb, etc., and that some of the things they were here to discuss today were in that category. He pointed out that the budget for the construction of nuclear power reactors had gone down, citing the figures for 1958, 1959, 1960, 1961 and 1962. He also spoke in favor of the Stanford accelerator, giving arguments for it.

Senator Jackson was then given the opportunity to speak for the NPR. He pointed out that this was authorized as a plutonium producer with a convertible feature in it in 1958 on a straight party vote with a three vote margin. He gave the argument of its application to the peaceful uses of atomic energy, the economic arguments, etc.

Anderson then spoke and began by indicating that he didn't think too much of the Stanford accelerator project, (however, he modified this some time later in the meeting, and at my urging approached the President after the meeting to indicate that he thought it should be supported). He then spoke for the additional \$7 million in the ROVER budget in order that flight testing might proceed at the earliest date. In the course of the discussion, he said that he preferred the Byrd reactor to that of Guam. At one stage he said that he had heard a lot of scientists speak against the Stanford accelerator and asked me if this was true. I replied that I found some concern among low energy nuclear physicists that it might subtract from the support of their work and in a sense I was a

spokesman for that cause, but lately I had found unanimous support among high energy nuclear physicists, whereupon Senator Anderson replied that that was good enough for him.

Jackson then spoke in favor of the Byrd reactor on the basis that it would save money because it could be amortized in three years. Bell questioned this, speaking of a 25-year amortization and I said I had been justifying it on other than an economic basis. However, Jackson, Anderson, Holifield and Ramey all spoke as if they had not heard this information before, that is, the longer amortization period. (After I returned to my office, I asked Chris Henderson to find the explanation for this discrepancy and then I called and explained this to Jackson, Anderson and also to Ramey when he called me.)

Representative Price was asked to comment on the ANP and he gave the various arguments such as prestige, military requirements, etc. He included a short history of the project saying that former AEC Chairman McCone had resisted many pressures from the DOD to kill one cycle by making a premature choice. The President said he saw no particular value to such a plane, citing the hazards from radioactivity, heavy shields, not especially high performance, etc.

In final summary, the President apologized for having to look at these matters in such a rush after they had been studied so long by those present, that he would have to make a decision but it would be something that the Joint Committee members would continue to consider even after the budget was sent up and he reiterated that the total was astronomical. Holifield suggested that all of the appropriation items be put into one Omnibus Bill.

At the end, President Kennedy indicated that the NPR reactor would probably be approved, that work would continue on the two cycles of the ANP but not toward flight testing (and it may be that Representative Price misunderstood this to mean that more was going to be done than the President meant to imply), and that the linear accelerator would be approved.

I talked to Bell on the telephone twice after the meeting. The first time he said he had just left the President who accepted the NPR, the Byrd reactor and added \$7 million for Anderson for ROVER. He took out the Guam reactor. He said the President nearly threw out the Stanford accelerator but that he had said he thought the President had to ride with our judgment on this matter and it was kept in. In our second conversation he said the President did not realize, as they had not talked clearly, as to what was implicit in the \$7 million for ROVER on the NASA side. Therefore, he proposes to hold this in suspense until he can reach him again at which time he will have backup figures. If he (the President) decides he wishes to go for the entire \$7 million for AEC and \$23 million for NASA this figure is small enough so that the total is not thrown out of balance. I said I was trying to encourage some of them to break the \$23 million down to a smaller figure.

He said that neither the amendments for AEC nor the amendments for NASA will be sent to Congress until the weekend, therefore, the only trouble this causes is that tonight at the briefing the reporters may ask him what is in the budget for ROVER, so between now and 8 p.m. he has to invent an answer.

At 5:30 p.m. I met with Sterling Cole in my office to discuss IAEA matters.

Friday, March 24, 1961 - D.C.

I presided Information Meeting 3 and Regulatory Information Meeting 2 (notes attached). I described yesterday's meeting with President Kennedy, also my meetings with Robert Ginna and Sterling Cole. I also told them about my phone conversation with Harlan Cleveland in which I told him we were recommending Commissioner Wilson as U.S. Representative to the April meeting of the IAEA (he will be backed up by John Hall and a State Department representative) and Sigvard Eklund (Brynielsson's deputy in the Swedish Atomic Energy Commission) to be Director General of the IAEA in view of Brynielsson's refusal.

Prior to the Information Meeting Ambassador Sir Howard Beale of Australia, accompanied by Mr. I. J. W. Bissett, the atomic energy attache at the Australian Embassy, called on me. He told me a little bit about their Lucas Heights atomic energy establishment. We discussed the impact of the Geneva test ban on peaceful uses. He also told me about some of the difficulties they had had in Australia while the U.K. was testing nuclear weapons because of the public fear of the effects of radiation. They are interested in having Jerry Johnson go to Australia to talk with them about the peaceful uses of atomic energy and advised me that an official request will be coming in.

At 10:30 a.m. Bell called me to tell me that he had just seen the President who did not think the ROVER item should be in the supplemental budget because it would cost another \$23 million in NASA. I asked Bell whether the President might have approved it had it been only AEC, or even half the figure; he said, yes. He said he pointed out Senator Anderson's feeling and my views, but the President immediately turned to the Stanford accelerator. Bell said we can put the Guam reactor in again next year or we might even go back to the President on it before that.

I stated that I still feel that Congressman Price had a little misunderstanding on the future of ANP. He said that may be, but that Dr. Wiesner confirmed that Mr. Ramey had understood it. This will be spelled out in the Defense message.

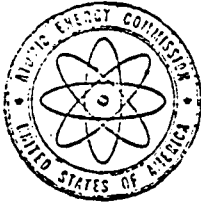
I conferred with Leland Haworth who spent his first day with us; his confirmation hearing will be held at 10 a.m. on Wednesday, March 29th.

At 11 a.m. I met with the Florida West Coast Nuclear Group (W. J. Clapp, R. B. Snapp, W. C. MacInnes and R. D. Welch) and East Central Nuclear Group (Philip Sporn, R. S. Hunter, H. D. Smith, S. L. Rice, W. L. Webb, and G. F. Trowbridge) and the GNEC group (W. H. Zinn, H. B. Lichtenburger) and our staff to hear their plea for AEC support of a revised contract to support the gas-cooled D₂O moderated, Be-clad, low U-235 enriched reactor.

I had lunch with Allen Dulles, Luedecke, Pete Scoville and other CIA people at their headquarters in McLean.

At 2 p.m. the other Commissioners and I met with the GAC to hear their recommendations on safety, etc. Commissioner Graham berated them, unjustifiably I thought, for their failure to recognize the importance of safety in reactor operations and told them they are a self-serving group. Chairman Pitzer gave me a list of names recommending directors for Argonne and Brookhaven as well as recommendations for a recipient of the Fermi Award.

At 4:30 p.m. I went up to the Hill to see Representative Clarence Cannon, Chairman of the House Appropriations Committee and his executive assistant



W. B. McCool *Approved*
Files

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C. March 24, 1961

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NOV 86

INFORMATION MEETING NO. 3

10:00 A.M., Friday, March 24, 1961, Chairman's Office, D.C.

1. Holifield Meeting with President - The Chairman reported on his meeting of March 22nd with the President, Vice-President, Chairman Holifield and other members of the Joint Committee.
2. HTGCR (Peach Bottom Project) - The Chairman reported on his meeting yesterday with Mr. Ginna.
3. Chairman's Meeting with Sterling Cole
4. U.S. Representative at April IAEA Meeting - The Chairman reported that Assistant Secretary Cleveland supported the Commission's suggestion that Dr. Wilson and Mr. Hall attend, and the Commission's recommendation on the Director General. (GM)
5. AEC-DOD Weapons Vulnerability Agreement - The Chairman is to be informed. (Secy)
6. Pantex & Clarkesville Labor Information
7. Letters on FM-2A and Transit - The General Manager said he would dispatch the letters. (GM)
8. Fiscal '62 Budget - The Chairman reported Mr. Bell's phone call with information on decisions on the Byrd and Guam reactors, Rover, and ANP. The White House will check Budget message language with AEC over the week-end. Letters to affected contractors should be drafted. (GM)
9. Mr. Holifield's letter re GE Testimony
10. Joint Committee request for Budget Information - The Chairman said he would discuss this with Chairman Holifield. (Secy)
11. Agenda was Approved as Revised

W. B. McCool
Secretary

Attendance

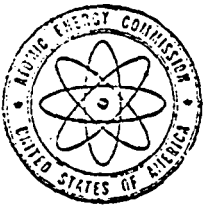
Dr. Seaborg	Gen. Luedecke
Mr. Graham	Mr. Hall
Dr. Wilson	Mr. Brown
Mr. Olson	Mr. McCool

Distribution

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Gen. Luedecke
Mr. Hollingsworth
Mr. Naiden
Mr. McCool

Copy to the President

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UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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March 24, 1961

INFORMATION MEETING NO. 2
(Regulatory)

9:50 A.M., Friday, March 24, 1961, Chairman's Office, D.C.

1. AEC Comments on Draft Bill "To Amend the Federal Water Pollution Control Act to Provide for a more Effective Program of Water Pollution Control" - The Commissioners had no objection to a proposed response. (Price)
2. PM-2A Reactor

Attendance
 Dr. Seaborg
 Mr. Graham
 Dr. Wilson
 Mr. Olson
 Mr. Price
 Mr. Brown
 Mr. McCool

Distribution
 Dr. Seaborg
 Mr. Graham
 Dr. Wilson
 Mr. Olson
 Mr. Price
 Mr. Naiden
 Mr. McCool

W. B. McCool
Secretary

Carson Culp. Howard Brown accompanied me. This was primarily for the purpose of getting acquainted although I did mention the importance of materials research and the University of Illinois materials laboratory.

After I returned to my office I had a telephone conversation with Jim Ramey who reported they were doing a little more calculating on the ANP, and Congressman Price asked him to call me on the basis of their rough calculations. They came up with a figure in the range of \$65 - \$75 million on indirect and \$40 million on direct. I told him that was high and doubted that BOB would buy it. He said that Bell and Wiesner gave him the impression that the amount hadn't been tied down yet. He said that yesterday the figure of \$30 - \$35 million, for both approaches, was discussed; he tried that figure out on Bell today, but he gave the impression he hadn't heard of it and that he thought it would be higher. I promised to call Bell in the morning. Ramey said, if it's something as low as \$30 million for both cycles, it won't make much sense and added that a complete cut-back would make more sense. I told him I didn't think he really believed that. I said that what is contemplated is research on reactors, not directed toward putting them into planes. Research would be carried out on a broader basis, building on the staffs and technical competence now in existence, to see whether there are good applications for the types of reactors that are being developed.

I told him I think the President got the view that ANP per se isn't worth very much. They have explored everything from cutting it out completely to having something going. It was at that stage that we put in as big a number as the traffic would bear. I said I'd try to find out what the figure is and let him know. Ramey said Bell indicated that the number couldn't be revealed until Monday, and, in fact, that it wasn't the figure he was asking about, but rather what's involved. He emphasized that when the figure does come out we'll really have to be able to explain what it means and what it's for. He said that the best research we can do is to go ahead with our experiments, and that doesn't mean necessarily pointing toward flight. He said it is a possibility that maybe the money should be used even more broadly than ever between the two contractors.

This evening I attended a black tie dinner at Jane McBaine's. Alice Roosevelt Longworth (whom I found extremely interesting and charming) was there, as were Mr. and Mrs. Walter Lippman, Mr. and Mrs. Bill Bundy, a Roosevelt (Mrs. Longworth's nephew), Paul Fay and others.

I received a letter from Helen in which she enclosed some Charter Day material.

Saturday, March 25, 1961 - D.C.

I saw Don DeVault of the Society for Social Responsibility in Science at 10 a.m. in my office. He told me about the vigils that are going to be conducted by the Witness for Peace group, including one at Germantown on Friday, March 31st, and he gave me a pamphlet describing the program. He assured me they would be well ordered and quiet vigils, that they were designed to encourage people to be introspective and to think about the need for disarmament, etc.

He asked whether I had any comments or words of advice. I told him I doubted that in terms of the facts of life and political reality this route would lead to his aims; that he probably won't have the desired effect on Congress who are the people who would have to change the laws and implement any path toward his desired objective. I said that many people fear they would lose freedom under an uncontrolled unilateral disarmament and they value freedom more than life

itself. He said that freedom to him meant doing what he thinks is right even if this means going to jail. DeVault is an old friend of mine dating back to graduate school days at Berkeley in the mid-thirties. The conference was very friendly and he actually expressed delight that I had assumed the office of Chairman of the AEC.

I had a telephone conversation with Mr. Holifield in which I told him I was a little concerned when I read this morning's press reports on the President's decision on ANP and I thought there may have been some misinterpretation. He said he knew the press reports had been garbled because he (Holifield) did not say the President was going ahead. He said he couldn't answer for Bell or Mel Price. He said he had only said he was hopeful that the research and development would continue on both cycles. I said I didn't know what the President had finally agreed to, but it was a figure somewhat below \$33 million which was the figure UPI used. Chet said he understood my position. I said I thought it had come out all right except for this one controversial program on which the President had quite a bit of advice suggesting that it lacked value.

Chet said when he came away from the conference he was well satisfied with the general outline. He asked if it was my understanding that the President is going ahead with the Byrd and Guam reactors and I told him he probably wouldn't go along with the Guam reactor now. He asked me to look at both of these carefully as he would like to have my frank opinion. He asked for figures on the amortization of the Byrd reactor and said before they wrote the Bill he would like to have a complete briefing on the Guam and the Byrd reactors. He said when we had a draft of the Omnibus Bill with all the items we want he would like to sit down with me and go over it item for item.

I had a very pleasant lunch in the Capitol Dining Room with Clint Anderson during which we discussed many matters of AEC-JCAE concern; I find him likeable and we seem to be getting along very well. Early in the conversation he apologized again for the letter he had written regarding Turret and I asked him whether he would be willing to take it back to make revisions. He readily agreed to do this and I suggested that in particular he delete references to Commissioner Wilson and Dr. Murphree which he agreed to do. In the course of this conversation he said that Mr. Ramey has a quirk of character by which he likes to make trouble whenever the opportunity presents itself.

During the luncheon Senator Jackson dropped by, and this, together with a picture of my house which had appeared in this morning's Washington Post and which had been seen by Anderson, led the conversation around to conflict of interest. He agreed that the restrictions were too great. I said that no one in modest circumstances, including myself, could afford to stay in Washington too long in this situation.

Anderson and I discussed my membership on the Welch Scientific Advisory Committee and he said he saw no reason whatsoever in declining the honorarium in connection with these meetings and that I should write him a letter describing the situation and he would clear this.

I also mentioned my difficulty with respect to paying into the retirement fund at the University of California during my leave of absence in view of the compulsory nature of the participation in the Civil Service Retirement System, and he thought that maybe he could help in this situation also if I would write him a letter describing the circumstances.

I also mentioned to him the problem that would be created if we were to meet the request, presumably originating with Ramey, of giving the budget figures from each Division to the Joint Committee. I pointed out that this would certainly interfere with the sensible management of Commission affairs because it would encourage Division Directors to make generous estimates of their needs. He didn't seem to be familiar with this request and seemed to be sympathetic to our problem.

Attached is a copy of a letter I sent to Helen today.

Sunday, March 26, 1961

I spent most of the day reading AEC material. At 5:15 p.m. I left for Chicago with Charter Heslep on Capital Airlines No. 719, my first trip since becoming Chairman of the AEC. We stayed at the Palmer House.

Monday, March 27, 1961 - Chicago

I presided over a meeting of the Steering Committee of CHEMStudy held at the Palmer House. We decided to choose a publisher of our high school chemistry textbook from among Addison-Wesley, Freeman and Prentice Hall. I gave an address on "New Current Trends in Secondary Science Education" at the annual banquet of the National Science Teachers Association in the Grand Ballroom of the Hotel Sherman. This was preceded by a press conference in which the most interest was shown in my description of a possible U.S.-U.S.S.R. joint project to build a giant accelerator. (Today's Information meeting No. 4 notes are attached.)

Tuesday, March 28, 1961 - Chicago

I had breakfast at the Palmer House with Chancellor George Beadle of the University of Chicago.

I spent the day visiting the Argonne Laboratory and Charter Heslep and I flew back to Washington, leaving Chicago on flight No. 20 at 5:15 p.m. and arrived at 8:34 p.m. (Today's Information Meeting 5 and Regulatory Information Meeting 3 notes attached).

Wednesday, March 29, 1961 - D.C.

At 10 a.m. I attended Leland Haworth's confirmation hearing. He was introduced by Senator Javits with Senator Pastore presiding. I spoke briefly in support of his outstanding administrative and scientific qualifications.

Just before the Commission meeting, I discussed with the other Commissioners, Don Burrows and Howard Brown the procedure for the termination of the G.E. and Pratt and Whitney ANP contracts; we decided to send a task force to their plants to discuss the details with them.

At Commission Meeting 1717 (action summary attached) I presented our plan for termination to Bob Hollingsworth.

I had lunch with Dr. Haworth.

At 1:30 p.m. I attended the first meeting of the Federal Council on Science and Technology with Wiesner (in chair), Herb York (Director of Defense Research and Engineering, DOD), Walter Whitman (Science Advisor to Secretary of State), Frank

March 25, 1961

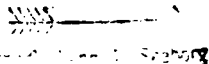
Dear Helen:

Enclosed is a picture of our house which appeared in the Washington Post today. Apparently this is standard practice in the Washington area. I think that with this picture and the plans you will be able to locate the various rooms.

I am going to Chicago tomorrow afternoon to spend Monday and Tuesday there for a meeting of the Chem Study Steering Committee on Monday and to speak to the National Science Teachers Association on Monday evening, and to visit Argonne on Tuesday.

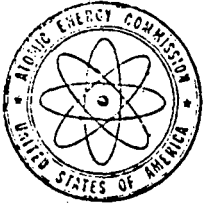
Your letter of March 23, with all the interesting clippings in it, arrived last night. I am looking forward to seeing you on Thursday night.

Lots of love,

A handwritten signature, likely "Glenn T. Seaborg", is written in dark ink. The signature is somewhat stylized and appears to be written over a horizontal line.

Mrs. Glenn T. Seaborg
1154 Glen Road
Lafayette, California

Encl.



UNITED STATES
ATOMIC ENERGY COMMISSION

WASHINGTON 25, D. C.

March 27, 1961

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INFORMATION MEETING NO. 4

9:45 AM, Monday, March 27, 1961, Chairman's Office, Germantown

1. New York Times Article, March 25 on Eldorado Contract
2. U. S. News and World Report, March 27 issue on Interview with Judge Landis
3. Chairman's Meeting with Congressman Cannon
4. Letters to DCD on PM-2A and Transit - The letters are to be revised to include appropriate reference to the discussion at the 129th AEC/MLC Conference. (Secy.)
5. Chairman's Conversation with Dr. Waterman re Waterman's Testimony March 28 on a Bill to Establish a National Science Academy.
6. Vigil by Witness for Peace Group on March 31, 1961 - The New York Times Article will be Circulated (Secy)
This matter is to be discussed at tomorrow mornings meeting (GM).
7. GE Letter re NPR - The General Manager said a copy of the GE letter to Senator Jackson would be sent to us (Secy.)
8. Budget Decision re ANP Program
9. Meeting with Congressional and Labor representatives on Wednesday, March 29, 10:00 AM. D. C. Office - The General Manager reported that Messrs. Hollingsworth, Bloch and Quinn would meet with this group to discuss the impact of power reductions, etc. The Commissioners requested a report from Mr. Quinn before tomorrow on the proposed distribution of the personnel reduction (Secy.).
10. Hearing on Dr. Haworth's Nomination - This has been confirmed for 10:00 AM, Wednesday morning, March 29. The Commissioners will attend.

11. The Commissioners Requested a Chronology on the Brookhaven Reactor shutdown and requested that Dr. Haworth be invited to spend the day tomorrow in preparation for his Hearing on Wednesday.
12. Material for Euratom - The proposal is to be discussed with Mr. Graham (GM)
13. Commissioner Wilson's attendance at the IAEA Conference - Dr. Wilson said he would inform Congressman Holifield.
14. U. S. Representative to the IAEA
15. Authorization Hearings - The General Manager reported Authorization Hearings would probably be scheduled for the 3rd week in April or the first week in May.

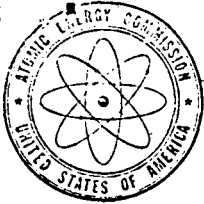
Attendance

Mr. Graham
Dr. Wilson
Gen. Luedecke
Mr. Henderson
Mr. Ferguson
Mr. McCool

Distribution

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Gen. Luedecke
Mr. Hollingsworth
Mr. Naiden
Mr. McCool

W. B. McCool
Secretary



C. M. Hollingworth

Adorn

UNITED STATES
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WASHINGTON 25, D. C.

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NOV 86

March 28, 1961

INFORMATION MEETING 5

9:30 AM. Tuesday, March 28, 1961, Chairman's Office, Germantown

1. Evening Star Article, March 27, 1961 re Hanford Labor Negotiations
2. Sinkins Company Case
3. March 31 Peace Group Demonstration - The Commissioners approved the General Manager's recommended action.
4. Hearing on Dr. Haworth's Nomination - The Commissioners and General Counsel will be downtown today to assist Dr. Haworth.
5. Telegram from Ambassador Thomassen re Geneva Negotiations
6. Review of Italian Security Procedures - Mr. Hollingworth said that this was scheduled for April 10. Commissioners requested the Joint Committee be informed (GM)
7. FEC Report on the NER - The Commissioners requested a check with the Joint Committee on timing of the release (GM)
8. Meeting with Olin Mathieson Nuclear Group
9. Fiscal 1962 Budget Supplemental - The Commissioners requested:
 - (a) Preparation of a letter to the Bureau on the Stanford Accelerator funding.
 - (b) Preparation of telegrams of notification to ANP contractors
 - (c) Recommendations from Reactor Development on scoping of the Research program (GM for all three)
10. Commission Meeting Agenda, Wednesday, March 29, 2:00 PM
Staff will clear the Commissioners' changes on AEC 785/62, AEC 1025/1 and AEC 719/34. (SECY)
11. Information Meeting Schedule. - There will be no Information Meeting on Wednesday morning, March 29.

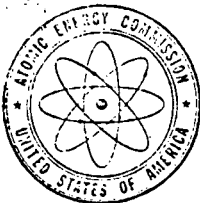
Attendance

Mr. Graham
Dr. Wilson
Mr. Hollingsworth
Mr. Naiden
Mr. Henderson
Mr. McCool
Mr. Burrows - came in later
Mr. Ink - came in later

Distribution

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Gen. Luedecke
Mr. Hollingsworth
Mr. Naiden
Mr. McCool

W. B. McCool
Secretary



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NOV 86

March 23, 1961

INFORMATION MEETING 3

(Regulatory)

10:30 AM. Tuesday, March 23, 1961. Chairman's Office. Germantown

- 1, Lindsay Chemical Company Protest - This matter will be considered for consideration during the week of April 3. (Price and Secy.),
- 2, Petition to Leak Aluminators - Mr. Price will provide Commissioner Wilson a talking paper for his use at the Federal Radiation Council meeting on Wednesday, March 29. (Price).

Attendance

Mr. Graham
Dr. Wilson
Mr. Hollingsworth
Mr. Naiden
Mr. McCool

Distribution

Mr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Mr. Price
Mr. Naiden
Mr. McCool

W. B. McCool
Secretary

UNITED STATES GOVERNMENT

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NOV 86

Memorandum

TO : Robert E. Hollingsworth, Deputy
General Manager

DATE: March 29, 1961

Approved R. E. Hollingsworth

FROM : Harold Anamosa, Acting Secretary

Date 3/29/61

SUBJECT: ACTION SUMMARY OF MEETING 1717, WEDNESDAY, MARCH 29, 1961, 11:45 a.m.,
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:AHE

Commission Business

1. President's Message on ANP Termination

Discussed.

You said you would prepare draft telegrams for Commission consideration at the Meeting scheduled for 2:00 p.m., today.

2. Briefing on Possible Rescheduled Research and Development after Termination of ANP Program

3. Composition of Task Force

Discussed.

The Commission requested a report by the Task Force in approximately ten days. (Vander Weyden)

4. Director General of the IAEA

At Information Meeting #2 the Commission stated its support of Mr. Eklund as Director General of the IAEA would be included as a matter of record in the next Commission Meeting.

Item of Information

Congressional Reaction to Fernald Report

Welch (Assistant Secretary, Department of Agriculture), Edward Gudeman (Under Secretary of Commerce), Boisfeuillet Jones (Special Assistant to Secretary, HEW), James Carr (Under Secretary of Interior), Alan Waterman, Jim Webb, Elmer Staats and Bob Kreidler (Secretary).

Wiesner gave the history, background and philosophy of the Federal Council, mentioning competition for funds, needs for priorities, the use of science for civilian (non-military) purposes, etc. It was decided to meet the fourth Tuesday of each month and to work on broad interagency problems. We then discussed George Kistiakowsky's paper on Support of Science by the federal government. Gudeman reported on a study of natural resources. Wiesner reported on the work of the PSAC Life Sciences Panel and also emphasized the need to investigate the problem of large scientific salaries paid (with U.S. government funds) by industrial contractors in competition with the smaller salaries paid to government and university scientists. Waterman reported on the Meteorological Center, supported by NSF, to be built at Boulder, Colorado, and Whitman reported on the work of the Panel on International Cooperation. (Action Summary of Commission Meeting 1718 which took place in my absence is attached.)

At 5:30 p.m. the Commission met again to approve the wording of the notification telegrams to be sent tomorrow to General Electric and Pratt and Whitney in connection with the termination of their efforts on the ANP. I called Holifield and Price to inform them of our plan of action. Price was very unhappy. The telegrams will state that certain basic research programs, directed to non-military broad development of nuclear reactor technology, will continue, particularly at Pratt and Whitney. In the interests of coordination, I called Mr. Eugene Zuckert to tell him that we will send telegrams tomorrow morning to G.E. and Pratt and Whitney telling them to terminate the nuclear aircraft phase of the ANP contracts, but to keep going on some of the research until our people visit them within a few days. This was all in accordance with Mr. Zuckert's understanding and the Air Force is proceeding on this same basis.

Thursday, March 30, 1961 - D.C.

I called Harlan Cleveland to urge that we ask Dr. Smyth to give priority to the IAEA over his Princeton position and to tell him that we will not displace Rabi as a member of the Scientific Advisory Committee. (In a letter to Cleveland of which I received a copy, Smyth indicated he might undertake to displace Rabi.) Cleveland favors Bill Cargo as backup man for the April IAEA meeting and said he would clear him with Smyth.

I presided at the Information Meeting 6 (notes attached). We cleared the wording of the telegrams to General Electric and Pratt & Whitney, which were then sent at 11 a.m.; we also approved the press release. I reviewed yesterday's Federal Council on Science and Technology meeting. The Commissioners agreed to my proposal that Dr. Haworth act as liaison with various AEC advisory committees.

At 12 noon I met with Swiss Ambassador August Lindt and the Swiss Scientific Attache, Dr. Urs Hochstrasser. This was a courtesy call. I mentioned that Switzerland was one of the first countries to have a bilateral agreement with the U.S. and that I understood he had participated in drafting the IAEA Statute and he agreed that these were facts. We agreed on the value of the IAEA and that it had not yet lived up to its potential.

At 2 p.m. the Commission met (Meeting 1719-action summary attached) to hear a

UNITED STATES GOVERNMENT

Memorandum

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NOV 86

TO Robert E. Hollingsworth, Deputy
General Manager

DATE: March 29, 1961
Approved: *R. E. Hollingsworth*

FROM Harold D. Anamosa, Acting Secretary

Date: *3/29/61*
R. E. Hollingsworth

SUBJECT ACTION SUMMARY OF MEETING 1718, WEDNESDAY, MARCH 29, 1961, 2:00 p.m.,
ROOM 1113-B, D. C. Office

SYMBOL: SECY: JCH

Commission Decisions

1. Minutes of Meetings 1711, 1712, 1713, 1714, 1715.

Approved as revised.

2. AEC 785/62 - Annual Indemnity Report to the JCAE

Approved.

The Commissioners requested the letter to the JCAE transmitting the report of classified activities of the ACRS be circulated for their review. (~~Pittman~~)(~~Journett~~)

3. AEC 1025/1 - Steam-cooled Power Reactor Evaluation

The Commission requested the addition of a caveat paragraph to Pg. 2-2 of Appendix "D" to AEC 1025/1 and to the draft letter of transmittal to the JCAE.

The Commission requested paragraph 8 d. of AEC 1025/1 be revised in accordance with the discussion at the Meeting.
(Pittman)

4. AEC 719/34 - Design of Facilities for Food Irradiation

Approved. (Aebersold)

5. AEC 412/25 - Report on Executive Order 10925

Approved.

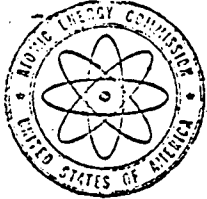
The Commissioners requested a letter to be dispatched to Mr. Holloman prior to April 5, appropriate to exemptions requested by GSA. (Traynor)

Other Business

ANP Termination

You said you would dispatch the TWX s to GE and P&W approved by the Commission after coordination with the Secretary of the Air Force and notification of appropriate Congressional leaders.

You said you would submit a list of Congressional leaders and an appropriate press release for Commission review at the March 30 Information Meeting.



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NOV 86

March 30, 1961

INFORMATION MEETING NO. 6

10:00 a.m. Thursday, March 30, 1961 - Chairman's Office, D.C.

1. ANP Program - The Chairman reported his discussions with Congressmen Holfield and Price, and said Mr. Zuckert had approved AEC's proposed action. The Chairman will call Senator Dworshak. Copies of the AEC news release and wires to the contractors will be sent to the Congressional delegations concerned and to the White House. (Ink)
2. IAEA - Dr. Smyth is meeting with Mr. Ramey today at Ramey's request. Assistant Secretary Cleveland will emphasize to Dr. Smyth the high priority of his IAEA work, and will encourage him to attend the April meeting.
3. Federal Council on Science and Technology - The Council plans to meet the 4th Tuesday of each month at 1:30 p.m. AEC is to designate an Alternate and a Staff contact. (Secy)
4. Comments on JCAE NATO Trip - Mr. Graham said he would be responsible for preparing recommendations for Commission consideration.
5. Liaison with Advisory Committees - The Chairman said he was considering requesting a Commissioner to assume responsibility for part of the liaison work. Mr. Olson requested a list of all AEC Committees and their expenditures for the past year. Mr. Graham said he would prepare recommendations for abolishing certain Committees. (Ink - Secy)
6. Exhibit on N.S. SAVANNAH - There was no objection to the General Manager's recommendation that an exhibit not be installed.
7. Reduction of Employees at Oak Ridge - It appears a total of 600 employees will be reduced from Carbide's production forces between now and June 30.
8. Water Pollution - Agreement was reached at a White House meeting on jurisdictional problems between AEC and HEW. A working agreement will be completed prior to passage of a water pollution bill. OGC will prepare a memorandum for the Commission's information.
9. Dr. Haworth's Confirmation - The Chairman will call Senator Pastore. (Secy)
10. Agenda Planning Session - The Agenda for the week of April 3rd was approved.

Attendance

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Mr. Ink
Mr. Ferguson
Mr. Brown
Mr. Anamosa

Distribution

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Gen. Luedecke
Mr. Hollingsworth
Mr. Naidu
Mr. McCool

Harold D. Anamosa
Acting Secretary

UNITED STATES GOVERNMENT

Memorandum

Approved R. E. Hollingsworth

R. E. Hollingsworth

Date 3/31/61

DATE: March 30, 1961

TO : Robert E. Hollingsworth,
Deputy General Manager

FROM : Harold D. Anamosa, Acting Secretary

SUBJECT: ACTION SUMMARY OF MEETING 1719, THURSDAY, MARCH 30, 1961, 2:00 P.M.,
ROOM 1113, D. C. OFFICE

SYMBOL: SECY:WLW

Commission Decisions

1. Westinghouse - Southern California Edison Proposal

Discussed.

The Commission requested the staff paper on the proposal be issued at the earliest possible date. (Vander Weyden)

2. ANP Termination Telegrams to Idaho and Oak Ridge Operations Offices

Approved as revised.

The Commission requested that the Idaho Operations Office be contacted as soon as possible to determine the costs resulting from a delay in immediate cancellation of the construction contracts pertinent to a 10 MW reactor experiment at Idaho. (Vander Weyden)

discussion of the Westinghouse-Southern California Edison revised proposal for the Southern California reactor; Westinghouse wants \$10.6 million for R & D.

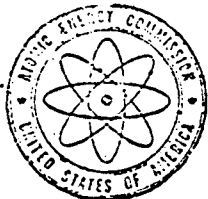
At 6:30 p.m. accompanied by Dr. Isadore Perlman, I left Friendship Airport on United airlines flight no. 809 arriving in San Francisco at 8:55 p.m. I arrived at my home in Lafayette about 10:15 p.m.

Friday, March 31, 1961 - California

I spent the day at the Livermore Laboratory where I was briefed on the weapons work, Plowshare, Pluto, and Sherwood.

With respect to Pluto, I found that Ted Merkle is not anxious to bring in General Electric as the engine contractor because of their propensity toward expanding to an unnecessarily large effort and to take over research and development from the Laboratory; they would rather keep the project at a \$20 to \$25 million level at Livermore Laboratory until they consider themselves ready to bring in a contractor to build an engine for flight test, perhaps in another year or two.

(Attached are the notes of Information Meeting 7, held in my absence.)



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March 31, 1961

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INFORMATION MEETING 7

9:45 a.m. Friday, March 31, 1961 - Chairman's Office, D. C.

1. ANP Program Closeout - Press reaction to the cancellation of the ANP Program was discussed. Mr. Graham requested a report on the effect on AEC of the closedown of certain DOD facilities. (Hollingsworth)
2. ANP Program Task Force - The task force will visit GE facilities Tuesday, April 4, Pratt & Whitney, April 5 and will report to the General Manager on April 7. The type of specific information needed will be communicated to GE and Pratt Whitney. Estimates for continuing construction and architect engineer work for the 10 Mw. reactor at Idaho are \$51,000 for two weeks.
3. Demonstration at Germantown Headquarters - The pickets, numbering 35 or 40 by 9:00 a.m. were picketing on route 118 and had not entered the AEC property.
4. Survey of Nuclear Materials Management Program - Mr. Olson will review the proposals received for the survey. The matter will be discussed further when the Chairman and Dr. Haworth can participate.
5. PRDC - Mr. Naiden will assure the Solicitor General is aware of the FCC final construction permit provision relationship to the Court of Appeals decision. Mr. Olson will be advised of the date of argument before the Supreme Court. (GC)
6. Process Heat Reactor - Mr. Olson will determine the status of this program.
7. Lock Aluminators Utilizing Radioisotopes - A letter to the Federal Radiation Council has been prepared. Mr. Price will report to the Commission Monday morning.

8. NASA Budget - Mr. Ink said the testimony before the JCAE regarding NASA construction funds would be corrected. AEC assistance in this area will be discussed when the Chairman is available. (Hollingsworth).
9. Rover Tests - Commissioner Wilson wants a schedule of Rover tests to use in connection with a visit to General Dynamics and North American Aviation. (Hollingsworth).
10. Research Reactors for Foreign Governments - Mr. Graham requested a report on the status of this program. (Hollingsworth).
11. Commissioner Wilson's visit to Geneva - The Chairman should discuss with Mr. McCloy (Brown).
12. Mr. Graham will be in Germantown Monday, April 3rd.

Attendance

Mr. Graham
 Mr. Olson
 Dr. Wilson
 Mr. Naiden
 Mr. Hollingsworth
 Mr. Ink
 Mr. Brown
 Mr. Anamosa

Distribution

Dr. Seaborg
 Mr. Graham
 Dr. Wilson
 Mr. Olson
 Gen. Luedecke
 Mr. Hollingsworth
 Mr. Naiden
 Mr. McCool

Harold D. Anamosa
 Acting Secretary

Saturday, April 1, 1961 - California

I spent the day with my family in Lafayette. During the day I phoned Adrian Kragen and Clark Kerr to discuss University affairs, and I also spent some time with Dan Wilkes discussing University and AEC affairs.

In the afternoon Pete, Lynne, Dave, Steve, Eric and I went bowling in Walnut Creek. My mother, sister Jeanette, and her husband Ray (Edwards) arrived in time for dinner. In the evening we were visited by Uncle Henry, Aunt Minnie and my cousin Charles Seaborg.

Sunday, April 2, 1961 - California

I spent the day at my Lafayette home with my family, my mother, sister and Ray. Much of the time was spent with daughter Dianne (17 months old today), who remembers me quite well.

Monday, April 3, 1961 - California

I visited the Chancellor's office and talked to Ed Strong, Kitty Malloy, Alex Sherriffs, Errol Mauchlan and others. I was interviewed by a Daily Cal reporter. I then visited the Radiation Laboratory and talked to Perlman, Doral Buchholz, Eileen Carson, Stan Thompson, Burris Cunningham, James Wallmann, Sherman Fried, Eldon Haines (my graduate student), Vic Viola (my graduate student) and others.

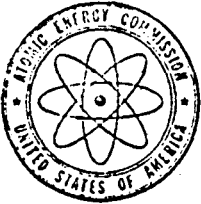
I attended the regular Monday noon brown bag luncheon meeting of the Chemistry group. I talked in some detail with Al Ghiorso in regard to evidence from experiments of Ghiorso, Torbjorn Sikkeland, Bud Larsh and Bob Latimer for the discovery of element 103. They have found an 8 ± 2 sec., 8.6 Mev alpha-emitting isotope, which may be 103^{258} and/or 103^{257} , from $Cf^{250,252}$ plus B^{11} . There is no chemical identification and no adequate excitation function so the question is--should they publish on the basis of data of only radioactive properties. I advised them to go ahead and publish.

I left San Francisco on the 2:15 p.m. plane, arriving in Baltimore at 11:30 p.m.

Tuesday, April 4, 1961 - Germantown

At 9:30 a.m. I presided at Information Meeting No. 8 (notes attached). We discussed Warren Johnson's list of candidates for the directorship of Argonne National Laboratory, which included Norman Ramsey, Hans Bethe, Victor Weisskopf, Robert R. Wilson, Maurice Goldhaber, Kenneth Pitzer, Manson Benedict, Robert Hofstadter, William O. Baker, John Simpson and Bob Bacher, and gave it our O.K. We decided to ask Commissioner Wilson (now in Vienna for a meeting of the IAEA) to visit the Geneva Test Ban Negotiating group (after checking with McCloy, which I did later). We reviewed the latest news from the Geneva Test Ban Negotiating group (which now doesn't look very hopeful); we discussed the AEC revised Authorization Bill (which must get to Budget Director Bell by April 11th) due in Congress soon, the renewal of the Mound Laboratory contract, and other matters.

Inaugurating my plan to visit informally various divisions when I am in Germantown, I visited the Division of Construction and Supply. Because this Division is in charge of the extensive AEC Emergency Relocation Center in the basement, I visited this and saw the extensive emergency offices and living



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 ATOMIC ENERGY COMMISSION
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April 4, 1961

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 NOV 86

INFORMATION MEETING 8

9:45 a.m. Tuesday, April 4, 1961 - Chairman's Office, Germantown

- 1) Cable re Geneva Negotiations - The Chairman said he would call Mr. McCloy re desirability of Commissioner Wilson stopping in Geneva. (Brown)
2. Director, Argonne Laboratory - The Commissioners expressed no objections to the proposed candidates. (Brown).
3. Monthly Report on Special Laboratory Experiments
4. Letter to Senator Gruening - The Commissioners approved the draft letter. (Brown)
5. IAEA Symposium on Reactor Safety - The Chairman and Dr. Haworth will review the memo for discussion at tomorrow's meeting. (Secy)
6. Letters From State Governors re Federal State Relationships
7. Letter to NSC Subcommittee - The Chairman and Dr. Haworth will review the letter (Secy)
8. Meeting with Lithium Industrial Representatives - A possible future agenda matter. (GM - Secy.)
9. Authorization for SNAP Project - The Commissioners had no objection to inclusion in the draft authorization bill. (GM)
 The Chairman said he would visit the Santa Susana facility on May 11. (Secy)
10. Weapons Safety Devices - Mr. Hollingsworth reported JCS action.
11. Proposed Regulatory Position

Attendance

Dr. Seaborg	Mr. Brown
Mr. Graham	Mr. Ink
Dr. Haworth	Mr. Naiden
Mr. Hollingsworth	Mr. McCool

Distribution

Dr. Seaborg	Gen. Luedecke
Mr. Graham	Mr. Hollingsworth
Dr. Wilson	Mr. Naiden
Mr. Olson	Mr. McCool
Dr. Haworth	

W. B. McCool
 Secretary

quarters, including my own. I also heard a briefing on the "Chain of Command" in the event of a nuclear war.

At noon I heard a report from Ed Brunenkant, Acting Director of the Division of Technical Information, and Dr. Bill Pollard of ORINS regarding their various activities and programs, including the high school educational program.

At 2 p.m. Grant Holcomb of CBS-TV interviewed me as part of a program on "Californians in the Kennedy Administration" to be shown on May 4th.

At 4:45 p.m. I received a call from Dr. Lyman Fink of G.E. in Palo Alto, advising me they have sent a letter to Congressman Holifield (with a copy to us) concerning studies G.E. made on nuclear power plants, as he requested. Fink said these studies, which have been reviewed with some of the AEC staff, indicate that we seem to be closer to competitive economic power than had been expected on reactors in the 15 to 50 megawatt range. Apparently Holifield's purpose in contacting them directly is that he is probably trying to find ways of supporting these developments. He also said they were visited today by utility people from Germany who are exploring the possibility of having G.E. build bigger power plants for them. In an indirect way, the question of Euratom is coming up. The utilities don't want to have anything to do with Euratom because they want to be in a position of making their own decisions. On the other hand, they like the AEC's guarantees through Euratom on enriched uranium, prices, buy-back, etc. There will probably be some heat put on to get an extension on such warranties.

At 5:30 p.m. I talked with McCloy on the telephone. He said he thought I might be interested in what is going on--that Dean's case is going fairly well. One thing that went wrong was that the Russian negotiator talked about his not being able to accept one impartial administrator, that they had to have three. He lined that up with an attack on the U.N. McCloy said this had come up in a talk with Andrei Gromyko, who just clamped down and said it was their position and further said we better try it and see how reasonable they could be with a veto. McCloy said if this cut across the board he didn't see where we were going.

McCloy also said that the Polish Ambassador had told him that every indication he had seen led to the Geneva negotiations becoming deadlocked and suggested that the whole thing be switched over to the comprehensive test ban and then we would see, in view of the so-called larger scope of the comprehensive, that this would take its place and they might be able to agree to more inspection.

He asked if I would be willing to talk with two scientists from Nuclear Metals of Concord who were then in his office. They have proposed to him that we take the fissionable material from our Model T weapons and make it available for power or peaceful uses and then explode the remainder of the weapons (without fissionable material removed) inviting the Soviets to witness the explosion. In this way we would be turning the weapon into Plowshare in a dramatic way. I said I would have to think about this one, but I would be glad to see Dr. Loring and Dr. Willis.

I informed McCloy that Commissioner Wilson is en route to Vienna to attend an IAEA meeting and would like to stop in Geneva if it would serve any useful purpose. He said they would be glad to have him and that he would wire Dean who would be on the lookout for him.

I also told him that I had received a communication from a few professors at the

University of California (copy attached) expressing concern over objective world leadership and urging me to work toward means of facilitating a plan for general disarmament. I said I was answering the communication and quoting from the President's Inaugural Statement and stating that little good will come from their publicizing their information and that I was sending the communication to him.

Wednesday, April 5, 1961 - Germantown

At Information Meetings 9 and Regulatory Information Meeting 4 (notes attached) I informed those present of my talk with McCloy. We discussed the Authorization Bill, a possible IAEA symposium on reactor safety, Luedecke's trip to Idaho to further investigate the SL-1 accident, the status of the ANP Task Force, a reactor for Indonesia, and other matters.

I presided at Commission Meeting 1721 and Regulatory Meeting 98 (Action Summary attached).

I visited the Office of Personnel, was introduced to people by Director Arthur L. Tackman and given a briefing. I then visited the Office of Public Information where Director Duncan C. Clark performed the same functions.

I attended a black tie dinner at the British Embassy given in honor of Prime Minister Harold Macmillan by Ambassador and Lady Harold Caccia. I sat next to Mrs. Douglas Dillon and one seat removed from the Prime Minister, so I had an excellent opportunity to talk to him. Also attending were the British Secretary for Foreign Affairs Alec Home, Sir Patrick Dean (U.K. representative to the U.N.), Sir Norman Brook (Secretary of the Cabinet), Sir Frederick Hoyer Millar (Under Secretary of Foreign Office), Foy D. Kohler (Assistant Secretary of State), Ambassador at Large Averell Harriman, Secretary Douglas Dillon, Secretary Luther Hodges, Secretary Robert McNamara, Allen Dulles, Mac Bundy and others, all with their wives.

I sent a letter (attached) to Professor Lawrence Harper.

Thursday, April 6, 1961 - Germantown

At Information Meetings 10 and Regulatory Information Meeting 5 (notes attached) I told the Commissioners about my telephone conversation with Lyman Fink, the invitation to the christening of the USS Bainbridge, cables from Rusk to embassies regarding Commissioner Wilson's appointment as U.S. Ambassador to the IAEA meeting in Vienna and about Eklund as the Western candidate for the director generalship of the IAEA, my coming visit to Denver and Los Alamos, and other matters.

I talked to Dr. Warren Johnson on the phone and told him I had gone over the list of names he had submitted as possible candidates for the directorship of ANL, and it looked all right except that men like Bethe and Goldhaber probably could not be sold on becoming administrators; that the job of an administrator is a big one, demanding 100% of their time. He said he realized the chances were small with many of the men listed, but he would go ahead; the Committee has agreed that if they don't have any success with the ten men listed, they will reorganize. They have about 25 top people altogether. I asked whether he had called anyone about Bacher; he said Beadle was going to MIT for their Centennial and would explore it while there. I asked him to let me know what progress they make.

I spent the afternoon at home (University Club) since I seem to be suffering

5 0 2 1

Dr. Seaberg:

We who have been your colleagues over the past years at Berkeley congratulate you and the country on your appointment to the important post of Chairman of the U. S. Atomic Energy Commission.

At this time, the world needs leaders who are objective in their thinking and desirous of ending the present perilous international situation. The family of nuclear nations is growing, and with it, the real danger to mankind increases.

We urge you to work toward effective means of ensuring that all nations cease nuclear tests of large and small bombs, and to encourage the study of ways to facilitate agreement on a plan for general disarmament.

Finally, we wish you well in your new office. We are confident that you will make a major contribution to the struggle for a permanent peace.

SIGNED BY:

Lawrence A. Harper	Richard Harr
Henry F. May	James T. King
Paul Schaeffer	Richard A. Webster
Werner T. Angress	David Masarik
K. M. Stump	Henry O. Mishlo
Richard Diebaken	David Blackwell
Carl E. Schorske	Kerrett K. Dempster
J. R. Lovvorn	D. R. Cameron
Thomas A. Barnes	Mary Ann Williams
O. W. Steeking	Rosemarie Ostwald

5 0 2 1

(Cont'd)

Mary Ann Morris

Josephine Miles

David Krech

Hubert S. Coffey

Frank A. Beach

Joseph C. Spelman

Gilbert M. French

Theodore R. Sarbin

Tom H. Cornsweat

M. Brewster Smith

Edward E. Sampson

H. L. Ballachey

D. A. Riley

C. W. Brown

G. E. McGleary

Richard S. Crutchfield

Lyman W. Porter

Mark R. Rosenzweig

William Meredith

Reed B. Tuddenham

Arthur H. Rosenfeld

Owen Chamberlain

Julius Margolis

Paul Seabury

Kant Curtis

Sidney Bandman

Joseph Fontenrose

L. A. Mackay

M. B. Emmons

William S. Anderson

Anne Amory

Philip F. Griffin

William M. Green

W. Carson Rabinowitz

Charles M. Hulten

Walter Gieber

C. Grant Lewis

Elroy S. Dundy

W. C. Hainbold

Paul J. Zinke (Except for controlled
explosions for non-military
purposes.)

Marshall N. Palley

Rudolf F. Graf

James Vlasis

Herbert C. Sempert

Arnold M. Schuits

(Cont'd)

Harold H. Biswell

Woodbridge Metcalf

Henry J. Vaux

John A. Zimaska

Fred E. Dickinson

Ed E. Gilden

Dennis E. Tugarden

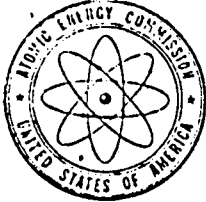
Paul Casmajer

Robert W. Colwell

Arne P. Schniewind

Varden Fuller

-END-



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

Approved
File

UNCL. BY DOE
NOV 86

April 5, 1961

INFORMATION MEETING 9

9:45 a.m. Wednesday, April 5, 1961 - Chairman's Office, Germantown

1. Consultant Contract - The General Manager is to discuss the matter with the consultant. (GM)
2. Geneva Negotiations - Commissioner Wilson is to be advised by cable to make a stop in Geneva. (Brown)
3. NSC Subcommittee Report - Dr. Haworth will review the letter for discussion at tomorrow's meeting. (Secy)
4. IAEA Symposium on Reactor Safety - Commissioner Wilson is to be informed that the Commissioners support the proposal. The Department of State and the Joint Committee are to be informed. (GM)
5. Draft Authorization Bill - The Bill is to go to the BOB with provision for later transmittal of language on the NPR. (GM)
6. Research Reactor Grant for the Government of Indonesia - Approved - This matter is to be coordinated by the White House, Department of State and Joint Committee looking to a Presidential announcement during Dr. Sukarno's visit. (GM)
7. General Manager's Report on Arco Visit

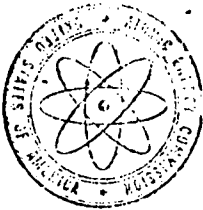
Attendance

Dr. Seaborg
Mr. Graham
Mr. Olson
Dr. Haworth
Mr. Naiden
Mr. Brown
Gen. Luedecke
Mr. Hollingsworth
Mr. McCool

Distribution

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Dr. Haworth
Gen. Luedecke
Mr. Hollingsworth
Mr. Naiden
Mr. McCool

W. B. McCool
Secretary



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

UNCL. BY B05
130V 85 1

Washburn
Folio

April 5, 1961

MEMORANDUM FOR THE RECORD
(Optional Form)

9:40 AM, Wednesday, April 5, 1961, Chairman's Office, EC

1. Public Hearing on Light Power Program - Commissioners agreed that the hearing would be held at Washington (price)
2. Draft Letter on Japanese Nuclear Organization - The letter was approved by the Commission. (price)

Attendance
 Dr. Seaborg
 Mr. Graham
 Mr. Olson
 Dr. Heworth
 Mr. Price
 Mr. Neiden
 Mr. Brown
 Mr. McCool

Distribution
 Dr. Seaborg
 Mr. Graham
 Mr. Wilson
 Mr. Olson
 Dr. Heworth
 Mr. Price
 Mr. Neiden
 Mr. McCool

W. B. McCool
Secretary

UNITED STATES GOVERNMENT

Memorandum

TO : A. R. Luedecke, General Manager

DATE: April 5, 1961
Approved A. R. Luedecke

FROM : W. B. McCool, Secretary *W. B. McCool*

Date 4/6/61

SUBJECT: ACTION SUMMARY OF MEETING 1721, WEDNESDAY, APRIL 5, 1961, 10:45 A.M.
ROOM A-410, GERMANTOWN, MARYLAND

SYMBOL: SECY:DCR

Commission Decisions

1. Minutes of Meeting 1716

Approved as revised.

2. Minutes of Meetings 1385-1496

Approved on the Secretary's motion.

3. AEC 27/137 - Revision of AEC Classification Policy Guide

Approved, as revised, subject to Mr. Graham's concurrence.

Mr. Graham requested rephrasing, subject to his review, of the Proposed Topic 400 on page 9 and rephrasing of Item 2(d) on page 3 to include "military propulsion reactors."

(Marshall-Naiden)

4. AEC 1062/3 - Proposed Revision of Section 142d of the Atomic Energy Act

Approved. (Marshall)

5. AEC 1062/4 - Retention of the Classified Information Category "Restricted Data"

Approved. (Marshall)

The Commission requested the General Counsel to confer informally with the JCAE staff on the advisability of updating the classification guide. (Naiden)

6. AEC 610/35 - Amendment of Access Permit Regulation in Connection with Gas Centrifuge Process

Approved, as revised.

I reported that Mr. Wilson requested the word "few" in the first sentence of paragraph 2 of Appendix "C" be deleted and the second sentence, page 14, paragraph 8 of Appendix "D" be revised to read "However, it stresses the fact that the granting of" (Pittman)

The Commission requested inclusion as item (b) of the Recommendation on page 3 of "Note that retention of gas centrifuge information in a classified category will be reviewed one year after publication. (Pittman)

7. AEC 1029/10 - Acquisition of Salt Dome Site for Vela Uniform Experiment

Deferred pending resolution of the Geneva negotiations.

Mr. Graham said he would discuss with Mr. Parks the advisability of initiating condemnation proceedings. (Secretariat)

Item of Information

Atomic Weapons and Fire (movie)

CONFIDENTIAL

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NGV 86

TO : Harold L. Price, Acting Director
of Regulation

DATE: April 5, 1961
Approved: *[Signature]*

FROM : W. B. McCool, *[Signature]*

Date: 4/5/61
H.L. Price

SUBJECT: ACTION SUMMARY OF REGULATORY MEETING 98, WEDNESDAY, APRIL 5, 1961,
12:10 P.M., ROOM A-410, GERMANTOWN, MARYLAND

SYMBOL: SECY:WLW

Commission Decisions

1. Minutes of Regulatory Meeting 96

Approved as revised.

2. AEC-R 18/5 - Petition for Amendment of 10 CFR 40 "Licensing of Source Material" filed by American Potash and Chemical Corp

Approved as revised.

The Commission requested paragraph 2 of the Notice of Rule Making be revised so as to read:

"On March 6, 1961, American Potash and Chemical Corporation filed a petition with the Commission requesting the re-establishment of this exemption. In its petition the Corporation described, among other things, the industrial processes and commercial products in which such rare earth chemicals are used, and the absence of justification for licensing from the standpoint of the health and safety of the public,"

and that the letter to the JCAE and the public announcement be made to conform to the revised Notice. (Lowenstein)

3. AEC-R 20/22 - Notice of Receipt of Petition to Amend 10 CFR 30 to Exempt Lock Illuminators Containing Tritium

Approved, as revised, subject to Dr. Haworth's review of the Federal Register Notice. (Lowenstein)

April 5, 1961

Dear Larry:

I want to express my appreciation for the nice expression of congratulations by you and your colleagues in connection with my appointment to the position of Chairman of the U. S. Atomic Energy Commission.

As you know, President Kennedy described in his Inaugural Address a program to formulate "... serious and precise proposals for the inspection and control of arms ...". And in his State of the Union Message, he described steps "... to make arms control a central goal of our national policy ..." and said, in connection with a nuclear test ban, "... it is our intention to resume negotiations prepared to reach a final agreement with any nation that is equally willing to agree to an effective and enforceable treaty ...".

I am in full agreement with these objectives and shall work toward the fulfillment of the President's program.

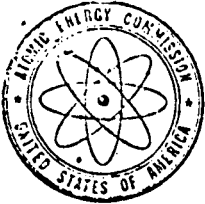
I am bringing your communication to the attention of Mr. John J. McCloy, Adviser to the President on Disarmament. In view of this, I would question the advisability and the need to publicize your communication.

Cordially yours,

Glenn T. Seaborg

Professor Lawrence A. Harper
Department of American History
University of California
Berkeley, California

SEABORG:MJ



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

April 6, 1961

INFORMATION MEETING 10

9:55 a.m. Thursday, April 6, 1961 - Chairman's Office, Germantown

1. Dr. Haworth's Nomination - Noted that the Senate members of the Joint Committee plan to meet on April 11 to consider reporting the nomination to the Senate.
2. Draft Letter re NSC Subcommittee Report - Approved (GM)
3. Commission Representation at the Launching of the Bainbridge on April 15 - The Commissioners suggested Mr. Olson attend. (Secy. - Brown)
4. GE Studies on Small (15-50 megawatts) Nuclear Power Plant - The Chairman reported Mr. Fink's call informing him of GE's transmittal of these studies to the Joint Committee at Mr. Holifield's request.
5. State Telegrams re U. S. Representation to IAEA Conference - The Chairman noted late receipt of the telegram (GM)
6. State Telegram re Director General of IAEA
7. Chairman's Denver and Rocky Flats visits on April 14 and 15
8. Chairman's April 7 Luncheon with Press Representatives - Background information is to be prepared (GM)
9. Candidates for Chairmanship of Committee on Comprehensive Disarmament - The Chairman reported his suggestions to Mr. McCloy.
10. Hearings on Project Vela - Luncheon Held on April 11 - Commissioners suggested a Germantown luncheon with Joint Committee on April 11 to be followed by a presentation on materials pricing policy (GM)
11. Luncheon with Dr. Bhabha - Proposed for April 10 or 11 (GM - Brown)

12. Application of Nuclear Ship Convention to Naval Submarines - The Commissioners reiterated their position that this is not a matter of Commission business.
13. Pantex Labor Dispute - The General Manager reported that this matter had been settled.
14. Chief of Technical Information Services - The Commission approved the General Manager's recommendation. (GM)
15. Allocation of U-233 to IAEA - Approved (GM)
16. Holifield Request re Omnibus Legislation - The Chairman requested information on this matter (GM - Brown)
17. Authorization Bill - The Chairman said he would sign the transmittal after Mr. Graham's review. (GM)
18. Senator Church's Request re ANP Program - Background information is to be supplied. (GM)

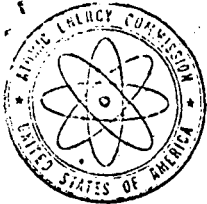
Attendance

Dr. Seaborg
Mr. Graham
Dr. Haworth
Mr. Naiden
Gen. Luedecke
Mr. Brown
Mr. McCool

Distribution:

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Dr. Haworth
Gen. Luedecke
Mr. Hollingsworth
Mr. Naiden
Mr. McCool

W. B. McCool
Secretary



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

UNCL. BY DOE
NOV 86

April 6, 1961

(REGULATORY) INFORMATION MEETING 5

9:40 a.m. Thursday, April 6, 1961 - Chairman's Office, Germantown

1. Snap - Transit Shot - The Commissioners asked Mr. Price to discuss with Dr. Haworth the desirability of an early independent review.
(Price)
2. The Movie on the Safety of Snap Device

Attendance

Dr. Seaborg
Mr. Graham
Dr. Haworth
Mr. Price
Mr. Naiden
Mr. Brown
Mr. McCool

Distribution

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Dr. Haworth
Mr. Price
Mr. Naiden
Mr. McCool

W. B. McCool
Secretary

from a virus.

Friday, April 7, 1961 - D.C.

At Regulatory Information Meeting 6 (notes attached) we discussed the safety problems of Transit Satellite (to contain Snap-3, a Pu-238 power source) and decided to have a full review with the experts involved. At Information Meeting 11 (notes attached) Commissioner Olson described his meeting with Judge James M. Landis who told him about the forthcoming Presidential message which will ask various Commissioners, including the AEC, to adopt Certiori Procedures (i.e. the process of rejecting some demands for the review of rejected applications). We also discussed the fact that the U.S. Ambassador to Indonesia wishes to announce the U.S.-supported reactor at a groundbreaking ceremony in Indonesia on Sunday, and we agreed. We discussed the JCAE executive session hearings on NATO weapons safety and control to be held on April 12th and other items.

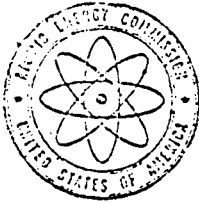
I called Harlan Cleveland's office to suggest that retiring IAEA Ambassador Paul Foster be received by Secretary Rusk.

I called Bundy to tell him about the April 12 JCAE hearings on NATO weapons problems. Bundy said there was no objection to a closed hearing. I said that what bothered me was the matter of relationship between the Executive and Congress, and whether the President shouldn't get into it. He said that the President's feeling is that this is a helpful report, we are acting on it, and we should give JCAE credit for it. I cautioned him that we have to go slowly because Holifield worries about Executive privilege. I also told him that Commissioner Graham has been very concerned and that he has been making his own study. Bundy asked whether Mr. Graham would want the Committee meeting held up; I replied, not to the extent of saying anything about it. Bundy said he would call Congressman Holifield and very diplomatically explore this further.

I told him that I understand a letter to the AEC is being prepared by General Herbert Loper, Chairman of the MLC, saying that they would not install the sensory devices to make the Mark 7 weapon safe. He asked how I felt about it, and I said that I don't consider it as safe as Loper thinks it is. He asked who had approved this decision, and I said it was probably the Joint Chiefs of Staff. He replied that he would prefer to have the AEC and Dr. Wiesner's people look at this. I told him that we have looked at it and that we would prefer to have the safety devices. He said to tell Loper that the White House is very concerned about this and we don't think DOD should take a position before Congress or in public before the matter has been reviewed and a decision made by the White House. AEC and Dr. Wiesner's office should look at it, and, if necessary, the President can overrule the DOD decision.

I told him that I have been shown the plan of action in the event of a nuclear attack. I mentioned that there is a sealed envelope, most likely dating back to the previous Administration, which would give me instructions, tying into the overall plan. He said, if he were I, he would open the envelope to see what it contained. He said the President knows about this plan but doesn't regard it very highly. I mentioned that this was the OCDM plan, but he said he wouldn't worry about it, and the the entire plan has to be reworked, but that he doesn't know of anyone in the White House who regards it as a first order of priority.

I attended a luncheon in the Council Room of the Sheraton Carlton Hotel for background discussion with non-attribution to me, given by Ernest Lindley of Newsweek. Present were Roscoe Drummond (N.Y. Herald Tribune Syndicate), Peter



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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UNCL. BY DOE
NOV 86

April 7, 1961

(REGULATORY) INFORMATION MEETING 6

9:30 a.m. Friday, April 7, 1961 - Chairman's Office, D. C.

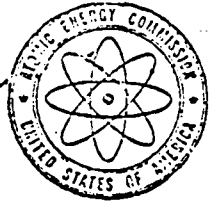
1. The Snap-3 Transit Device - The Commissioners authorized an independent review. (Price)

Attendance

Dr. Seaborg
Mr. Graham
Mr. Olson
Dr. Haworth
Mr. Price
Mr. Naiden
Mr. Brown
Mr. McCool

Distribution

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Dr. Haworth
Mr. Price
Mr. Naiden
Mr. McCool



O.C. # 6 - Monday 7/1/61

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

UNCL. BY 908
NOV 86

April 7, 1961

INFORMATION MEETING 11

10:00 a.m. Friday, April 7, 1961 - Chairman's Office, D.C.

1. Research Reactor for Indonesia - The Commissioners approved announcement of the project by the U. S. Ambassador in Indonesia on April 9. (GM)
2. Reimbursement for Dr. Smythe
3. Statements on Geneva Negotiations
4. Letter to Joint Committee re Natural Circulation Reactor - Commissioners approved Mr. Graham's proposed letter. (Secy)
5. NPR Reference in Authorization Bill - Commissioners noted NPR to be a line item only in our transmittal. (GM)
6. Authorization Hearings - Now Scheduled for the week of May 8 - The General Manager said that preliminary hearings may be held with the Joint Committee during the week of April 17.
7. Joint Committee Briefing on Materials Pricing - Not definitely scheduled for April 11. (GM)
8. Luncheon with Dr. Bhabha - Not firmly scheduled
9. Joint Committee Hearing on NATO Report Tentatively Scheduled for April 12 - Mr. Graham said that his memo would be available on Monday, April 10. Mr. Graham is to consider the desirability of discussing hearing date with Congressman Holifield. The Chairman said he would inform Mr. Bundy.
10. Italian Security Survey - The General Manager noted AEC staff discussions today with the security team.
11. White House Meeting on Equal Employment Opportunity Scheduled for Tuesday a.m., April 11 - The Chairman will attend. (BROWN)
12. Nuclear Ship Convention - The Commissioners noted no change in their position on application to nuclear submarines.

13. AEC 996/4 "TRANSMITTAL OF ATOMIC INFORMATION TO THE FEDERAL REPUBLIC OF GERMANY" - The Commissioners confirmed their decision that the caveat applied to AEC 1046/3 "TRANSMITTAL OF ATOMIC INFORMATION TO TURKEY - DRAFT LETTER TO SECRETARY OF DEFENSE" is applicable to the decision on this paper as well. (Secy)

Attendance

Dr. Seaborg
Mr. Graham
Mr. Olson
Dr. Haworth
Gen. Luedecke
Mr. Naiden
Mr. McCool

Distribution

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Dr. Haworth
Gen. Luedecke
Mr. Hollingsworth
Mr. Naiden
Mr. McCool

W. B. McCool
Secretary

Lisagor (Chicago Daily News), William H. Stringer (Christian Science Monitor), Richard Harkness (NBC), Elie Abel (Detroit News), Peter Edson (Newspaper Enterprise Association), Nat S. Finney (Buffalo Evening News), John Troan (Scripps-Howard Newspapers Alliance), Robert H. Estabrook (Washington Post), Marquis W. Childs (St. Louis Post Dispatch), Howard K. Smith (CBS), John M. Hightower (AP), Richard L. Wilson (Cowles Publication), Robert T. Hartsmann (Los Angeles Times), William S. White (United Feature Syndicate and our neighbor in Chevy Chase), William H. Harrison (Washington Evening Star), and Wallace Carroll (New York Times). Howard Brown and Duncan Clark were also present. Most of the questioning was on the subject of test ban negotiations and effect, with some questions on civilian nuclear power, the elimination of the ANP, nuclear powered rockets, my planned emphasis in AEC (basic research and isotopes), my relationship with President Kennedy and my method of running the AEC.

Later in the afternoon I discussed with Neil Naiden and Roland Anderson the Gofman claim for compensation for early work on and discovery of U^{233} at the University of California, Berkeley. It was decided that, unless I want to give up completely my right to a claim in my role as co-inventor, it would be difficult for Gofman to proceed without developing a conflict of interest, and, therefore, I should try to convince Gofman to drop the case until my term as Commissioner is over. Gofman is asking for \$150,000 in his application.

I received a letter from Helen.

Saturday, April 8, 1961 - D.C.

I spent the morning answering correspondence, reading reports and conferring with Howard Brown.

In the evening I attended the Atomic Energy Recreation and Welfare Association (AERWA) dance in the ballroom of the Presidential Arms Hotel, where I spun the wheel of chance to pick the AEC queen.

Sunday, April 9, 1961

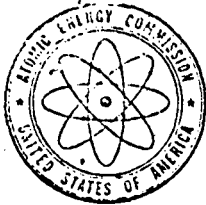
I spent the day reading and working on my speech, "Some Thoughts on Atomic Energy Research," for delivery at the American Physical Society banquet on April 26th.

I attended a buffet-reception in my honor given by Commissioner and Mrs. Graham at the Chevy Chase Club; all the key AEC administrative people and their wives (about 60 to 80) were present.

Monday, April 10, 1961 - Germantown

At the 9:30 a.m. Information Meeting 12 (notes attached) we discussed the secret documents lost by Army personnel at their base in Orleans, France; Canada's doubts regarding Eklund's suitability to be director of the IAEA; the luncheon for Homi Bhabha (Chairman of the Indian AEC) at the Mayflower Hotel tomorrow; the report of the ANP task force; etc.

I met with Professor Abdus Salam, Professor of Mathematics at the Imperial College in London, and a member of the Pakistan AEC. We discussed the possibility of 1. the USAEC subsidizing the difference between the cost of a 100 MW power reactor and the cost of a conventional power source; 2. ORNL furnishing scientific direction to the Pakistan Institute, housing a 5 MW



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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April 10, 1961

INFORMATION MEETING 12

9:30 a.m. Monday, April 10, 1961 - Chairman's Office, Germantown

1. Chairman's Participation in Research Symposium Today - The Chairman said he would make an announcement if there were no press representatives present. (Secy)
2. Loss of Classified Documents at Orleans, France - I will check whether this matter was reported in the press. (Secy)
A letter to the DOD expressing the Commission's concern is to be prepared. (GM)
3. Hearing on NATO Report, Scheduled for Wednesday Afternoon, April 12 - Mr. Graham's memo will be circulated today. (Secy)
ALO and other field representatives will brief the Commission prior to the hearing. (Secy - GM)
Dr. Haworth requested a DMA background briefing. (GM)
Dr. Haworth said he would review Mr. Graham's memo and recommend a Commission position. (Secy).
4. Candidate for Director General, IAEA - The General Manager reported the State Department's response to the Canadiana suggestion.
5. Luncheon with Dr. Bhabha Scheduled for April 11 at the Mayflower Hotel - A memo on details will be circulated to the Commissioners today. (Secy.)
6. Monseigneur Gillon's Visit in Washington - Mr. Graham said he would see Monseigneur Gillon. (Secy)
7. Commission Meeting Tuesday, April 11 at 3:00 PM in the D. C. Office - AEC 17/204 will be scheduled as the first item of business after approval of the minutes and will be followed by AEC 181/62 and AEC 587/9. The remaining items of business which were scheduled for Wednesday will be carried on the consent calendar for tomorrow's meeting to the extent the papers are cleared by the Commissioners today. (Secy)
8. Discussion of Authorization Hearing Testimony - Will be scheduled for the week of April 17. (GM - Secy)

9. Brussels Nuclear Ship Convention
10. Suit by Union Carbide Employee - The Commissioners requested a memo on this case and the Bendix case. (GC)
11. PRDC Case - Now scheduled to be heard on April 25 or 26.
12. AEC 767/16 - Enrico Fermi Award - The Commissioners requested additional information in the letter from the GAC. (Secy).

Attendance

Dr. Seaborg
Mr. Olson
Dr. Haworth
Gen. Luedecke
Mr. Naiden
Mr. Brown
Mr. McCool

Distribution

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General Manager (3)
General Counsel
Secretary

research reactor (built with \$350,000 of USAEC funds), and 3. the prospects and site for an International Institute of Theoretical Physics under the IAEA. I asked him about his relations with Bhabha. He said that personally they were all right; however, India's attitude on such claims, that they could use their 1,000 capable scientists to make an atomic bomb within a year, and other attitudes, cause problems between the two countries.

I called Commissioner Wilson in Vienna to receive a report on the progress of the IAEA meeting and learned that he may not have time to stop at the Geneva test ban negotiations on the way home.

I talked at a meeting of AEC Area Information Officers giving them some of my philosophy and describing some of my activities and methods of operation. The group included some twenty people from all over the United States.

I spoke on the transuranium elements to several hundred research-oriented AEC personnel in the Auditorium. I alluded to the recent discovery of element 103 in the University of California Radiation Laboratory by Ghiorso, Sikkeland, Larsh and Latimer.

I attended a reception at the Army and Navy Town Club for officers and directors of the Manufacturing Chemists Association, hosted by General John E. Hull.

Tuesday, April 11, 1961 - D.C.

I attended a meeting of President Kennedy's Committee on Equal Employment Opportunity in the Cabinet Room at 9:30 a.m. Present were President Kennedy, Vice President Johnson, Secretary Goldberg (all of whom spoke), Holleman, McNamara, Stahr, John Connally, Zuckert, Robert Kennedy, Hodges, Abe Ribicoff, John Macy, Moore, Webb, Butt (HEB Grocery Company, Texas), Don Cook (Electric Power Service Corporation), Evans (Nashville, Tennessee), Monsignor Higgins, Edgar Kaiser, Mrs. Mary Lasker, George Meany, Walter Reuther, Reverend Francis Sayre, Troutman (Atlanta, Georgia), Rabbi Jacob Joseph Weinstein, Wheeler (President Mechanics and Farmers Bank), and Woods (Executive Editor, St. Louis Argus).

President Kennedy, Vice President Johnson and Secretary Goldberg all made it clear that this Committee will take the problem of elimination of discrimination among government employees and government contractors' employees very seriously. Only principals may attend the meetings--no proxies. The program and enforcement procedure was outlined.

Later President Kennedy phoned me to inquire about the impact of the ANP termination on 500 G.E. employees at NRTS in Idaho. He had received a call from Senator Frank Church of Idaho who was concerned about the President's decision not to go ahead with the nuclear plane. He asked if this would affect the 500 jobs. I told the President that the decision would affect the jobs at Idaho as that work was connected directly with the plane. I told him some of these would be absorbed into other G.E. operations. He asked me to find out what arrangements are being made with regard to hiring these people and to call him back. I called the President back later and told him there are 511 affected positions at the Idaho reactor testing station which G.E. controls; that G.E. would probably take care of about 100 in their other options; that we have jobs where we could pick up 150 to 200 by July 1st. I said that we would be alert to finding places for as many additional people as possible. The President said he would tell Frank Church to call me.

While I was at the White House, Information Meeting 13 was held (notes attached).

I hosted a luncheon at the Mayflower Hotel for Dr. Homi Bhabha, Chairman of the Indian Atomic Energy Commission, which was attended by the Commissioners, Walt Whitman, Minister Dwarka Chatterjee and key AEC people with interests in the international aspects of our work. I spoke briefly and Dr. Bhabha responded.

In the afternoon I called Holifield to inform him that we had sent up the AEC 1962 Authorization Bill without the NPR, which would come later as an amendment, at Bell's request. This distressed Holifield so much that I called Bell again to ask for BOB permission to add the NPR provisions to the Bill. Since he had cleared this with Jackson (I had told Holifield of this), Holifield called Jackson who called Bell and in order to say he wasn't too disturbed and suggested the whole Bill be delayed until the NPR can be re-inserted. Bell called me and told me this; I agreed and we recalled the Bill for reworking. The big issue here (concerning the NPR), and it is a hot one, is the question of distribution of the electrical power and the impact on the public vs. private power controversy.

The Commission met to discuss the report of the Task Force on ANP realignment, i.e., use of the \$25,000,000 for non-ANP reactor development. They suggest \$4,500,000 for the G.E. high temperature research, \$1,000,000 for Pratt and Whitney high temperature research and some \$10,000,000 for Pratt and Whitney reactor development work.

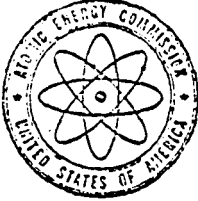
I sent my weekly progress report to President Kennedy; it is now due on Tuesdays.

I called Jerry Wiesner to tell him about Holifield's unhappiness regarding the Authorization Bill and my subsequent telephone conversation with Bell. Jerry said if it really gets bad to let him know. He said this point should have been raised with the President because he feels sure the President thought he was authorizing the NPR.

I called Bundy to tell him I had never received the Acheson report and since I was meeting with the JCAE tomorrow I thought I should take a look at it. I told him we had been discussing the question of weapons safety and the aspects of public welfare and I wanted to be sure that he, representing the Executive, was cognizant of what is involved. I said the question was fuzzy as to what responsibility remains with AEC after custody of the weapons has been transferred to DOD, but that the JACE feels that AEC is still responsible for the safety and the public welfare. AEC pays for the weapons and although we have transferred custody there are sections in the Act which speak of our responsibility for the public safety.

The Executive Order issued by President Eisenhower could be interpreted as meaning that the transfer of custody to the DOD still leaves the responsibility for safety with the AEC; also a letter written by John McCone would indicate this. He said he has received General Loper's report and has asked Wiesner to review it. He did say he didn't think we could get DOD to police this unless there was someone to whom they would be accountable and he felt this was probably a designation to be made by the President. He feels a review should be made by someone who is not involved in a prejudicial way.

The news of the discovery of element 103 leaked to the San Francisco Examiner today (they'll publish tomorrow) so there was some phoning to Wilkes, etc., to



J. M. - ...

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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April 11, 1961

INFORMATION MEETING 13

10:30 a.m. Tuesday, April 11, 1961 - Chairman's Office, D.C.

1. New York Times Article of April 10 on the Nuclear Navy ✓
Commissioners requested circulation of the Navy Report. (Secy)
The General Manager said a letter to the Joint Committee on the
destroyer project is under preparation. (GM)
2. Chairman's Discussion with Prof. Abdus Salam, Pakistan AEC - The
Chairman's memo will be circulated. (Secy)
3. April 6 letter from Deputy Secretary of Defense re Planning
Estimates - The General Manager is to prepare a draft reply. (GM)
4. Establishment of a Task Force on Rules Writing
5. IAEA Certification of Nuclear Ships - The Commissioners had no
objection to the dispatch of the cable. (GM)
A letter to Director General Cole is to be dispatched. (GM)
6. Briefing in Connection with Joint Committee Hearings on Wednesday,
April 12 - The briefing is scheduled for 10:00 AM, Room 1113-B
D. C. Office.
7. Authorization Hearings now Tentatively Scheduled for the Week
of April 17
8. Briefing of Joint Committee Staff on Materials Pricing Policy -
The General Manager reported the briefing will be held this
afternoon. The Commissioners were requested to give the General
Manager their comments on a proposed response to Chairman
Holifield's letter of inquiry on this matter. The General Manager
wishes to disptach the letter today. (GM)
9. Candidate for Chairman for the Board of Governors. IAEA - The
Commissioners had no objection to Dr. Lall's candidacy. (GM)
10. March 31 Letter from Mr. R. Shroff, Deputy Secretary, Dept.
of Atomic Energy, Government of India re Indian nuclear power
projects.

11. Status of NPR - The General Manager reported the NPR would not be included in the Authorization Bill which is to be dispatched to Congress today. The Commissioners suggested the Chairman inform Mr. Holifield. (Brown)
12. Department of Defense Letter to the President re Dispersal - The General Manager reported the Secretary of Defense letter to the President is going forward. The Commissioners requested an early review of the letter when received. (GM)
13. Nuclear Materials Management Study

Attendance

Mr. Graham
Mr. Olson
Dr. Haworth
Mr. Naiden
Gen. Luedecke
Mr. Brown
Mr. McCool

Distribution

Commissioners
General Manager (3)
General Counsel
Secretary

put together a press release and to alert Wiesner and others. We will try to have President Kennedy send Ghiorso a telegram of congratulation.

I had dinner at the University Club with Finley Carter (of Stanford Research Institute) and others.

Wednesday, April 12, 1961 - D.C.

I called Congressman Holifield to ask if everything was all right now regarding the Authorization Bill. He said he now understands that the draft was withdrawn and that there will be an extension of time in order to complete the NPR portion so that it can be a part of the bill. I explained that the bill we sent to Bell had the NPR in it, but without the distribution of power being worked out; Bell wanted NPR removed in order to permit solution of this problem, but he still had in mind getting it to the JCAE in time so that the Committee could attach it to the bill and present it as an omnibus bill on the House floor.

Holifield explained that tactical legislative strategy on the House floor is involved. He said he has had experience trying to get an amendment on a bill, particularly one that is controversial, and this one, he says, will be controversial. I mentioned that we have a letter from Jim Ramey, requesting information on the single reactor nuclear propulsion plant for a destroyer. I told him we are working on it, but that it will take time to come up with the answers, including an answer to the question of whether and when the JCAE was informed. He said he understood, and that in such cases we should always feel free to call and explain to him the situation and that we would find him very reasonable.

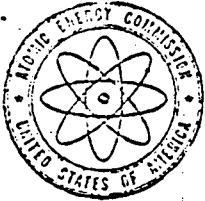
I met with three Berkeley students who received Awards for Excellence during "Freedom Fortnight," a Berkeley Youth Appreciation event. They were Kipp Dawson, Conal Boyce and David Gordon.

At the 9:30 a.m. Information Meeting 14 (notes attached) Dr. Reichardt, Director of the Division of Intelligence, briefed us on this morning's Russian "man in space" flight when Major Yuri Alekseyevich Gagarin went around the earth for the first time in about one and one-half hours (1:07 a.m. to 2:40 a.m. our time). I described yesterday's meeting of the Committee on Equal Employment Opportunity, the press leak on Element 103, my talk with Bundy regarding the Acheson report (which we received during the morning). We discussed the problem of the distribution of electric power from the NPR and decided to draft very general language for the 1962 Authorization Bill covering this. We approved a letter to the JCAE on U²³⁵ pricing policy.

The Commission was briefed by Betts, Agnew, Schultz and others on safety questions concerning the Mark 7 weapon, preparatory to this afternoon's JCAE hearing.

At 11:30 a.m. to 12:30 p.m. I met with John McCone who is in town with Mrs. McCone for some ten days. We discussed the test ban negotiations, the cutback on production, the ANP decision, the NPR project, etc.

Duncan Clark, Chris Henderson and I had lunch at the Wall Street Journal building (1015 - 14th Street) with John Spivak, Henry Gemmill and one other from the Wall Street Journal. They interviewed me for background information, not for attribution, on various questions such as test ban negotiations, the nuclear power (civilian) program, etc.



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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NOV 86

April 12, 1961

INFORMATION MEETING 14

9:45 a.m., Wednesday, April 12, 1961 - Chairman's Office, D.C.

1. White House Meeting on Equal Employment Opportunity - The Chairman expressed the importance of AEC's compliance with enforcement procedures and said it was expected that the principals would attend meetings on this subject. He requested the availability of adequate staff assistance. (GM)
2. Press Leak on Discovery of Element 103 - The Chairman noted this had been reported in the San Francisco Examiner. A Press Release for issuance today is under draft. (GM)
3. Acheson Report on NATO - The Chairman said the White House was transmitting a copy. Early distribution to Mr. Graham is to be effected. (Henderson)
4. Mr. McCone's Appointment with the Chairman Today
5. AEC 181/62 - AEC Cost Principles - The Chairman and Dr. Haworth are to be given a briefing on this subject. (GM - Secy)
6. Joint Committee Hearing on NATO Safety Matters - Mr. Graham and Dr. Haworth will attend. There is to be no prepared statement. The Chairman will attend if possible.
7. Distribution of Power from the NPR - The Commissioners discussed the memorandum from the General Manager and agreed Staff should review the matter with Department of Interior Staff today. Draft language is to be considered tomorrow. (GM - Secy)
8. Letter to the Joint Committee re Pricing Policy - Approved. (GM)
9. President's Message to Congress on Regulatory Agencies - Mr. Olson said he would circulate a proposed rule for consideration at tomorrow morning's meeting. (Secy)
10. Telegram of Sympathy re Mr. Thum - I will draft a telegram. (Secy)

W. B. McCool
Secretary

Attendance

Dr. Seaborg
Mr. Graham
Mr. Olson
Dr. Haworth
Gen. Luedcke
Mr. Naiden
Mr. Hollingsworth

Distribution

Commissioners
General Manager (3)
General Counsel
Secretary

At 2 p.m. I attended the JCAE hearings on safety of the Mark 7 and other weapons and general AEC responsibility for safety vis a vis DOD. The JCAE, especially Holifield, feels strongly that AEC has the responsibility here; the DOD does not recognize it and a battle is brewing.

At 4 p.m. I met with Wiesner, Whitman, Farley and others regarding making definite plans for joint U.S.-U.S.S.R. projects, e.g. giant (300-1,000 Bev) accelerator, a high flux reactor, a bio-medical accelerator, etc., perhaps to be placed under the jurisdiction of the IAEA in Vienna.

(The GAC Report on the 73rd meeting, March 22nd to 24th was received today--copy attached.)

Thursday, April 13, 1961 - D.C.

Lyman Fink and I had breakfast together at the University Club and discussed, among other things, the fact that the development of nuclear power by private utilities and industry needs a shot in the arm; the question of whether the Commission would oppose the building by G.E. of the Tarapur power plant in India; the ANP; and the G.E. proposal for research on high temperature materials.

I called Gilpatric about his letter of April 11th (copy attached), in regard to Mr. Graham's letter of February 7th to the President concerning the Presidential directive of January 16th on dispersal. He said they are really hurting now because we are not releasing the FY 1961 output, and they just don't buy the point of view that civilian control is being eroded by what they do with their own allocation. I told him Mr. Graham feels very strongly about the implementation of this dispersal directive and that he wanted to be sure the President knew about it and made his own review and decision. He suggested I talk to Graham and, if he still feels so strongly and would like to discuss it, Gilpatric would be glad to do so.

He said he had discussed this matter thoroughly with McNamara and that his letter, urging that the dispersal authority be carried out, was written with McNamara's full concurrence. He asked me whether I attended the JCAE executive hearing yesterday regarding safety devices for the Mark 7. I told him I did and that he will get a full report from General Loper. I said that the JCAE stands very strongly predisposed to thinking that this device should be included. I mentioned my own uneasy feeling that it would be better if the device were used. He said that if, having gone into it objectively, I felt concern, he would be influenced by my judgment and would take another look at it; in the meantime he will discuss it with Loper and will try to delve more deeply into it.

I called Bundy and told him I was returning the Acheson report with a note. I also told him about my conversation with Gilpatric and said we would probably get together next week on this.

After Commission Meeting 1723 (action summary attached) to approve a plan for continued work by G.E. and Pratt & Whitney on non-ANP reactor and high temperature materials research, I left for Denver accompanied by Howard Brown and Colonel Allen H. Anderson (Deputy Director, AEC Division of Military Application). We left Friendship Airport at noon on United Airlines Flight No. 869. At the Denver airport I held a press conference.

I had dinner with Bob and Eleanor Finley.

GENERAL ADVISORY COMMITTEE
TO THE
U. S. ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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NOV 86

April 3, 1961

938 4/12/61

Dr. Glenn T. Seaborg, Chairman
U. S. Atomic Energy Commission
Washington 25, D. C.

Dear Glenn:

The 73rd meeting of the General Advisory Committee was held in Washington, D. C. on March 22, 23, and 24, 1961. With the exception of Dr. Norman Ramsey who attended only the morning session on March 24, all other members were present during all sessions. These were Philip H. Abelson, Manson Benedict, W. F. Libby, Eger V. Murphree, J. C. Warner, Eugene P. Wigner, John H. Williams, and K. S. Pitzer, as Chairman. Also present were Robert A. Charpie, Secretary, and Anthony A. Tomei, Assistant Secretary.

The following recommendations and actions of the Committee are herewith presented:

(1) Safety Policy and Organization

The GAC devoted most of its time during this meeting to briefings and discussions on the AEC's safety policies and practices. We wish to record our appreciation of the efforts of the AEC staff in preparing and presenting these briefings.

The Committee devoted particular attention to the Commission's new organization scheme for licensing and regulatory activities. The Committee also met with the Chairman of the ACRS in order to understand the relationship of the ACRS to the Commission's staff activities associated with safety. On the basis of these discussions we believe that the AEC's regulatory activities are presently organized to attack all of the major areas which require such regulation. The most serious limitation arises from a shortage of well trained and able inspectors of technical operations. This personnel shortage will limit the effectiveness of inspection of the AEC's own operations in the near future.

The GAC will continue its review of the safety question in the future. At the present time we offer the following comments and recommendations:

(a) We recommend that AEC policy require an absolutely clear assignment of responsibility for the safety of each reactor, whether AEC owned or non-AEC owned. In this connection we recommend the establishment of the profession of Reactor Captain. The Reactor Captain should be in absolute charge of a facility, in the same sense as a ship's captain. We believe that the qualifications for a Reactor Captain should be established by the AEC. He should pass the Reactor Operators' examination, however, he must know much more than an Operator. Captains must demonstrate the thorough understanding of reactors which absolute responsibility entails. Finally, we do not believe the AEC must insist on having a Reactor Captain constantly on duty in every reactor since there are certain very low-powered reactors which are inherently much less hazardous than other types.

(b) We are concerned by Mr. Johnson's report on inhalation hazards in our Western uranium mines. We recognize that the AEC does not control the mines nor deal directly with the mine operators. Unfortunately the AEC cannot disavow its responsibilities no matter how indirect the administrative relation may be. We recommend that the AEC continue to work with the mine operators and the regulatory groups in the States to reduce the air contamination levels in the uranium mines to more satisfactory levels.

(c) We believe it would be desirable for the AEC to be better informed of reactor safety policies in other countries. It has always seemed logical to us that the IAEA is a natural organization for promoting the exchange of such information. It would seem to us to be appropriate for the U.S. to take the leadership in suggesting this role for IAEA. An important collateral benefit to the U.S. from such an activity would be to increase the possible psychological impact to be derived from the N. S. Savannah by making more ports available to it.

(d) While the scientific understanding of the SL-1 incident is still incomplete, the facts are sufficiently clear to provide a basis for decision concerning management inadequacies. The GAC trusts that the Commission action in this area will be prompt and decisive. The GAC will be interested to learn about these actions in the near future.

(2) Educational Assistance Program

The Committee heard with interest a description of the varied aspects of the AEC's Educational Assistance Program. We approve unreservedly the programs supported in the past and endorse fully the proposed continuation of educational assistance to FY 1964. AEC programs for training university faculty, granting funds to universities for nuclear equipment, lending special nuclear material to universities, and awarding fellowships for graduate study in Nuclear Science and Engineering, Health Physics and Radiation Biology have been extremely effective in educating people for responsible positions in the nuclear field. Men trained in this way are making important contributions to the AEC's laboratories, its contractors, industrial organizations and the universities in advancing nuclear technology. Knowledge of the field has been disseminated to the schools, and effective programs of instructions have been brought to maturity.

We recognize that it is difficult to project the manpower requirements of the national nuclear energy program beyond 1964, since they depend critically on economic, political and international factors not fully predictable now. Since the Commission's decisions regarding continuation of its education assistance programs will have a significant effect on participating schools, it is important that plans beyond 1964 be made well in advance of that date, with all relevant factors considered. When it becomes possible for the AEC to consider the level of its assistance to education beyond 1964, the Committee would welcome an opportunity to submit its comments at that time.

The Committee is pleased with the action taken by the AEC during the past year in broadening its equipment grant program to include liberal arts colleges as well as engineering schools. The ultimate objective of this program should be to give all college students of chemistry and physics first-hand experience with radioactivity and radiation detection.

The summer institutes which the AEC has been supporting for limited numbers of high school biology teachers have been valuable in extending knowledge of radiation and radioactivity to secondary schools. This program should be broadened until all high school science teachers have become familiar with radiation and its detection. A desirable goal would be the installation of Geiger counters and radiation detection equipment in every high school of the country.

Ultimately, entire student bodies might have experience in use of detection devices.

Such action by the AEC would help alleviate the excessive public concern with the harmful effects of radioactivity which is posing an increasing barrier to the proper development of atomic energy. This is based at least partially on lack of familiarity with radiation and its measurement. At the same time this public ignorance and fear of the mysterious and unknown has much to do with apathy toward civil defense. If a nuclear war were to occur, this ignorance could lead to unprecedented panic. For all these reasons, the AEC should spread public knowledge of radiation measurement as widely as possible.

(3) Civilian Reactor Program

The Committee is deeply concerned with the possible loss of momentum in the United States' civilian reactor program. We are particularly disturbed by (a) the possibility that the PRDC case and its impact on AEC procedures will not be completely resolved in the very near future, (b) whether the AEC will be able to make the necessary determination to proceed promptly with the HTGR, and (c) the possibility that the large Southern California Edison reactor project proposed for the Camp Pendleton site may be cancelled. We have previously expressed our concern on the first two matters. Regarding item (c), we believe that it would be a major setback to the nation's reactor development program if the large PWR is cancelled. We shall schedule detailed discussions on this situation for our next meeting. In the meantime we wish to convey to the Commission our concern over what seems to us to be a serious problem in the civilian power reactor program.

(4) Isotopes Program

The Committee has begun a thorough-going review of the Commission's isotope program. Mr. Aebersold briefed the GAC on some aspects of the current program. This review will continue at future GAC meetings. We have no recommendations to offer at this time.

(5) Test Cessation Negotiations

The Committee was very pleased with the excellent summary of the current test cessation negotiations presented by Dr. English and General Betts. We would like to request that the Committee continue to be informed of the future program of the Geneva negotiations.

(6) Fermi Award

The Committee's recommendation regarding the Enrico Fermi Award has been transmitted to the Commission in a separate letter.

(7) Date of the 74th Meeting

The 74th meeting of the GAC will be held in Washington on April 27, 28 and 29, 1961. The 75th meeting is tentatively scheduled to be held in Los Alamos on July 13, 14 and 15, 1961.

(8) Tentative Agenda for the 74th Meeting

(a) AEC-National Laboratory relationships including administration and the long range missions of the National Laboratories.

(b) Report on actions arising from the SL-1 incident.

(c) Test cessation negotiations.

(d) New power reactor proposals and status of the PRDC case.

(e) Atomic energy for space exploration.

(f) Additional topics as may be requested by the AEC.


(9) Future Subcommittee Activities

Tentative plans have been made for subcommittee meetings associated with the July general meeting.

Weapons Subcommittee - July 11 - Livermore
July 12 - Los Alamos

Reactor Subcommittee - July 17 - General Atomic
July 18 - Hanford
July 19, 20 - NRTS
August 28, 29 - Oak Ridge

Respectfully submitted,


K. S. Pitzer
Chairman

THE SECRETARY OF DEFENSE
WASHINGTON

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4/11/61

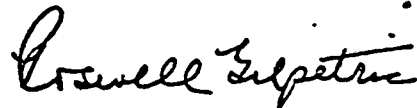
APR 11 1961

Dear Glenn: ^{67/45} ^{67/44}

I refer to the Commission's letter to the President of February 7, 1961, relative to implementation of the weapons dispersal directive of January 16, 1961. Inasmuch as some transfer credits from the 1960 dispersal authority have been available and in view of recognized production short falls, the matter of additional credits had not become critical until recently. In the immediate future additional credits for dispersal will be necessary to fill out the weapon complements of strategic and air defense forces in the United States as well as U.S. forces in foreign areas and in international waters. Appropriate weapons for these purposes are expected to be coming off the production line.

It is my understanding that this subject was discussed at the Atomic Energy Commission - Military Liaison Committee meeting of March 23, 1961, at which time the Commission indicated it did not feel that it could separate its concern as to the possible overstocking of weapons for NATO from its overall concern as to the loss of civilian control. Clearly, these are matters which must be decided by the President. Inasmuch as the question of nuclear support of non-U.S. NATO forces is not likely to be fully resolved for some time, I consider it necessary that the remainder of the dispersal program be treated separately. Copy of my letter to the President for this purpose is inclosed.

Sincerely yours,



DEPUTY

Incl.

Ltr to President

OA-LIV-939-1A

Dr. Glenn T. Seaborg
Chairman,
U. S. Atomic Energy Commission

UNITED STATES GOVERNMENT

Memorandum

TO A. R. Luedecke, General Manager

DATE: April 13, 1961

FROM W. B. McCool, Secretary

Approved *A.R. Luedecke*

A.R. Luedecke

Date 4/13/61

SUBJECT: ACTION SUMMARY OF MEETING 1723, 10:15 A.M., THURSDAY, APRIL 13, 1961
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:JCH

Commission Decisions:

1. Proposed Amendment to the AEC 1962 Authorization Bill
Approved. (Burrows)
2. AEC 17/204 - Proposed New Program of Research and Development on High Temperature Materials and High Performance Reactors
Approved. (Pittman)
3. AEC 1000/16 - Satellite Application of SNAP-3
Discussed.

You said you would furnish Mr. Haworth a report on the equillivant weapons utilization of the plutonium to be used in Transit devices.

Items of Information

1. Candidate for Director General, IAEA
2. Authorization Hearing Set for Week of April 24.
3. Senate Confirmation of Mr. Haworth's Appointment

Friday, April 14, 1961 - Denver and Los Alamos

In the morning I visited the AEC Dow Chemical Company operation at Rocky Flats.

At noon I was the guest speaker at the American Mining Congress Conference luncheon held in the Empire Room at the Cosmopolitan Hotel. The title of my talk was "Radioisotopes in Soils, Cells and Space."

I also visited the AEC Isotopes Exhibit at the Brown Palace Hotel.

In the late afternoon Colonel Anderson, Howard Brown and I flew to Santa Fe. We were met by Joe Burke of the Los Alamos Area Office who drove us to Los Alamos.

Saturday, April 15, 1961 - Los Alamos

We spent the day at Los Alamos where we toured the community, and I was briefed on reactor research, direct conversion, weapons development, Tech. Area 49, thermonuclear research, nuclear rocket research (ROVER), and biological research.

In the late afternoon I held a press conference.

In the evening I attended a reception-buffet at the home of Norris Bradbury. Afterward we were driven to Albuquerque where we spent the night at Sandia Base.

Sunday, April 16, 1961

We flew back to Washington on TWA Flight No. 36. A snowstorm in Chicago made the trip very hectic and three hours late.

I talked to Helen on the phone. My mother returned to South Gate today.

Monday, April 17, 1961 - D. C.

At the 9:30 a.m. Information Meeting 16 (notes attached) we discussed the BOB-AEC-Dept. of Interior negotiations on the NPR electrical utilization portion of the Authorization Bill.

I attended a PSAC meeting at which John McCloy and Adrian Fisher gave us a report on the progress of the U.S. disarmament position.

At 12:30 p.m. Haworth was sworn in as Commissioner, having been confirmed by the Senate last Friday. I attended the luncheon in his honor at the Metropolitan Club given by Commissioner Wilson.

At the California reception for Governor Pat Brown, held at the Statler Hotel, I asked the Governor for his continued support for the Lawrence Hall of Science. He assured me that the \$14,000,000 allocated to Residence Halls will be returned to the Hall of Science appropriation if he can possibly find a source of revenue.

Attached is a copy of a memorandum I sent to the Advisory Committee on the Ernest O. Lawrence Memorial today, in response to their March 31, 1961, memorandum.



Dr. Seaborg is briefed on reactor projects by Los Alamos Scientific Laboratory officials, April 15, 1961

L to R: Dr. David Hall, K Division Leader; Dr. Darol K. Froman, Laboratory Technical Associate Director; Seaborg; Howard Brown, Assistant to the Chairman

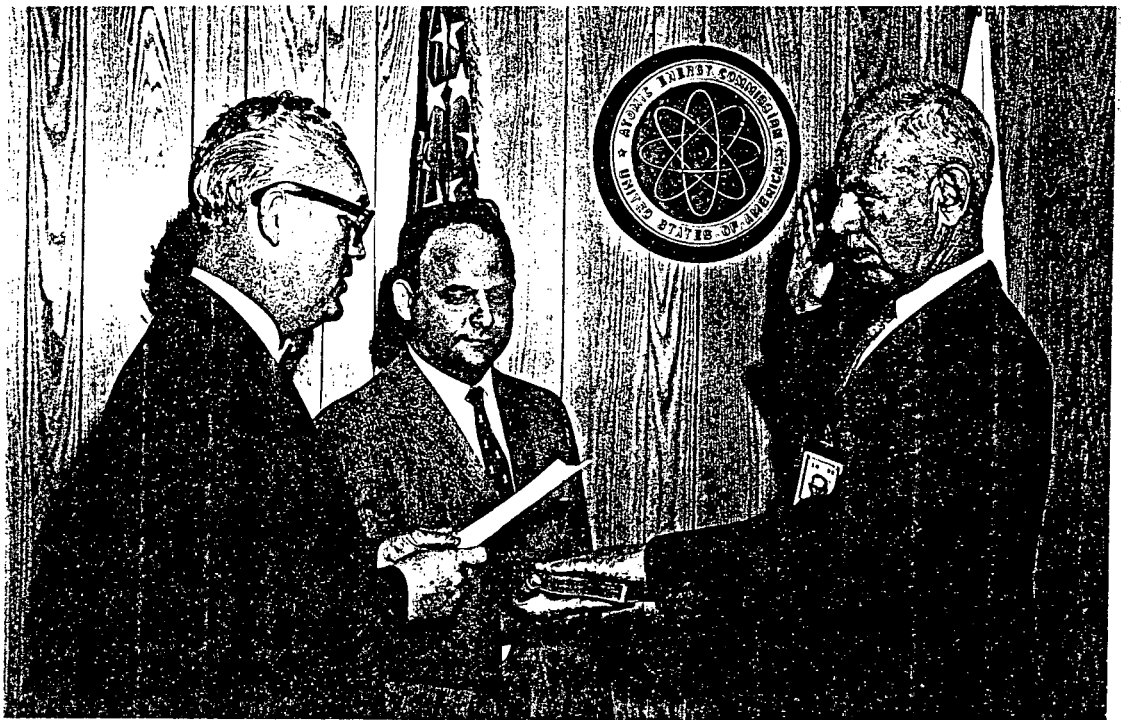


Dr. Seaborg shown a panoramic view of Los Alamos and the Laboratory by Dr. Harold Agnew, Alternate Weapons Division Leader, April 15, 1961



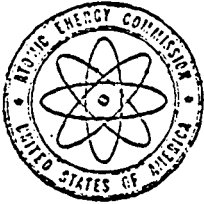
Weapons briefing during Chairman Seaborg's visit to Los Alamos Scientific Laboratory, April 15, 1961

L to R: Seaborg; Colonel A. H. Anderson, DMA; Dr. Max Roy, LASL Weapons Division Leader; Dr. Jane Hall, LASL Assistant Director; Dr. Alvin C. Graves, LASL Testing Division Leader; Howard Brown



Leland Haworth being sworn in as member of AEC, April 17, 1961

L to R: W. B. McCool, Secretary to the AEC; William Vitale, Administrative Secretariat of AEC; Dr. Leland Haworth



UNITED STATES
ATOMIC ENERGY COMMISSION

WASHINGTON 25, D. C. April 17, 1961

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UNCL. BY DOE
NOV 86

INFORMATION MEETING 16

9:50 a.m., Monday, April 17, 1961 - Chairman's Office, D. C.

1. Joint Committee Hearing on Geneva Negotiations Today - Mr. Olson and Dr. Haworth will attend with Drs. English and Kavanagh. The Chairman and Dr. Wilson may attend. (GM)
2. Revised Agenda - AEC 181/62 and 587/9 will be scheduled for consideration at 11:00 a.m., Tuesday, April 18.
3. Mr. Olson's Attendance at Launching of the U. S. S. Bainbridge
4. AEC Representation at Nuclear Research Laboratory in Portugal
Dr. John Rouleau will attend
5. Press Release on Organic Cooled Reactor Project - Mr. Olson will review the language of the invitation. (Secy)
6. Authorization Language on NPR and AEC Exhibits - The General Manager reported no weekend developments.
7. Navy Briefing on Space Vehicles - The Commissioners said they did not wish to have a briefing on this subject at this time.
8. Letter to DOD on Small Portable Nuclear Power Plants - The Commissioners requested circulation of a draft response to the DOD letter of April 12. They suggested that additionally DOD should be given a copy of our letter of April 10 to Chairman Holifield on this subject. (GM)
9. Letter to Adm. Burke re Weapons Replacement - The Commissioners requested preparation of a draft letter. (GM)
10. Transcript on Joint Committee Hearing on Weapons Safety - Mr. Graham asked whether the transcript was available. (GM)
11. News Report re Soviet Comments on Nuclear Reactors - Dr. Wilson requested that the Joint Committee be informed. (GM)
12. IAEA Symposium on Reactor Safety - Dr. Pitzer is to be given a copy of Dr. Wilson's presentation at Vienna. (Secy)

13. ACRS Comments on Regulatory Report - Dr. Wilson and Mr. Olson will prepare a letter to Dr. Thompson. (Secy)
14. Letter to Joint Committee on Rover Program - The General Manager is to review the letter in light of the April 16th New York Times article and the Chairman's weekend visit to Los Alamos. (GM)
15. William A. Jump Award - The Commissioners requested circulation of the AEC submission. (GM)
16. Possible Compromise of Classified Documents - The General Manager said that the FBI reported no new developments in the case.
17. Visit of Phillips Company Employee to Turkey - The General Manager said that he would proceed on the basis of the discussion. (GM)
18. Letter to Joint Committee on Compliance Report. - The letter and enclosure is to be circulated to the Commission for early discussion. (Secy)
19. Letter to Secretary of Interior re settlement of Obligations which may Exist in Connection With the Orphan Lode - The Commissioners requested preparation of a draft letter and discussion with the Department of Justice on this subject. (GC)
20. Patent Hearings, Wednesday, April 19, at 2:00 PM - Mr. Olson will review the testimony today. (GC)

Present

Mr. Graham
Dr. Wilson
Mr. Olson
Dr. Haworth
Gen. Luedecke
Mr. Naiden
Mr. Henderson
Mr. McCool

Distribution

Commissioners
General Manager (3)
General Counsel
Secretary

W. B. McCool
Secretary

April 17, 1961

TO ADVISORY COMMITTEE ON ERNEST O. LAWRENCE MEMORIAL

I am writing hurriedly to comment on the memorandum, dated March 31, 1961, from Donald H. McLaughlin, Chairman of the Advisory Committee on the Ernest O. Lawrence Memorial. I hadn't had an opportunity to see a copy of this memorandum until this morning.

I feel strongly that we should go ahead with the project as planned, that is, on the flexible basis of \$6 million to \$12 million, depending on the funds available. In fact, I feel that we are committed to do so, having (1) authorized it as a project, (2) announced it to the world, (3) hired Harvey White as the Director, so that his future plans have been built around this project, (4) introduced a bill to Congress for its support, etc.

I do not believe that we can say that there has been a lack of response from corporations or private sources, since we have made no attempt in that direction. In any case, the project, as conceived, contemplates the use of as much money as is raised by this means, and sets no goal for funds raised from corporations or private sources.

As to continuing support for operation, I have no doubt whatsoever that the Science Training Center would be supported by the National Science Foundation, and that either Foundation support or support from corporations could take care of the Exhibition aspect.

The alternate projects that have been suggested, such as the naming of a new residence hall after Ernest O. Lawrence, and the provision of Lawrence scholarships and fellowships in science are certainly worthwhile, but these do not have a national impact nor make the national contribution that the Hall of Science, with its Science Training Center, would make. Perhaps these alternate projects could be carried out in addition to the Hall of Science.

I do hope, if this needs to be reconsidered, that the Regents will reaffirm their previous decision and go ahead with this project, which has excited the imagination of so many people all over the United States and the world.

(Signed) Glenn T. Seaborg

Glenn T. Seaborg

April 17, 1961

ADVISORY COMMITTEE

ERNEST O. LAWRENCE MEMORIAL

Regent Edward W. Carter
University of California
401 S. Broadway
Los Angeles 13, Calif.

Mr. Albert K. Chapman
Vice Chairman, Board of Directors
Eastman Kodak Co.
343 State St.
Rochester 4, N. Y.

Prof. William B. Fretter
University of California
3335 Divisadero Hall
Berkeley 4, Calif.

Regent Gerald H. Hager
University of California
1520 Central Building
14th & Broadway
Oakland 12, Calif.

Regent Edward H. Heller
University of California
Schwabacher & Co.
100 Montgomery St.
San Francisco, Calif.

President Clark Kerr
University of California
Berkeley 4, Calif.

Mr. Alfred L. Loomis, President
Loomis Institute for Scientific Research
14 Wall St.
New York, N. Y.

Mr. Stanley E. McCaffrey
4784 N. Old Dominion Dr.
Arlington, Va. (P.O. Box 1212)

Mr. John A. McCone
3025 Whitehaven St., N. W.
Washington, D. C.
(Or: 612 S. Flower St.
Los Angeles, Calif.)

Regent Donald H. McLaughlin
University of California
Homestake Mining Company
100 Bush Street
San Francisco 4, Calif.

Dr. Edwin M. McMillan
Director
Lawrence Radiation Laboratory
University of California
Berkeley 4, Calif.

Mr. John Francis Neylan
Redwood Building
800 Welch Road
Palo Alto, Calif.

Mr. Edwin W. Pauley
Chairman of the Board of Regents
University of California
10000 Santa Monica Boulevard
Los Angeles 25, Calif.

Mr. Edgar M. Queeny
Monsanto Chemical Co.
Box 526
St. Louis 66, Mo.

Dr. Glenn T. Seaborg
Chairman
Atomic Energy Commission
Washington 25, D. C.

Regent Jesse H. Steinhart
University of California
111 Sutter St.
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Mr. Lewis L. Strauss
Mercury Building
1925 K Street, N. W.
Washington, D. C.

Mr. Charles A. Thomas
Chairman, Board of Directors
Monsanto Chemical Company
St. Louis 4, Mo.

Mr. Robert M. Underhill
Vice President
University of California
615 University Hall
Berkeley 4, Calif.

Mr. Harry R. Wellman
Vice President
University of California
799 University Hall
Berkeley 4, Calif.

Prof. A. Starker Leopold
Associate Director
Museum of Vertebrate Zoology
University of California
Berkeley 4, Calif.

Note: April 17, 1961, Memo by Dr. Seaborg
also sent to the following:

Prof. A. Starker Leopold
Associate Director
Museum of Vertebrate Zoology
University of California
Berkeley 4, Calif.

Dr. Edward W. Strong
Acting Chief Campus Officer
University of California
Berkeley 4, Calif.

Dr. Harvey E. White
Director
E. O. Lawrence Hall of Science
University of California
Berkeley 4, Calif.

Regent Donald H. McLaughlin
University of California
Los Angeles, Calif. (In addition to the
one sent to S.Fran.)

(Cont'd on page 3)

Tuesday, April 18, 1961 - D.C.

I attended the PSAC meeting in the morning. Much time was given to discussion of the of the Geneva test ban negotiations and the preparations through many advisory panels, of the U.S. position on a more comprehensive disarmament position. McCloy and Fisher were present.

I returned to H street to attend Commission Meeting 1724 (action summary attached) to discuss cost principles (to govern AEC contracts). The question is whether AEC should pay for advertising, bidding costs and certain R & D costs. We decided to approve negotiations for the renewal of our contract with Monsanto Chemical Company to operate Mound Laboratory.

Information Meeting 17 (notes attached) was held in my absence.

I had lunch with Jerry Wiesner at the White House Mess. We discussed 1. the weapon dispersal problem, 2. safety problems on weapons, 3. BOB-JCAE problem on NPR power pricing and its effect on the Authorization Bill, 4. the question of the power of chairmen of government agencies raised by a recent statement of the President, and 5. the President's forthcoming trip to France.

I then returned to the PSAC meeting where we discussed the question of international cooperation in science, e.g., U.S. should adopt a neutral position on an IAEA-supported institute of theoretical physics, and the possibility of converting Brookhaven to an Inter-American laboratory.

I called Secretary Stewart Udall about the way the NPR might go into the Authorization Bill, particularly with respect to the matter of allocation of cost for the electric power and distribution. I said I was sure he knew the AEC and Interior have been negotiating with BOB to come up with a wording acceptable to the Joint Committee in order to back up the President's decision on this and to get it through Congress. I said that Bell wants to include in the language of the Bill itself, and in the testimony which accompanies it, some details as to how this power cost can be calculated, one possibility being to include the reactor convertibility cost of \$25 million. I said I had made the point with Director Bell why it was not feasible to do this as it would only increase the power cost and make the President's position look worse; the \$25 million was built into the reactor in the first place. Secretary Udall said they would be glad to go to bat on this project. I told him I didn't know whether that would be necessary, but I did want him to know that I had made the above point with Director Bell.

I attended a white tie dinner in honor of the Prime Minister of Greece and Mrs. Constantin Caramanlis given by Secretary of State and Mrs. Dean Rusk in the new State Dining Room. This was an historic occasion because it was the first use of the new Dining Room.

Wednesday, April 19, 1961 - D.C.

At the 9:30 a.m. Information Meeting 18 (notes attached) I told them about the PSAC meetings, the NPR power pricing negotiations, my view that the Turret project at Los Alamos should be continued, Warren Johnson's phone call that ANL is negotiating with Norman Ramsey for the directorship, the planned meeting with Gilpatric and Bundy to discuss a number of matters where DOD-AEC differences of opinion have developed, etc.

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 86

TO : A. R. Luedecke, General Manager

DATE: April 18, 1961
Approved *A. R. Luedecke*

FROM : W. B. McCool, Secretary *W. B. McCool*

A. R. Luedecke
Date 4/18/61

SUBJECT: ACTION SUMMARY OF MEETING 1724, TUESDAY, APRIL 18, 1961, 11:20 a.m.,
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:JCH

Commission Decisions:

1. AEC 181/62 - AEC Cost Principles

Discussed:

You said staff preparation would review on the bonus and deferred compensation section.

2. AEC 587/9 - Extension of Contract with Monsanto Chemical Company for Operation of Mound Laboratory

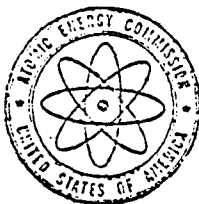
Approved, as revised. (Betts)

3. Minutes of Meeting 1721

Approved.

4. AEC 177/6 - Payment in Lieu of Taxes to Pinellas County, Florida, and
AEC 177/7 - Summary of Benefits and Burdens in Pinellas County Case

Approved. (Betts)



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

(1) [unclear]
(2) [unclear]
UNCL. BY DOE
NOV 86

April 18, 1961

INFORMATION MEETING 17

10:00 a.m., Tuesday, April 18, 1961 - Chairman's Office, D. C.

1. Possible Compromise of Classified Documents - The Commissioners requested we press the FBI for a further report on the matter. (GM)
2. Visit of Chairman Garcia, Philippines Atomic Energy Commission - Mr. Graham said he would see Mr. Garcia at 2:15 p.m. today, and a reception is tentatively planned for Wednesday, April 19th, 5:30-6:30 p.m., Metropolitan Club.
3. Commissioners' Schedule for Thursday and Friday, April 20-21 - D.C. Office
4. Letter to Mr. Holifield re Soviet Comments on Nuclear Reactors - Dr. Wilson said he was sending a letter on this subject. (Secy)
5. Invitation on Organic Cooled Reactor Project - Mr. Olson has reviewed the invitation and it can now be released. (GM)
6. AEC Committees - Mr. Olson requested a report on the Committees listed in Mr. Graham's memorandum of April 17 to the Commissioners. (GM)
7. Briefing by Admiral Rickover - The Commissioners requested an early briefing. (GM - Secy)
8. Authorization for Use of Nuclear Weapons - The Commissioners requested a briefing on this subject. (GM-Secy)
9. Meeting with Netherlands Representatives - (a) Dr. Wilson said, in a meeting yesterday with the Netherlands representatives and DIA, the Dutch reported they were reaching agreement with GE on assistance in construction of a power reactor; and (b) the Dutch also mentioned the desirability of reciprocal visits to advance their program on power reactors. Dr. Wilson suggested they send a letter of request.
10. Safeguards Discussion in Vienna - Dr. Wilson reported it was decided the Director General would appoint a Director of Safeguards and the appointment will be ratified by the General Conference.
11. Secretary Gilpatrick's Letter of April 14 re Weapons Safety - Mr. Graham said a letter response would state the Commission's intention to review the system and inform DOD of its determination. (GM - Secy)

12. Further Action on Weapons Matters -

- (a) The Mark 43 - Mr. Graham said the GM has a memorandum of request from the Commissioners on this matter. (GM)
- (b) The Mark 7 - Mr. Graham said a letter to the Joint Committee is in preparation. (GM)
- (c) Secretary Gilpatrick's letter of April 11 re Dispersal - Mr. Graham said this matter should be kept urgently before the Commission. (GM)

13. Draft Authorization Language on the NPR - The Commissioners suggested the Chairman discuss this problem with Mr. Bell of the BOB.

14. Assignment of Mr. Parks to the Joint Committee - Mr. Naiden reported he had agreed to allow part time detail of Mr. Parks to the JCAE until August 1961.

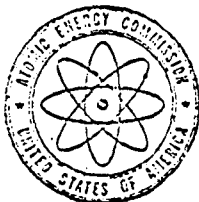
Present

Mr. Graham
Dr. Wilson
Mr. Olson
Mr. Hollingsworth
Mr. Naiden
Mr. Brown
Mr. McCool

Distribution

Commissioners
General Manager (3)
General Counsel
Secretary

W. B. McCool
Secretary



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

April 19, 1961

INFORMATION MEETING 18

9:45 a.m., Wednesday, April 19, 1961 - Chairman's Office, D.C.

1. Bureau of the Budget call re Draft Legislation on Atomic Energy Exhibit Grants - Mr. Graham reported a call from Mr. Staats on this matter.
2. Authorization Language on the NPR - The Chairman reported his discussion with Mr. Bell and Secretary Udall. The Joint Committee discussed the item with the BOB this morning with AEC staff present.
3. Chairman's Report on the PSAC Meeting of April 17 and 18:
 - a) Dr. Rabi's membership on the IAEA Scientific Advisory Committee.
 - b) International Institute for Theoretical Physics.
 - c) Inter-american Laboratory
4. Progress on CTR Project Tovton
5. Turret Project: at Los Alamos - The Chairman said that he had requested Commissioners Wilson and Haworth to review the project. (Secy)
6. The LAMPRE Project
7. Chairman's Speech at American Physical Society - The Chairman said the speech would be circulated for Commissioners review today or tomorrow. (Secy)
8. Letter to Secretary Ribicoff - A letter regarding mutual areas of responsibility will be circulated for Commissioners review. (Secy)
9. Possible Restricted Data Compromise - The Commissioners noted the Joint Committee's concern and reiterated their request to the General Manager to follow the matter closely. (GM)
10. Letter from Mr. Hollifield re Italian Security Survey - The Chairman said a response would be contingent on an early meeting with Messrs. Bundy and McNamara. (GM)

11. Letter to Secretary of Defense re Vela Schedule - The Chairman said the proposed letter would be circulated for Commissioners comments. (Secy)

Present

Dr. Seaborg	Mr. Naiden
Mr. Graham	Mr. Henderson
Dr. Wilson	Mr. Ink
Mr. Olson	Mr. McCool
Dr. Haworth	
Gen. Luedicke	

Distribution

Commissioners
General Manager (3)
Secretary

W. B. McCool
Secretary

At Commission Meeting 1725 (action summary attached) we decided to authorize negotiations with Southern California Edison and Westinghouse Electric for the construction of the pressurized water (375 EMW) reactor that might be sited at Camp Pendleton and to terminate the East Central-Florida West Coast Utility-Combustion Engineering natural uranium heavy water project and try to get them to come in with another more feasible proposal for a natural uranium, heavy water reactor.

I had lunch at the White House Mess with California Governor Pat Brown, Don Bradley, Hal Champion, Fred Dutton, Jeeb Halaby and Ed Day. (This was our California Group monthly luncheon.)

I met with the other Commissioners to work out a letter to the President commenting on the JCAE letter expressing concern over NATO weapons control and safety.

In a telephone conversation with Jim Webb he mentioned he was meeting with General Bernard Schriever and asked if I was familiar with the Trevor Gardner report. I said I was not although I knew it by name. (Note: The Trevor Gardner report is a secret, limited distribution report dealing with the organization of the National Government to accelerate its space program.) He said, in a general way, this report advocates everything going to the military and he thought I should be alerted to that; as far as he was concerned President Eisenhower was probably right when he said that the combination of industry and military is a matter that requires the gravest kind of thought.

I asked him if he had passed this on to Bundy and he said he had not, but thought that perhaps we could have luncheon with him soon. He said he was seeing McNamara today and he would discuss this with him and perhaps he and I could meet with him also. I said that we were all civilians but that we in AEC overlapped tremendously with the military. I suggested again that he discuss this with Bundy.

I attended a cocktail party hosted by the AEC at the Metropolitan Club in honor of Dr. Polina Garcia, head of the Philippine National Science Board.

I received birthday cards from Helen, my mother and others.

I called Helen and also talked to Peter, Lynne, Dave, Steve and Eric, who all wished me a happy birthday.

Thursday, April 20, 1961 - D.C.

At the 9:30 a.m. Information Meeting 19 (notes attached) we discussed our forthcoming meeting with Gilpatric and Bundy to discuss DOD-AEC differences of opinion on a number of matters, Admiral Edward N. Parker as a candidate for the chairmanship of MLC, Mr. Robert Watson (former Commissioner of Patents) as a candidate for membership on the AEC Patent Board, a memo to the General Manager asking him to be ready with a plan to resume nuclear testing should this again become national policy (which is to include summary of our needs to test), the plan to have Rickover brief us on the advantages of a nuclear navy, requests for AEC support of U.S. participants to attend the Biochemical Conference in Moscow, August 10th to 16th, and of a number of IAEA scientific conferences, the forthcoming Authorization Hearings, my travel plans to California in May, etc.

At the request of Chancellor George Beadle, conveyed to me by Dr. Warren Johnson

UNITED STATES GOVERNMENT

Memorandum

TO : A. R. Luedecke, General Manager

DATE: April 19, 1961

Approved A. R. Luedecke
A. R. Luedecke

FROM : W. B. McCool, Secretary W. B. McCool

Date 4/21/61

SUBJECT: ACTION SUMMARY OF MEETING 1725, WEDNESDAY, APRIL 19, 1961,
10:25 a.m., RCOM 1113-B, D. C. OFFICE

SYMBOL: SECY:DCR

Commission Decisions:

1. AEC 1042/7 - PDRP - Proposed Cooperative Arrangement with Southern California Edison Company and Westinghouse Electric

Approved as revised.

The Commission requested item 9a of AEC 1042/7 be revised to read "...for negotiations and if acceptable to proceed with negotiations." (Pittman)

The Commission requested April 10, 1961 be established as the effective date before which no AEC funds would be allocated to research and development work by the proposers. (Pittman)

The Commissioners requested they be provided status reports on the progress of negotiations. (Pittman)

Commissioner Graham requested the preamble of the contract include a disclaimer of any contingent obligations beyond the terms of the contract. (Pittman)

2. AEC 777/96 - ECNG-FWCNG Proposal of February 14, 1961

Approved as revised.

The Commission requested the recommendations on pages 4 and 5 of AEC 777/96 be revised in accordance with the discussion at the Meeting. (Pittman)

3. Testimony for Authorization Hearings

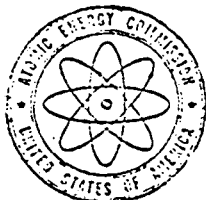
Discussed.

Production

Commissioner Graham requested Mr. Quinn to provide Commissioner Wilson information on his recent discussions with representatives of the IRG. (Quinn)

Reactor Development

EGCR - Mr. Graham said the Commissioners would reconsider this authorization in light of the new considerations.
(Pittman)



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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NOV 86

April 20, 1961

INFORMATION MEETING 19

9:55 a.m., Thursday, April 20, 1961 - Chairman's Office, D.C.

1. Geneva Negotiations - The Chairman mentioned his April 19 memorandum of request to the General Manager. (GM)
2. Commissioners' Tentative Engagements -
 - Dr. Seaborg - Week of May 8th - In California
 - Mr. Olson - Monday, May 8 - Point Clear, Alabama (Speech - Attorney General Association)
 - Mr. Graham - Thursday, April 27 - P.M.) - In New York
Friday, April 28)
 - Dr. Haworth - Friday, May 5 - Gatlinburg, Tennessee (Speech - American Rocket Society)
Sat. & Sun. May 6 & 7 - Arden House Meetings
3. Authorizing Legislation on NPR - Mr. Hollingsworth reported the BOB had not released the Bill pending possible discussion with the President.
4. Proposed Member of Patent Compensation Board - The General Counsel is to discuss with Mr. Watson. (GC)
5. Meeting of Dr. Hess with Senator Anderson - Mr. Graham reported Dr. Hess would see Senator Anderson at 3:00 p.m. today, and that Senator Anderson would attend the Geneva Conference negotiations.
6. Turret Project - The Chairman requested a report on the present spending rate and availability of additional funds prior to his April 21 noon meeting with Senator Anderson. (GM)
7. Cost of Power from the NPR - The Chairman asked for a report on the incremental costs, assuming acceptance of the BOB assumptions. (GM)
8. Letter to Secretary Udell re Settlement of Obligations on Orphan Lods - The letter was transmitted yesterday.
9. Briefing by Admiral Rickover - The Commissioners requested the briefing be held prior to the Authorization Hearings. (GM - Secy)
10. Schedule for Authorization Hearings - Mr. Hollingsworth reported there was a possibility of the 2nd phase of the Hearings being scheduled for the week of May 8th. The Chairman suggested it would be most convenient if his testimony could be concluded during the week of April 24th and requested a check with the Joint Committee staff on this. (GM)

11. Possible Compromise of Classified Documents - Mr. Hollingsworth reported a Briefing for AEC security representatives in Paris had been requested.
12. AEC Support of Bio-Chemical Conference in Moscow, August 10 to 16 - The Commissioners had no objection to the proposed support. (GM) Mr. Hollingsworth proposed and the Commissioners agreed they should approve in advance U.S. participation in Iron Curtain Country Conferences, and participation in other country conferences could be cleared by sufficient advance notice to them that the General Manager would proceed in the absence of comments. (GM)

Present

Dr. Seaborg
Mr. Graham
Mr. Olson
Dr. Haworth
Mr. Hollingsworth
Mr. Ferguson
Mr. Henderson
Mr. McCool

Distribution

Commissioners
General Manager (3)
Secretary

W. B. McCool
Secretary

yesterday, I called Dr. Norman Ramsey to urge and attempt to persuade him to accept the ANL directorship. He thanked me for calling but thinks his answer is pretty definitely no.

At 11 a.m. the Commission met to discuss further our letter to the President regarding the JCAE-NATO weapons safety matter.

I had lunch at the Metropolitan Club with John McCone. We discussed the AEC organization, his ideas on the role of France in NATO, the problem of meeting the French Ambassador's request for certain scientific information on instrumentation, the safety of nuclear weapons about which problems have been raised, etc.

Before lunch I talked to French Ambassador Herve Alphand, Pierre Pelen, Embassy Counselor, and Francois de Laage of the French CEA concerning relations in the atomic energy field between the United States and France. The Ambassador politely complained about difficulties in a number of areas but I emphasized a number of areas in which there is cooperation. The Ambassador said that he deplored the fact that many Americans considered French scientists "pink." He thought that there was some improvement and that Americans were beginning to realize that their scientific colleagues in France were Frenchmen first regardless of the shade of their political views. Joliot-Curie is an example of what the Ambassador meant.

The Ambassador said he did not wish to discuss broad matters of principle. There were two irritants, however, which he would like to bring to my attention. France had been unable to obtain unclassified equipment from Bailey Meter Company for use in their land-based prototype submarine although he understood this same equipment had been transferred to Belgium among the components for the BR-3 reactor. The Ambassador said that this matter had been discussed with Mr. McCone in Paris last fall and Mr. McCone had undertaken to help France obtain this equipment. I asked Mr. Wells to comment on the background of this matter.

Mr. Wells observed that this was a matter involving export policy and other government agencies and that problems involved had not been resolved when Mr. McCone left the Commission. The Ambassador responded that he was aware of the nature of the problem. I said that the consideration of these things frequently requires a long time.

The Ambassador said that the French had desired to buy fission chambers for use in the prototype submarine of the standard type that was used in U.S. reactors. These, however, contained uranium enriched up to 93% and France had been told they could not obtain U-235 enriched higher than 90%. As a result, the fission chambers required special fabrication and were more expensive. Accordingly, they had decided not to buy them in the United States. Mr. Wells explained that the bilateral agreement between the United States and France limited the enrichment of material to 90%. Mr. de Laage said that the needed fission chambers could be fabricated in France and agreed that an amendment to the bilateral agreement was not warranted for this item. The Ambassador said he had brought the point up so that I would be aware of the kinds of problems which arise. He said that France did not want to presume to tell the United States what its law should be. France hoped that in those areas that did not involve legal restrictions, cooperation might be more forthcoming, and then the Ambassador added, "We, as you know, are continuing our testing of weapons."

I thanked the Ambassador for his visit and expressed the hope that we would see each other from time to time in the future.

At 3 p.m. the Commission met (Meeting 1726-action summary attached) to discuss with the staff a number of problems and questions that might arise during the Authorization Hearings which are scheduled to begin next Wednesday. One big problem is that of deciding on a program that will accelerate the U.S. industrial nuclear power plant building program.

I attended a reception at the Mayflower Hotel given by the Ambassador of Israel and Mrs. Avraham Harman in celebration of the 13th anniversary of Israel's independence.

I received a letter from Helen in which she enclosed dozens of newspaper clippings and summaries of the kids' grades on their report cards.

Friday, April 21, 1961 - D.C.

John McCone phoned to tell me that he sat in on a session with McCloy and his staff people yesterday. The subject of discussion was consideration of further tactics in connection with the Geneva negotiations and he was questioned on the decision to go forward with improvement of the seismic research program and on the possibility of resumption of the testing program. McCone said he was very disturbed because throughout the discussion there was a kind of feeling that it isn't important to do any testing.

I told McCone I have made it clear to McCloy what testing means. He said that if the Geneva negotiations break down, and to him it looks like they will, in the absence of any understanding or control commission, he wouldn't like a unilateral decision and that we will just stand still. He feels very strongly about this, despite the public opinion problems that would be involved.

At the 9:30 a.m. Information Meeting 20 (notes attached), I mentioned my call from McCone and from McCloy yesterday regarding the question of resuming testing as well as the meeting I would be attending with McCloy this afternoon. We discussed Drew Pearson's column, which today falsely stated that I am urging President Kennedy to resume underground testing because of reports of explosions in U.S.S.R.; Haworth's conclusion that hazards analysis for use of the SNAP device in the satellite TRANSIT indicates this use is O.K.; my letter to Sterling Cole on the IAEA role in certification of nuclear ships; etc.

At 10:30 a.m., the Commission met to discuss a weapon safety problem (installation of safing device being opposed by DOD) with Harold Agnew, R. W. Henderson, Francis Cotter, Colonel A. H. Anderson and others.

I had lunch with Clinton Anderson in his office and told him about my Los Alamos trip and especially my decision to reinstate TURRET project (he was delighted), the Drew Pearson column, my meeting with Bundy and Gilpatric later this afternoon and the weapons safing problem. We discussed my retirement pension problem, i.e. compulsory Civil Service participation which makes me ineligible to pay into the University of California PRAS system. He pledged his help if I need it.

At 2:30 p.m. I met with Bundy, Henry Owen, Gilpatric, Graham, Wiesner, and Keeny to discuss DOD-AEC disputes. It was decided to install the weapon safing device that AEC wants and that AEC does have a continuing responsibility for weapons

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DFE
NOV 86

TO : A. R. Luedecke, General Manager

DATE: April 20, 1961

Approved A. R. Luedecke

FROM : W. B. McCool, Secretary

Date 4/20/61

SUBJECT: ACTION SUMMARY OF MEETING 1726, THURSDAY, APRIL 20, 1961, 3:00 p.m.
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:WLW

Commission Business:

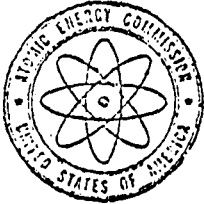
Testimony for Authorization Hearings

Reactor Development

Chairman Seaborg requested photographs of reactor test loops.
(Pittman)

Commissioner Olson requested a report on the economics
of Process Heat Reactors in relation to power reactors.
(Pittman)

Chairman Seaborg requested preparation of details in
support of revised Commission philosophy for the long
range development of nuclear power. (Pittman)



UNITED STATES
ATOMIC ENERGY COMMISSION
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April 21, 1961

INFORMATION MEETING 26

9:50 a.m., Friday, April 21, 1961 - Chairman's Office, D. C.

1. Geneva Negotiations - The Chairman requested information for use in a meeting with Mr. McCloy today at 3:30. (GM)
2. Drew Pearson's Article of Today re Geneva Negotiations
3. IAEA Certification of Nuclear Ships - The Chairman said that his letter to Mr. Cole would be circulated. (Secy)
4. SNAP-3 Transit Project - The Commissioners authorized preliminary negotiations with the Department of Defense subject to the caveats re final report on safety and Martin Testing Program. (GM)
5. Possible Detail of Phillips Employee to IAEA Study
6. Interim Action by Committee on Equal Employment Opportunity - The Commissioners said AEC should join with the interim action on continued exemptions on certain subcontracts. (GM)
7. Letter to the GAC - Approved as revised. (GM)

Present

Dr. Seaborg	Mr. Ferguson
Mr. Graham	Mr. Henderson
Dr. Wilson	Mr. Ink
Mr. Olson	Mr. McCool
Gen. Luedecke	

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Commissioners
General Manager (3)
General Counsel
Secretary

W. B. McCool
Secretary

safety and the protection of restricted data after weapons have been transferred to DOD.

At 4 p.m. I met with McCloy, Fisher and others to discuss readiness capability in case it is decided to resume testing. McCloy wanted me to take a position on the question of resuming testing but I said the need of the AEC to develop weapons must be balanced against so many other larger factors that I don't think that the AEC's attitude should be given undue weight. This general question will be discussed at a National Security Council tomorrow.

I had dinner at the Sulgrave Club with Mr. and Mrs. Robert LeBaron (hosts), Mr. and Mrs. Akers (owner of the Washington Senators), Mr. and Mrs. Roscoe Drummond, Mrs. Lewis Strauss and others.

Saturday, April 22, 1961 - D.C.

I attended a breakfast that the Washington Professional Chapter of Sigma Delta Chi gave at the National Press Club for newspaper editors from all over the country. I sat next to Congressman Holifield and told him about the meeting with Bundy and Gilpatric yesterday. I also told him about my Los Alamos visit and my feeling that the Turret Project should be reinstated. He told me about the possibility of the Joint Committee's adding the \$7 million for ROVER to the authorization bill.

At 11 a.m. I attended a meeting of the National Security Council at the White House. The President called on McCloy who gave out a memorandum dated April 22, 1961, on possible courses of action relating to the negotiations with the Soviets regarding a test ban. The President asked about the significance of the Soviet insistence on a three-man council in place of a single administrator, and it was agreed that this is a key point.

The President asked McNamara how important it was to resume testing and McNamara said it was important, especially in three areas: 1. to increase the yield-to-weight ratio of a number of nuclear warheads; 2. to study the effect of anti-weapons on nuclear warheads; and 3. to develop the radiation or neutron bomb. The President suggested that McCloy prepare a position, emphasizing the two or three points which can be dramatized, which could be used by Dean and Ormsby-Gore when they return to Geneva to make a last attempt to achieve a test ban. This might be followed by a communication from the President to Khrushchev.

During the last five minutes, the President got into the space problem. He said he had written the Vice President, asking him and the Space Council to study a number of problems in the area of space missions, such as, what is needed in order to put a man on the moon, a comparison of the chemical vs. nuclear rockets, etc. He asked that a memorandum be prepared responding to these questions.

After the meeting I talked to Webb and he said they are probably going into the big space program, already planning for NOVA, the project beyond SATURN, so as to put a man on the moon by 1967. I pointed out the need for support for ROVER for longer-range missions beyond that.

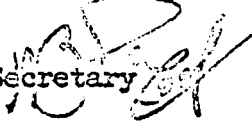
I returned to the office and attended Commission Meeting 1727 (action summary attached) where we further discussed with the staff preparations for next week's Authorization Hearings.

UNITED STATES GOVERNMENT

*Memorandum*UNCL. BY DOE
NOV 86

TO : A. R. Luedecke, General Manager

DATE: April 22, 1961

Approved A. R. Luedecke
A. R. LuedeckeFROM : W. B. McCool, Secretary Date 4/24/61SUBJECT: ACTION SUMMARY OF MEETING 1727, SATURDAY, APRIL 22, 1961,
10:10 A.M., ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:AHE

Commission Business1. Testimony for Authorization HearingsSpecial Nuclear Materials

The Commission requested proposed replies revised according to discussion at the Meeting. (Burrows)

The Commission requested preparation of a presentation on Pricing Policy Matters for the Authorization Hearing. (Burrows)

Reactor Development

The Commission approved funds originally requested for the EGCR Loop Project for application to the EOCR loops in the amount of \$3.3 million for appropriation in FY 1962 with authorization for four loops at a total of \$6 million. (Burrows)

The Commission approved authorization request for an increase in the ATR from \$24 million to \$40 million to include \$12 million originally allocated under operating appropriations. (Burrows)

The Commission approved application of \$2 million made available by the above actions on the EGCR and ATR loops to an Advanced High Temperature Gas Cooled Test Reactor Project, based on technology developed under the Turret Program. (Burrows)

Transuranium Metals Laboratory

The Commission approved withdrawal of additional funds from the FY 1962 Authorization request for the Transuranium Metals Laboratory, subject to confirmation from Oak Ridge Operations Office that \$1.2 million will be sufficient for work to be done in FY 1962. (Burrows)

JCAE Briefing on Pricing Policy

Mr. Graham requested a report on any JCAE reactions following Mr. Fine's recent Briefing on Pricing Policy Matters. (Ink)

2. Disposal of Lithium Tails

The Commission requested they be informed prior to any action taken to dispose of lithium tails at Oak Ridge. (Quinn)

3. Meeting with IRG

The Commission requested circulation of Mr. Quinn's memorandum to Commissioner Wilson, for their information. (Quinn)

4. Nuclear Rocket Program

You said you would discuss Mr. Ramey's letter with the Commissioners on April 24 at the Information Meeting.

done

5. Elk River Pressure Vessel

Mr. Graham requested the JCAE be notified of this development on April 24, and the Commission be given a followup report at the Information Meeting. (Pittman)

Item of Information

Tentative schedule for Authorization Hearings

I spent the remainder of the day reading journals and working on various AEC papers.

Sunday, April 23, 1961

I spent the day reading material in preparation for this week's Authorization Hearings.

I had lunch at the Statler with Bob Kerley (former member of my Chancellor's staff at Berkeley).

Later in the afternoon I attended a little birthday party for Aunt Esther (Williams) at the home of Alice and Jim Robinson in Annandale. Joan, Hilma Howser and Esther and Dan Arnott were there.

I had dinner at the Statler with Dr. Ernest Courant, Dr. and Mrs. Friederich, and Dr. and Mrs. Nikolay Bogolyubov (U.S.S.R.). I also met Dr. and Mrs. A.V. Topchiev (Vice President, Soviet Academy of Science).

I called Helen and told her I might come home on a visit as early as May 5th.

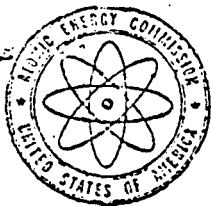
Monday, April 24, 1961 - D.C. Office

At the 9:30 a.m. Information Meeting 21 (notes attached) I described my meeting with McCloy and the National Security Council on Saturday and the conference with Bundy and Gilpatric last Friday. We also discussed Richard Doan's trip to Turkey to aid NATO (agreed to pay his expenses via AEC), Bacher's refusal of the Argonne directorship, the AEC representation of the Federal Radiation Council's first meeting on Thursday, and the schedule for the Authorization Hearings (the latest word is that they may not start until May 1st).

At Commission Meeting 1728 we continued to discuss the nuclear power program in preparation for the Authorization Hearings. I came up with a four-point program: 1. the continued attempt to get the utilities to undertake previously authorized reactors; 2. a study to come up with further incentives for private utilities; 3. failing this, for AEC to build power reactors to fit into private and public utility grids or perhaps do some of this in any case; and 4. strengthen research on long-range power developments, such as breeders, at our national laboratories.

I had lunch at the National Academy of Sciences (in connection with the annual NAS meeting). I sat next to Bob Bacher and Robley Williams. I saw Ken Pitzer and told him of our decision to go ahead with Turret and he didn't object too much but thought we should be very sure that first class chemists be put on it. He said one of the reasons GAC recommended its termination was that it had leftover explosives chemists on the job. I also spoke to Jerry Wiesner and asked him if he would, in his coming talk with Senator Anderson, support having the money for the test flight of ROVER reinstated. He said this question depends on the results of the Vice President's study and the extent of effort he recommends for the overall program.

Congressman Charles Mosher of Illinois issued a statement to the press claiming that NASA and AEC are feuding to such an extent that the work at NASA's Plumbrook Reactor (for testing the effect of radiation on rocket components) at Sandusky, Ohio, is at a standstill. This is nonsense.



At 11:6 home
UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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April 24, 1961

INFORMATION MEETING 21

10:00 a.m., Monday, April 24, 1961 - Chairman's Office, D. C.

1. Press Reports on:
 - a) Norstad's Statement re Weapons Use
 - b) Nuclear Rockets for Use in Space Vehicles
 - c) Jupiter Test at Cape Canaveral
2. Rover Program - The Chairman reported he had discussed with Senator Anderson and expected to have discussions with Dr. Weisner and Messrs. Webb and Bell.
3. Report on Meeting with Mr. McCloy on Friday, April 21 re Geneva Negotiations
4. Report on NSC Meeting on Saturday, April 22
5. Consultant Panel on Disarmament - Dr. English has sent the Commissioners a memo on this subject.
6. Nuclear Power Program. - The Chairman suggested the Commissioners review Dr. Pittman's draft memo.
7. Authorization Hearings - The BOB will not transmit the Authorization Bill until later in the week. The Hearings may not begin until May 1.
8. Operation Alert, 4:00 PM, Friday, April 23
9. Uranium Exploration in Turkey - The General Manager said he would plan to provide one geologist if requested by IAEA. (GM)
10. Office of Industrial Participation - The General Manager asked the Commissioners for their comments on his memo to them on this subject.
11. Visit to Israeli Reactor - The Commissioners had no objection to assignment of two AEC people if requested by the Department of State. (GM)

12. Phillips Employee Detailed to the Government of Turkey - The Commissioners had no objection to use of Government funds. (GM)
13. PRDC Case - Mr. Naiden said that it was now scheduled for April 26.
14. Convention on Nuclear Ships - Mr. Naiden reported the U. S. position had been defeated by two votes in committee.
15. Letter re Aqueous Homogeneous Experiment - Dr. Wilson said he would respond to the letter.

Present

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson
Dr. Haworth
Gen. Luedecke
Mr. Naiden
Mr. Brown
Mr. McCool

Distribution

Commissioners
Gen. Manager (3)
Gen. Counsel
Secretary

W. B. McCool
Secretary

At the 2 p.m. Commission Meeting we discussed the USAEC attitude toward Euratom in preparation for the Authorization Hearings. In this connection we also discussed the seismic research program and the nuclear weapon test readiness program.

At 4:45 p.m. I attended the NAS Section meeting to choose physical and inorganic chemists to be backed by the section for elections to the Academy next year. The names of Frank Long, Paul Cross and Robert Connick were chosen; Perlman missed out again.

At 5:30 p.m. I talked on the phone with David Bell. We discussed the increased space effort and the possible position the President might take publicly on this, i.e., we want a rapidly moving scientific and technological advance in the space field but not necessarily do we want to land a man on the moon first. I said I thought it had to be on a very positive basis because privately the President is concerned and very straightforward in his thinking about what we can do before the Russians. He said this was right and it was a matter of choice and judgment. He said all of this might involve a substantial increase in the budget.

Tuesday, April 25, 1961 - D.C.

At 9:15 a.m. Mr. Webb returned my call of yesterday. I told him that what I had called about was the statement by Congressman Charles Mosher (R., Ohio) that there is a smoldering jurisdictional dispute between AEC and NASA in connection with the Plumbrook reactor facility at Sandusky, Ohio. Webb said he saw it, but didn't take it seriously. NASA had some inquiries from the local press in Sandusky, but he told his people to play it very low. Their position is that there is no dispute between us; furthermore, there is a very close and intimate relationship between Webb and me. Webb suggested that maybe we should get something into the record to correct the misstatements. I said I didn't think it was necessary. Webb had mentioned that if there was any ill feeling lingering from the past, it will certainly be cleared up because of our particularly close relationship. I said Howard Brown would call Bill Lloyd (public relations officer at NASA) to iron out any problems. He said, fine, but suggested that Brown not call Lloyd for at least another hour.

As a result of last Saturday's NSC meeting, the President sent a memorandum to the Vice President, asking a lot of questions on space, such as: do we have a chance of beating the Russians by putting a laboratory into space; using rockets, can we get a man to the moon and back; the inter-space program; how much would this cost; is the program on a 40-hour work week; what could be done to move us ahead, etc.

Webb said he talked with McNamara last Friday, and it seems that he is willing to undertake development of a large solid first-stage NOVA and a second-stage NOVA by a redistribution of his funds.. Secondly, there is now no doubt but that there is a real military requirement for a big booster. The solid propellant route is good, in addition to ROVER and Saturn.

Saturday morning (April 22nd), Webb met with the Vice President, and he asked for answers by 2 p.m. to the president's memorandum, which NASA furnished. In the reply, NASA said that the Eisenhower 10-year program was funded on the basis that it would cost \$17.9 billion, and that it would rise about \$2 billion by 1968. The program was underfunded by about \$5 billion, in terms of the work

incorporated in the plan; instead of \$17.9 it should have been about \$22 billion. The actions taken by President Kennedy to speed up the booster program and go beyond Mercury would add about another \$5 billion, bringing the figure to about \$26 - \$27 billion over a 10-year program.

In answer to the President's question, what can be done to speed up, NASA said that the \$26 - \$27 billion rate over 10 years would be about the most economic rate at which to spend the money. The \$17 - \$22 billion is really an uneconomic one because you spend the same amount of money but over a longer period of time. However, if they really wanted a speed-up, a program of about \$33.5 billion could be envisaged; that would mean, for instance, driving ahead on making a lunar landing by 1967, which is now under discussion. In this meeting the Vice President included Frank Stanton of CBS, George Brown of Texas, Don Cook of New York, von Braun, et al, to confer. Admiral John T. Hayward and someone from the army also attended. Webb told the President that the most sensible thing is not a space czar, but for him (Webb) and me and McNamara work these things out together.

I told Webb that so far as ROVER is concerned, the \$19 million for NASA and the \$7 million for AEC for the flight test that was cut out should be reinstated. He said they will get it back in.

Webb said that the signing of the Space Council Act takes place at 10 a.m. this morning in the President's office. Since I will be a member of this Council, he thought maybe I should be present at the signing. He said he would have O'Donnell check and let me know.

Webb said that Dr. Wiesner will not be a member of the Space Council. The Vice President would feel that if Wiesner had anything to say, as Special Assistant to the President, he could and should say whatever he thinks directly to the President.

At a 9:30 a.m. briefing by Admiral Rickover, he described the advantages and disadvantages of the Shippingport approach to the development of nuclear power and gave a generally pessimistic view of the AEC program of industrial cooperation in the development of nuclear power. He also briefed us on various applications of nuclear power to ships and said that the Military Affairs Committee is recommending (as a result of his testimony yesterday) that all future combat ships have nuclear power propulsion.

At Commission Meeting 1730 at 11 a.m. (action summary attached) we approved the basis for negotiation of a new four-year contract for the University of Chicago operation of the Argonne National Laboratory, the staff proposal to transfer Cobalt-60 production and sale from AEC to industry, and the detailed plans for the Regulatory organization.

At 12:30 p.m. I heard President Kennedy address the National Academy of Sciences in the Academy building. He emphasized the importance of the Academy and scientists in general to the future welfare of the United States--a very good extemporaneous speech. At the lunch that followed I sat next to Roger Revelle and learned that because he did not receive the appointment as Chancellor he is considering leaving the University of California at San Diego, at least on a leave of absence basis, to take a Government post.

At 1:30 p.m. I attended a meeting of the Federal Council on Science and Technology, where Elmer Staats (Deputy Director, BOB) discussed the overhead

UNITED STATES GOVERNMENT

Memorandum

TO : A. R. Luedecke, General Manager

DATE: April 25, 1961

Approved *A. R. Luedecke*

FROM : W. B. McCool, Secretary *W. B. McCool*

A. R. Luedecke
Date 4/25/61

SUBJECT: ACTION SUMMARY OF MEETING 1730, TUESDAY, APRIL 25, 1961, 11:00 A.M.
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:DCR

Commission Decisions

1. Minutes of Meetings 1722 and 1723

Approved as revised.

2. AEC 267/69 - Research Reactor Assistance to Cornell University

Approved as revised. (Cera)

Commissioner Haworth requested a study of Commission policy on materials assistance under research grants. (Tammaro)

3. AEC 994/7 & AEC 994/8 - Supply of Cobalt-60 by Industry

Approved. (Aebersold)

4. AEC 132/37 - Regulatory Functions and Delegations

Approved as revised. (Price)

5. AEC 132/38 - Changes in Functions and Delegations to Carry Out the Operating Safety Responsibilities of the General Manager

Approved.

Commissioner Graham requested the Commissioners be provided a memorandum setting forth responsibility for health and safety when operating and program responsibility rest in two different divisions. (General Manager)

6. AEC 25/129 - Revised Air Force Safety Rules

Approved as revised.

The Commission requested revision of paragraph 2 of the proposed letter to the Secretary of Defense. (Etts)

7. AEC 324/16 - Extension of Contract with University of Chicago for Operation of ANL

Approved as revised.

Commissioner Olson requested rephrasing of the pertinent paragraph of AEC 324/16 to require Commission approval of the contract prior to execution. (Pittman)

Commissioner Olson requested staff to negotiate out indemnity provisions described in paragraph b of Appendix B to AEC 324/16. (Pittman)

The Commissioners requested revision of language of item 3a on page 17 of AEC 324/16 with respect to laboratory management. (Pittman)

8. AEC 751/289 - Invitation for Reactor Proposals in 1965 Phase of Euratom Program

Deferred pending final Commission resolution of FY 1962 authorization testimony.

9. AEC 318/40 - Purchase of Plutonium Produced in NRU Reactor

Deferred.

Commissioner Olson requested that he be provided a report on the cost breakdown of plutonium purchased from AECL. (Quinn-Burrows)

10. AEC 1000/16 - Satellite Application of SNAP-3 and AEC 1000/18 - Hazards Analysis of Transit Space Shot

Discussed.

You said you would discuss with Dr. York his position on the SNAP Transit Program.

Commissioner Haworth will discuss the Ad Hoc Committee's Report with Mr. Price. (Secy.)

Items of Information

1. Italian Security Survey
2. Possible Compromise of Classified Information
3. Final Disposition of SL-1
4. French Nuclear Test

policy for university research contracts and grants. Wiesner and I emphasized the importance of a policy which is generous enough to help strengthen the universities. The implementation of the Seaborg PSAC Panel Report was discussed. Harvey Brooks reported on his Panel's work on the support of science by the Government, and Allen Astin reported on his Committee's recommendations to substantially raise the salary of government scientists in order to make them competitive.

I had dinner with the Bundys at their home.

I received a letter from David.

Wednesday, April 26, 1961 - D.C.

At 9:30 a.m. Information Meeting 22 (notes attached) we approved the creation of a new Office of Industrial Participation headed by Ernie Tremmel. I told them of the recommendation of the Advisory Committee on Isotopes, and my intention to accept their recommendation, that the Isotope budget be doubled in 1963. We discussed the French atom bomb test performed yesterday.

At 11 a.m. in Commission Meeting 1731 (action summary attached) we discussed the purchase of plutonium produced in the Canadian NRU reactor and the invitation for reactor proposals in 1965, a phase of the Euratom program.

I attended a luncheon at the University Club in connection with a meeting of the Executive Committee of the University of California Miller Institute for Basic Research in Science.

At 4:30 p.m. I attended a meeting in the Executive Office Building with Comar (Bundy's assistant), Fisher, Ed Murrow, Wiesner, Keeny, Luedecke, Farley and others regarding plans in the event the Geneva test ban negotiations fail.

As the banquet speaker at the spring meeting of the American Physical Society in Sheraton Hall at the Sheraton Park Hotel, I gave a talk entitled, "Some Thoughts on Atomic Energy Research."

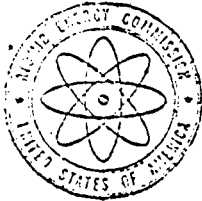
Thursday, April 27, 1961 - D.C.

At the 9:30 a.m. Information Meeting 23 (notes attached) we discussed yesterday's meeting at the EOB, our letter to Secretary Dillon requesting the retention of silver in use as a conductor at Oak Ridge, tomorrow's Lawrence Award procedure, the signing of the Turkish agreement on furnishing U-235 for research reactors, the PRDC case which was argued yesterday by Solicitor General Archibald Cox before the Supreme Court.

The Commission met at 10 a.m., Commission Meeting 1732 (action summary attached) to approve the safety aspects of using a SNAP isotope power source for the satellite TRANSIT.

After the Commission meeting we met with the GAC to brief them on test ban negotiations, our procedure on the use of \$25 million for follow-up work on the former ANP program, our decision to reinstate TURRET, and our desire that they push a program of study of the long-range objectives of our national laboratories.

I hosted a luncheon at the Hay Adams Hotel in honor of Gunnar Randers (Director



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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April 26, 1961

INFORMATION MEETING 22

10:00 a.m., Wednesday, April 26, 1961 - Chairman's Office, D. C.

1. Federal Radiation Council Meeting May 17 - The Chairman asked Dr. Haworth and Dr. Wilson to review the documents for the meeting. (Secy)
2. Nucleonics Query on Southern California Edison Westinghouse Proposal - Commissioners suggested Nucleonics be referred directly to Southern California Edison and Westinghouse sources of information. (GM)
3. Chairman's Statement for Authorization Hearings - The General Manager said a new draft will be circulated today. (Secy)
4. AEC Pricing Policy Presentation for Joint Committee - The Chairman said he would ask Mr. Holifield if this could be arranged for Friday morning, April 28. (Secy)
5. Mr. Bell's Memorandum re Authorization Hearings Testimony
6. Cable re Opening of the Rio de Janeiro Exhibit - The General Manager said he would review the cable. (GM)
7. Rover Program - The Chairman said he was following the matter closely
8. U. S. Representative to the IAEA - The Commissioners expressed no enthusiasm for the proposal.
9. GE Operation of NPR - The Chairman said he would review the correspondence. (Brown)
10. Barter Arrangement with the Union of South Africa - The Chairman reported the White House interest in this matter.
11. Isotopes Committee Report - The Commissioners approved a proposed funding increase of 100% for Fiscal '63 budget planning purposes. (GM) Dr. Haworth is to review the committee report and consider the desirability of a meeting of the Commission with the committee. (Secy)

12. Review of AEC Advisory Committees - Mr. Graham said he had circulated a memo on this subject.
13. Report on the SL-1 Accident - The General Manager said the investigating committee report was due May 1 and he would report to the Commission thereafter. (GM - Secy)
14. Proposed Appointment in the Division of Reactor Development - The Commissioners had no objection to the General Manager's proposal. (GM)
15. French Purchase of Components - The General Manager is to discuss the matter with Mr. Olson and take up with the Commissioners again. (GM)
16. French Nuclear Tests - The General Manager reported some information and said he would keep the Commission advised. (GM)
17. Letter to the Department of State re Personnel Assigned to Geneva Conference - The Commissioners approved the proposed letter and the General Manager said he would draft a letter to Dr. Walski. (GM)
18. Luncheon with Gunnar Randers, Thursday, April 27 - 12:50 PM at the Hay Adams Hotel
19. Office of Industrial Development - The Commission approved the General Manager's recommendation. (Secy)

Present

Dr. Seaborg Mr. Naiden
Mr. Graham Mr. Brown
Dr. Wilson Mr. McCool
Mr. Olson
Dr. Haworth
Gen. Luedecke

Distribution

Commissioners
Gen. Manager (3)
General Counsel
Secretary

W. B. McCool
Secretary

Com. G. - Morning, May

UNITED STATES GOVERNMENT

UNCL. BY DOE
NOV 86

Memorandum

TO : File

DATE: April 27, 1961

FROM : W. B. McCool, *WBM* Secretary

SUBJECT: INFORMATION MEETING 22, 10:00 a.m., WEDNESDAY, APRIL 26, 1961

SYMBOL: SECY:AHE

1. Following Information Meeting 22 on April 26, 1961, I was informed:

a. Mr. Erlewine has informed Nucleonics to contact Southern California Edison and Westinghouse Electric Company directly regarding inquiry on that proposal;

b. The Chairman spoke with Mr. Holifield regarding presentation of AEC's Pricing Policy to the Joint Committee;

c. The General Manager is reviewing the cable regarding the Opening of the Rio de Janeiro Exhibit;

d. The General Manager has taken action regarding the proposed appointment in the Division of Reactor Development;

e. The General Manager will advise the Commission further regarding the French nuclear test.

f. The General Manager has signed a letter to Dr. Walski regarding personnel assigned to the Geneva Conference, and

g. The General Manager has established the Office of Industrial Participation and appointed Ernest B. Trexmel, Director.

cc: General Manager
Deputy General Manager (2)
Assistant General Manager
Assistant to the General Manager

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 86

TO : Robert E. Hollingsworth
Deputy General Manager

DATE: April 26, 1961

FROM : W. B. McCool, Secretary

Approved

R. E. Hollingsworth
R. E. Hollingsworth

Date

4/26/61

SUBJECT: ACTION SUMMARY OF MEETING 1731, WEDNESDAY, APRIL 26, 1961,
11:10 a.m., ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:WLW

Commission Business

1. AEC 318/40 - Purchase of Plutonium Produced in NRU Reactor

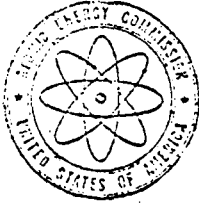
Discussed.

The Commission approved as revised the letter proposed by Commissioner Graham for transmittal to the JCAE. (Quinn)

2. AEC 751/289 - Invitation for Reactor Proposals in 1965
Phase of Euratom Program

Discussed.

The Commission requested further consideration of this matter after discussion of Pricing Policies with the Joint Committee.
(Secretary)



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

Country
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NOV 86

April 27, 1961

INFORMATION MEETING 23

9:45 a.m., Thursday, April 27, 1961 - Chairman's Office, D. C.

1. Letter to Secretary Dillon re U. S. Silver at Oak Ridge - The Chairman said he had signed the letter.
2. Meeting with Mr. Bundy's Group Yesterday to Discuss Geneva Negotiations
3. Letter re Agreement with Turkey - The Chairman said he had signed the letter agreement for provision of special materials for the Turkey reactor.
4. Briefing on Operation Alert - The briefing will be scheduled in Germantown at the first opportunity. (Secy)
5. Lawrence Award Ceremony
6. PRDC Case - Mr. Olson reported on the Solicitor General's presentation yesterday and said the matter would resume at noon today.
7. April 26 Briefing on the SNAP Transit Project - Mr. Haworth reported on the safety study and the Commissioners' conclusions.
8. April 26 Briefing of Joint Committee on NATO - The Commissioners suggested to Mr. Ink that he report to them directly on this. (GM)
9. Mr. Haworth's Speech at the American Rocket Society - Mr. Haworth said he would circulate the speech to the Commissioners. (Secy)
10. Letter to the Joint Committee on the NRU Reactor - Mr. Hollingsworth said the letter is to be reviewed with the Commissioners today. (GM)

Present

Dr. Seaborg Mr. Hollingsworth
Mr. Graham Mr. Naiden
Dr. Wilson Mr. Henderson
Mr. Olson Mr. McCool
Dr. Haworth

Distribution

Commissioners
General Manager (3)
General Counsel
Secretary

W. B. McCool
Secretary

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 85

TO : R. E. Hollingsworth, Deputy
General Manager

DATE April 27, 1961
Approved *R. E. Hollingsworth*

FROM : W. B. McCool, Secretary *W. B. McCool*

Date R. E. Hollingsworth
4/27/61

SUBJECT: ACTION SUMMARY OF MEETING 1732, THURSDAY, APRIL 27, 1961, 10:20 A.M.
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:DCR

Commission Decision

1. AEC 1000/16 - Satellite Application of SNAP-3

Approved as revised, subject to Commission review of revised paragraphs 14a and 14b. (Pittman)

2. Improved Cycle Boiling Water Reactor Project

The Commission:

a. Authorized the General Manager to negotiate with Dairyland Power Cooperative of LaCrosse, Wisconsin, on the basis of an unsolicited proposal for installation of a 50 MW boiling water reactor on that utility system;

b. Authorized the General Manager to proceed with Allis-Chalmers as the contractor for supply of the nuclear steam system;

c. Authorized the General Manager to negotiate with Allis-Chalmers modifications in reactor design to eliminate features previously incorporated to make the reactor a prototype of a 300 MW plant, with the understanding the negotiations would not result in increased costs or delay construction of the project; and

d. Noted that special authorization for project funding is necessary following successful negotiations of the basis for an agreement.

3. Small Pressurized Water Reactor

The Commission:

a. Authorized the General Manager to negotiate for installation of a small pressurized water reactor on the utility system of the Wolverine Electric Cooperative of Big Rapids, Michigan, in the event the anticipated ~~unsolicited~~ proposal is received from the Wolverine Cooperative;

b. Authorized the General Manager to proceed with the Advanced Technology Laboratories as the contractor for the nuclear steam system; and

c. Noted that special authorization for project funding is necessary following successful negotiations of the basis for an agreement.

Item of Information

Organic Cooled and Moderated Prototype Power Reactor Project

for the Joint Establishment for Nuclear Research, Norway) and Norwegian Ambassador Paul Koht.

Jerry Wiesner called to tell me he heard from Ed Bauser that Senator Anderson is disturbed by our letter of April 18th because we state that the amended budget request provides for the acceleration of the ROVER reactor testing but not for the full program aiming at flight test level pending the conclusion of the current study. Bauser asked him what studies we were still carrying on. Wiesner told him he thought we were referring to the White House examination; I said that was correct, because when we talked to the President he said he wouldn't allow the additional funds for the flight test until he has had a chance to review it. I assured him we are not conducting any new studies.

I told him that I have given further thought to the meeting we had yesterday afternoon on testing and have come up with additional alternatives such as: 1. offering to go back to the old stance of abandoning atmospheric testing, but testing underground; 2. regardless of what happens, continuing to negotiate in Geneva; and 3. going ahead with some of the other things like cutoff.

The Commission met again at 3 p.m., Meeting 1733 (action summary attached) to discuss the secret testimony on production, weapons, the test ban, the seismic program and the future nuclear power program for use at the Authorization Hearings.

Friday, April 28, 1961 - D.C.

The Lawrence Award Ceremony was held at 9:30 a.m. this morning in the auditorium of the National Science Foundation (19th Street and Constitution Avenue). This year's recipients were: Leo Brewer (for contributions to high temperature chemistry), Henry Hurwitz, Jr. (for contributions to theory and design of reactors), Conrad L. Longmire (for contributions to the development of nuclear weapons and plasma physics), Wolfgang K. H. Panofsky (for contributions to nuclear physics and international control of weapons testing), and Kenneth E. Wilzbach (for development of methods of tritium labelling). Each recipient received a citation, a medal and \$5,000.

I had lunch with Commissioner Wilson and Mr. A. O. Oliphant, head of a Washington, D.C., utilities consulting firm.

We held a short Information Meeting no. 24 (notes attached) to approve this year's recipient of the Enrico Fermi Award. We approved recipient Hans Bethe.

At 4 p.m. I attended a briefing of the JCAE by Commissioner Wilson and Dr. Paul Fine on the consequences of reducing the price of U-235 that industry pays for quantity consumed and for interest payment on the total inventory. They also discussed the possibility of outright sale of U-235 and hence ownership of U-235, and product Pu-239, by industry.

I attended a dinner given by Commissioner and Mrs. Wilson at their apartment to award Warren Johnson a special AEC citation and gold medal for his services to AEC. The Commissioners, members of the General Advisory Committee and Mr. and Mrs. Lewis Strauss attended.

Saturday, April 29, 1961 - D.C.

I had a very important meeting (9:30 a.m. to 11 a.m.) with Commissioners Olson,

UNITED STATES GOVERNMENT

Memorandum

TO : A. R. Luedecke, General Manager

DATE: April 27, 1961
Approved A. R. Luedecke
A. R. Luedecke

FROM : W. B. McCool, Secretary *W. B. McCool*

Date 4/27/61

SUBJECT: ACTION SUMMARY OF MEETING 1733, THURSDAY, APRIL 27, 1961, 3:00 P.M.
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:WLW

Commission Business

1. Authorization Hearings Testimony

The Commission requested revision of the Chairman's opening statement in accordance with the discussion at the Meeting.
(Ink)

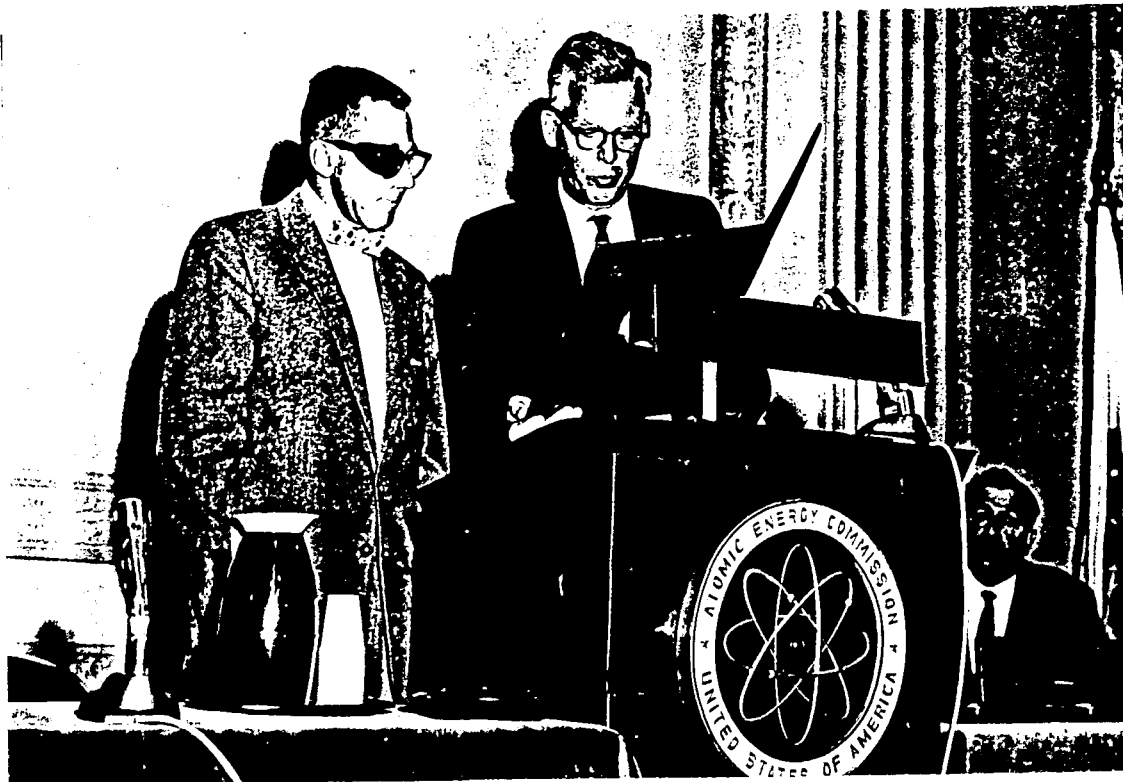
2. Turret Program

The Commission approved your recommendation to seek additional construction authorization for \$3.5 million.

I will request confirming Commission approval at the next Commission Meeting. (Burrows-Secretary)

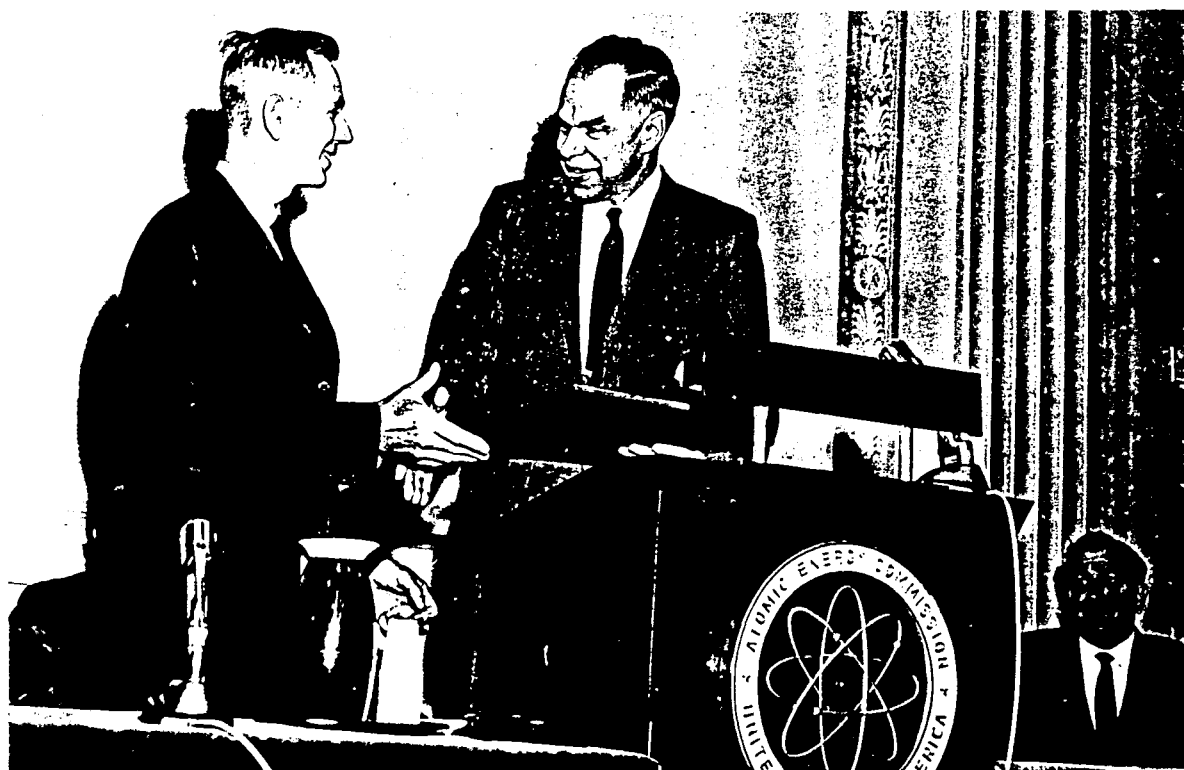
3. Chemistry Building at Brookhaven

Commissioners Wilson and Haworth agreed not to request an addition to the \$6.0 million approved by the BOB. (Burrows)

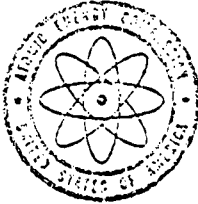


The Lawrence Award Ceremony, April 28, 1961

L to R: Leo Brewer, Ken Pitzer, Jerome B. Wiesner



L to R: Dr. Kenneth E. Wilzbach (Argonne National Laboratory),
Seaborg, J. B. Wiesner



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

April 28, 1961

INFORMATION MEETING 24

11:15 a.m., Friday, April 28, 1961 - Chairman's Office, D. C.

1. AEC 767/16 - Enrico Fermi Award - Approved as revised, subject to Dr. Roworth's review with Mr. Graham. (Secy)
2. Agenda for the Week of May 1 - Approved subject to Authorization Hearings schedule. (Secy)

Present

Dr. Sessberg	Mr. Naidon
Dr. Wilson	Mr. Henderson
Mr. Olson	Mr. McCool
Dr. Roworth	
Gen. Ludecke	

Distribution

Commissioners
Gen. Manager (5)
General Counsel
Secretary

W. S. McCool
Secretary

Wilson and Haworth and Howard Brown to discuss a possible reorganization of the AEC and of our method of administration. We will probably, at my suggestion, operate more as a policy-making body, leaving more details to the General Manager with the proviso that he cooperate more than he has been by helping to identify policy areas needing attention and by cooperating more in implementing policy decisions. We also discussed other facets of reorganization, such as direct supervision of AEC national laboratories by an assistant general manager instead of the present long, cumbersome chain of command through area offices and divisions; a separate department of research; the separation of the Division of Reactor Development into development and operating departments, and the combination and centralization of international activities.

At 11 a.m. we met with the General Advisory Committee. They recommended a third Atoms for Peace conference in 1963 (this time under the IAEA) and a renewed effort toward getting Southern California Edison's 325 MW reactor through its difficulties. They emphasized the need for competent scientists on the reinstated TURRET project. They also recommended immediate readiness preparation and earliest possible resumption of weapons testing if this should be the presidential decision; an increased budget for isotopes research; a central AEC administration of our national laboratories; and a movement toward grant-in-aid method for AEC support of research in universities.

I spent the afternoon reading and acting on a large amount of AEC papers.

Admiral Rickover called and told me that the reactor in the Polaris Submarine Ethan Allen went critical on Thursday, one of the Long Beach reactors went critical at 11:15 p.m. last night, and the submarine Thresher will be launched tomorrow.

I received a letter from Helen and responded with a letter (attached) to her.

Sunday, April 30, 1961

I spent the day reading AEC papers and material pertaining to the Authorization Hearings coming up this week.

I called Helen; she said she has a prospect for renting our house.

I had dinner at the Statler with University of California President and Mrs. Clark Kerr. We discussed candidates for the Chancellorship at Berkeley; the list includes Ed Strong, Ken Pitzer, Frank Kidner, Ray Bressler, Jim Hart and Lincoln Constance. UCLA Chancellor Frank Murphy is pushing Sam Gould and Bob Nesbit. Bill Fretter, Robley Williams and Herb Blumer are other possibilities. We also discussed Roger Revelle's desire to leave La Jolla, at least on a leave of absence basis, to take a temporary government post in Washington, D.C., and Herb York's difficulties in assuming the responsibility as chancellor at La Jolla in view of the attitude of some of the scientists on the staff. We also discussed the difficulties in getting University of California support for the Lawrence Hall of Science.

April 29, 1961

Dear Helen,

I am enclosing the minutes of a meeting of your International Neighbors' Club which you may find interesting.

I had dinner with the LeBarons at the Sulgrave Club a week ago last night. The party included Mrs. Lewis Strauss, Columnist Roscoe Drummond, the owner of the new Washington Senators (but I have forgotten his name) and others.

I sat next to Jean Pitzer at a dinner given by Commissioner and Mrs. Wilson last night for the occasion of awarding a special certificate and medal of commendation to Warren Johnson for his long service to the Atomic Energy Commission. Lewis and Mrs. Strauss, in addition to the Commissioners, were present and some past members of the General Advisory Committee.

I had dinner last Tuesday at the McGeorge Bundys with an interesting group.

Members of the National Academy of Sciences and the American Physical Society have been in town this week so that I have seen many people from the University. I gave the dinner talk at the American Physical Society meeting on Wednesday night.

I am scheduled to attend a reception of California people in connection with Clark Kerr's visit to Washington, at the Statler Hotel, late Monday afternoon and I will have dinner with Clark afterward.

I still don't know when I will be able to leave for my visit to California. I hope everything is going well.

With lots of love to you and the kids,

Mrs. Glenn T. Seaborg
1154 Glen Road
Lafayette, California

Today I testified in executive session before the Joint Committee on Atomic Energy from 10 a.m. to 12:15 p.m. and from 2 p.m. to 2:50 p.m. I presented a possible new nuclear power program that would include: 1. finishing past planned projects; 2. searching for new incentives for private utilities in the way of increased government subsidies; 3. building government plants for operation on private and public electric grids with eventual transfer to utility ownership, and 4. conducting long-range research in AEC laboratories for breakthrough approaches, breeding, etc. Senator Anderson gave me some trouble over administration lack of support for ROVER (i.e., he wants support to the extent of furnishing sufficient funds for a program leading to flight testing).

In the evening I attended a large University of California reception, held at the Statler Hotel, at which the California Senators, many Congressmen and University of California graduates now in government were present. It was the biggest reception of this type that the University people ever held. Bill Stricklin, Dick Erickson and Clark Kerr spoke.

I then had dinner at the Statler with Dr. and Mrs. Clark Kerr. We discussed further the Berkeley chancellorship and the name of John Saunders emerged as a possibility.

Tuesday, May 2, 1961 - D.C.

At the Information Meeting 25 and Regulatory Information Meeting 8 (notes attached) we discussed the Gilpatric-Seaborg correspondence on the level of the weapons fabrication budget; Harold Price's appointments of Forrest Western as Director of the Office of Radiation Standards and Leo Dubinski as Assistant Director for Materials Inspection, Division of Compliance; the serious compromise of restricted data by George Gessner; and the renewal of the Hanford maintenance contract by J. A. Jones Construction Company.

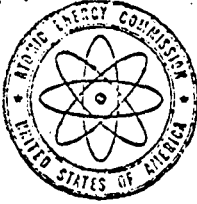
At noon the Commission met with Admiral Edward N. Parker to explore his philosophy of MLC-AEC relations in view of his possible appointment as Chairman of the MLC. We emphasized AEC, JCAE and administration difficulties with General Loper. Parker assured us that he would work toward better relations so we decided to express our approval to the Department of Defense.

From 2 p.m. to 4:30 p.m. I testified before the JCAE on the Authorization Bill in a public session. No particular difficulties developed.

At 5:15 p.m. I met with the National Security Council at the White House. The President, Vice President, McNamara, Gilpatric, Bell, Rusk, Edward Murrow, Bundy, Wiesner, Dean, McCloy, Dulles, Admiral Burke, Zuckert, Nitze, Fisher and others were also in attendance.

McCloy gave a brief summary of the present situation and ended by suggesting that the Joint Chiefs of Staff might want to brief the President on the possible accomplishments of testing with the Secretary of State and me present.

Arthur Dean then gave a status report. He said that he had presented the complete U.S. test ban proposal and expanded upon it from day to day and finally tabled the complete text of the treaty on April 18th. He told them that President Kennedy would recommend to Congress necessary legislation to allow inspection of the devices in connection with the seismic and peaceful uses



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

Answers
File

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May 2, 1961

INFORMATION MEETING 25

10:15 a.m., Tuesday, May 2, 1961 - Chairman's Office, D. C.

1. AEC 891/9 - "Sale of Undeveloped Land at White Rock, N.M., for Private Development" - Approved. (Betts - Secy)
2. Gatlinburg Speech, Friday, May 5 -
3. Authorization Hearings Schedule - The Nuclear Power Program will be discussed on Friday, May 5, Stanford and NPR are deferred until Monday, May 15. The Chairman's opening statement today is to be revised. (Secy)
4. Possible Compromise of Restricted Data
5. Construction Contractor at the Hanford Plant - The Commissioners had no objection to the General Manager's proposal to negotiate a contract with the J. A. Jones Company. (GM)
6. Senator Bartlett's Letter re CHARIOT - The Commissioners requested an early response. (GM)
7. Contractor for SL-1 Cleanup - The Commissioners had no objection to the General Manager's proposal to negotiate a contract with the General Electric Company. (GM)
8. Orphan Lode Mine Matter - Mr. Olson requested early discussions with Interior on this matter. (GM)
9. SNAP Organization - The General Manager said he would discuss the organizational matter with the Commission shortly. (GM)

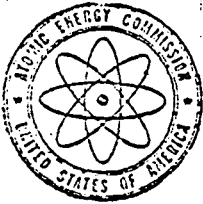
Present

Dr. Seaborg General Luedecke
Mr. Graham Mr. Brown
Mr. Olson Mr. McCool
Dr. Haworth

Distribution

Commissioners
Gen. Manager (3)
General Counsel
Secretary

W. B. McCool
Secretary



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

May 2, 1961

UNCL. BY DOE
NOV 86

(REGULATORY) INFORMATION MEETING 8

10:05 a.m., Tuesday, May 2, 1961 - Chairman's Office, D.C.

1. Personnel Appointments by the Acting Director of Regulation - Commissioners had no objection to Dr. Western's appointment, subject to his discussion with Dr. Haworth today. The Commission had no objection to Dubinski's appointment. (Price)
2. Waste Disposal Containers - The Commissioners had no objection to Mr. Price's proposal to defer consideration of this matter pending receipt of the Research Report. (Price)

Present

Dr. Seaborg
Mr. Graham
Mr. Olson
Dr. Haworth
Mr. Price
Mr. Brown
Mr. McCool

Distribution

Commissioners
Mr. Price
General Counsel
Secretary

W. B. McCool
Secretary

aspects of the program. He said that for the first time many newspapers in Europe were commending our stand and our action in tabling the complete text. Tsarapkin continues to say that they would be reasonable if they had the tripartite method of administration and he says we want to conduct the decoupling shots in order to learn how to cheat. We have agreed to the possibility of veto of the overall budget, but not on individual items. We are still demanding 20 inspections and they are only offering three.

In answer to the President's question as to what Dean recommends, Dean said that he wouldn't break off negotiations now, but that he should go back and continue and perhaps the President and Prime Minister Macmillan should send a letter to Khrushchev pinpointing some of the difficulties and suggesting they get down to brass tacks. We probably can't give in on the tripartite demand because this would be giving in on their attack on Dag Hammarskjold. Perhaps the Kennedy-Macmillan letter should be sent about May 22nd, allowing ten days to two weeks for a reply. During that time we could work out a policy as to what the contingencies are. Maybe the President should then announce that we intend to start nuclear weapons testing. This would bring us to about June 15th.

The interested agencies should prepare for the President a comparison of the relative United States-Soviet gain from testing. The President said that we might state publicly that we have evidence that the Soviets are testing. Dulles, when asked, said that we can't exclude the possibility on technical grounds that they are conducting underground tests, but he doubts they are, due to the risk; the Air Force dissents from this point of view. Bundy suggested that McCloy and an interdepartmental group should work up a statement of the pros and cons of our resuming nuclear weapons testing. The President wondered whether he should make any statement before Dean returns to Geneva and Dean thought that he should highlight the problem. It was concluded that the President might express a hope for progress, etc., at his Friday press conference.

I attended a reception at the Corcoran Art Gallery for President-Elect and Mrs. Thomas Carroll of George Washington University.

Wednesday, May 3, 1961 - D.C.

I met with Willis Gale, Chairman of the Board, Commonwealth Edison, and Morgan Murphy, his special assistant, to discuss the Dresden reactor. They complained mildly about AEC actions in Hearing testimony and in the enforced shutdown of the Dresden reactor due to difficulty in the control rod drive mechanism.

From 10 a.m. to 12 noon and from 2 p.m. to 4 p.m. I attended the Authorization Hearings, hearing the testimony of Luedecke and his staff. It went quite smoothly.

I talked on the phone with Chancellor George Beadle of the University of Chicago who told me that Norman Ramsey firmly turned down the directorship of the Argonne Laboratory. He saw Dr. Bob Bacher yesterday, but he is not interested either. He asked my opinion of Dr. Manson Benedict and what I thought the chances would be of getting him. I said he would be fine, but I didn't think there would be much chance of getting him.

At 5 p.m. I heard Arthur Dean brief the JCAE on the status of the Geneva test ban negotiations. He presented a possible plan for future action similar to that which he suggested at the National Security Council meeting yesterday. I

showed McCloy a draft of a letter I plan to send him, suggesting an AEC program for nuclear testing in case President Kennedy decides that the U.S. should do so.

Thursday, May 4, 1961 - D.C.

At the 9:30 a.m. Information Meeting 26 (notes attached) we discussed a letter I am going to send to McCloy regarding the AEC weapons testing program in case President Kennedy decides to resume testing; Howard Brown's meeting with the Space Council yesterday (on my behalf) and the confusion that exists there regarding the ROVER budget for FY 1962; the question of AEC's present attitude on states taking over some regulatory functions. On the latter item, we are going to wait until we receive the reactions of more state governors.

I briefly attended a meeting of a group discussing the transplutonium program; participants were from ANL, BNL, Los Alamos, LRL (Berkeley and Livermore), ORNL, AEC Headquarters, etc.

After this I had lunch with Albert Ghiorso, Sherman Fried and Kenneth Hulet who were here from Berkeley in connection with this meeting.

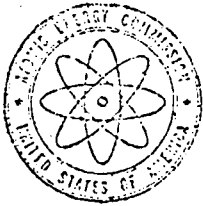
From 2 p.m. to 4:30 p.m. the Authorization Hearings continued in open session. I presented my program for the future development of nuclear power as follows: 1. seek to carry through the five projects already authorized but not yet arranged for; 2. study the possibility of further incentives for private utilities, such as capital grants, operating subsidy, modification of fuel prices, financing of long transmission lines, and a fast tax write-off; 3. failing this, consider government construction, using competitive bidding among private contractors, and government operation, followed by purchase by private or public utilities at a price that would permit competitive operation; and 4. continued and expanded investigation of long-range (breeding, etc.) and advanced (fused salt, etc.) concepts at AEC laboratories. There was some lively discussion on this program. It will be interesting to see what the newspaper, utility and journal reactions will be.

I had dinner with Vance Cooper at the University Club.

Friday, May 5, 1961 - D. C.

At the 9:30 a.m. Information Meeting 27 (notes attached) we discussed the reply to the Gilpatric letter protesting our cut in the weapons fabricating budget for FY 1962; Colonel Anderson's forced resignation from the Air Force because he is taking a position with the AEC SNAP organization; Senator Anderson's replacing Senator Gore as the Senate representative at the Geneva test ban negotiations; budget planning for FY 1963 and following years, under the new budget procedure and which due in a preliminary way around May 15th.

General Kenneth D. Nichols came in to talk about Euratom. He said that the Belgian utilities-Electricite de France (EDF) combine is about ready to proceed with the SENA project, provided the Council of Ministers of Euratom will give them the contemplated \$6 to \$7 million assistance for the \$80 million project. The Council of Ministers, in turn, won't do this until the U.S. makes its determination as to whether it will: 1. lease the fuel, or 2. give them the benefit of any price reduction. EDF will only go along with this arrangement provided this determination is made by about July. He said Etienne Hirsch (President, Euratom Commission) would like to come over to discuss this with me. (It seems to me that this might all be taken care of if we decide to reduce



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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NOV 86

May 4, 1961

INFORMATION MEETING 26

10:00 a.m., Thursday, May 4, 1961 - Chairman's Office, D. C.

1. Southern California Edison Westinghouse Negotiations - The General Manager said he would like to discuss on Friday the status of the negotiations.
2. Meeting with ECNG-ECWG Group - The General Manager reported on the status of the negotiations and said Dr. Vander Weyden was available to furnish additional details.
3. Authorization Hearings on the Nuclear Power Program Today - The General Manager discussed with the Commissioners possible questions that may be directed to the staff on various power projects.

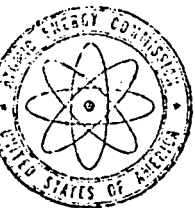
Present

Dr. Seaborg Mr. Naiden
Mr. Graham Mr. Brown
Mr. Olson Mr. McCool
Gen. Luedecke

Distribution

Commissioners
Gen. Manager (3)
General Counsel
Secretary

W. B. McCool
Secretary



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

May 5, 1961

UNCL. BY DOE
NOV 86

INFORMATION MEETING 27

10:00 a.m., Friday, May 5, 1961 - Chairman's Office, D. C.

1. Information Meetings Will be Scheduled on Monday, Wednesday and Friday With the Agenda to be Taken up at the Conclusion of the Friday Meeting. (Secy)
2. Authorization Hearings on NPR and Stanford - Now scheduled for May 17, 18 and 19.
3. Senator Carroll's Letter of May 4 to Mr. Graham - Mr. Graham reported that he had been invited to testify before the Senate Judiciary Committee and will suggest his testimony be scheduled for May 19, PM.
4. Dr. Pitzer's Letter to Congressman Hooper on the NPR - I will circulate the letter. (Secy)
5. Commission Consideration of the NPR - I will provide a report on Commission discussion. (Secy)
6. New York Times Article on Senator Anderson's Appointment as Advisor on the Geneva Atom Talks.
7. Invitations on the Process Heat Reactor - The General Manager reported the invitations would be issued shortly with a submission deadline of June 19. (GM)
8. Nuclear Power Program Funds in FY '63 Budget - The Chairman suggested consideration of this matter the week of May 8. (GM - Secy)
9. Mr. Naiden Reported on the Preston Mitchell Case - I will circulate the report. (Secy)

Present

Dr. Seaborg Mr. Naiden
Mr. Graham Mr. Henderson
Mr. Olsen Mr. McCool
Dr. Haworth
Gen. Luedecke

Distribution

Commissioners
General Manager (3)
General Counsel
Secretary

W. B. McCool
Secretary

the cost of fuel, which we are about to do, possibly today, and give Euratom the benefit of this.)

I presided at Commission Meeting 1734 (action summary attached) at 11:20 a.m. where we discussed and adopted in principle a price reduction of U^{235} to bring it in line with the reduced price of natural U_3O_8 and a plan to study the principle of private ownership of fissionable material after clearance by BOB and President Kennedy. We discussed staff's plan for negotiations with Westinghouse and Southern California Edison regarding the 375 MW reactor, but no agreement was reached.

I departed for San Francisco, leaving Friendship Airport on UAL no. 809 at 6:30 p.m., arriving at 2:15 a.m. on May 6th, five hours and 20 minutes late because of engine trouble. We actually flew the entire distance at reduced efficiency, which required a refueling stop in Chicago.

(Attached is a copy of initial part of bi-weekly report to the President that I signed today--additional items will be reported by Mr. Graham on Tuesday.)

Saturday, May 6, 1961 and Sunday, May 7, 1961

I spent both days with my family at our home in Lafayette.

Monday, May 8, 1961 - California

I visited the Chancellor's office and talked to Kitty Malloy, Ed Strong, Adrian Kragen, Alex Sherriffs, Starker Leopold, Akiko Owen and others. We discussed the Lawrence Hall of Science difficulties in getting student and faculty support and adequate funding.

I visited Building 70 of the Radiation Laboratory and talked to Cunningham, Fried, Perlman, Thompson, Ghiorso, Viola, Hyde, Doral Buchholz and others. I also attended a regular Monday noon group leaders meeting (brown bag lunch) in Perlman's office.

In the afternoon I visited the Vallecitos Atomic Power Laboratory with Lyman Fink (Manager, Atomic Production Division), George White (General Manager), R. D. Bennett (Manager, Vallecitos Laboratory) as hosts. I visited the Vallecitos Boiling Water Reactor, the G.E. Test Reactor, critical facilities, hot laboratories, etc. I was briefed by K. P. Cohen, W. K. Woods, R. B. Richards on research and development; by D. H. Imhoff on the Integrated Superheat Program; by V. A. Elliott on the status of the Dresden reactor; by W. N. Oberly on new product lines; and by George White on the status of plans for future projects. I was accompanied on this visit by Chris Henderson, Ellison Shute (Manager of the San Francisco Operations Office) and Charles Shank (Deputy Manager, San Francisco Operations Office).

Tuesday, May 9, 1961 - California

In the morning I visited with Chris Henderson, Ellison Shute and Colonel Jack Armstrong, the Missiles and Space Division of Lockheed Aircraft Corporation at Sunnyvale. Our chief hosts were Herschel Brown (Vice President and General Manager at Sunnyvale), Willis Hawkins (Corporate Vice President) and Daniel J. Gribbon (Director of Satellite Systems). Brown gave some introductory remarks and Gribbon described the general work on satellite systems. J. W. Plummer described the Agena B and Discoverer program; H. Greenfield, the Snapshot

UNITED STATES GOVERNMENT

Memorandum

TO : A. R. Luedecke, General Manager

DATE: May 5, 1961

Approved A. R. Luedecke
A. R. Luedecke

FROM : W. B. McCool, Secretary

Date 5/5/61

SUBJECT: ACTION SUMMARY OF MEETING 1734, FRIDAY, MAY 5, 1961, 11:20 a.m.,
ROOM 1113-B, D. C. Office

SYMBOL: SECY DCR

Commission Decision:

1. Minutes of Meetings 1724 and 1725

Approved, as revised.

2. AEC 25/130 - Army Safety Rules for Demolition Munition

Approved, as revised.

The Commission requested revision of paragraphs 3, 4, and 5 of the draft letter to the Secretary of Defense. (Betts)

3. AEC 891/9 - Sale of Undeveloped Land at White Rock, N. M., for Private Development

Approved. (Betts)

4. AEC 767/16 - Enrico Fermi Award

Approved, as revised. (Secretariat)

5. Turret Program

The Commission noted their approval on April 27, 1961 of the recommendation to seek additional construction authorization for \$3.5 million. (Burrows)

6. Report on Southern California Edison-Westinghouse Negotiations

Discussed.

The Chairman requested a breakdown of items included in the \$9.53 million for research and development by Westinghouse.

(Pittman)

Commissioner Graham requested the Commissioners be provided copies of the report presented by Mr. Erlewine at the Meeting.
(Erlewine)

I will schedule this matter for Commission consideration on Tuesday, May 9, 1961.

The Chairman said he would give his views on the Southern California-Edison - Westinghouse negotiations to Commissioner Graham prior to the Tuesday meeting. (Secretariat)

7. AEC 777/98 - ECNG-FWNG Proposal

The Commission approved the draft letter to FWNG and ECNG and the draft letter to the JCAE. The Commission requested rephrasing of the draft press release to read: "The Atomic Energy Commission announced that due to technical and economic uncertainties it is making...."
(Pittman)

8. AEC 720/115 - Revision of Schedule of Charges for Enriched Uranium

Approved in principle.

Commissioner Graham requested preparation of a summary report on special nuclear materials pricing policy for submission to the Commissioners on Tuesday, May 9, 1961.
(Bloch)

9. Agenda for Week of May 8, 1961

Approved, as revised. (Secretariat)

MAY 6 1961

DC FILE

PERSONAL AND CONFIDENTIAL

Dear Mr. President:

I am forwarding an initial part of my informal bi-weekly report on developments in the atomic energy program at this time, since I will be absent from the city all of next week. Mr. Graham, who will be the Acting Chairman, will report additional items on Tuesday.

1. Use of a Nuclear Auxiliary Power System (SNAP) in Forthcoming Transit Sat ()

The Commission has approved a proposed plan for the use of two experimental Pu-238 fueled SNAP-3 thermo-electric generators to be used in Transit satellites to be launched in late May and July. Project Transit is a satellite system now being developed by the Department of the Navy to provide accurate all-weather, world-wide navigation for surface ships, aircraft and submarines. Because of the relatively short life of solar cells and batteries, the Commission has developed the experimental SNAP-3, which has a net electrical output of approximately 2 watts and an expected lifetime of five years. The proposed test will provide a direct comparison of the unit with solar power equipment under actual use conditions.

The Commission has conducted an exhaustive hazards study regarding the proposed use of these units and has concluded that any danger to the public is extremely unlikely. I call this to your attention since this first application of a nuclear, auxiliary power source in space is likely to have a wide public impact. For this reason, we are suggesting to the Department of Defense that the proposed plan be submitted to the Space Council for review. If this is not feasible, we will arrange a meeting between Secretary McNamara, Secretary Rusk and myself. It may be necessary to present the matter to you directly for your approval.

2. JCAE Hearings on AEC Authorization Legislation for FY 1962 Were Held This Week

The opening session on Monday, May 1, included discussions of other current items of interest, particularly the status of AEC readiness to resume nuclear weapons tests. JCAE members generally indicated their concern regarding current negotiations with the USSR in Geneva. On Wednesday, May 3, Mr. Arthur Dean briefed the JCAE on the current Geneva situation.

The JCAE expressed interest in going forward with an early flight test for ROVER -- the advanced nuclear rocket propulsion system. They also expressed considerable interest in the need for a more vigorous program in the development of nuclear power stations. I presented to the Committee some tentative ideas for changes that appeared to be needed in the present ground rules if we are going to stimulate and make continued progress in the construction of civilian power reactors.

Hearings on the Stanford Accelerator and the Hanford Reactor Conversion for Power (NER) have been deferred until the week of May 15. I anticipate considerable interest and possible controversy regarding these projects at the Hearing.

3. Visit to AEC Projects on the West Coast (Unclassified)

I will be in California next week to visit several different AEC projects. While there, I will address the American Ordnance Association in San Francisco on May 10. I will present the annual award to the California Scientist of the Year at a meeting sponsored by the California Museum of Science and Industry in Los Angeles on May 11.

Respectfully submitted,

Glenn T. Seaborg

The President
The White House

program; J. J. Knopow, the Mida program; and H. F. Plank, the Saturn D program. We then toured the Satellite Systems facilities and saw Discoverer satellites and mockups of systems that will use SNAP devices; SNAP devices are extremely important to their program. I had lunch with the group in their dining room.

At 2 p.m. I met with John Foster, Duane Sewell and Ed McMillan at the Radiation Laboratory to discuss the details of the Livermore testing program in case the President decides to resume testing.

At 3:30 p.m. I discussed with Don Burnett and Eldon Haines, my graduate students, their work status and saw movies of fissioning drops of water.

Helen and I attended a dinner hosted by Lewis Strauss at which the Albert Einstein Medal and Award was presented to Luis Alvarez at the Bohemian Club in San Francisco. I spoke briefly to express my appreciation and to congratulate Luis. About 50 people from the Livermore Laboratory and the University of California were present.

Wednesday, May 10, 1961 - California

At 10 a.m. I held a press conference in the 20th Century Room at the Fairmont Hotel preparatory to my speech. Representatives of the Chronicle (Dave Perlman), Examiner (John Allen), News Call Bulletin, Oakland Tribune, Daily California, AP, UPI, KPIX, KRON, Mutual Radio Network (KFRC), Movietone News (Ken Allen), McGraw Hill Electronics (Don Winston), Western Machinery and Steel Worlds, and many others were present. It seemed to go well. Questions were asked on the future of civilian nuclear power, the ANP, ROVER, Plowshare and the test ban negotiations (Rodney Southwick's notes and press clippings attached).

I gave a talk entitled, "The Atom in Space," at the luncheon of the San Francisco Post of the American Ordnance Association in the Venetian Room at the Fairmont Hotel. It seemed well received.

In the afternoon I visited the San Francisco Operations office.

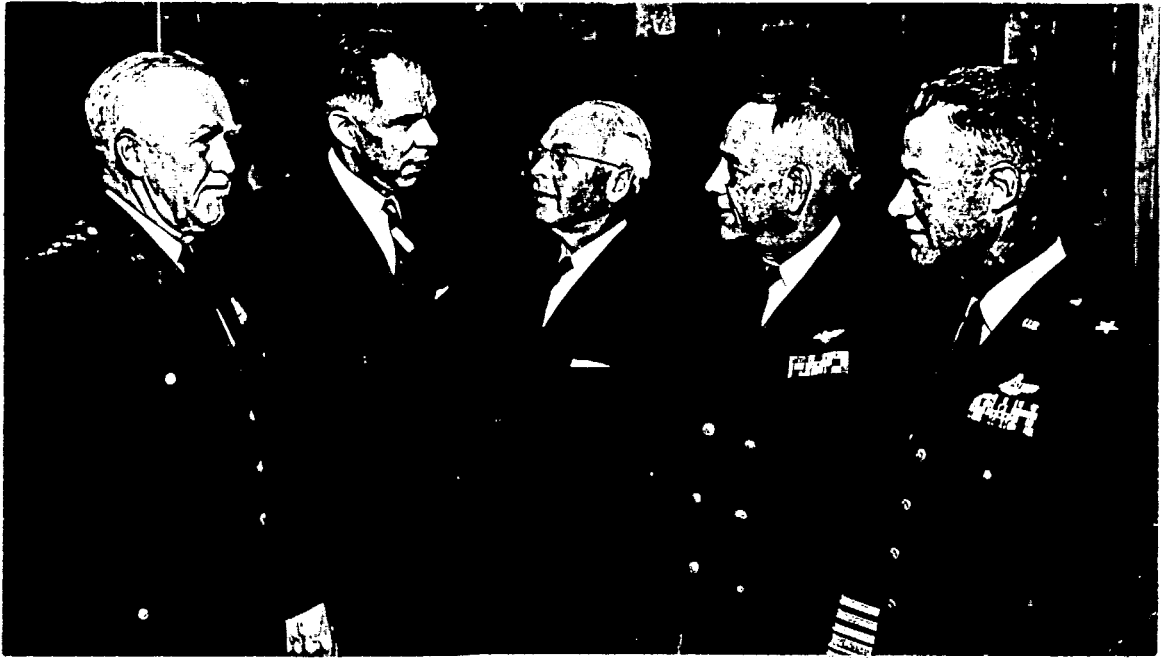
At 5 p.m. I received a call from Senator Clinton Anderson (in Albuquerque) who is very distressed because Bill Clark was fired by Norris Bradbury due to his (Clark's) unauthorized contacts with Anderson regarding the slow progress of ROVER. Apparently, Anderson was investigating, through Clark, an allegation that Test Cell C was three months behind schedule. Anderson wants to go up to Los Alamos on Monday to hold a hearing on this. I called Bradbury at Los Alamos who said Clark was fired because of some dishonest dealings with vendors and not because of his contacts with Anderson. I called Anderson back and assured him that his contacts with Clark had nothing to do with his being fired, and Anderson seemed to be satisfied. I told him he can learn more about Clark by calling Ken Hertford, the Manager of the Albuquerque Area Office.

Thursday, May 11, 1961 - California

I flew to Los Angeles and visited with Chris Henderson, Atomics International. In the morning we visited Santa Susana to see the Sodium Reactor Experiment, the Sodium Component Development Area, the Organic Reactor Development Area, the SNAP Test Facility, the SGR/OMR Critical Facility, the AETR Critical Facility and the Hot Cell area.

I had lunch with J. L. Atwood (President, North American Aviation), Chauncey

PRESS CONFERENCE AND LUNCHEON, AMERICAN ORDNANCE ASSOCIATION
FAIRMONT HOTEL, SAN FRANCISCO, CALIFORNIA - May 10, 1961



L to R: Lt. General R. M. Cannon, Commanding General Sixth Army (Presidio of San Francisco), Seaborg, Elmer R. Peterson (President San Francisco Chapter of A.O.A.), Vice Admiral F. N. Kivette (USN), and Brigadier General R. F. Bromiley (USAF, Commander Travis Air Force Base, California)



Shown is Seaborg speaking at Press Conference

Ed Henderson
Chairman

UNCL. BY DOE
NOV 86

Duncan Clark, Director, Office of Public
Information, USAEC, Washington

May 17, 1961

Rodney L. Southwick, Assistant to the Manager for
Public Information, San Francisco Operations Office

CHAIRMAN SEABORG'S NEWS CONFERENCE - MAY 10, 1961, SAN FRANCISCO

The following is based on notes taken at the news conference held by Chairman Glenn T. Seaborg in San Francisco, May 10, 1961, preceding his address to the San Francisco Post of the American Ordnance Association. The summary is paraphrased.

The first question was directed at the status of the Aircraft Nuclear Propulsion Program, PLUTO and ROVER with the comment that the questioner was "somewhat confused" about them.

A - There is no confusion about ANP. The President decided to cancel it so far as the objective of propelling an aircraft is concerned. Last year's budget was \$150,000,000. In the process of canceling, it was decided to retain \$25,000,000 for research and development on nuclear reactors, on high temperature materials and development of reactors not specifically directed toward ANP. This would advance the art toward a high power density, liquid metal cooled reactor (using lithium). It would have some applications in the Army program. Of the budget of \$25,000,000 \$19,000,000 for FY 1962 will be used as follows:

\$5,000,000 - General Electric, Evendale, to continue materials research and high temperature chemistry;

\$2 to \$3,000,000 - continued research at ORNL;

\$11,000,000 - Pratt and Whitney work on a reactor concept for non-ANP applications of the indirect cycle.

The direct cycle of GE is not applicable to any great extent to non-ANP work, but GE has a good organization and facilities.

Q - Is there any basis for the reports that the USSR has flown a nuclear-powered aircraft at Mach 3?

A - It is unlikely and I feel it definitely is not true. The problem involved is making such a heavy plant airborne.

Q - It was reported this morning that a Florida group has canceled a reactor plant. This brings up the question of how the relations are between AEC and private industry in the power field?

A - We are both in somewhat of a dilemma. Industry would like to carry on in its traditional methods, but the risks are so great the economic future is difficult. The Commission is encouraging the traditional approach. We are confident that nuclear power will be economically competitive in ten years. The dilemma is how best to use private industry in the meanwhile and not directly subsidize it.

We shall have to change our ground rules and add additional incentives. We are going to have to introduce additional incentives because nuclear power is not quite economically competitive at this stage.

Q - Are other companies in similar difficulties?

A - Yes, there are a number of them. There is the case, as an example, of the Los Angeles-Pasadena reactor. This difficulty was caused partly by siting and partly by the question of the number of reactors to be built. The site was approved for a 50 MWE reactor, but the Advisory Committee on Reactor Safeguards felt it would not be safe at this stage of development for a 300 MWE reactor as proposed.

Q - Will Southern California Edison use Camp Pendleton for the site for its proposed power reactor?

A - I have a meeting scheduled Friday (May 12) to discuss this general problem. They are planning a 375 MWE power reactor to feed into their grid system. The reactor design is being proposed by Westinghouse. There are two problems to work out:

1. The amount of AEC support for research and development to Westinghouse under the third round demonstration program; and
2. The site. Southern California Edison wants to use a Camp Pendleton site. The company would have to arrange for the property. That large a reactor requires a large site some distance from population centers.

Q - Will the AEC have to subsidize industry to get the power program going?

A - We shall have to assist them keeping the help consistent with maintaining an essentially private industry. Several possibilities have been discussed. There are the possibilities of capital grants, partial operating grants and one suggestion has been that the Government pay partially for the long transmission lines required,

during the demonstration phase, and later withdraw this help. There is also the possibility of lower fuel prices and this is actually under consideration. Then there are faster tax write-offs. But these are not official, these are just some suggestions.

Q - There have been forecasts that nuclear power would be economic in ten years. These forecasts have been made several times. What is the outlook now?

A - We are still talking about 25 percent of the country, the high cost areas. The Commission goal was to have nuclear power competitive in higher cost areas by 1968. But whether it will be 1968, 1970 or 1971, we're not certain.

Q - Could you comment on the attainment potential for economic power some more? It always seems to get set back. Is there any sign that nuclear power will really be economic in ten years.

A - The price of other fuels, oil and gas, is going down also. Improvements that can be made now in nuclear reactors presently make a few tenths of a mill difference in costs. The time inevitably will come when reactors are competitive due to the consumption of fossil fuels. We have reserves of fossil fuels for about 100 years. However, their cost will go up. It may be 30 to 40 years before fossil fuel costs go up very much. In the meantime nuclear costs should decrease.

Q - What about the cost of fuel from oil shales?

A - They are not economically feasible now.

Q - How does PLUTO figure in the present program?

A - There is no change. We are going ahead. As you probably know there will be a test of the Tery II-A reactor at the Nevada Test Site on May 12.

Q - We have a serious water depletion problem. Can nuclear reactors be used to convert salt water?

A - Atomic energy won't play a role in this until it is economically competitive.

Q - Should a scientist be Chairman of the AEC continuously, later, after your term?

A - That's not one for me to comment on.

Q - There has been a report that the USSR is using a launching ramp capable of 300-mile an hour speeds. Do you know about this?

A - I have not heard about it.

Q - When do you expect to do the Cape Thompson, Alaska, blast, or has that been called off?

A - There has been no date planned for that project which is called "CHARIOT". It is under study. The Commission is greatly concerned about the safety of people in the area and the effects of radiation on plants and animals. We shall have to get complete assurance of the safety of the project. At any rate under the test ban, our voluntary cessation of tests, we would not carry it out.

Q - Are the Eskimos protesting?

A - We have had a number of protests, not from Eskimos, but from conservation and wild life groups.

Q - We're not getting much information on the USSR space program. Could you speculate on their progress?

A - I think they are developing their program, but I do not know its status. We have tried to say they might be ahead.

Q - Is the Saturn B contract let? That is, the nuclear portion?

A - On the nuclear rocket, ROVER, which might be part of SATURN, we have invited industrial companies to submit proposals to begin research and development aimed toward fitting a reactor into an engine for space propulsion. This is in a preliminary stage. We haven't decided on the concept, but we hope to do so in 1962.

Q - We have a rumor that one company was chosen for this.

A - No choice has been made. We have received seven proposals from Aerojet General; Rocketdyne; American Metal Products; Pratt and Whitney; Thiokol; Westinghouse; and General Electric. You may be interested that I spent a good part of yesterday at Lockheed (Missiles and Rocket Division). They are interested in SNAP devices for their satellites. They feel they will meet their needs for more power over longer periods of time.

Q - When will the first SNAP device be airborne?

A - I don't know. It's very uncertain now. One of the SNAP devices is ready and could be put up.

Q - Why not now?

A - The main consideration is assuring ourselves of complete safety. We have no particular doubts about this, but we want to make the most complete studies.

Q - Is 475 pounds of thrust the maximum for chemical fuels?

A - The practical maximum for chemicals such as kerosene and oxygen is 300 pounds; for hydrogen with oxygen about 450 pounds of thrust per pound of propellant flow per second; and approximately 475 pounds for hydrogen-fluorine.

Q - The use of small reactors in satellites by AEC and the Defense Department was mentioned as feasible in the near future. Could you expand on other uses which might be made of such devices?

A - As I mention in my speech, there is the possibility of world-wide television. If we put a satellite into orbit at about 22,000 miles, it would be a 24-hour orbit, and would remain in the same relative position to the earth all the time. If we put up about three we could have transcontinental transmission. If there were 5 or 6 along the Equator, we could cover the entire world, an intercontinental system.

Q - Is this within the present capacity of the SNAP systems?

A - No, but within a reasonable time.

Q - How far away is it from reality?

A - Five to ten years.

Q - What other results might there be?

A - It would be invaluable to all forms of communications - telephone, telegraph, AM and FM. Such a system might eventually replace the expensive transatlantic cables and maintenance costs. It seems certain to be accomplished.

Q - About the weapons test ban. Could you give us an estimate of the status and prospects of negotiations? Do you consider the test ban negotiations important?

A - I have always considered them important. As to their status, I have no comment in view of my involvement in determining the United States' position and the determination of the present situation. I have had discussions with Dean and McCloy. The matter is in a state of flux and that makes it inappropriate for me to discuss.

Q - Are we trying to set a firm policy on whether we'll continue the ban or not?

A - Yes, That was the purpose of the meetings.

Q - Have you heard anything on the change in the USSR in the standing of the Academy of Science mentioned recently by Dr. Kaplan?

A - Dr. Kaplan was referring to reports of a change in authority involving the Academy.

Q - What particular topics will you discuss with Southern California Edison on Friday?

A - We shall try to remove any and all obstacles which lie in the way of doing the job.

Q - Will the AEC help influence the Marines to set aside an area for the reactor?

A - Not directly. That would have to be settled at higher levels. The two main areas for discussion in Los Angeles would be:

1. the degree of AEC support for the Westinghouse design program; and
2. the general problem of siting and how many reactors they feel they need at a particular site.

The question of cost principles was brought up as the news conference ended. The question related to the AEC's position on making its principles comparable to those of DOD. Chairman Seaberg said that AEC was reevaluating its system, but did not have in mind making it the same as DOD's. The review was aimed rather at a reevaluation and analysis.

Nineteen representatives of news media were present, including radio station KPFA, Berkeley, which taped his speech; KRON-TV and KPDX-TV; Associated Press, United Press-International; Chronicle; Examiner; Oakland Tribune; New York Times; McGraw-Hill; Western Industry and Machinery; News-Call-Bulletin and the Mutual Broadcasting radio net (KOBY) which did a brief telephonic interview for recording.

Duncan Clark

- 7 -

May 17, 1961

Attached are sample clips of coverage in the Bay Area, and a letter from the Information Director, San Francisco Post, American Ordnance Association.

Enclosures:

As noted above

CC: ~~Chris~~ Henderson, Special Assistant to Chairman Seaborg w/encl.
Brig. Gen. Austin W. Betts, USA, Dir., DMA, USARC, Wash. w/encl.

SAN FRANCISCO ORDONANCE DISTRICT
U. S. ARMY
OAKLAND 12, CALIFORNIA

11 May 1961

UNCL. BY DOR
NOV 88

Mr. Rod Southwick
Atomic Energy Commission
2111 Bancroft Way
Berkeley, Calif.

Dear Rod:

It was the most successful press conference I've attended on the West Coast. Congratulations.

Before it was done, there were 19 working members of the press, magazine, radio and television media. There were eight (including you) at the luncheon speech.

Although names escape me (because I couldn't meet them all), the press conference had representatives from: UPI, Tribune, News Call-Bulletin, John Allen of Examiner, Dave Perlman of Chronicle, Don Winston of McGraw-Hill electronics, KFUN, KFII, Movietone News, the latter Ken Allen, Western Machinery & Steel World, Daily Californian, KFRC.

KFYA recorded the speech. Mr. Hann, AP fotog was at the lunch also. Ken Allen filmed portions of the speech for local and network use. UPI, Western Machinery also were at luncheon.

Please call me re copies of official Army pix.

Regards,

Hampton

Page 1

U.S. Atom Rocket 'Up In 4 Years'

By JOHN F. ALLEN
Examiner Science Editor

Chances are good that the U. S. will flight test the world's first nuclear-powered rocket within four years.

It is feasible right now to fling into earth orbit a satellite containing a nuclear generator to provide an almost endless source of power for instrumentation and radio transmission.

Head of AEC

These estimates were provided here yesterday by one who ought to know, Dr. Glenn T. Seaborg, the new Nobel Prize-winning chairman of the Atomic Energy Commission, and former chancellor of the Berkeley campus of the University of California.

Speaking before an American Ordnance Association luncheon, Doctor Seaborg said he is convinced America is well out in front of Russia

(Continued on Page 19, Col. 3)

Atom Rocket 'in 4 Yrs.'

(Continued from Page 1)

in the development of nuclear power—"the most feasible and practical approach to long-range manned space missions."

Speaking of the ROVER program, which calls for substituting nuclear power for chemical fuels to provide rocket thrust, Doctor Seaborg said:

"Our best technical judgment is that it is reasonable to expect that flight-testing can begin in the 1966-67 period. It might be possible to start flight-testing in 1965.

Already ground-testing of a nuclear power plant for rockets has proved the feasibility of the method, he added.

The main advantage of nuclear power over chemical combustion for rockets is the great gain in specific impulse—a term that signifies the number of pounds of thrust produced by each pound of fuel in every second.

Thus, the specific impulse for kerosene and liquid oxygen in general use today is 300 pounds per pound of fuel per second.

REDSTONE HIGHER

The most advanced chemical rockets—such as the Redstone that launched Cmdr Alan B. Shepard Jr. into space—use a fuel of hydrogen and liquid oxygen, which has a specific impulse of 450 pounds, and the maximum possible with chemical fuels is probably 475.

The ROVER nuclear system, however, have a specific impulse of 800 or more.

The contemplated rockets will contain compact nuclear reactors, where fission will be

used to heat and pressurize hydrogen, with hydrogen serving as the driving force. In his speech, Doctor Seaborg said

"I do not have any information concerning USSR developments in nuclear rocket propulsion, but I'm convinced that our own program shows real progress."

Even farther advanced, Doctor Seaborg said is the SNAP (Systems for Nuclear Auxiliary Power) program, which contemplates the use of nuclear energy aboard satellites and space ships to operate data gathering and transmitting instruments.

SAFETY CHECKS

Some SNAP devices are now so well developed, he said, that they could be aloft in an orbiting satellite at any time, only final safety checks are holding up the program.

Such sources of power—much better and longer-lived than chemical or solar batteries—would permit worldwide television, telephone and radio communication.

Seaborg Report

A-Power for Space Closer

By David Perlman

Nuclear reactors are moving closer to reality as a power source for space exploration, Dr. Glenn T. Seaborg, chairman of the Atomic Energy Commission, reported here yesterday.

Small reactors weighing only a few pounds are feasible right now and can replace batteries to operate the complex instruments aboard satellites.

Larger nuclear power plants, designed to propel huge rockets through space, may be flight tested in four or five years.

Dr. Seaborg offered this progress report at a luncheon meeting of the American

Ordinance Association at the Fairmont Hotel yesterday, and also at a press conference.

It was Dr. Seaborg's first public appearance in the Bay Area since he left his post as University of California Chancellor at Berkeley to head the AEC last February.

SPACE TRAVEL

"When the uses of nuclear energy for rocket propulsion become feasible," he said, "man will control, for the first time, the energy needed to travel freely wherever he pleases in space."

The AEC is actively pushing its "Rover Program" for developing nuclear rocket engines, Dr. Seaborg said. Prototype reactors are being developed at Los Alamos and ground tested in Nevada. They will heat jets of hydrogen in the reactor core and expel them to provide double the thrust of chemical rockets.

These engines, dubbed Kiwi after the New Zealand bird that can't fly, are well along. After them will come a more advanced flyable nuclear engine that can be flight-tested by 1966, Dr. Seaborg said.

Right now the AEC is seeking proposals from leading rocket companies for fitting a nuclear engine as an upper stage of the Saturn liquid-fueled chemical rocket, he said.

Nuclear rockets, packing enormous quantities of energy into a relatively small fuel load, can provide far more thrust for their weight than chemical rockets now hope to achieve. For a long-range space mission a chemical rocket would have to carry an such propellant fuel it would be almost impossible to boost off the ground.

SNAP REACTORS

Clear at hand than these space propulsion concepts are the SNAP reactors, designed to provide auxiliary power for satellites. Lockheed Martin & Space Division in Sunnyvale is extremely interested in the compact SNAP power plants for experimental satellites, Dr. Seaborg said.

SNAP reactors come in two types: one uses heat from the reactor to drive small turbines, while the other uses radioactive isotopes whose steady columns of nuclear particles generate electricity from heat more directly.



DR. GLENN SEABORG
He met the press

These might include capital grants, operating subsidies, payment of costs for long transmission lines or faster tax writeoffs to companies willing to gamble in the nuclear development field, he suggested.

The SNAP devices, Dr. Seaborg said, could provide highly reliable satellite power sources lasting many years and replacing thousands of pounds of batteries.

1963 TESTS

The tiny SNAP systems using radioactive isotopes are feasible right now, Dr. Seaborg said; the larger but still compact SNAP reactors, generating thousands of watts of power, are to be flight-tested starting in 1963.

Before too long, he said, they might be used to power networks of high-flying satellites that would beam television and radio signals across the United States or even between the continents.

Dr. Seaborg said he has no information on what the Russians are doing in the field of atomic rocket propulsion.

PRIVATE PROJECTS

At his press conference Dr. Seaborg confirmed reports that development of nuclear power reactors by private utility companies is running into difficulties. Several groups of firms have abandoned projects because the costs are too high, he said.

He said the AEC is looking for ways to support research and development in nuclear power more intensively.

Space Race Winner Seen in A-Rockets

Nuclear Power May Help U.S. to Pass Russ, Seaborg Says

SAN FRANCISCO (AP) — Nuclear rocket propulsion aided by nuclear powered instrumentation could enable the United States eventually to outstrip Russia in the race to space, Glenn T. Seaborg, chairman of the U.S. Atomic Energy Commission, said at an American Ordnance Assn. luncheon Wednesday.

"I do not have any information concerning USSR developments in nuclear rocket propulsion," Dr. Seaborg said, "but I am convinced that our own program shows real promise."

Rover Program

The former chancellor of the University of California said the AEC is working on two ways to make nuclear space power possible.

"One is to develop nuclear reactors for rocket propulsion, called the Rover program, and the other, called Snap, for systems for nuclear auxiliary power, is to provide power for instruments within the space vehicle itself," Seaborg said.

"When the uses of nuclear energy for rocket propulsion become feasible, man will control, for the first time, the energy needed to travel wherever he pleases in space," Seaborg emphasized.

Major Problems

Rover dates to 1957; Snap to 1955.

Seaborg declared that extensive ground testing will have to precede flight testing of a nuclear-reactor-powered rocket and that "our best technical judgment" is that "flight testing can begin in the 1966-67 period."

Reactor design and integration into and testing with other engine components and the rocket vehicle itself are other major problems that must be overcome.

Starr, Sam Siegal, John Flaherty, John Howe and others at the Canoga Park headquarters.

In the afternoon I was briefed by Starr on the Central Station Power programs, the Sodium Cooled and Organic Cooled Reactors and the SNAP Reactor program; by H. Reiss on the Research program and by W. Parkins on organic fouling problems. In a personal discussion with Starr, he emphasized: 1. the need for an adequate budget in the Reactor Technology Branch (George Kavanagh's former responsibility); 2. the importance of the SNAP program which he thinks the AEC should keep despite the desires of the Air Force and NASA to take it over; 3. the importance of integrity in the AEC Reactor Program as symbolized by Frank Pittman (who he thinks would be a good general manager); 4. the future incentives for the nuclear power program. (Starr is the head of the Atomic Industrial Forum Committee and will send me its report.)

I attended a press conference in the Empire Room at the Beverly Hilton Hotel. Those present were: Frank Press (Science Award Winner), Howard Edgerton (President, California Museum of Science and Industry), Robert Dockson (Chairman, Industrialists' Jury), Robert Minckler (formerly President, General Petroleum and Master of Ceremonies), Charles Jones (General Chairman of Banquet and President of Richfield), Howard Ahmanson (Program Chairman), George Kinsey (Attendance Chairman), Robert Reardon (Public Relations), Les Cohen (Assistant Director of the Museum) and Bruce Galy. Later I attended a dinner at the Hilton where I presented to Frank Press of Cal Tech the California Scientist of the Year Award (for \$5,000). I then gave a short talk on the AEC.

I spent the night with my mother in her South Gate home.

Friday, May 12, 1961 - Los Angeles and Houston, Texas

I visited my sister Jeanette in Mission Hospital where she is recovering nicely from a hysterectomy operation performed last Monday.

At 11 a.m. and through lunch I met with John McCone and officials of the Southern California Edison Company--Harold Quinton (Chairman of the Board), John Horton (President), James Davenport (Vice President) and W. L. Chadwick (Vice President) in the Board Room of the Pacific Mutual Life Insurance Company in Los Angeles.

Prior to the arrival of the Southern California Edison group, I met privately with John McCone, who reported a conversation he had with a "reliable" reporter who said he had information to the effect that President Kennedy had taken the position that we had a sufficient number and variety of weapons so that the resumption of testing was not necessary in the event of the collapse of the Geneva test talks. I indicated that this was not a correct statement of the President's--nor of the administration's--position. I said the alleged position was not only incorrect, but it was also inconsistent with public statements by the President. I summarized my understanding of the Southern California/Westinghouse negotiations and said it was my personal desire to proceed with this project. I referred to some of the problems and the question of the site for the reactor.

McCone stated that while he was in favor of the project, he had not encouraged either of them to commence research or to incur costs. With regard to the site, McCone mentioned his discussions with former Secretary of Defense Thomas S. Gates, former Deputy Secretary of Defense James H. Douglas, and former Secretary

of the Navy William B. Franke. He indicated that these discussions revealed that DOD would offer no objections to the use of Camp Pendleton, if approval were sought through legislation rather than through an Executive Order.

We then joined the others and McCone opened the discussion by referring to his role in the matter--namely, that of a catalyst, rather than a participant. The discussion centered on the proposed plan and the desirability to go ahead. Quinton referred to the cost ceiling set by Southern Cal Edison beyond which they could not go and indicated that the main problem was the question of a site. He said that after a thorough search it appeared that Camp Pendleton was by far the most suitable and they would like assurance that they could add, in the future, additional units to the site. I said I was sure Quinton would understand that no one could give a guarantee concerning additional nuclear plants being constructed at this site but I hoped the construction and operation of this plant and other plants might advance the art to the point where criteria would allow additional expansion. McCone then discussed the various alternatives of acquiring the site and urged that the legislative route be taken. I indicated that the initiative in acquiring the site should be undertaken by Southern California Edison and it was decided that they would commence drafting suitable legislation and that further contact would be made between Quinton and me as to the next step.

I flew to Houston, arriving at 10 p.m. The plane was three hours late due to mechanical difficulty.

Saturday, May 13, 1961 - Houston, Texas

I attended an all day meeting (with lunch at the Petroleum Club) of the Welch Foundation Scientific Advisory Board with W. O. Milligan, Arthur Cope, Roger Adams, Peter Debye, Henry Eyring and G. Glen King. I had dinner at the Coronado Club with the same group and Trustees Dan Bullard, Wilfred Doherty, Jesse Andrews and Lester Settegast (a new Trustee).

The dinner was followed by a joint meeting of the Board and the Trustees.

Sunday, May 14, 1961 - En route to Washington

I flew to Washington on Delta no. 876 and spent the afternoon and evening reading mail and AEC papers (attached is a copy of the GAC report on its 74th meeting, April 17-19, 1961).

I called home and talked with Helen, David and Lynne.

Monday, May 15, 1961 - D.C.

I talked on the phone with Harold Brown regarding the matter of the MLC Chairman. He said McNamara feels that the MLC Chairman should be a civilian and that the JCAE is receptive to this idea; the JCAE would favorably consider either Harold Agnew or Jerry Johnson. Brown said that since he had been unsuccessful in getting Agnew he was negotiating with Jerry Johnson and asked whether he would be acceptable to the AEC. I said I thought so, but the main consideration would be whether he would withstand pressure from the military and go along with the civilian rationale.

I attended a meeting of PSAC where the items discussed were: 1. the last meeting of the Federal Council on Science and Technology; 2. the need for a

GENERAL ADVISORY COMMITTEE
TO THE
U. S. ATOMIC ENERGY COMMISSION
P.O. BOX 3528
WASHINGTON 7, D.C.

May 2, 1961

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Dr. Glenn T. Seaborg, Chairman
U. S. Atomic Energy Commission
Washington 25, D. C.

Dear Glenn:

The 74th meeting of the General Advisory Committee was held in Washington, D. C. on April 27, 28 and 29, 1961. All members were present at all sessions except J. C. Warner who was absent on April 27, and for brief absences of some other members. The present membership is Philip H. Abelson, Manson Benedict, Willard F. Libby, Eger V. Murphree, Norman F. Ramsey, J. C. Warner, Eugene P. Wigner, John H. Williams, and K. S. Pitzer as Chairman. Also present were Robert A. Charpie, Secretary, and Anthony A. Tomei, Assistant Secretary.

The following recommendations and actions of the Committee are herewith presented:

(1) Possible Resumption of Weapons Tests

The possibility of a breakup of the Geneva negotiations requires that the AEC be ready to resume weapons testing. We have had weapons development arrested for 30 months, and we should be prepared to initiate tests as soon as possible after the date on which permission might be given by the President. The underground technique in Nevada should be used first, and a program for this technique should be carried to within a few days of firing time. We do not feel that presently planned seismic shots are to be counted in such a program. Seismic effects could be studied for weapons shots but the Vela Uniform shots would be different from weapons testing.

The importance of weapons tests outside the atmosphere is such that plans for such tests should be laid beginning at once. The logistic problems are so great that an early beginning should be made in order that a test could be completed as soon as possible following authorization. In the meantime all efforts to calculate the effects mentioned in the recent Rand Report should be made. We would appreciate hearing Dr. Panofsky's views on the Rand Report either at our next meeting

in July, or at any other convenient time via our Weapons Subcommittee.

In view of the likelihood that weapons tests may be resumed, it is urgent that serious plans be made immediately as to the best means of presenting such a decision to the public and to the world at large.

(2) Southern California Power Reactor

The Committee regards the 335 eMw reactor which the Southern California Edison Co. is considering building on land at Camp Pendleton, California, now owned by the Marine Corps, as the most important civilian nuclear power development which has thus far emerged in this country. This reactor, if built, promises for the first time to produce power on a scale and at a cost which will give nuclear power an important role in the nation's power economy. If this reactor project is allowed to lapse, the AEC's civilian nuclear power program will be set back for years. In view of the crucial importance of this project, the Committee urges the Commission to conclude successfully its negotiations with Westinghouse and Southern California Edison, and to use its influence to obtain permission from the Marine Corps for the reactor at Camp Pendleton. The GAC Reactor Subcommittee will be glad to assist in any desired review of the technical aspects of this project.

(3) National Laboratory Administration

The future effectiveness and strength of the AEC laboratories, in particular the multiprogram laboratories, will depend in a large measure upon administrative policies established both at Washington and at local levels. The AEC has grown so rapidly during the past decade and in turn the administrative problems have become so complex that there is real reason for concern for the future. In order to maintain the health and strength of the multiprogram laboratories, in terms of scientific and technical personnel and productivity, it is essential that they do not become overwhelmed by unnecessary and time-consuming administrative procedures.

A particular problem which presently exists is that of communication between the Laboratory Directors and the Commission itself. Any organizational changes, such as those outlined below, should be designed to materially shorten the present channel of communication and consultation. In addition the designation of a Commissioner to have a specific responsibility for the laboratories is suggested.

We suggest that serious consideration be given to the appointment of an officer in Washington, presumably an Assistant General Manager, who would have overall responsibility for the multiprogram laboratories. One of his responsibilities would be to work out scientific and technical programs for the laboratories with the Laboratory Directors and the Divisions of Military Application, Reactor Development, Research, and Biology and Medicine along with other groups that may wish to have research and development carried out by these laboratories. Such programs should be arranged by direct contact between the laboratories and the proper Washington groups. A small AEC office should be maintained at each of the laboratories to assist the laboratory in carrying out its operations from the standpoint of general business, security, and like activities. These local offices should report to the Assistant General Manager for the multiprogram laboratories. The laboratory itself would report directly to the Assistant General Manager and not through the local AEC offices.

At the present time there is less need for a change in the method of managing Los Alamos and LRL Livermore and Berkeley than for the other multiprogram laboratories. Consequently the new management arrangements might be applied initially to BNL, ANL, ORNL, and Ames Laboratory and extended to other laboratories later.

(4) Basic Research in Universities

In the support of basic research in universities it is also highly desirable that red tape be reduced and that unnecessary intermediate agencies be eliminated between the technically competent groups in Washington and the universities. For basic research in the universities this could probably be best accomplished by utilizing, wherever appropriate, the authority to issue research grants in support of such research. In this fashion the administrative controls could be reduced to such an extent that the administrative responsibility could be exercised by the appropriate AEC technical division in Washington in a manner similar to that used by the National Science Foundation.

It is recognized by the GAC that there may be considerable difficulties in such a reorganization, and it recommends that this subject be discussed between the GAC Research Subcommittee and the appropriate AEC staff.

(5) New Reactor Proposal Related to Turret

We understand that renewed consideration is being given to a very high temperature graphite-moderated and gas-cooled reactor related to the Turret proposal. The GAC

emphasizes that (a) the very highest skills in a wide variety of sciences as well as great engineering ingenuity will be required to handle efficiently the dirty (radioactive) gas system, (b) experience gained on the EGCR and HFGR is directly related to this problem and should be utilized in full. If requested, the GAC would be happy to review a new proposal in this area.

(6) SL-1 Incident

We are disturbed that after nearly four months the definitive report on the SL-1 incident was not yet available for this meeting.

(7) Third Atoms-for-Peace Conference

The GAC believes that the first two Atoms-for-Peace Conferences were successful from the United States point of view. In addition to being propaganda victories for the United States, they provided an opportunity for extensive contacts with many working Soviet scientists who have not been seen at other meetings. The GAC suggests that a third such conference would be useful. There will be ample new technical results available for such a conference by 1963, which seems to be a convenient time from the planning point of view. Isotope applications, power reactor experience, and the role of nuclear energy in space exploration would appear to be suitable topics. Careful consideration should be given to the advantages of IAEA sponsorship for such a third conference.

(8) Isotope Application

Our Ad Hoc Subcommittee on Isotopes has begun a review of the program but has not reached a reporting point as yet. It seems clear, however, that any reasonable opportunity to increase the funding for this program in FY 1962 over and above the present budgeted figure should be taken. The Subcommittee hopes to report fully at our next meeting.

(9) Date of the 75th Meeting

The 75th meeting of the GAC will be held in Los Alamos on July 13, 14, and 15, 1961. The 76th meeting is tentatively scheduled to be held in Washington on October 19, 20 and 21, 1961.

(10) Tentative Agenda for the 75th Meeting

- (a) Long range program objectives for multiprogram laboratories.

- (b) Potential weapon developments as reported by the Weapons Subcommittee.
- (c) Isotope applications as reported by the Ad Hoc Subcommittee.
- (d) Final report on the SL-1 incident and other safety matters.
- (e) Other items as may be requested by the Commission.

Respectfully submitted,

Ken.

K. S. Pitzer
Chairman

U.S. telecommunications administrator and the question of government vs. private development of the satellite communications field; 3. the possibility of a manpower utilization study; 4. the composition of PSAC (there are no midwestern representatives).

Carl Kaysen, a Harvard economics professor working with Bundy, led a discussion on the advisability of a national building program on fallout shelters. McCloy discussed: 1. the status of the test ban negotiations, saying a staff paper summarizing the situation is about to be issued; 2. the status of the new disarmament organization which will be created by statute, reporting to the Secretary of State, with separate access to the President; and 3. the status of panel reports on the U.S. position for the comprehensive disarmament discussions to begin in Geneva on July 31st.

I had lunch with the PSAC group at the White House mess.

At 3 p.m. I attended a meeting presided over by Ed Welsh (Executive Secretary, Space Council) to decide whether to include the SNAP device in the forthcoming Transit satellite. The State Department opposes this on the basis of a propaganda hazard in case of a failure. AEC, DOD, and NASA support it on the basis that a test is needed. Welsh may take the issue to President Kennedy. Attendees at the meeting were Welsh, Captain H. E. Ruble, Philip Wakelin (Assistant Secretary of the Navy), James Wakelin, Harry Finger, John Graham, Harold Brown, Frank Pittman, Lee Haworth, Philip Farley, Jack Armstrong (State Department) and Phillips (NASA).

At 5 p.m. I gave a talk on the Transuranium Elements, especially the recent discovery of Element 103 at Berkeley and the role of the scientist as a government administrator at a meeting of the Radiation Research Society at the Shoreham Hotel.

Tuesday, May 16, 1961 - D.C.

In the morning I attended a meeting of PSAC. Jack Ruina discussed the ARPA materials laboratory programs. In the FY 1960 budget there was support for laboratories at the University of Pennsylvania, Cornell and Northwestern, and in FY 1961, at Harvard, Brown, MIT, Stanford and Chicago; it was decided not to support more in 1962. Dillon and Deitz reported on the need to conduct government research in building university laboratories. Harvey Brooks reported on his panel report on scientific organization in the government. It was decided to conduct a panel study on low energy physics to be started in connection with a National Academy of Sciences study.

I had lunch at the White House Mess.

In the afternoon Piore reported on progress toward constituting a computer panel. Panofsky reported on the vulnerability of ICBM warheads to nuclear weapons. Frank Long reported on the NASA and Air Force program for a big booster; this elicited a general discussion of whether a large space program is sensible. Neustadt discussed the question of whether a special assistant to the President and PSAC should have a statutory position, thus subject to subpoena by Congress, etc., but giving some other advantages. No conclusion was reached and this will be studied further.

I spent the remainder of the day in the office working on my NPR testimony for tomorrow's Authorization Hearing. I sent my bi-weekly progress report to

President Kennedy.

Wednesday, May 17, 1961 - D.C.

From 10 a.m. to 12:15 p.m. I testified in executive session before the Joint Committee on Atomic Energy on the addition of a turbo-generator, costing \$95,000,000, to the Hanford NPR to provide electrical power generating capacity of 700,000 kilowatts. For an eight-year period the reactor would be operated in the dual purpose mode, producing both plutonium and power, possibly followed by an additional 25-year period in which the reactor operation would be optimized for power only. It is justified economically, technically and in terms of plutonium producing readiness potential if needed in a disarmament situation. Van Zandt, Hosmer and Hickenlooper opposed this on the basis that it contributed to a public power position, vs. a private power position. I thought the Hearing went quite well.

I had lunch at the Senate restaurant with Senator John Stennis (Mississippi), Harold Brown and Andy Suttle (head of the Mississippi research group) to discuss the use of the Mississippi salt domes as sites for seismic and Plowshare nuclear explosions.

At 2:15 to 4:15 p.m. I testified in open session before the JCAE, again on the Hanford NPR conversion to power production. Much the same ground was covered as during the morning session with much the same results. I felt it went quite well.

I ran into Orlando Hollis coming from a Law Association reception at the Mayflower Hotel, and we took a long walk so we could talk and compare notes on happenings since our last meeting which was in 1958 (at a Pacific Coast Intercollegiate Athletic Conference meeting).

Thursday, May 18, 1961 - D.C.

At 9 a.m. I met with Bureau of the Budget Director Bell to explain to him the import of Commissioner Graham's letter to him dated May 10th (which Mr. Bell had not yet seen). I said that we wanted the President to know that we were considering reducing the price of U-235 to private users and that we were also considering the possibility of eliminating the statutory requirement for government ownership of special nuclear material, such as plutonium. I said that we didn't want any action from the President other than to be assured that he didn't object. Mr. Bell said that he would look into the matter and let us know. I told him that today I was sending a letter to the President, with approximately the same information in it as that in Mr. Graham's letter of May 10th.

I handed to Mr. Bell my letter (copy attached) addressed to him and dated today, in which a justification for the addition of \$7 million to our ROVER project is made and in which we point out a possible source of this money in view of the termination of the Florida reactor project. I explained to him that we wanted to be sure that we are not decoupled from the overall space program, and, therefore, he should not take too seriously our suggestion of this particular source for the funds. He agreed that such decoupling shouldn't occur and said that, in any case, it would have to go through the Appropriations Committee, so it didn't make too much difference whether particular sources of funds were thus indicated.

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Dear Mr. Kelly:

In connection with your letter of January 25, 1985, and comments prepared by the Committee on the Budget for the fiscal year 1986, I have very much appreciated to you by my letter of March 11, 1985, an answer-both regarding an increase in the estimate for operating costs of the Fusion Technology Research Program (FY86-90) from \$15.0 million to \$22.0 million. Details of the increase were summarized to your staff with our letter. The additional \$7.0 million was based on originally, the program to have started initiation of flight testing in the FY86-87 period. We indicated further that if all available reports of the program proceeded without difficulty, flight testing could start in 1985.

The 1986 Budget Committee's statement to the Congress by the President on March 25, 1985, did not include the above increases, on the basis that it should be deferred pending further study. In view of the progress of the study being conducted by our group, the Committee considers it not to be timely to request reauthorization of an amount in excess of the 1982 level as indicated to provide for the increase of \$7.0 million for operating costs of the above program.

The Committee believes that \$7.0 million is of considerable significance with respect to our ability to effectively analyze data in close space applications of the future. In your mind, an objective of our national space program is the development of systems that will be capable of delivering large payloads on alternate space vehicles. Various nuclear propulsion systems offer potential advantages over conventional chemical systems, the nuclear rocket engine program to be known as the open loop engine, high specific impulse. Major studies of technology needed engines is required as the earliest possible step in order to provide needed design information on a timely basis and to commence the operation of nuclear systems in the space shuttle program.

In accordance with statutory requirements, the Committee has submitted to the Joint Committee on Atomic Energy for a 60-day limited period, and a request of a waiver of the waiting period, a proposed amendment of the agreement with the West Coast and Florida Fuel Cycle Facility Trust Group under the Committee's continuing Energy Research and Development Program. Comments upon any action by the Committee, and amendments would result in the redistribution of above \$7.0 million of funds under that program. The Committee has determined that work done had been carried on under this agreement in the use of technology for fuel elements should be continued under the Committee's program for developing general reactor technology. It

Honorable David E. Bell

- 2 -

is estimated that such work would require \$2.0 million in fiscal year 1962. The balance of the funds released could be applied to the increased amount of \$7.0 million for Rover. Although no additional funds will be required for fiscal year 1962, costs for the Reactor Development Program will need to be adjusted in the estimates. Should the termination above not become effective, it will be necessary to request a supplemental estimate for the Rover program.

Since the Commission is presently scheduled to appear before the House Appropriations Committee on May 25 and 26 to testify on its 1962 budget estimates, it would be most helpful if your review of this request could be completed before that time.

Sincerely yours,

(Signed) Glenn T. Seaborg

Chairman

Honorable David E. Bell
Director, Bureau of the Budget

(For Dist. See Encl. 2)

Ed and Elsie McMillan dropped in and we discussed: 1. the Berkeley Chancellorship, 2. the 300 BeV accelerator projects sponsored by Cal Tech and Berkeley and the possible competition between the two groups, especially within the University of California (UCLA and La Jolla are involved in the Cal Tech proposal), and 3. the status of the Lawrence Hall of Science. Molly Lawrence, Don Cooksey, Ed McMillan and Harvey White feel that the memorial should be such a hall and not a dormitory, student union wing, or a room in the new physics building.

I had lunch at the White House Mess with Najeeb Halaby, Mrs. Elizabeth Smith (Treasurer of the United States) and Ed Day (California Club member); we discussed plans for President Kennedy's birthday dinner on May 27th.

In the afternoon I appeared, along with Haworth, President Wallace Sterling and Panofsky, at the Authorization Hearing before the Joint Committee on Atomic Energy on the Stanford Linear Electron Accelerator. The main problem raised was that of the degree of AEC control in the management of the project. I said that I would have a position on this at tomorrow's Hearing.

Ambassador W. C. Naude of the Union of South Africa paid me a courtesy call.

I attended a reception given by General and Mrs. K. D. Nichols at the Army and Navy Club. I also went to a cocktail party for the National Science Board given at the home of Mr. and Mrs. Alan Waterman and then attended the Board dinner at the Westchester, where Jerrold Zacharias spoke on the needed program for the improvement of U.S. education.

I wrote a letter (attached) to Edith Erickson who is recovering from an accident.

Friday, May 19, 1961 - D. C.

I testified at the JCAE Authorization Hearing, along with Luedecke and others, on projects proposed by the staff that did not get to the Bureau of the Budget plus those that the Bureau cut out. I committed myself to support the University of Washington's request for a tandem Van de Graaff (\$2.6 million) and the University of Chicago's request for a high energy physics building (\$900,000).

I received a letter from Budget Director Bell raising the question of whether this Space Program could afford the supplemental budget for ROVER in view of the demands on the scientific and engineering manpower. I answered, protesting vigorously the possible disapproval of this ROVER increase, pointing out that in the proposed large increase in the Space budget for FY 1962 directed toward an accelerated man-in-space program, ROVER surely should be included. (Copies of this correspondence are attached.)

Commander Wilson and I had lunch at the Metropolitan Club.

From 3 p.m. to 4 p.m. I attended a meeting of the National Security Council at the White House. Present at the main table were: President Kennedy, Messrs. Dulles, Wiesner, Bell, Dillon, Bundy, Harold Brown, Gilpatric, Lemnitzer, McNamara, Chester Bowles, McCloy, me. At the side tables were: Fisher, Gullion, Curtis LeMay and a large number of military people. The purpose of the meeting was to hear a briefing by Harold Brown on questions bearing upon the resumption of atomic weapons testing. McNamara introduced Brown who then gave his presentation. After this briefing, there was general discussion. The President asked what the Russians needed most from testing, and the answer was

May 18, 1961

Dear Edith:

I was very distressed to learn of your accident and have been intending for sometime to drop you a note. I hope that your recovery is proceeding very well and that this unfortunate incident hasn't been too discouraging to you.

As you probably know, I am living alone in Washington this spring awaiting the arrival of Helen and the children at the end of the school term. We felt that it would be too difficult for the children to break up the school year and try to make the move in a hurry in the middle of the winter. I arrived in Washington to take over my new duties on February first and, of course, have found it to be a pretty lonesome life. However, the work is extremely interesting and satisfying and I have been so busy that I haven't had time to feel sorry for myself.

I succeeded in finding a very satisfactory house and, therefore, I went ahead and bought it without the benefit of Helen's firsthand inspection. We did have many conferences by long distance telephone, of course, and I am rather optimistic in my hope that the family will be pleased with the choice. The house is within walking distance of all the kinds of schools that we will need--elementary, junior high school and high school--and it is also close to shopping districts so that it should be very convenient. It is in the District of Columbia at 3825 Harrison Street, N. W., Zone 15, and, thus, is also conveniently located with respect to downtown Washington. We are keeping our home in Lafayette since we intend to return there in the not too distant future after our assignment here is completed.

As you know, Aunt Esther and Cousin Alice and her husband, Jim Robinson, and daughter Joanne, are living in nearby Alexandria, Virginia which gives me the opportunity of seeing them occasionally. I also managed to get home to Lafayette over Easter week end and had the good fortune to see Uncle Henry and Aunt Minnie during their visit with Cousin Charles at that time. My mother and sister, Jeannette, also visited us during that week end. As you know, Cousin Charles is now working for one of our Atomic Energy Commission contractors in Livermore, California and, thus, at a great distance is one of my employees.

2.

I don't know when we will be able to get up to Ishpeming. The older children remember our 1952 visit there quite well.

I do hope that your recovery will be rapid from now on.

With best regards, and with love,

Mrs. Edith Erickson
Belle Francis Memorial Hospital
101 South 4th Street
Ishpeming, Michigan

GTS:mc

UNCL. BY DOE
NOV 86

May 19, 1961

Dear Mr. Bell:

We received your letter and the Bureau of the Budget staff report on the accelerated space program late yesterday afternoon. I must register a strong disagreement with your staff's recommendation to delete the funds that were requested by the AEC and the NASA for nuclear rocket propulsion (ROVER) development. It is inconceivable to the Commission that any generally accelerated program for the exploration of space -- especially one intended to "leapfrog" the spectacular Soviet accomplishments to date -- would fail to provide the comparatively modest additional increment to enable the establishment of target dates for prototype nuclear rocket test flights. We are convinced that the potential performance of the nuclear rocket offers a possible, and perhaps a uniquely possible, approach to insure our superiority in space exploration.

We are especially puzzled and disturbed by the sequence of budgetary actions on the ROVER program. When both of us met with the President on this subject, he deferred action on the additional \$7 million for AEC and the \$23.5 million for NASA, pending a review and a determination with respect to the question of whether or not the U. S. would pursue an accelerated man-in-space program. It was my understanding at that time that the future of the nuclear rocket program was related to the future of our manned vehicle program. Now, the President presumably has made the determination to proceed with the man-in-space program. Now, however, new objections are raised by the staff of the Bureau. We are grateful to you for affording the Commission an opportunity to comment on your staff's recommendations before you review them and make your own recommendations to the President.

We would consider it a serious national error to delay the sound conduct of the nuclear rocket program. The funds that we and the NASA requested were based on our determination that the potential advantages of the nuclear rocket must be thoroughly evaluated and developed as rapidly as

this new technology will allow. Flight tests are an essential part of such a technical evaluation and are required to establish necessary design information leading to the development of operational systems.

The nuclear rocket holds promise of providing a unique capability to perform heavy payload planetary missions. Analyses have also shown it to offer performance and economic advantages when large amounts of payload are to be delivered to the moon, as would be required when bases are established on the moon. Although we realize that the urgency of a manned lunar landing by 1967 requires that the most developed rocket technology, the chemical systems, receive primary attention, even these systems may not be available in the desired time period. We must point out that design analyses indicate that lunar landing vehicles utilizing nuclear rocket stages in combination with chemical stages would require lower thrust, fewer stages, and would be significantly lighter than all-chemical vehicles.

Technical difficulties and resultant slippage in developing the extremely large chemical HGV vehicles combined with early success in the nuclear rocket program could result in reconsideration of the vehicle configuration for the manned lunar landing.

We believe it unsound and not in the national interest to place the nuclear rocket program in a category of items unrelated to the lunar landing mission.

We think the arguments that the nuclear rocket program may interfere with the manned lunar landing program, and that the proposed funding and schedule for SOVER would unduly dissipate our resources and capabilities are not based on careful analysis. Possibly the Bureau of the Budget staff has supporting data not included in their report. In the absence of statistics supporting such profound conclusions, we have no basis for assuming that the U. S. does not have the industrial and scientific capability to pursue both the chemical and nuclear rocket programs and to do both of them well. Our own appraisal of the atomic energy industry and the scientific capabilities of our laboratories leads us to a contrary conclusion. For example, the proposals and

- 3 -

expressions of interest that we have received in the ROVER program from the rocket industry and nuclear industry suggest that we do have the capacity and the capability.

In conclusion, I believe that an aggressive, imaginative, and bold space program intended to establish our superiority requires that nuclear rocket development be part and parcel of the nation's over-all space vehicle effort. We intend to support this position with all possible vigor and in all appropriate ways.

Sincerely yours,

signed Glenn I. Seaborg

Chairman

Honorable David E. Bell
Director
Bureau of the Budget

Orig. & 1 Cy: Hand Delivered to Mr. Shapely, BOB
1 Cy: Hand Delivered to Dr. Ed Welch, Exec. Dir., Space Council

CROSS REFERENCE SHEET

TITLE OF DOCUMENT Memo for The Chairman, AEC
from Bell - Review of Space Proposals
with Attachments 25 pages

DOCUMENT DATE MAY 18, 1961

This document requires further classification review and has been removed from this folder.

Dick Koogk
Name

November 7, 1986
Date

that they did not need bigger strategic warheads, but most likely needed lighter, more maneuverable ones. The President asked LeMay, that if we made a strike, would we have enough to prevent retaliation; LeMay said we probably would not. LeMay suggested that both the U.S. and the U.S.S.R. probably should go the route of the development of smaller missiles. The President asked further questions, such as the degree of reliability of the Atlas and Polaris, etc., and LeMay gave some estimates.

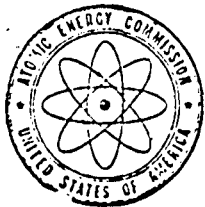
The President said that the reactions from our embassies around the world all gave the estimate that the reaction to our resumption of testing would be very adverse. The President said that all factors must be weighed and, if the decision appears to be a close one, perhaps we should wait for a time before resuming testing; but if the answer seems clear, we should begin immediately to think of the public steps that should be taken.

Bundy made the point that better evidence on the question of whether the U.S.S.R. is testing is very important. Dulles said that the evidence simply is not and cannot be good in the range of low yields, and whether we get the answer through Intelligence is just a matter of luck.

The President then raised the question of our immediate course of action in view of the impending meeting between himself and Khrushchev on June 3rd. One possibility seemed to be that an announcement might be made Monday that the President was asking Arthur Dean to come back from Geneva, and thus the President could see him before he leaves for Paris at the end of the week. Another possibility might be to issue a statement over the weekend and have Dean come back in time for the Meeting of the Principals on Monday (May 22nd). He asked Mr. McCloy and Mr. Murrow to think about a course of action here. This course of action should also contemplate building up public attention to the problem posed by the Russian position. The President raised the question of where we should do the testing and on what time scale it should be announced if he does decide to resume.

Information Meeting 32 (notes attached) was held at 4:30 p.m. We discussed the priority of the items that we would like to have if the JCAE decides to add additional ones to the Authorization Bill and decided on the following: 1. the Bio-Lab at Brookhaven, 2. the High Energy Physics Lab at the University of Chicago, 3. a Bioradiological Laboratory at the Radiation Laboratory, Berkeley, 4. a tandem Van de Graaff at the University of Washington, 5. a U²³³ metallurgical facility at ORNL, and 6. the Guam Reactor. We also discussed the letter to the White House on the barter arrangement on South African uranium; the Executive Order on ethical standards; the presentation of industrial proposals on NERVA at NASA next Monday; the S.E. Graduate Research Center request for \$16 million High Flux Reactor (the Berkner request which we propose to reject); the report on the 74th GAC meeting; the State Department's attitude against including a SNAP device in Transit and Welch's reluctant decision to rule, on behalf of the Space Council, in their favor so far as the June shot is concerned but on the assumption that it might be included in the August shot; the letter to Bell protesting the BOB attitude on ROVER and plans for reorganization of AEC operations.

I attended the 41st Annual Dinner of the White House News Photographers Association at the Sheraton Park Hotel. Alan King and Jane Morgan entertained and President Kennedy gave an excellent short talk.



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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NOV 86

May 19, 1961

INFORMATION MEETING 32

4:30 p.m., Friday, May 19, 1961 - Chairman's Office, D. C.

1. Federal Radiation Council Meeting - Dr. Haworth reported action was blocked on the radiation standards paper which will be reconsidered in the next meeting. Dr. Haworth will follow the matter.
2. Mr. Olson's Trip Report
3. Joint Committee Members Attendance at Geneva Conference - Dr. Seaborg reported that members of the Joint Committee will depart on May 24 to attend the Conference.
4. New York Times May 19 Article re JCS NATO Visit
5. Pricing Policy on Special Nuclear Materials - General Manager is attempting urgent BOB clearance looking to informing the Joint Committee tomorrow.
6. White House Memo on President's Conflicts of Interest Message - The Commissioners emphasized their support and requested appropriate notification to the staff. (GM - Secy)
7. Letter to White House re Barter Arrangement on South African Uranium - The letter was approved as revised at the meeting. (GM - Brown)
8. Possible Joint Committee Additions to the Authorization Bill - The Commissioners assigned the following add on preferences : (General Manager)
 - 1) Controlled Environment Laboratory - Brookhaven
 - 2) High Energy Physics Building - Chicago University
 - 3) Animal Biological Radiation Laboratory - University of California.
 - 4) Tandem Van de Graaff Facility - Washington University
 - 5) U-233 Metallurgical Laboratory - Oak Ridge

Guam Reactor

9. Report on 75th GAC Meeting - Dr. Haworth said he was following this matter.

10. Letter re South West Graduate Research Center Proposal - Commissioners requested preparation of a reply. (GM)
11. NASA Presentation on Nuclear Rocket Engines, Monday, May 22, 10:00 A.M. - The Commissioners said they would attend.
12. Visitors at H Street Office - The Commissioners suggested a consideration of the matter. (GM - Brown)
13. Mr. Price's Memo re Possible Leakage of Container
14. Letter to Governor of Connecticut re Regulatory Function - Mr. Graham said he had sent a letter on May 15.
15. Security Controls at Laboratories - The Chairman requested consideration and the General Manager reported a recommendation would be forthcoming shortly. (GM)

Present

Dr. Seaborg	Mr. Brown
Mr. Graham	Gen. Luedcke
Dr. Wilson	Mr. Oulahan
Mr. Olson	Mr. J. Johnson
Dr. Haworth	Mr. McCool

Distribution

Commissioners
General Manager(3)
General Counsel
Secretary

W. B. McCool .
Secretary

Saturday, May 20, 1961 - D.C.

I met with Commissioners Haworth, Graham and Olson to discuss the Commission reorganization of operations. I appointed a committee of Haworth (chairman), Olson and Brown to study it and make recommendations. An immediate problem which I must resolve is Luedecke's reluctance to implement our decision to place Armstrong in charge of the SNAP program--General Branch is resisting this by means that do not seem ethical. I told them that the problems to which we must give high priority are: 1. reorganization, 2. the nuclear power program, 3. weapons, 4. the 1962 Budget, and 5. university relations.

McCloy called at 11:55 a.m. to confirm impressions he had come away with from yesterday's meeting of the National Security Council. He has the feeling that the President got the impression that there is no deep military need for further nuclear testing. He had this confirmed this morning by a conversation he had with Bundy, who, incidentally, has seen the President since the meeting. He was impressed with Harold Brown's presentation. He came away with the feeling that Brown made a case for resumption of testing, even though he was not actively doing a job of advocacy. I said that from a talk I had with him over lunch last week, his actual feeling is that these tests are needed for the good of the country.

He said that an alternative to resumption is simply to drift. You can drift past the July 31st meeting, then you get immersed in the Comprehensives, and you can go on this way for two or three years. I noted the undesirability of this course. I said that the President did note that, unless there was a very clear indication to resume testing, if we do resume, we might do it over a period of months, say, three to six months; in other words, it would be done slowly, and we would not rush it. We would build up world opinion, announce the tests, etc.

He asked whether I had seen a letter from Norris Bradbury to Harvey Brooks, dated May 9th, on the subject of nuclear cut-off, saying he had come to the conclusion that nothing effective could be done in the way of inspection on any partial cut-off. The only feasible solution was total cut-off (but not destruction of stockpile). Under present circumstances, this is endurable, although it might put some limitations on peaceful uses, such as power. I said I have not seen the letter, so he will send me a copy of it.

I commented on his memorandum to me, dated May 16th, on the subject, "Course of Action in Nuclear Test Negotiations." I mentioned that there would be difficulties regarding declassification of information which could be derived from an inspection of the devices to be used for the nuclear detonations in the VELA program. I told him that the JCAE would have to be brought into this, and that maybe the first step should be to sound them out to see if this would be practicable. An area where this will be particularly touchy will be the potential disclosure to other nations in the spread of nuclear technology. McCloy said that if the information were declassified, the President could then limit to whom it could be shown. I mentioned that we would want to derive value from the disclosure; with the treaty this was clear, but without the treaty, I am not so sure.

I had lunch with Graham, Arthur Krock, Judge John Kern and others at the Metropolitan Club.

I spent the afternoon reading a large stack of AEC action papers and reports.

I received a letter and clippings from Helen.

In the evening I attended a black tie dinner at the Walter Lippmans with Mr. and Mrs. David Brinkley, Mr. and Mrs. Walter Heller, Mr. and Mrs. Pierre Salinger, Henry Brandon, (London Times reporter), Mr. and Mrs. Howard K. Smith, Mrs. Russell, Ambassador and Mrs. Caccia (Great Britain), Mr. and Mrs. Norris Darrell (New York City lawyer), Mr. and Mrs. Ernest Angel (New York City lawyer), and Mr. and Mrs. Stewart Udall. Lippman described his recent interview with Khrushchev; he said Khrushchev feels that anyone who thinks that a limited war with nuclear weapons is possible is stupid.

Sunday, May 21, 1961

I spent the day reading journals and AEC material, working on my Florida State Commencement address and preparing for my testimony before the Appropriations Committee this week.

Monday, May 22, 1961 - D. C.

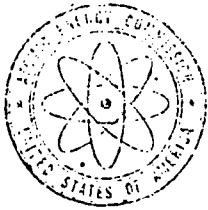
At the 9:30 a.m. Information Meeting 33 (notes attached) we discussed: 1. the press release for our proposal to acquire land in Nevada for the Vela program; 2. Ed Welch's information that the supplemental ROVER budget will be included in the President's message tomorrow despite opposition by BOB; DOD and NASA supported AEC on this; 3. plans to prepare a preliminary 1963 and subsequent years' budget due soon; 4. the status of the paper on fissionable material price reduction; and 5. AEC reaction to the Acheson Report on the NATO nuclear weapons problem.

I called Bell about the matter of pricing uranium and he said that he agreed and approved and it was now up to Dutton to check it out with the President. He said they had sent Dutton a copy of the language that we had worked out with the State Department. I called Dutton who said the paper had been sent to the President at Middleburg and he would call us as soon as he had an opportunity to see the President. Dutton called back about an hour later and said the matter was approved by the President.

At 10 a.m. the Commissioners and I attended a briefing at NASA on the criteria used and the rating of six contractors who are bidding to build the flight engine for the ROVER-NERVA project. Aerojet and Rocketdyne are the leading contenders; others are Westinghouse, General Electric, Thiokol and Pratt & Whitney. This will be a very difficult decision. A large factor in the decision is whether a company like Rocketdyne isn't so deeply involved with other rocket developments that they wouldn't do justice to Rover; another factor is the matter of broadening the base of the Space effort by bringing in other companies.

Commissioner Graham and I had lunch at the Pentagon with Air Force Secretary Eugene Zuckert and his assistant, Ned Trapnell. We discussed our difficulties with General Branch in the matter of getting Colonel Armstrong in charge of our SNAP program. Branch has retaliated by forcing Armstrong and Anderson to retire from the Air Force and by threatening to force two others out of the SNAP program; he also insists on retaining an ANP department despite the President's decision to drop this program. Zuckert said that he will take care of these problems.

At 2:15 p.m. I had a conference with Bob Hudson of the National Educational TV



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

Anamosa
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File

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May 22, 1961

INFORMATION MEETING 33

9:30 a.m., Monday, May 22, 1961 - Chairman's Office, D.C.

1. Project Rover - Dr. Ed. Welsh of the National Aeronautics and Space Council advised that Rover was being included in their recommendation to the President.
2. Pricing Policy on Special Nuclear Materials - The BOB has approved, subject to the revision of the press release. Early Presidential approval is expected, after which the JCAE will be advised.
3. Acquisition of Land for Vela - The Chairman requested revision of the press release to emphasize the proposal is consistent with the U. S. position in Geneva negotiations. (CM)
4. Budget Planning - Draft budget assumptions for FY 1963 will be submitted to the Commissioners shortly.
5. New York Times Article re Eklund as IAEA head and Dr. Smythe as U. S. delegate.
6. Visit to SAC - Tentative dates are being checked as to availability of Air Force briefing staff. (Secy)
7. The Acheson Report - Mr. Ink hopes to have draft completed on May 23. (CM)
8. Health and Safety Responsibilities re Weapons and Reactors - Mr. Graham said the draft letter to the JCAE should respond to their questions regarding weapons; a response relative to reactor responsibilities should be sent at a later date. (CM)

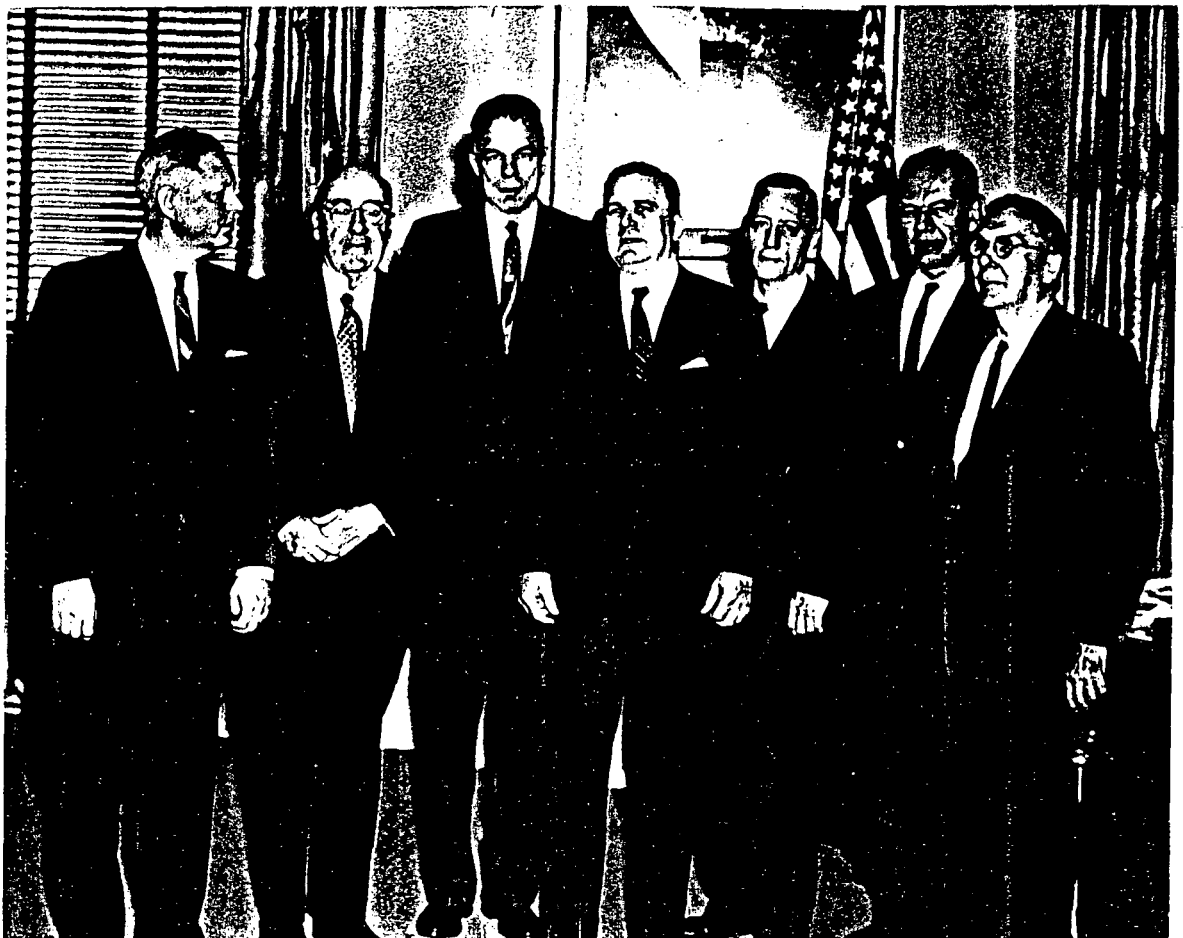
Present

Dr. Seaborg Gen. Ludecke
Mr. Graham Mr. Henderson
Dr. Wilson Mr. Anamosa
Mr. Olson
Dr. Haworth

Distribution

Commissioners
General Manager (3)
General Counsel
Secretary

Harold D. Anamosa
Acting Secretary



NASA, May 22, 1961

L to R: Mr. Olson, Dr. Wilson, Dr. Seaborg, Mr. Webb, Mr. Graham,
Dr. Haworth, Dr. Dryden

and Radio Center. He wants the AEC to finance a series of films for educational TV at Argonne.

At 2:30 p.m. I heard a briefing by John Cara and others on the AEC educational programs. I propose to strengthen these programs rather than curtail them, as seems to have been planned.

Bundy called to get information for the President, preparatory to his visit to France on June 1st and 2nd, on difficulties regarding the U.S.- French cooperation in the nuclear field. I described the situation in the nuclear submarine field and other areas where the French are dissatisfied.

Jim Webb called to ask me to join him and Gilpatric at hearings on the Space Program Bill. Each of us would make a relatively short statement to show that this is a National Space Program. Gilpatric would start out, saying that this is a national program and that DOD is prepared to defend it. Then I would make a statement on ROVER. Then Webb would take over. I agreed that this was a good idea and said I would do it.

I attended a reception at Algie Wells' for Secretary General of the Italian C.N.E.N. and Mrs. Felice Ippolito.

Tuesday, May 23, 1961 - D.C.

At Commission Meeting 1740 (action summary attached) we discussed the plan to change AEC cost principles for contracts; there is still disagreement on this question but a compromise seems possible. Such a compromise would not allow the cost of advertising, would allow incentive pay compensation and some compensation for R & D and might allow the cost of bidding. We also discussed the possibility of raising the contractor's fee; a number of contractors (such as Stanford Research Institute, A. D. Little Company, etc.) think the present AEC cost principles are too restrictive and should be more like those of the Department of Defense. We also discussed the draft testimony for the Appropriation Hearings scheduled for Thursday.

From 11 a.m. to 12:30 p.m. I attended a Meeting of the Principals. Arthur Dean, who had returned from Geneva, was present as were Rusk, McNamara, McCloy, Gilpatric, Nitze, Fisher, English, Betts, Bundy, Murrow and Wiesner. Rusk asked four questions as a basis for discussion: 1. Are there any prospects for a policed test ban treaty? 2. What are the national defense implications of the resumption of testing? 3. Can we live with an unpoliced test ban? and 4. What are the political problems involved in the resumption of testing? It was assumed, as a basis for further discussion, that the answer to the first question is a negative one. McNamara suggested the following as advantages of resuming testing: 1. the reduction in costs and the increased flexibility of smaller warheads, 2. the potential pure fusion weapons, and 3. the possible development of an Anti-ICBM; he said he could not estimate the net differential advantage but felt the U.S. would be at least as well off as it is at present. Rusk pointed to a great political disadvantage in continuing the unpoliced moratorium. Murrow thought that none of the arguments presented would be persuasive to the people of the world. McCloy suggested withdrawing from the general disarmament talks scheduled to begin July 31st as a possible means of getting the Russians to change their tactics. In response to a query I pointed out that there is a continuous gradation in the importance of the various devices that could be tested but that an important one could be ready for testing in ten weeks. No conclusions were reached.

UNITED STATES GOVERNMENT

Memorandum

TO : A. R. Luedcke, General Manager

DATE: May 23, 1961
Approved: *A. R. Luedcke*FROM : Harold D. Anamosa
Acting SecretaryDate: *5/23/61*
*Harold D. Anamosa*SUBJECT: ACTION SUMMARY OF MEETING 1740, TUESDAY, MAY 23, 1961, 9:30 a.m.,
ROOM 11113-B, D. C. OFFICE

SYMBOL: SMOY:WLN

Commission Decisions1. Minutes of Meetings 1735, 1736, 1737, 1738

Approved, as revised.

2. Minutes of 129th AEC-MLC Conference

Deferred.

3. AEC 131/62 - AEC Cost Principles

Discussed.

The Commission requested a report on adjustments in the present AEC cost fee to allow for bidding expenses. (Vinciguerra)

The Commission also requested a report on procedures and criteria to be applied for reimbursing contractors for independent research and development. (Burrows)

4. AEC 1049/30 - Proposed Opening Statement by Chairman Seaborg for House Appropriation Hearings

Approved, as revised.

The Commission requested revisions to the statement in accordance with the discussion at the Meeting. (Burrows)

5. AEC 25/132 - Proposed Air Force Safety Rules

Approved, as revised.

The Commission requested revision of sentence 1, paragraph 2 of the letter to the Secretary of Defense so as to read:

"The Commission has reviewed the proposed rules and has approved them, provided the changes enclosed herewith are included in the rules," and deletion of paragraph 3. (Zetts) 290

6. AEC 384/25 - Production of Additional U-233 for Reactor Development

Approved, as revised, subject to a Presidential determination which will be requested for FY 1962. (Pittman)

The Commission noted that initial funding for production of the addition U-233 will be requested in the FY 1962 Division of Production budget, if possible. (Pittman)

7. AEC 1038/27 - Improved Cycle Boiling Water Reactor Project

Approved. (Pittman)

8. AEC 937/24 - Mutual Defense Agreement for Cooperation with the Government of France

Approved. (Wells)

The Commission requested the substance of recommendations be summarized in staff papers. (Hollingsworth) *(Assigned by RCH)*

Other Business

S 1842

The Commission requested preparation of comments on S 1842. (Naiden)

Items of Information

1. Colonel Goldenberg's Report on His Recent European Trip.
2. Report on Status of the Small Pressurized Water Reactor Project.

From 1:30 to 4 p.m. I attended the monthly meeting of the Federal Council for Science and Technology. Wiesner, presiding, reported on the topics of our last PSAC meeting: 1. the status of the ARPA Materials Laboratories, 2. the study of West Virginia unemployment and the possibility of stockpiling coal, 3. a possible AEC study of lowering electric power transmission costs, 4. a study of astronomy needs, and 5. panels on low energy nuclear physics, plasma physics and geophysics. Waterman and Burton Adkinson reported on problems in scientific reporting and information which are being studied by the National Science Foundation. John Macy (Chairman, Civil Service Commission) reported on plans to better the salaries of scientists in government in order to keep good men. Secretary Udall reported on Interior's Desalination of Water Program and I told about AEC's possible plans to have the Oak Ridge Laboratory enter this field in a serious way.

I gave Bundy material on U.S.-French relationships and difficulties in the nuclear field for President Kennedy's possible discussions with de Gaulle.

I sent my bi-weekly report to the President today (copy attached).

Wednesday, May 24, 1961 - D.C.

At the 9:30 a.m. Information Meeting 34 (notes attached) we discussed: 1. the problem of the joint AEC-Stanford management of the accelerator project; 2. the necessity to move forward on AEC approval of the ORNL desalination project proposal, i.e., creation of a central water laboratory; 3. yesterday's Federal Council meeting; 4. the application of the new pricing of fissionable material policy to Euratom; 5. Gilpatric's letters on the AEC-Air Force stockpile surveillance agreement and his proposal for a joint AEC-Air Force office on projects such as SNAP, which we had decided to transfer totally to AEC, and PLUTO; 6. the possibility of sending Commissioner Haworth to Alaska in connection with the public relations difficulties on Project Chariot; 7. data for the visit to SAC Headquarters in Omaha on June 12th and 13th; and 8. a reorganization of the Division of Reactor Development.

At 11 a.m. I met with Secretary General Ippolito and his group to get a briefing on the Italian (CNEN) nuclear program.

I then met with Ambassador Walton Butterworth (U.S. Representative to Euratom, European Common Market and Coal and Steel Community). Phil Farley (State Department) and John Hall and Algie Wells were also present. We discussed mainly the new fissionable material pricing policy and whether the new interest rate, raised from 4% to 4-3/4%, would be applicable to Euratom. Butterworth insisted that it should not, whereas I raised the question of whether different standards can be used in Euratom and the United States. He urged me to talk to Etienne Hirsch (Head of Euratom).

At 1:30 p.m. I met with Admiral Wilson D. Leggett (Vice President for Engineering, ALCO) who briefed me on his company's activities and asked that they be considered for building the Byrd reactor.

From 2 p.m. to 3 p.m. I attended a joint MLC-AEC meeting attended by General H. B. Loper, General B. K. Holloway, General R. L. Wassell, General J. T. Snodgrass, General D. C. Lewis, Captain F. H. Brumby, Captain F. W. Vanney, Colonel J. W. Burfening, Captain F. Costagliola, Captain F. B. Gilkeson, Captain J. M. DeVane, Colonel R. H. Gattis, Colonel E. P. Yates, Colonel C. E. Mead,

May 23, 1961

PERSONAL AND CONFIDENTIAL

Dear Mr. President:

The following is my informal bi-weekly report on developments in the atomic energy program which I believe will be of interest to you.

1. Ramjet Propulsion - Project Pluto (Confidential)

Project Pluto is a Joint AEC-Air Force program designed to demonstrate the feasibility of using a nuclear power source for ramjet propulsion. It is expected that a propulsion system of this type could propel a missile at a speed better than 2000 miles per hour at sea level for 10 hours. Since the air breathing missile would operate at relatively low altitudes it is possible that it could escape radar detection. Also with its projected range it could circum-navigate the globe.

I am pleased to inform you that on May 14 the first "non-flying" reactor developed under this program was successfully tested. In this test the reactor operated at a higher level and a longer period than had been anticipated. This test was significant in that it is the first air-cooled, ceramic reactor to operate under these conditions in the Free World. I do not have any information concerning USSR developments in this particular type of reactor for missile propulsion.

2. Project Chariot (Unclassified)

Recently our Project Chariot, the proposed nuclear excavation of a harbor in Alaska, which is a part of the Commission's Plowshare program has been the subject of an increasing amount of correspondence, some of which has been addressed to you. Although it is not necessarily apparent from the correspondence, I am informed most of it originates in or is prompted by a very small group. As you know, the only work underway or authorized for Chariot are the surveys which will provide data from which a safety determination can be made.

Since many of these letters have also been directed to the Governor of Alaska, the Commission is considering the desirability of sending a senior official to Alaska to discuss the matter with the Governor and with other appropriate officials. I would be pleased to arrange a briefing for you and members of your staff, if you desire.

3. JCAE Concludes AEC Authorization Hearings (Unclassified)

The JCAE has concluded its hearings on AEC FY 1962 authorization legislation. Those items of primary interest to the Committee during the past week were (1) conversion of the Hanford New Production Reactor to produce 700 megawatts of electric power and (2) the Stanford Linear Accelerator. The NFR conversion was supported by the majority of the Joint Committee, but minority opposition, led by Representative Hooper of California, indicated the likelihood of a floor battle on this feature of the authorization bill.

A discussion of the Stanford Accelerator suggested no opposition to the Project, although some reservation was expressed concerning the adequacy of administrative and contractual controls. I believe that we will be able to satisfy their concern and that the project will be authorized.

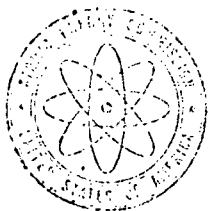
Respectfully submitted,

(Signed) Glenn T. Seaborg

Glenn T. Seaborg

The President
The White House

CLHenderson:bmd



UNITED STATES
 ATOMIC ENERGY COMMISSION
 WASHINGTON 25, D. C.

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May 24, 1961

INFORMATION MEETING 34

10:00 a.m., Wednesday, May 24, 1961 - Chairman's Office, D. C.

1. Visit to SAC - July 9 was agreed as the best date. An itinerary will be obtained and circulated for the Commission's information. (Secy)
2. Desalinization of Water - The Chairman discussed Secretary Udall's paper and said it would be an important national effort. Utilization of ORNL in the program was agreed as desirable. Recommendations for AEC participation were requested. (CM - Pittman)
3. Report on Meeting of Principals
4. Polaris Tests
5. Publication of Scientific Information - The AEC was requested to designate a contact point for Mr. Burton Adkinson of the National Science Foundation. (Dr. Haworth)
6. Project Chariot - The Chairman discussed the volume of mail referring to this project and discussed the desirability of a Commissioner visiting Alaska.
7. D. C. Office Space - The Chairman requested a space utilization study for the D. C. Office. (Secy)
8. Reorganization of Division of Reactor Development - Dr. Pittman's plans were discussed. A paper presenting recommendations to the Commission was requested. (CM - Pittman)
9. Pricing Policy - The Chairman said the Notice to the Federal Register should be dispatched tomorrow morning, May 25th. (CM - Fine)
10. Seam Contract with EURATOM - Mr. Ferguson explained the implications of the new pricing policy as they affect EURATOM. The Commission requested EURATOM be notified to delay signing the Seam contract. (CM - Wells)

Present

Dr. Seaborg	Gen. Ludecke
Mr. Graham	Mr. Brown
Dr. Wilson	Mr. Ferguson
Mr. Olson	Dr. Pittman
Dr. Haworth	

Distribution

Commissioners
 General Manager (4)
 General Counsel
 Secretary

Harold D. Anamora
 Acting Secretary

Colonel J. D. Werthman, Colonel A. W. Knight, Major C. J. Avery and Lieutenant H. E. Balcon. Colonel Skinner briefed us on DOD safety procedures pertaining to nuclear weapons. We also discussed their request for fissionable material for two reactors they are planning.

At 3:30 p.m. Commissioner Graham and I met with General Roscoe Wilson (Deputy Chief of Staff for Development, Air Force) to follow up our discussion with Secretary Zuckert on Monday. General Wilson said Zuckert had been quite shaken up by our conference about the difficulties concerning relationships between the AEC and the Air Force. He said that General Branch is being transferred to other work. We then got into the question of forced retirement of Colonel Armstrong and Colonel Anderson and he said he would look into the Anderson matter to see whether anything could be done. It was agreed that Armstrong and Anderson would work in the new AEC SNAP organization rather than in a joint arrangement. The details will be worked out between Wilson and Luedecke. (I saw Luedecke later and asked him to be sure to see Wilson.)

I saw Walker Cisler (President, APDA) at 4 p.m. He has been doing some thinking about the need for some sort of action to get forward from the present hiatus in nuclear power development. He wonders whether an industrial advisory committee might not be a good idea. This could work broadly not only on the reactor problem, but on fuels research and development questions and reprocessing. He thinks that it should consider international as well as national problems. I told him that I would give the idea of such an advisory committee serious consideration. I also mentioned to him my talks with Chauncey Starr and our agreement that I would receive the advice of his committee working with the AIF on the future of nuclear power development.

Commission Meeting 1741 (action summary attached) was held at 4:40 p.m. We authorized the staff to negotiate with Westinghouse, with an \$8.7 million upper limit, for R & D for Southern California Edison's 325 MW reactor.

At 6 p.m. I met with Charles Robbins (Executive Director, AIF). He urged me to see Hirsch to work out U.S.-Euratom relationships, especially as regards the U^{235} pricing policy.

At 7 p.m. I attended a reception at the residence of Ambassador and Mrs. Heeney of Canada in honor of the birthday of Her Majesty Queen Elizabeth II.

Thursday, May 25, 1961 - D.C.

From 10 a.m. to 12 noon and from 1 p.m. to 4 p.m. I testified before the House Appropriations Committee in defense of the entire AEC 1962 operating and construction budget totaling some \$2.7 billion. Clarence Cannon (Missouri), Chairman, presided in the morning and Joe L. Evins (Tennessee) in the afternoon. I used as a basis 40 pages of prepared testimony but there was much questioning on the future of civilian nuclear power, the test ban, the need for basic research, the sale and long-term guarantee of the source of fissionable material for foreign countries, etc. All in all, it seemed to go very well.

At 12:30 p.m. I was present as President Kennedy gave his message to a packed joint session of Congress (there wasn't a seat available) on "Urgent National Needs." It included a program for placing a man on the moon in this decade and also a request for AEC supplementary funds for ROVER.

I talked on the phone with Secretary Zuckert and expressed appreciation for his

UNITED STATES GOVERNMENT

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Memorandum

TO : A. R. Lusdecke, General Manager

DATE: May 24, 1961

Approved *A. R. Lusdecke*
A. R. Lusdecke

FROM : Harold D. Anamosa, Acting Secretary

Date MAY 25 1961

Harold D. Anamosa

SUBJECT: ACTION SUMMARY OF MEETING 1741, WEDNESDAY, MAY 24, 1961, 4:40 p.m.,
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:DCR

Commission Decision

1. AEC 1042/10 - Southern California Edison-Westinghouse Negotiations

The Commission approved the recommended change in the Commission's negotiation instructions to the Board as set forth on pages 1 and 2 of AEC 1042/10. (Pittman)

Commission Business

Lease Arrangements with Euratom

Chairman Seaborg said he would contact Mr. Hirsch and Mr. Butterworth by telephone. (Secretariat)

seeing John Graham and me earlier this week and told him of General Wilson's very satisfactory visit with us yesterday. I said I had a letter from Gilpatric which speaks of a continued DOD-AEC arrangement for carrying on the ANP program and that I proposed to call Ros unless he disagreed with me that we not have a joint ANP office. He said he agreed fully, but suggested I call Ros who might have some political problem. Unfortunately, I learned from Colonel Armstrong that this whole matter has dragged on so long that he has been forced to accept a position in private industry (with Rocketdyne of North American Aviation in Los Angeles) and thus will not assume the position as head of the SNAP program in the AEC.

I attended a reception for Harold Brown and Herb York at the Army and Navy Club given by Vice Admiral John T. "Chick" Hayward.

I had dinner with Leland Haworth.

Friday, May 26, 1961 - D.C.

I had breakfast this morning with Louis Silverman, my old friend from UCLA student days, at the University Club.

I attended the Appropriations Hearing and heard Admiral Hyman Rickover testify on the inadequacy of the American educational system; the deficiencies of Annapolis, West Point and the Air Force Academies; the adverse effect on our national security of the numerous press groups in the U.S.; the inadequate effort and sacrifices by the American people, etc. There was no criticism of the AEC and its program. During this session, Congressman Cannon expressed grave doubts about the U.S. spending the amount of money needed to put a man on the moon.

I attended a lunch given by Sweden's Ambassador Gunnar Jarring at his residence on Nebraska Avenue for Dr. Sigvard Eklund. Eklund indicated his willingness to accept the position as Director General of the IAEA; the U.S. and other western countries are backing him. Also attending was Baron Carl-Henri Nauckhoff of the Swedish Embassy (a nephew of Sigurd Nauckhoff of Grangesberg, a friend of my mother).

Harold Brown called from Livermore and suggested that I call Senator Anderson expressing the interest of the Commissioners in seeing that the move goes through on Jerry Johnson. He also asked me to call Senator Jackson. I said I would call Jackson right away and Anderson as soon as he returns from Geneva. I called Jackson and told him we are quite anxious and hopeful that Jerry Johnson can take the position as Chairman of the MLC. He said he thought highly of him and would talk to Anderson as soon as he returned; he thinks he can work this out with Anderson.

At 4:20 p.m. I called Etienne Hirsch in Paris, inviting him to come to Washington to discuss with me U.S.-Euratom relationships in the nuclear power field, especially as they relate to the new U.S. fissionable material pricing policy. Hirsch said he would wire me after checking his schedule and give possible dates for a meeting between us.

From 4:30 p.m. to 6:30 p.m. I presided at Information Meeting 35 (notes attached). We discussed: 1. the proposal of a summer (1962) study at the Berkeley Radiation Laboratory of high energy accelerators; it was approved subject to no commitment on building such an accelerator; 2. the competing



UNITED STATES
ATOMIC ENERGY COMMISSION May 25, 1961
WASHINGTON 25, D. C.

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INFORMATION MEETING 35

6:00 p.m., Friday, May 25, 1961 - Chairman's Office, D. C.

1. Study of Control System - In response to Mr. McCloy's letter, the Chairman said Dr. English should be delegated as the AEC representative.
2. Discussion with Etienne Hirsch - Dr. Hirsch is planning to come to the United States and will wire next week as to possible dates.
3. Study of High Energy Accelerator - The Chairman said a proposed summer study at the radiation laboratory of high energy accelerators, including foreign scientists, had been held up due to AEC policy regarding foreign participation in such conferences which might lead to commitments. He said the summer study should proceed with a proviso that no commitments would be made. (GM - McDaniel)
4. Pricing Policy - The press release will be issued as originally planned.
5. Transfer of CCOM to Department of Defense - A letter such as suggested by Mr. Graham will be sent to the Secretary of Defense. (GM - Botts)
6. Dr. Haworth's Visit to Alaska - The General Manager will discuss with Dr. Haworth necessary staff assistance. (GM)
7. Letter to JC/E Regarding Exchange Violation
8. Disposition of Lithium Tails - The General Manager will dispatch the letter to BUSA.
9. Furnishing of Nuclear Fuels - The General Manager said a statement on the Commission's policy on long range provision of nuclear fuels will be prepared. (GM - Fine)
10. Agenda for Week of May 29 - Approved as revised.

Present

Dr. Seaborg	Mr. Brown
Mr. Graham	Mr. Henderson
Mr. Olson	Gen. Ludecke
Dr. Haworth	Mr. Hollingsworth
Mr. Naiden	Mr. Anamosa

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General Counsel
Secretary

Harold D. Anamosa
Acting Secretary

groups at Berkeley and Cal Tech (inc. UCLA, USC, La Jolla) planning a large accelerator; we concluded they must get together; 3. civil defense. (In view of the President's message yesterday it was decided to get in touch with DOD as to future plans.); 4. Haworth's trip to Alaska on the Chariot Project; 5. announcement on the new U²³⁵ pricing policy (to appear on Monday); 6. my call to Etienne Hirsch; 7. next week's agenda; 8. the status of Jerry Johnson as the next chairman of MLC; and 9. a letter to the General Manager, asking him to appoint someone to head the SNAP organization immediately.

I wrote a letter (attached) to Helen.

Saturday, May 27, 1961 - D.C.

I spent the morning working on various papers. John Graham, Howard Brown and I talked about the AEC reorganization plan. I will write a memo to the General Manager, asking for his views and those of his staff on reorganization so the information can be used by the Haworth-Olson-Brown Committee studying this.

I had lunch at the University Club with Art Campbell, George Pimentel, Dick Coulson and John Mays (latter two from NSF), who are participating in a two-day meeting on the coordination of curriculum studies. We discussed such future plans for CHEMStudy as the number of participating schools in FY 1962-1963. (We suggest 300 with texts provided by NSF; Coulson and Mays suggest less); the status of the film program, the status of the selection of the publisher of text; the preparation of a budget proposal for FY 1961-1962; reappraisal meeting of contributors in Berkeley beginning June 17th; etc. Pimentel told me about some possible personal plans in confidence.

I had a cup of coffee with Bob Finley who is in town for a two-week Navy training period at the Office of Navy Intelligence.

I went to the Georgetown apartment of Mrs. Elizabeth Smith (U.S. Treasurer) for pre-dinner cocktails with Mr. and Mrs. Roger Kent (California Democratic Committee), Jane McBaine and others.

I then attended with Mrs. Smith President Kennedy's \$100-a-plate birthday dinner given by the Democratic National Committee at the National Guard Armory. I sat in the third place to the right of President Kennedy at a head table, and before that, across from Vice President Johnson, who exchanged places with President Kennedy, in the middle of the evening, from another head table across the room. The President spoke eloquently to the 6,000 people present about his forthcoming meeting with Khrushchev, saying that the United States will resist to the end those seeking the destruction of human freedom, but is ready to negotiate and leave no path to peace unexplored. Before the dinner the President commented to me about my having been a recipient of the Fermi Prize of \$50,000. I mentioned that this is what made it financially feasible for me to come to Washington. He suggested that more should be made of the Fermi Award and suggested that perhaps the ceremony should be held in the White House; I agreed with this. He also said that he hadn't been impressed with the need for any urgency to develop the kind of weapons that were described in the briefing, and for which the resumption of testing would be required, at the NSC meeting on May 19th.

Sunday, May 28, 1961

I spent the day reading journals and AEC papers. I phoned Helen and also talked to Peter and David. Helen is beginning to pack things to send via freight and

May 26, 1961

Dear Helen:

I am enclosing some items that should be of interest.

We can talk about the matter of insurance for the house when I phone you Sunday evening.

I hope that you heard the President's talk yesterday because it was very good. He gave us the additional money that we asked for to speed up the nuclear rocket (Rover) program.

The weather in Washington has turned hot again, but it doesn't seem to be too bad so far.

With love,

Mrs. Glenn T. Seaborg
1154 Glen Road
Lafayette, California

Handwritten notes:
Mrs. Seaborg
Part of the Canada - Japan
planting into the...

has already sent some things to our Harrison Street house.

Monday, May 29, 1961 - D.C.

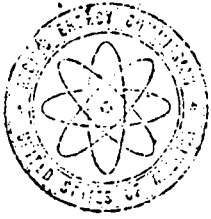
I called Mr. McCloy in response to his note of May 22nd, enclosing a copy of a letter from Norman Bradbury, dated May 9, 1961, on the subject of production cutoff. Since the matter is so complicated, I felt it would be simpler to discuss it rather than reply in writing. I said it seems to me that we will have to follow some in-between course. For example, Bradbury's idea, near the end of his letter, that we could shut off the development of civilian nuclear power is completely untenable. On the other hand, to show the complexity of this, the U-235, needed as fuel for civilian nuclear power, for the most part, is only of 2% to 3% enrichment, nor is very much of it required. It is a little hard to monitor just what kind of material is being produced, but perhaps the production could be confined to one plant. Also, the whole problem is further complicated by the fact that many of these power reactors are dual purpose, producing both power and plutonium. The Russians have gone in particularly for this type. It is possible to modify the reactor so as to produce only power; but without too much difficulty, it could go back and forth; therefore, my main reaction would be that, due to this complexity, we would probably have to learn to live with something in between. I told him that I spoke to the President for a moment on Saturday at his birthday dinner, and he did indicate a lack of impression that there is a need for testing of new weapons. I said maybe we could have an informal discussion with the President sometime.

With respect to McCloy's other letter, also dated May 22nd, asking for a representative in connection with the study for arms control, I told him Dr. Spofford English would work with them, at least until we know exactly what assistance will be required of the AEC. I mentioned the question which I brought up at our Meeting of the Principals, whether, in order to save a substantial amount of time, there should be a laying of the cables (preparatory to resuming testing of nuclear weapons). I said I am not sure we should go that far but asked what he would think of our purchasing some of the necessary material. We have a contractor who could begin to collect and assemble the material. He said he thought it might be a wise thing to do.

At the 11 a.m. Information Meeting 36 (notes attached) we discussed: 1. plans to create an industrial advisory committee to help formulate a program to further the development of nuclear power; 2. a memo to Bundy's office on dispersal of nuclear weapons; and 3. a letter to Holifield explaining the postponement, due to the State Department, of a SNAP device in the TRANSIT satellite. I gave the General Manager a memo directing him to establish a SNAP office in the Division of Reactor Development and to make general recommendations on the reorganization of various AEC operating management.

At 11 a.m. I was given a special CIA briefing by General Austin Betts and others.

I hosted a luncheon at the Mayflower Hotel for Dr. Sigvard Eklund attended by Ambassador Gunnar Jarring, Baron Carl-Henri Nauckhoff and Mr. Leif Leifland of the Swedish Embassy; Commissioner Graham; Harlan Cleveland and Philip J. Farley (Department of State); John Hall; Myron Kratzer; Chris Henderson and Bill Yeomans. During the luncheon I mentioned to Eklund the possibility of having Dr. Upendra Lal Goswami of India as a Deputy Director General of IAEA to look after the interests of the underdeveloped countries in connection with their relations with the IAEA. He seemed to be interested, although he didn't make any particular comment.



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

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NOV 86

May 29, 1961

INFORMATION MEETING 36

11:00 a.m., Monday, May 29, 1961 - Chairman's Office, D. C.

1. Enrico Fermi Award - The Chairman related the President's comment concerning publicizing the Award and the possibility of its being made at the White House. (Secy)
2. Study of Control System - The Chairman said he had discussed with Mr. McCloy the request for designation of an AEC representative and had advised that Dr. Spofford English would represent the AEC.
3. Visit to Oak Ridge by Charles Sebasta - The Chairman said he considered it important that Dr. Sebasta be permitted an appropriate visit to Oak Ridge in view of the invitation issued Dr. Waldo Cohn of ORNL to visit Sebasta's laboratory. (GM - RD)
4. Letter of 5/27/61 to Chairman JCAE re Transit Shot
5. AEC - NASS - The Chairman related the comments of Dr. Ed Welsh of the National Aeronautics and Space Council to the Vice President regarding exemplary relations with the Atomic Energy Commission.
6. President's Directive of May 20, 1961 - The Chairman read and signed a letter to Mr. Owen, Assistant to McGeorge Bundy, concerning ambiguity in terminology in the last paragraph of the Directive.
7. Mechanical Sealing Devices - Referring to Gen. Betts' memorandum of May 24, Mr. Graham requested a briefing at an appropriate time on problems involved. The Secretary of Defense and Military Liaison Committee should also be represented at the briefing. (CM - Betts)
8. Revision of Pricing Policy - The Chairman requested that Mr. Graham, the General Manager, and General Counsel review the proposed Department of State telegram to American Embassies. (CI)
9. Geneva Negotiations - The Chairman noted the introduction by Mr. Dean of the alternate plan for sliding scale inspections.

Present

Dr. Seaborg
Mr. Graham
General Luedcke
Mr. Brown
Mr. Henderson
Mr. Anderson

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Commissioners
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General Counsel
Secretary

Harold D. Anomosa
Acting Secretary

At 2:30 p.m. I was interviewed on the U.S. atomic energy program by Nicholas Vichney of the French magazine Le Monde.

Herman Kruze, Executive Vice President of Pacific Gas and Electric Company and William Woodruff, a Washington attorney, called on me to pay their respects and to get acquainted. We discussed the source of power for the Stanford Linear Accelerator.

I called Hans Bethe at Cornell University to inform him that he has been chosen to receive the 1961 Enrico Fermi Award. He expressed complete surprise and deep appreciation.

At 4:30 p.m. I was interviewed by Dick Smith of Nucleonics for a profile piece. He was mainly concerned with personal background information but also asked for background information on the Commissioners. In response to his question I made it clear to him that the Commissioners do not work in subdivided areas of authority, and, in particular, that Commissioner Graham had not been assigned responsibility for the international area.

I called Pitzer to tell him about the Fermi Award. He told me that he has accepted the presidency of Rice University after having turned down the Berkeley Chancellorship offered to him by some leading regents.

Mrs. E. R. Baturin called and said that the Harrison Street house would be available on June 28th.

I wrote letters (attached) to Ed Pauley and Helen.

Tuesday, May 30, 1961 - Memorial Day

I spent the day in my rooms at the University Club reading AEC reports and the "University of California Radiation Laboratory Chemistry Division Annual 1960 Report," as well as working on my Ohio State Commencement address.

I talked on the phone to Helen and Peter. Lynne and David were attending a baseball game.

Wednesday, May 31, 1961 - Germantown

At the Information Meeting 37 (notes attached) we discussed: 1. the status of the Smyth and Cargo appointments; 2. the status of the Bundy, Gilpatric, etc., correspondence on the JCAE and Dean Acheson NATO reports; 3. the BOB request for comment on proposed legislation establishing a U.S. disarmament agency; 4. the Appropriation Hearings on the 1962 budget held Monday afternoon (things went pretty well, but the University of Illinois Materials Laboratory is in trouble); 5. the status of the AEC-DOD stockpile agreement, etc.

At the 10:30 a.m. to 1 p.m. and 2:30 p.m. to 4:30 p.m. Commission Meetings 1742 and 1743 (action summaries attached) we discussed: 1. the revised Plowshare program; 2. fabrication of fuel in cooperating nations for use in third countries; 3. an increase of limit on exportable amounts of fissionable materials for research purposes; 4. safeguards on exported tritium; 5. the use of four U.S. reactors--two at Brookhaven, the Boiling Water Reactor at Argonne and Piqua Organic Moderated Reactor--for experimental application of IAEA safeguard procedures; 6. testimony for JCAE hearings on radiation safety and

May 29, 1961

Dear Ed:

I was sorry to learn from Mrs. Ralph W. Gardner last Saturday night that you have been a little under the weather. I had hoped to see you and Bobbi at the President's birthday dinner party.

The birthday dinner was, to my mind, a very interesting and successful affair. The President gave a very good speech in anticipation of his coming meeting with Khrushchev. Your old friend, Harry Truman, also gave a fine speech as did Sam Rayburn and Lyndon Johnson.

The time is drawing near when Helen and the children will be joining me here. They will arrive late in June and I should have our house reasonably ready to receive them at that time.

With best regards to you and Bobbi,

Cordially yours,

Glenn T. Seaborg

Mr. Edwin W. Pauley
10000 Santa Monica Boulevard
Los Angeles 25, California

May 29, 1961

Dear Helen:

I am enclosing the program on President Kennedy's birthday dinner. As I indicated in our phone conversation, it was a very interesting affair. I certainly enjoyed talking to you all last night. I hope that Lynne and David enjoy the double header tomorrow.

The weather here was cold again on Friday and Saturday, but turned warm yesterday and today has just about an ideal temperature.

Looking forward to seeing you soon,

With love,

Mrs. Glenn T. Seaborg
1154 Glen Road
Lafayette, California



UNITED STATES
 ATOMIC ENERGY COMMISSION
 WASHINGTON 25, D. C.

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May 31, 1961

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INFORMATION MEETING 37

10:00 a.m., Wednesday, May 31, 1961 - Chairman's Office, Germantown

- 1) AEC 226/283 "Proposed Establishment of U.S. Disarmament Agency",
 - The Chairman asked Mr. Brown to request a two day extension for submission of AEC views.
- 2) U. S. Delegate to IAEA - The Chairman said Dr. Smythe was in town conferring with Mr. Cleveland and that the appointment has been sent to the White House for signature.
- 3) Enrico Fermi Award - The Chairman has notified Dr. Bethe, Senator Pastore and Dr. Pitzer.
- 4) Senate Space Committee Hearings - The Chairman has been invited to testify briefly at an open session of the Senate Space Committee Hearing on June 7.
- 5) Appropriation Committee Hearings - The General Manager said it was the Committee's feeling that AEC should follow the ARPA approach to the Illinois building. The Chairman said he would discuss the matter with Congressman Mel Price with the idea of an approach to Congressman Cannon to explain the AEC position. (Mr. Brown)
- 6) AEC/DOD Stockpile Agreement - The General Manager said comments on the proposed agreement would be ready shortly. Regarding the President's May 20 directive, Mr. Graham said the AEC and DOD were preparing information to submit to Mr. Owen as a basis for clarifying the May 20 directive.
- 7) Visit of Dr. Hirsch - The Chairman related briefly his conversation with Dr. Hirsch and said he would visit the U. S. approximately mid June. The General Manager said an analysis would be prepared of the implications of leasing to Euratom. (GM - Wells)
8. High Flux Reactor at Oak Ridge - The Commission requested a staff paper containing recommendations for selection of a construction contractor. (GM - Quinn)
9. Transuranium Program

Present

Dr. Seaborg Gen. Luedecke
 Mr. Graham Mr. Brown
 Dr. Wilson Mr. Naiden
 Mr. Olson Mr. Anamosa
 Dr. Haworth

Distribution

Commissioners
 Gen. Manager (4)
 General Counsel
 Secretary

Harold D. Anamosa
 Acting Secretary

UNITED STATES GOVERNMENT

Memorandum

TO : A. R. Luedicke, General Manager

FROM : Harold D. Anamosa, Acting Secretary

May 31, 1961
Approved A.R. Luedicke
A.R. Luedicke
Date 5/31/61

SUBJECT: ACTION SUMMARY OF MEETING 1742, WEDNESDAY, MAY 31, 1961, 11:00 A.M.
ROOM A-410, GERMANTOWN, MARYLAND

SYMBOL: SECY:JCH

Commission Decisions

1. Minutes of Meeting 1739
Deferred.
2. AEC 811/71 - Plowshare Program
Approved as revised.

The Commission requested deletion of references to "disclosable" devices as they appear in Appendix "A" to AEC 811/71, and in the letter to the JCAE. (Betts)

3. AEC 801/33 - Fabrication of Fuel in Cooperating Nations for Use in Third Countries

Approved as revised.

The Commission noted action was not contingent upon JCAE concurrence. (Wells)

4. AEC 890/55 - Research Quantities of SNM

Deferred.

The Commission requested AEC 890/55 be revised according to the discussion at the Meeting and resubmitted for consideration at a later date. (Wells)

5. AEC 997/51 - Safeguards on Exports of Tritium

Approved. (Wells)

6. AEC 997/52 - Support of IAEA Safeguards

Approved. (Wells)

UNITED STATES GOVERNMENT

Memorandum

TO : A. R. Luedecke, General Manager

DATE: May 31, 1961

Approved *A. R. Luedecke*

A. R. Luedecke

FROM : Harold D. Anamosa, Acting Secretary

Date 5/31/61

SUBJECT: ACTION SUMMARY OF MEETING 1743, WEDNESDAY, MAY 31, 1961, 2:30 P.M.
ROOM A-410, GERMANTOWN, MARYLAND

SYMBOL: SECY:DCR

Commission Decisions

1. AEC 604/52 - Draft Federal Radiation Council Memorandum for the President

Discussed.

The Commission requested clarification of the Table on page 29 of AEC 604/52 in accordance with the discussion at the Meeting, subject to Commissioner Wilson's review. (Western)

The Commission noted various editorial changes circulated prior to the Meeting would be incorporated in AEC 604/52.

2. Discussion of Testimony for the JCAE Hearings on Radiation Safety and Regulation

The Commission approved transmittal to the JCAE of the Investigating board's report on the SL-1 incident. (Donovan)

3. Briefing on FY '63 Budget Issues (AEC 1070/1)

Discussed.

Item of Information

Mr. Hughes' letter of May 25, 1961, regarding Disarmament Agency.

regulation; 7. the draft Federal Radiation Council memorandum for the President; and 8. FY 1963 budget issues. The latter item raises many issues that need to be resolved. Shall we stay at the FY 1962 level? If so, can the needed increases in research, isotopes, ROVER, etc., be met? Shall we push forward on the civilian nuclear power program introducing new incentives for private industry and building some reactors by the Government (i.e., AEC)? What is the proper level of weapons production? There are others.

I visited the Division of Reactor Development offices in order to get acquainted with the staff.

Thursday, June 1, 1961 - D.C.

Harry Smyth came in at 8:45 a.m. to discuss with me his role as U.S. Representative to the IAEA. His appointment by President Kennedy was announced publicly today. I told him about the three projects for possible USSR-U.S. collaboration, which in all probability would involve the IAEA--the greater than 300 Bev accelerator, the medical accelerator and the very high flux reactor. We discussed the role the IAEA might play in safeguards with regard to the use of radioisotopes such as strontium-90. We discussed the Commission's recent action in uranium fuel price reduction and the effect this might have on Euratom.

At 11 a.m. I went to the Commerce Building to witness the swearing-in of Athelstan Spilhaus as Commissioner of the U.S. Science Exhibit of Century 21 Exposition to be held in Seattle in 1962. I served on the Advisory Committee for the Century 21 Exposition.

At 11:30 a.m. I met with Mr. Carlos Bernardes (Charge d'Affaires, Brazilian Embassy), together with John Hall. We discussed possible U.S.-Brazil cooperation. Bernardes was mainly interested in some form of U.S. or IAEA aid to education in technical areas for Brazil.

At 2 p.m. I met with Dr. Johan Bjorksten, President of the American Institute of Chemists. He is forming an advisory committee to advocate more research on chemistry of the aging process and asked me to represent government and universities. I told him that my schedule was too heavy to make this possible but gave him a number of suggestions.

At 3 p.m. I met with J. Carlton Ward and Stephen Cobb (representing a joint committee of the U.S. Chamber of Commerce, the National Association of Manufacturers, Edison Electric Institute, and the Manufacturing Chemists Association), Commissioner Wilson and Ernie Tremmel in Wilson's office to discuss areas where the AEC is competing with private industry. We will continue to keep in touch on such problems; some of the areas may not be actual areas of competition after we have looked into them, e.g., the building of electronic equipment.

At 4:20 p.m. I met with Isidor Rabi to discuss his attendance at a recent meeting of the Scientific Advisory Committee of the IAEA in Vienna; he feels that the role and mission of the IAEA need to be better defined.

At 4:30 p.m. I presented a check for \$350,000 to Chinese Ambassador George Kung-Chao Yeh as the U.S. government contribution to a 1 MW research reactor at National Tsing Hua University in Taiwan.

John Finney of the New York Times interviewed me at 5:15 p.m. He wanted to talk to me in a general way as he hadn't had a formal opportunity to do so since I have become chairman. We discussed a number of areas, such as, the future of civilian nuclear power. He asked whether I feared that the space program would take so much money it would detract from the support of universities, as recommended in my PSAC Panel Report. I agreed that there was this possibility, but that I thought the President had made the right decision, considering all the factors that he has to take into account. He asked about the test ban negotiations and the prospects for some Kennedy-Khrushchev progress. I was non-committal, expressing some hope. We both deplored the inability of the U.S. to exploit by means of publicity the excellent scientific work that is done. Finney suggested, in a way that he said might be mildly critical of our Public

Information Office, that when the AEC has an important discovery, such as, perhaps the forthcoming results on the Toytop III experiment, the Public Information Office should take a lot of pains to alert reporters of its importance, and perhaps even bring the scientists to Washington for a big press interview.

I sent a letter to David Bell commenting on the proposed bill creating a disarmament agency; it was generally favorable but pointed out various modifications that would indicate further cooperation of the agency with the AEC. (A copy of this letter is attached.)

Friday, June 2, 1961 - D.C.

I presided at Information Meeting 38 (notes attached), and with only the Commissioners present, we discussed the staff's draft of a proposed AEC Chairman's public statement on the SL-1 accident (in which three young men died on January 3rd). Graham and Olson are so dissatisfied with the report they feel that this, together with numerous other evidences of deficiencies, constitutes grounds for dismissing the General Manager. I, Haworth and Wilson are not convinced that this action is justified or desirable. This will probably be a continuing issue. With the General Manager, Assistant Secretary, and General Counsel present we continued the meeting and discussed: 1. the pending choice with NASA of an Aerojet General-Westinghouse combination for the NERVA contract; 2. President Kennedy's Naval Aide's (Tazewell T. Shepard, Jr.) letter to me extending the President's invitation to use the "Patrick J" or Camp David for AEC business conferences; 3. my phone conversation with Senator Jackson in which he said he supported, with Senator Anderson, the appointment of Jerry Johnson as Chairman of the MLC; 4. my appointment of Commissioner Graham as the AEC Representative on the Administrative Conference; and 5. Loper's letter of May 31st regarding the weapons planning estimates.

At 11:30 a.m. Harold Brown and I met with Senator Anderson to explain why we want Jerry Johnson as Chairman of the MLC; Anderson agreed to go along. I also described to him my talks with Zuckert and Gilpatric regarding the SNAP organization in the AEC, the discontinuation of the Air Force ANP office and plans to keep PLUTO in the AEC without Air Force formal participation for a while; PLUTO should remain under Livermore control until they are definitely ready for a contractor. I then continued, alone, at lunch with Senator Anderson. I discussed with him my idea of having an advisory committee on the future of civilian nuclear power composed of people from industry, government, the sciences and labor. He agreed to this approach. Senator Anderson expressed his continuing doubt that General Luedecke had the capability required for the job of General Manager. I indicated that I still had this question under serious consideration.

At 1:30 p.m. I met with J. A. Ransohoff, President of Neutron Products, Inc., who proposed an interesting scheme for increasing Pu²³⁸ production via the U²³⁵ fuel route by recycling and building up U²³⁶ concentrations. I asked him how Neutron Products would profit from this plan for production of Pu²³⁸ and he said possibly by being given a contract to study the feasibility of the scheme or becoming involved in the program itself by collaborating with some of the power reactor operators. I thought this scheme seemed sufficiently interesting to merit further serious study.

At 2 p.m. until 3:20 p.m. I met with J. Robert Welch (President, Southwest Atomic Energy Association), Leonard Reichle (Ebasco) and Chauncey Starr (North

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JUN 1 1961

Dear Mr. Bell:

This is in reply to Mr. Hughes' letter of May 25, 1961, requesting views on a draft bill "To establish a United States Disarmament Agency." We have reviewed the proposed bill and a proposed letter from the President to the Congress. We agree with the objective of the proposed bill to establish an effective Disarmament Agency and believe that the creation of such an agency by law is desirable and could enhance our efforts to achieve controlled world-wide disarmament. However, it should be kept in mind that disarmament is only one aspect of our national security and is not separable from other security considerations. It is, therefore, necessary that the agencies concerned with national security pursue integrated interests in disarmament.

In view of this, we have the following comments on the proposed bill:

1. One aspect of the bill is that it appears to establish research as a major function of the agency. In addition to providing for coordination of research relating to disarmament, the agency is given broad powers to conduct research on its own initiative and to construct laboratories.

Research in the fields mentioned in the bill are for the most part merely specific applications of broader fields of research now being conducted by other agencies of the Government including NASA, DOD and the AEC. The AEC, for example, has done work in control, detection and inspection of nuclear materials and weapons as an adjunct to its production and weapons programs. The Commission operates a number of laboratories with a broad capability of applying their efforts to problems related to nuclear energy. In developing weapons it has been necessary for us to analyze and study their effects

underground and in the atmosphere. Certainly AISA and the DCB also have special talents and capabilities which are directly applicable to disarmament and control problems.

The Commission's six major laboratories, Argonne, Berkeley, Brookhaven, Livermore, Los Alamos and Oak Ridge have developed a special competence over a wide range of scientific disciplines and an ability to coordinate basic and applied work. This competence should be considered as a national asset and as being available at all times to work on any problems for which they have a competence and which are in the national interest. The incremental cost of doing additional work in these laboratories certainly would be much less than would be the case if new laboratories were established. Their services could be made available to the Disarmament Agency through appropriate arrangements.

The Commission recognizes that the Director must have the means to insure that necessary research is undertaken, including the authority to construct new laboratories if necessary. However, it would appear to be in the interest of avoiding unnecessary duplication in research as well as consistent with the objective of making optimum use of the nation's national research assets that the Director should first determine the suitability and availability of existing facilities before undertaking to construct new laboratories. The use of existing laboratories would have the additional advantage of freeing the Disarmament Agency from the burdensome task of managing laboratories, thus permitting the Agency to concentrate on the study and analysis of research results and on the development of national policy. The need for this kind of an approach is even more important should it develop that much of the research of the new agency would be more or less temporary in nature.

2. We are concerned that there is not provided a clear mechanism for the participation of various agencies in policy decisions affecting their responsibilities and operations during the formulation of such policies. Negotiations on international disarmament agreements must inevitably be concerned with highly complex technical considerations relating to nuclear weapons, materials and peaceful uses of atomic energy. Because of its unique technical capability and because of its responsibilities under the Atomic Energy Act of 1954, the AEC, through the Committee of Principals and through staff level consultations, we believe has made a substantial contribution in the past to the development of disarmament policy. This has been especially true in the formulation of proposals in areas in which the AEC possesses a substantial technical capability such as test cessation, cut-off of the production of fissionable material for use in weapons, and the transfer of fissionable material from weapons stockpiles to peaceful uses. Therefore, we recommend that Section 33 of this bill reflect the requirement for continuing this consultation with other agencies. In particular, it appears necessary that the phrase, "after coordination with other agencies" be inserted in Section 33 after the word "prepare."
3. Nuclear arms control measures are of paramount importance and will undoubtedly be among the first to be negotiated. We recognize that an extremely important inter-relationship will exist between the AEC and the Agency. However, in view of the Commission's responsibilities under the law, you may wish to consider whether or not the AEC should be placed in the same category as the AEC with regard to Agency coordination on all nuclear and other inter-related arms control measures. Section 37(a) could be revised to reflect this consideration. Additionally, the last word of each of the first two sentences of Section 37(b) would appear to be less accurate than the word "responsibilities."

4. It is suggested that the word "produce" in the last full paragraph of Section 2 be changed to the words, "acquire, analyze and evaluate." This would appear more descriptive of the proposed functions of the Agency.
5. It is suggested that the words "eliminating experimental" be deleted in Section 31(b). "Eliminating" is inconsistent with the remainder of the subsection and "experimental" is redundant.
6. The purpose and meaning of the second sentence of Section 36 is not apparent.
7. Section 41(b) contains no exceptions to the authorities that can be delegated and re-delegated within the Agency. By Section 44(b) the Director is authorized to grant "interim clearance" for Restricted Data. Comparable authority in the Atomic Energy Act may be exercised only by the Commission or the General Manager (Section 161(n), Atomic Energy Act). A similar limitation in Section 41(b) would appear desirable.
8. Section 42(b) provides authority similar to that in Section 162 of the Atomic Energy Act of 1954, as amended. However, it also provides much broader authority as it authorizes the President to exempt Agency actions from provisions of law relating to "expenditures of Government funds."
9. It is suggested that the effect of Section 43 concerning conflict of interest laws be compared with the President's message of April 27, 1961 on "Ethical Conduct in the Government" and reconciled if necessary. In addition, Section 43 provides that the individuals to which it is applicable may serve without regard to the provisions "of or of any other Federal law imposing restrictions, requirements, or penalties in relation to the employment of persons, the performance of services" This provision would seem to relieve those individuals from the penalties provided in the Atomic Energy Act for the unlawful disclosure of Restricted Data. It is suggested that the quoted provisions be deleted.

10. Section 44(b) provides authority similar to that in Section 304(b) of the National Aeronautics and Space Act. We doubt that the numbers of employees of the Agency who will require access to Restricted Data warrants creation of this further exception to the security requirements of the Atomic Energy Act. In this connection the Department of State, of which the Agency will be a part, has not found it necessary to have similar authority even though it conducts various activities which require access to Restricted Data. If it is concluded that it is essential that the Agency have this authority we urge the deletion of the words "pending or" in Section 44(b)(1) and the last clause of Section 44(b)(2). The first deletion is necessary to prevent granting access to Restricted Data in the absence of any security investigation. This could seriously damage the safeguards provided for the protection of Restricted Data. It is urged that the last clause of (b)(2) be deleted because it is unnecessary, and it does not adequately characterize the special type clearances authorized by Section 145b of the Atomic Energy Act nor the statutory conditions applicable to such clearances. Finally, Section 44(C) appears to be included in this Section in error and should be deleted.

11. While the terms "Government Agency" and "Agency" are defined in Section 3, their usage in the context of various sections of the bill does not conform to the definitions. Also, the term Administrator, rather than Director, appears in some sections.

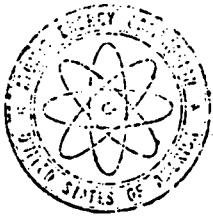
In the light of the above comments we believe that numbered paragraph 4 in the proposed Presidential letter to Congress should be modified.

Sincerely yours,

(Signed) Glenn T. Seaborg

Glenn T. Seaborg

Honorable David E. Bell
Director
Bureau of the Budget



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

June 2, 1961

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NOV 88

INFORMATION MEETING 38

11:00 a.m., Friday, June 2, 1961 - Chairman's Office, D. C.

1. Building at University of Illinois - The Chairman said Dr. Weisner will discuss this matter with Mr. Larry O'Brien, White House Congressional Liaison, who will bring the matter up with Congressman Mel Price.
2. Snop Device - The Chairman said that because of policy questions it was important that Snop Devices not be shipped to launching sites without the Commission and the Department of Defense being aware prior to shipment. (GM - Pittman)
3. Project NERVA - A paper will be scheduled for Commission consideration next week.
4. Comments on Proposed Disarmament Agency Legislation - The Chairman said the Commission's comments had been sent to Mr. Ball.
5. Public Statement on SL-1 Accident - The Chairman advised the General Manager that substantial changes would be required.
6. Oak Ridge High Flux Reactor - The General Manager said it had been decided to seek proposals for construction and it was hoped a selection could be made in about six weeks.
7. Southern California Edison - Westinghouse Negotiations - SCE is preparing data looking toward application for a construction permit and is hoping to have it ready for review at the July 6 ACRS meeting.
8. Conflict of Interest - Mr. Naiden reported on progress in preparation of a revised Manual chapter on Conflict of Interest. The regulation will be published in the Federal Register subject to Commission review.
9. Contract Negotiation Procedures - General Luedcke said he understood the procedures desired by the Commission and since they were contained in the Minutes of Meeting 1739 he felt no further circulation necessary.

10. Report on Visit to Israeli Reactor - The report will be circulated as an information paper. Copies have been sent to CIA and State, and JCAE staff have been briefed. The General Manager will discuss with Mr. Farley State's providing the JCAE any additional information. (GI)

11. Agenda approved as revised

Present

Dr. Seaborg Gen. Luadacke
 Mr. Graham Mr. Feiden
 Dr. Wilson Mr. Hollingsworth
 Mr. Olson Mr. Henderson
 Dr. Harwell Mr. Anzosa

Distribution

Commissioners
 Gen. Manager (4)
 General Counsel
 Secretary

Harold D. Anzosa
 Acting Secretary

American Aviation) to hear a briefing on a fast neutron Th-U²³³ breeder reactor which should give 5 mil/KWHR power by 1972 (they say). Even 6 mil or 7 mil power would be interesting and the scheme looks promising. A group of thirteen private utilities has put \$5 million of their own money into research and they want AEC support. To furnish large amounts of U²³³ (which must be manufactured because it is non-existent), metallurgical and processing work, etc. would require an AEC policy decision (and money).

I had dinner this evening with Lee Haworth.

Saturday, June 3, 1961 - Tallahassee, Florida

Howard Brown and I flew to Tallahassee, Florida, arriving at 10:45 a.m. on an Air Force (Convair) plane.

We had lunch on the Florida State University campus with a group of scientists, including Sid Fox (UCLA friend), Mike Kasha (Berkeley friend), Greg Choppin (Radiation Laboratory friend), Heydenburg, Ray Sheline (Berkeley friend) and others. After lunch I visited with the President of Florida State, Gordon Blackwell. At 2 p.m. I gave a talk entitled, "Recent Research on Transuranium Elements" to Sigma Xi.

I attended a reception at the Kasha home and had dinner on campus in the dining room of the president of the university with a group which included Love and Culpepper (Chairman and Member of Florida State University Board of Control), Dr. Milton Caruthers (Vice President of Florida State University) and Mrs. Caruthers, Dr. Werner Baum (Dean of Faculty and Director of Research) and Mrs. Baum, Dr. Kasha (Head of Chemistry Department and Director of Institute of Molecular Biophysics) and Mrs. Kasha, Dr. Robert Kromhout (Head, Department of Physics) and Mrs. Kromhout, Dr. Betty Watts (Professor of Food and Nutrition), Dr. and Mrs. Blackwell, and others.

At the graduation exercises in the stadium I delivered the commencement address, "Science and Citizenship in the Space Age," and received a D.Sc. honorary degree, along with Mrs. Vivian (Vinnie) Williams, (author).

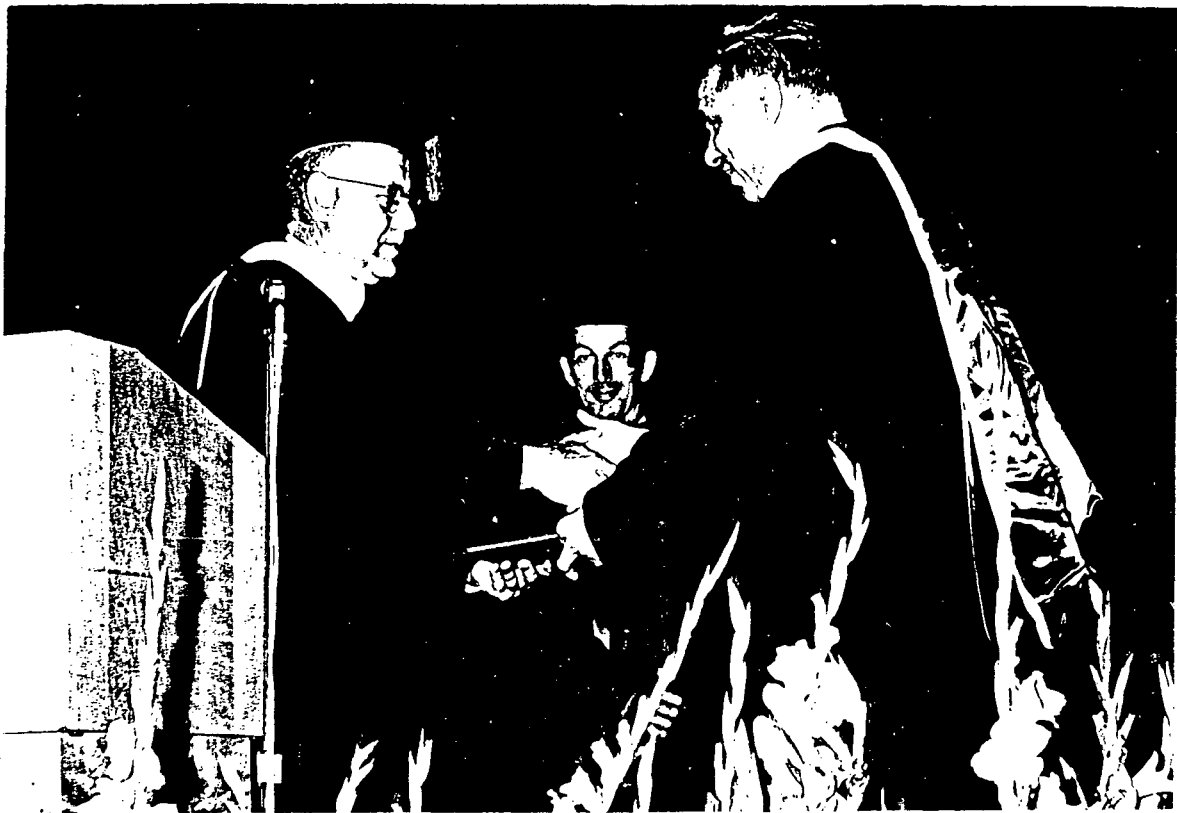
We flew back to Washington, arriving at Bolling Field about 1:30 a.m., Sunday morning.

Sunday, June 4, 1961 - Notre Dame, Indiana

Howard Brown and I flew to South Bend, Indiana, with James Webb in a NASA plane, arriving at 10:30 a.m.

I visited Milton Burton (Met Laboratory friend) at the Notre Dame Radiation Laboratory. I attended a luncheon at the Morris Inn with Father Ted Hesburgh, Reverend Edmund P. Joyce (Executive Vice President and an old friend), other honorary degree recipients, and numerous Notre Dame alumni, including parents of student leaders.

At the commencement exercises I received an honorary degree (D.Sc.) along with R. Sargent Shriver (Director of the Peace Corps, who gave an excellent commencement address), James Webb, His Eminence Laurian Cardinal Rugambwa (Bishop of Rutabo, Bukoba, Tanganyika, East Africa), His Eminence Aloisius Cardinal Muench (member of the Roman Curia), Dr. Julius A. Stratton (President, MIT), Dean Erwin N. Griswold (Harvard Law School), John W. Gardner (President,



Seaborg awarded an honorary Doctor of Science degree by Florida State University on June 3, 1961

L to R: Dr. Gordon W. Blackwell, President of FSU; Dr. Michael Kasha, Chairman of the Department of Chemistry FSU and Director of the Institute of Molecular Biophysics; and Seaborg.



Commencement Exercises at Notre Dame University, June 4, 1961

First Row L to R: Seaborg, Aloisius Cardinal Muench, Father Theodore Hesburgh, Laurian Cardinal Rugambwa, R. Sargent Shriver, James Webb

Carnegie Corporation), James E. Sweeney (Director, Museum of Fine Arts, Houston, Texas), Dr. Arthur J. O'Connor (Scarborough, New York), and Joseph A. Martino (President National Lead Company). I visited the Department of Physics, especially the van de Graaff accelerator and Richard Pilger's Laboratory. Richard obtained his Ph.D. with our Berkeley Nuclear Chemistry group. We flew back to Washington, where we arrived at 8:30 p.m.

I talked to Helen, David, Peter, Steve and Eric on the telephone.

Monday, June 5, 1961 - Germantown

At the 9:30 a.m. Information Meeting 39 (notes attached), I told about my conversation with Webb yesterday in which we decided to form a group of agency heads or representatives who will confer regularly on the problems of aid to education (and the means of furthering it). The group might be Webb (NASA), Waterman (NSF), Harold Brown (DOD), James Shannon (NIH), Sterling McMurrin (Office of Education) and I.

I also told them about my urging Webb to give the highest priority to the U.S. program of putting communication satellites, powered by SNAP devices, into orbit for a worldwide TV network so the U.S. could score a great impact on world opinion by being the first to do this. The other main item discussed was the decision to give first priority this week to the preparation of a Commission paper for public release and as testimony for the JCAE hearing next week on the SL-1 Reactor accident. This urgent approach is necessary due to the unsatisfactory nature of the material prepared by the General Manager and staff. The disarmament proposal, sent to us by Mr. McCloy, was also discussed. (Copies of this proposal and our comments on it are attached.)

At 11:30 a.m. John Erlewine, Luedecke and I discussed the present status of Southern California-Westinghouse-AEC negotiations regarding the 325 MW reactor, preparatory to my meeting this week with John Horton of Southern California Edison. The big issues are the degree of AEC participation in seeking the Camp Pendleton site, the desire of Southern California Edison to retain the right to withdraw from the agreement at any time, virtually on their own terms, and the demands of Westinghouse for a large R & D budget than AEC feels it can rightfully provide.

Commissioner Wilson and I had lunch together in the cafeteria to discuss the Southern California Edison issues.

In the afternoon I visited the Division of Biology and Medicine and with Director Charles Dunham as my guide; I met most of the key people in the Division.

I wrote Helen and enclosed the programs from the commencement exercises at Florida State University and the University of Notre Dame, and also a copy of my commencement address at Florida State.

I received a letter from Helen and learned that Peter is beginning to shave.

Tuesday, June 6, 1961 - D.C.

I talked on the phone with Congressman Holifield. He told me that President Kennedy invited him and Arthur Dean to come to Paris from Geneva last Friday, June 2nd. A top-level conference ensued with U.S. Ambassador James Gavin,

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

June 5, 1961

INFORMATION MEETING 30

10:30 a.m., Monday, June 5, 1961 - Chairman's Office, Conference

1. Atomic Power in Nevada - Mr. Graham requested information on a forum to be held in Las Vegas June 29 regarding atomic energy in Nevada. (Secy)
- ✓ 2. U. S. Disarmament Proposal - Mr. McCloy's proposal will be circulated for the Commission's information. (Secy)
3. Transfer of Parts to the UK - The Chairman advised that the letters to the President and the Military Liaison Committee would be signed today.
4. Discussions with Mr. Webb, Administrator of NASA - The Chairman reported that during the trip to South Bend with Mr. Webb he had emphasized the desirability of high priority on a television satellite with a SNAP power unit. Mr. Webb expressed interest in the status of education in the U. S. and proposed NASA participation in the educational picture.
5. Public Statement of the Commission regarding SL-1 Accident -
 - (a) The Commission requested the General Manager's draft testimony be ready for review by noon Wednesday.
 - (b) It was agreed Mr. Nelson's memo of May 11 should be published, together with the Board Report on SL-1 accident.
 - (c) Arrangements are to be made with the JCAE for publication of the Board Report and Mr. Nelson's May 11 memo. The Commission's letter of transmittal will state that the Commission's views will be transmitted separately.
 - (d) A revised "public statement of the Commission regarding SL-1 accident" will be circulated to the Commission Tuesday, June 6. Commissioners Wilson and Olson will review the proposed public statement. (GM - Ink)
6. Meeting with Chairman and Members of ACRS at 9:00 A.M., Tuesday, June 13. (Secy)
7. Declassification of Plutonium Isotopic Content - A new paper analyzing DOD comments will be presented for Commission consideration at an early date. (GM - Marshall)
8. ADR Declassification - The General Manager said he would submit a paper to the Commission recommending specific portions of the Classification Guide to be declassified. (GM - Marshall)

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NOV 86

9. Commission Airplane Travel - The Commissioners agreed to retain the policy that not more than three Commissioners would ride in the same airplane but noted the need for flexibility in its application.
10. The Commission requested revision of the Agenda for the Week of June 5. (Secy)
11. Agreement for Cooperation with France - Mr. Ink reported that the disagreement with the DOD relative to additional security surveys appeared resolved. Mr. Gilpatric's letter will be circulated. (Secy)
12. Representations by JCAE Members re Use of SNAP
13. Movies at Nevada Test Site - It was agreed the CBS request to take movies would be approved but the sensitivity of such movies at this time would be discussed on a high policy level.
14. Intermediate Decisions on Commonwealth Edison and New York Ship Building Company

Present

Dr. Seaborg Mr. Brown
 Mr. Graham Mr. Ink
 Dr. Wilson Mr. Anamosa
 Gen. Luedcke
 Mr. Naiden

Distribution

Commissioners
 General Manager (4)
 General Counsel
 Secretary

Harold D. Anamosa
 Acting Secretary

OFFICE DIARY
GLENN T. SEABORG
Ch: USAEC, 1961-72
FOLDER-PAGE 006016-006042

NOT DECLASSIFIABLE

DOCUMENT TITLE RECOMMENDED U.S. DISARMAMENT NEGOTIATING
PROPOSAL DATED MAY 31, 1961
0900297

This document has been determined to be NOT DECLASSIFIABLE and has been removed from this folder.

WCT
Name

12/18/87
Date

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JUN 15 1961

DC FILE

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NOV 86

Dear Mr. McCloy:

Thank you for the opportunity to comment on the draft working paper for the disarmament negotiating proposal. I know that this represents a great deal of work by your staff and by the many consultative groups that you have called upon for assistance in this difficult area. I appreciate the opportunity you have given to our staff to participate in formulating these proposals.

In formulating the following comments, the new proposals were examined against the background of the last formal policy, set forth in the June 27, 1960 document. Serious weight was given to conclusions on these matters by the consultative groups you have appointed to work in the important disarmament areas. I have naturally been most concerned with the work of the Group on Nuclear Armaments. My general comments on the most important areas are included in this letter and I have attached a copy of the draft working paper prepared by the AEC staff with specific comments included at appropriate places. These have, in general, been related to previous positions and to the work of the Nuclear Group.

1. Interdependence of Arms Control Measures

The first Implementing Principle in the working paper, that disarmament should proceed with no adverse effect on the security of any state, describes a condition that can be reached only if measures to be put in effect in any stage are carefully inter-related so that there is a minimum cumulative relative effect on the security of the individual states. Design of such relationships requires very careful and serious study going far beyond what has already been done; I am sure that your organization is undertaking such studies. It would be desirable to provide specifically in the policy statement that the desirability of minimizing the relative effect on security will be taken seriously and will be implemented through careful design of the selection measures making up each stage.

2. Existence of Effective Control

There is general agreement that the implementation of disarmament measures must be accompanied by effective control arrangements. The Consultative Group on Nuclear Armaments stated, and I agree, that this important principle should be strengthened in the proposed declaration, and several specific suggestions to this effect are included.

3. Reduction of Fissionable Material Stockpiles

The Nuclear Group recommended that such reductions be confined in Stage I to the offer to transfer 30,000 kilograms of U-235. It is not clear in the proposals whether the U.S. would be committed in Stage I to transfer greater quantities than this.

4. Measures to Prevent the Spread of Nuclear Weapons

There are a number of proposals, including those for transfer of weapons between nations, nuclear free zones and limitations on use of nuclear weapons, that were felt by the Nuclear Group to be unenforceable and unverifiable, in effect to be declarations of intent with no force. I have reservations about including these in a serious arms control system and they have been so indicated in the draft where such measures are proposed.

5. Nuclear Test Ban Negotiations

The present draft seems to assume that the nuclear test negotiations will be successfully concluded by the time this document is needed. This expression of encouraging optimism at this late date is not realistic. I suggest that reference to the test negotiations be kept out of this document.

6. Testing of Strategic Delivery Vehicles

I am somewhat concerned that a test ban on strategic delivery vehicles would be rather difficult to separate from work on the peaceful exploration of space. The particular concern is with Rover, but this general question should be clarified.

I hope these general comments, as well as the specific suggestions in the attachment, will be useful to you in reviewing the paper in preparation for a Principals' discussion on the subject. I appreciate the continuing opportunity to participate in your deliberations.

Sincerely yours,

(Signed) Glenn T. Seaborg

Chairman

The Honorable John J. McCloy
Adviser to the President on Disarmament
Department of State
Washington 25, D. C.

Att:
Draft Working Paper,
as annotated

Llewellyn Thompson, Averell Harriman, Charles Bohlen, Mel Price and Holifield meeting with the President.

Holifield and Price gave them a complete account of the situation in Geneva. He feels that the President is pretty firm in his mind that there is very little to be gained by a continuance of the moratorium on testing nuclear weapons. Holifield advised the President to continue negotiating, regardless of what he does about the moratorium, and show a complete willingness to continue with the Test Ban Conference. Then, if the Russians don't want to accept the Conference on that basis, let them walk out.

At the 9:30 a.m. Information Meeting 40 (notes attached) we planned our schedule for testimony, hearings and meetings for a very crowded week.

At 10:30 a.m. until 12 noon the Commission met (1744, action summary attached) to choose a contractor for the NERVA project. We decided to go along with the joint NASA-AEC staff recommendation of a team consisting of Aerojet General and Westinghouse, subject to the concurrence of Mr. Webb. There is great concern, however, whether Westinghouse can and will carry this load without interference with its operation of Bettis Laboratory (Nuclear Submarine project). The possibility of companies like DuPont or NDA (now with the new Olin-Matheson combine) was considered; the difficulty is that these companies did not respond to our invitation to prepare a proposal. All of us recognize that this is an extremely important decision, possibly involving a billion dollar project.

I attended a lunch at the State Department Building, hosted by Jim Webb, in connection with the day-long NASA-NAS meeting to hear the results obtained in the first U.S. space program, including the importance of the United States attaining the earliest possible communication satellites with worldwide TV capability. Johnson suggested an early meeting of the Space Council to explore this and also suggested further meetings to explore various ideas. Others attending the luncheon were Thomas Carroll (President, George Washington University), Lloyd Berkner, Jerry Wiesner, Ros Gilpatric, Alan Waterman, and George Ball.

After lunch, Webb and I discussed the impending decision regarding a contractor for NERVA and decided to negotiate with Aerojet General and Westinghouse, starting with a personal phone call by both of us to emphasize our concern that they conduct the program according to the standards we set in order to meet U.S. objectives. We are taking this very seriously and intend to watch personally during the first phase of the contract, if negotiations are successful, in order to decide if this combination of companies should continue beyond that. Later in the afternoon Webb and I talked on the phone, first to Dan Kimball (President, Aerojet General) and then to Charles Weaver (President, Nuclear Division of Westinghouse) to pass on to them our decision and what we expect of them as a result of our forthcoming negotiations with them. I called Chet Holifield to inform him. We also prepared a press release for issuance tomorrow.

Also, during the afternoon, I met with Dr. Georgio Valerio (President, Societa Edison) and his people regarding Italy's Selni Reactor project. We discussed the matter of U.S. cooperation, particularly the question of whether the U.S. would lease them nuclear fuel rather than sell it on the presently planned deferred payment plan.



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

June 6, 1961

INFORMATION MEETING 40

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9:30 a.m., Tuesday, June 6, 1961 - Chairman's Office, D. C.

1. Hearing on Dairyland project - The Commission requested revision of the opening statement as proposed by Dr. Wilson.
2. Representation at Hearings - Dr. Wilson will represent the Commission at the Dairyland Hearing at 2:00 p.m., Tuesday, June 6. Dr. Pittman will present testimony.

Chairman Seaborg and Dr. Havorth will attend the Hearing at 2:00 p.m., Wednesday, June 7, to discuss Stanford accelerator and authorization items.
3. Meeting with Dr. Gregario Valerio
4. Discussion with Congressman Holifield - The Chairman said he raised the idea of an Advisory Committee, to include representatives of industry, private and public power, labor, and scientific communities to consider the question of incentives in future development of civilian power. A breakfast meeting has been scheduled for Tuesday, June 13, with Mr. Holifield.
5. Stanford Accelerator - Dr. Havorth wants an agreed Commission position on the Stanford managerial problem prior to his appearance at the JCAE Hearing at 2:00 p.m., Wednesday, June 7. AEC 1036/27 will be considered at 9:00 a.m., Wednesday, June 7. (Secy)
6. Revised Agenda - A meeting will be scheduled at 4:30 p.m., Wednesday, June 7, to consider regulatory testimony. The Regulatory Meeting for 12:00 Noon on Tuesday, June 6, will be scheduled either later on Tuesday or on Wednesday, June 7.
7. Visit of Mr. Horton to discuss Southern California Edison - Westinghouse Proposal
8. Meeting with ACRS - The meeting at 9:30 a.m., Tuesday, June 13, will be to cover the highlights of ACRS testimony at the Regulatory Hearings.
9. Meeting with Dr. Hirsch - An initial meeting will be held at 9:30 a.m., Tuesday, June 13. The General Manager advised that a paper covering the "Buy American" and "Cut Off" problems will be provided the Commission, together with an Information Paper for background data.
(GM - Wells)

10. Drew Pearson's Column in the Washington Post - Tuesday, June 6
11. Acquisition of Salt Dome for Vela - Mr. Graham said it appeared the two primary problems of condemnation and ownership of salt could be solved, and he would propose recommendations shortly.
12. New York Times Article, Tuesday, June 6, regarding Radiation Tower in Nevada

Present

Dr. Seaborg
Mr. Graham
Dr. Wilson
Mr. Olson

General Luedcke
Mr. Naiden
Mr. Brown
Mr. Henderson
Mr. Anamosa

Distribution

Commissioners
Gen. Manager (4)
General Counsel
Secretary

Harold D. Anamosa
Acting Secretary

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY BOB
NOV 86

TO : A. R. Luedecke, General Manager

DATE: June 6, 1961

Approved A. R. Luedecke

A. R. Luedecke

FROM : Harold D. Anarosa, Acting Secretary

Date 6/7/61

SUBJECT: ACTION SUMMARY OF MEETING 1744, TUESDAY, JUNE 6, 1961, 10:35 a.m.,
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:DCR

Commission Decisions

1. Minutes of Meeting 1740

Approved as revised.

2. AEC 855/41 - Selection of Engine Contractor for Project NERVA

Approved as revised. (Pittman)

The Commission requested inclusion in paragraph 12 of AEC 855/41 of a caveat that Westinghouse not be permitted to utilize in Project NERVA personnel engaged in the Naval Reactors Program at its Bettis plant without approval of the Commission.

The Commission requested inclusion in paragraph 12 of AEC 855/41 of the requirement that it be informed of the progress of the negotiations.

The Commission requested NASA, Aerojet-General and Westinghouse Corporation, the JCAE, the House and Senate Space Committees, the Space Council, Dr. Jerome Weisner, and the White House be notified of this action in that order, with a press release to follow.

The Commission requested revision of the draft press release in accordance with discussion at the Meeting.

The Chairman said he would informally notify Mr. James E. Webb, Administrator of NASA, and Representative Holifield, Chairman of the JCAE, of the Commission decision. (Secretariat)

Wednesday, June 7, 1961 - D.C.

At the 9:15 a.m. Commission Meeting 1745 (action summary attached) we discussed our position on the management of the Stanford accelerator project for the JCAE hearing this afternoon. This led to a split decision -- Haworth, Wilson and I for a scheme where Stanford manages everything directly with provision for consultation and approval by the AEC on important items -- Graham and Olson for a scheme of schemes involving some direct AEC control, especially over construction.

At 10 a.m. I appeared before the Senate Space Committee, along with Webb and Gilpatric, to defend President Kennedy's augmented space budget and to show that the three of us are working together. Apparently my statement that we couldn't have a nuclear rocket capable of carrying a man on long-range missions beyond the moon (due to technical problems, such as materials, high temperature, etc., in reactor development) until 1971, received national publicity, adopting the view that I promised such an accomplishment by 1971.

Late in the afternoon Mike Powell of Radio Station KSFO News, San Francisco, called about the statement I made this morning before the Senate Space Committee about being able to send a man to the moon, and beyond, by nuclear rocket by 1971. I said I was not quite that definite; what it amounted to was a response to a request for an estimate of a date for the first useful flight of a nuclear rocket. He asked whether I would make a brief statement on this subject which they could tape and carry on stations KSFO in San Francisco, KMPC in Los Angeles, and KVI in Seattle. The statement I made is as follows:

"I believe that the place where nuclear energy will be used for rockets is in the long-range manned missions, and that is in the somewhat later stages of our overall national space program. This, then, refers to the missions probably beyond the moon, out to some of the planets. The nuclear energy source has the advantage that it has the highest specific impulse, by that I mean the highest impulse per weight of propellant that is expelled from the rocket per unit time. This, then, gives it this longer-range capability than the other, or chemically propelled, rockets. At the same time, because it depends on nuclear reactors operating at a very high temperature, it is very complex and many more problems must be solved before we can attain success. We do look forward eventually to the day when nuclear rockets will give us this long-range manned capability, but it will be in the order of a decade or so."

I had lunch in the office with Jack Horton (Southern California Edison) and Charles Weaver (Westinghouse) to negotiate the differences preventing an agreement on the 325 MW reactor at the Camp Pendleton site. We agreed that BOB might establish a task force to set up relative priorities for competing uses of the site. I said that AEC might agree to a clause allowing Southern California Edison to terminate the contract up to the date of issuance of the first construction permit but not later. Weaver and I agreed on an R & D ceiling (AEC supported) of \$8.7 million. The negotiations seemed to go well.

At 1:30 p.m. to 2 p.m. I was filmed in room 1167, under Dave Ridgway's direction, in an introductory sequence to be used in films explaining the CHEMStudy project (a high school chemistry course of which I am chairman).

At 2:15 p.m. I attended a JCAE hearing on the Stanford accelerator, with Commissioner Haworth testifying. The JCAE, especially Holifield, is skeptical

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 86

TO : A. R. Luedcke, General Manager

DATE: June 7, 1961
Approved: A. R. LuedckeFROM : Harold D. Anzosa, Acting Secretary & Date 6/7/61

A. R. Luedcke

SUBJECT: ACTION SUMMARY OF MEETING 1745, WEDNESDAY, JUNE 7, 1961, 9:10 A.M.,
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:JCH

Commission DecisionAEC 1036/27 - Contractual Arrangement for Design and Construction
of Stanford Linear Accelerator

Approved as revised.

The Commission requested it be kept informed of the progress of contract negotiations and that the final negotiated contract be submitted for approval.

The Commission requested the contract contain a specific provision whereby the AEC would have the right to take over the project in the event Stanford performance is not satisfactory.

The Commission also noted the necessity of selecting adequate and competent personnel to supervise the provisions of the contract controls.

(Vinciguerra)

Commissioner Graham requested the staff be advised of the contract negotiation procedures decided by the Commission as set forth in the minutes of Meeting 1769. (Vinciguerra)

of the Seaborg-Haworth-Wilson scheme for Stanford to manage the project.

The Commission met again at 4:30 p.m. (1746-action summary attached) to discuss the voluminous testimony for next week's JCAE hearing on the SL-1 accident and on the Regulatory function of the AEC. A press release on our plan to negotiate with Aerojet General and Westinghouse for the NERVA contract was issued today. President Mark Cresap of Westinghouse called me and pledged his company's complete cooperation and said he would always be available to me for discussion of a problem.

I wrote Helen and told her that on Monday morning, June 12th, I am going to meet with the Baturins at the offices of Lyon, Roach & Horan, the title company, to make the final settlement on our house.

Thursday, June 8, 1961 - D.C.

At 9 a.m. Commissioner Olson and I met with representatives of the Minnesota Mining and Manufacturing Company -- H. T. Buetow (President), Dr. John Copenhaver (Director of Research), Dr. Frank A. Steldt (Legal Department), and Dr. J. I. Johnson (Atomic Energy Coordinator). They showed us examples of their materials research, including developments in the coating of uranium, fission products, etc., developed with their own money. They are looking for a way to get into the atomic energy business with AEC.

At the 9:30 a.m. Information Meeting we discussed the schedule for Etienne Hirsch's visit next week, testimony next week on the SL-1 accident and my meeting with Horton and Weaver.

At the 10:30 a.m. Commission Meeting 1747 (action summary attached) we discussed our testimony on the AEC regulatory function for hearing next week.

I wrote Manson Benedict to tell him that I hope he will accept the invitation to become the Director of Argonne National Laboratory for we need someone with his talent as Director.

I saw John McCone briefly around noon; he still urges that the U.S. resume testing as soon as possible.

In the afternoon I flew to Columbus, Ohio, where I was met by Dr. Alfred B. Garrett (Chairman, Chemistry Department, Ohio State University). I met with the Radiation Committee of the Graduate School; they are interested in an Air Force reactor (the 10 MW Nuclear Engineering Test Facility at Wright-Patterson Air Force Base, built for the now defunct ANP program). I suggested that a group of universities, led by Ohio State University, make a request to use it.

At 4 p.m. I addressed a chemistry colloquium on "Recent Research on the Transuranium Elements" to a packed auditorium in their new Evans Hall.

At 5:15 p.m. I met with the Battelle people -- A. Croxton (Vice President), Jack Bulloff, and Dr. Charles Schwartz (Head of Solid State Division) -- to discuss their proposed program of high pressure, high temperature work on fissionable material.

I attended a dinner at the University Club in Columbus given by President Novice Fawcett of Ohio State. Other guests in attendance included John Galbreath (owner of the Pittsburgh Pirates), John Bricker (former U.S. Senator from Ohio) and Mrs. Bricker, John S. Knight (owner of the Akron Beacon-Journal and other

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 86

TO : A. R. Ludwick, General Manager ~~_____~~ DATE: June 7, 1961
 Harold M. Price, Acting Director of Regulation Approved HP
 FROM : Harold D. Amos, Acting Secretary Date 6/7
 SUBJECT: AGENDA SUMMARY OF MEETING 1746, WEDNESDAY, JUNE 7, 1961, 4:15 P.M.
 ROOM 1113-B, D. C. OFFICE
 SYMBOL: SECY:WEM

Commission Decision

Testimony For NRC Hearing on ERL Incident

Approved as revised.

The Commission requested that you revise the testimony in accordance with the discussion in the following:

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 96

TO : A.R. Lindlake, General Manager
H.L. Price, Acting Director of Regulation

DATE: June 8, 1961
Approved: James A. R. Holloman

FROM : W.B. McCool, Secretary

Date: JUN 12 1961
BY: W.B. McCool

SUBJECT: ACTION SUMMARY OF MEETING 17-7, THURSDAY, JUNE 8, 1961, 11:00 a.m.,
ROOM 1113-B, D.C. OFFICE

SYMBOL: SECY:DCR

Commission Decision

Commissioner Olson's Testimony on the Regulatory Program of
the Atomic Energy Commission

Discussed.

Commissioner Olson said he would request Dean E. Blythe Stason to attend a panel on administrative law on Thursday, June 15, 1961, or to submit a statement for the record. (Secretary)

Commissioner Olson requested he be provided information on the Chairman's participation in the Commission's regulatory deliberations. (Secretary)

newspapers), Howard Mumford Jones (Harvard), Dr. Albert Sabin, Dr. and Mrs. Garrett, Dean and Mrs. Everett Walters and many others.

I spent the night at the Presidential Mansion, as a guest of President and Mrs. Novice Fawcett and their daughter Jane.

Friday, June 9, 1961 - Columbus, Ohio

"Education in a World of Change" was the title of the commencement address I gave in the football stadium of Ohio State University to an audience of about 15,000 this morning. Dr. Sabin, Howard M. Jones, John S. Knight, John Galbreath, and John P. Millett (President of Miami University, Ohio) received honorary degrees at the same time that I received a D.Sc.

I flew back to Washington in the afternoon and in the evening attended a dinner given in Jerry Wiesner's and my honor by the ACS Board of Directors at the ACS National Headquarters, 1155 Sixteenth Street, N.W.

Notes on Information Meeting 41, held in my absence, are attached.

Saturday, June 10, 1961 - Maryland

At 10 a.m. I attended the Commencement exercises at the University of Maryland and received an honorary degree (D.Sc.) along with Luther T. Hodges (Secretary of Commerce) and Dr. Antonio Furnos-Isern (Puerto Rico's Resident Commissioner in Washington, D.C.). Hodges gave a fine commencement address.

Following the exercises, I attended a luncheon given by President and Mrs. Wilson H. Elkins. Other guests included Mr. and Mrs. Hodges, Mr. and Mrs. Furnos-Isern, Ex-Governor of Maryland Theodore R. McKeldin, Maryland Governor J. Miller Tawes and Mrs. Tawes, Dr. Thomas G. Pullen (Maryland State Superintendent of Schools), Lewis Goldstein (Maryland State Comptroller), Helen Clarke (whom I had known as former Assistant Dean of Women at Berkeley, now Dean of Women at the University of Maryland) and many others.

I spent the remainder of the day in my room at the University Club reading AEC material. I received a letter with some clippings from Helen.

Sunday, June 11, 1961

I spent some time reading the General Manager's plans for reorganization of the AEC structure and formulating my ideas for modifications in it.

During the afternoon I visited the Baturins at 3825 Harrison Street (the home we are purchasing) to become familiar with various aspects of it; I also walked around the entire neighborhood in order to become familiar with shopping centers, the location of schools, etc.

I called home and talked to Helen, Lynne, Pete, Eric and Steve.

Monday, June 12, 1961 - D.C.

This morning I had breakfast with Chet Holifield at the Congressional Hotel. I told him about our reorganization plans and he again emphasized the importance of an adequate General Manager. We discussed my plan to form a committee consisting of representatives of private and public utilities, government,



UNITED STATES
 ATOMIC ENERGY COMMISSION
 WASHINGTON 25, D. C.

UNCL. BY DOE
 NOV 86

June 9, 1961

INFORMATION MEETING #1

10:47 a.m., Friday, June 9, 1961 - Chairman's Office, D. C.

1. Budget Review Committee Field Trip - The Commissioners requested that they be given the total laboratory program proposals as presented to the review committee and a preliminary discussion of the committee's trip report. (GM - Burrows)
2. General Managers Memo on Joint Committee Add-on Projects for Authorization Bill for Fiscal 1962
3. Proposed Response on Authorization Hearings Query re RFR - The General Manager requested the Commissioners' comments on the draft by Monday, June 12. (Secy)
4. Commission Visit to SAC Headquarters - The trip is now scheduled for July 10, 11 and 12. (GM - DMA - Secy)
5. Commission Cruise on Polaris Submarine
6. New York Times Article re Proposed Federal Regulations on Equal Employment Opportunity - Mr. Graham requested a report and discussion of impact on AEC (GM - Traynor)
7. The Agenda was Approved as Revised (Secy)
8. AEC 988/115 - Amendment of the U.S.-U.K. Agreement for Cooperation for Mutual Defense Purposes - Approved (GM - DMA - DIA - Secy)

Present

Mr. Graham Mr. Naiden
 Mr. Olson Mr. Henderson
 Dr. Haverth Mr. McCool
 Gen. Luedcke

Distribution

Commissioners
 Gen. Manager (4)
 Gen. Counsel
 Secretary

W. S. McCool
 Secretary



Wilson R. Elkins, President, University of Maryland, congratulating Seaborg, upon receiving an honorary doctor of Science degree, June 10, 1961

scientists, labor, etc., to study the future of civilian nuclear power, the status of the SNAP reorganization and the matter of including a SNAP device in the TRANSIT satellite, the appointment of Jerry Johnson as Chairman of the MLC, my meeting with Horton and Weaver last week, and the hearings on the SL-1 accident.

At 10 a.m. I met with Dr. Ishrat H. Usmani, Chairman of the Pakistan AEC, with John Hall and Algie Wells present. Dr. Usmani suggested U.S. aid to Pakistan for a power reactor whereby the U.S. would pay the difference between the cost of nuclear and conventional power.

At 11:30 a.m. I met with the Baturins at the Lynn and Roache Title Company office to sign the papers for the purchase of our home at 3825 Harrison Street; the papers were then sent to Helen for signing.

I had lunch at the State Department with George Ball (Under Secretary of State for Economic Affairs), Robert Schaetzel (Deputy Assistant to Mr. Ball), and Howard Furness (Deputy Special Assistant to the Secretary of State for Atomic Energy and Outer Space). They discussed Euratom with me and its importance in the entire foreign policy of the United States in Europe and in relation to the Atlantic Community and such organizations as OECD. They recognized that the opinions of the JCAE are important and that this is a matter that involves the whole Commission, not just the Chairman. They do hope, however, that it will be possible to lend every encouragement to Euratom because it is a symbol of the greatest importance with respect to the whole European picture insofar as relations with the United States are concerned.

At the 2:30 p.m. Commission Meeting 1749 (action summary attached) we continued our discussion of the FY 1963 budget. Haworth and I are arguing for an increase in the research and education portion.

We learned today that the Supreme Court decided in favor of AEC and the operating group in the PRDC case (breeder reactor in Michigan) by a 7 - 2 decision. Justice William Brennan wrote the majority opinion and Justice William Douglas, the dissenting opinion (in which Justice Hugo Black joined him).

At 5:30 p.m. I conferred with John Hall, Al Wells, and Nelson Sievering (just returned from Brussels where he serves as the AEC Representative to Euratom) regarding the forthcoming meeting with Hirsch and Jules Guéron (an old friend of mine who worked at Chalk River in Canada during the war) to discuss U.S. aid to Euratom.

Arnold R. Fritsch, who obtained his Ph.D. with our group in the Berkeley Radiation Laboratory, came on board today as one of my special assistants.

I wrote Helen and enclosed copies of the commencement programs for the affairs at Ohio State University and the University of Maryland, also a copy of my commencement address at Ohio State. I told her that I went out to our house yesterday afternoon and covered the neighborhood pretty thoroughly and that I think everyone will like the setup very much.

Tuesday, June 13, 1961 - D.C.

At 9:30 a.m. I met with Etienne Hirsch, the President of Euratom, who is here from Brussels at my invitation to discuss the United States-Euratom relationship. We planned our schedule for the week.

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 86

TO : Robert E. Hollingsworth, Deputy General Manager

DATE: June 12, 1961
Approved: *R. E. Hollingsworth*

FROM : Harold D. Anamosa, Acting Secretary
Date: *6/12/61*
Harold D. Anamosa

SUBJECT: ACTION SUMMARY OF MEETING 1749, MONDAY, JUNE 12, 1961, 2:30 p.m., ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:WLN

Commission Business1. Special Briefing

Dr. Hess reviewed for the Commission the Test Cessation Negotiations at Geneva.

The Commission requested they be provided with copies of the telegrams discussed by Dr. Hess. (English)

2. AEC 1070/1 - Budget Policies and Program Assumptions for the FY 1963 Budget Estimates

Discussed.

The Commission requested funding for ~~NER~~^{NSR} and the Stanford Accelerator be identified as separate from the regular AEC budget. (Burrows)

You said you would arrange a briefing for the Commission on the results of the Budget Review Committee's review of field budget requests.

Commissioner Haworth requested a more detailed breakdown of the budget forecasts. (Burrows)

The Commission requested Commissioner Haworth review the details of the FY 1963 increases in the Physical Research, Biology and Medicine, Training, Education, and Information, and Civilian Application of Isotopes and Nuclear Explosives Programs.

Commissioner Haworth requested a report on the total estimated budgetary levels of the programs at the multi-purpose laboratories (Burrows)

The Commission requested Commissioner Graham review the details of the FY 1963 increases in the Reactor Development Program.

The Commission requested the preparation of figures to reflect the necessary growth in expenditures due to facilities now under construction coming into operation. (Burrows)

3. AEC 988/115 - Amendment of the U.S.-U.K. Agreement for Cooperation for Mutual Defense Purposes

Approved. (Done)

Items of Information

1. PRDC Case

The Commission discussed the Supreme Court's decision in the PRDC Case.

You reported that the staff had been advised regarding discussion of the Supreme Court's decision.

2. Possible JOAE Hearings in the Week of June 19 on ECNG-FWONG Proposal

The JCAE Hearing on the SL-1 accident took me to the Hill at 10 a.m.; Frank Pittman, Commissioner Wilson and Curtis Nelson testified. Wilson's testimony that the accident could have been avoided, that the Commission had taken and would take further disciplinary action created quite an impression in the press.

I had lunch in my office with Hirsch, Jules Guéron and John Hall to discuss the U.S.-Euratom problems, especially the method by which the utilities will pay the U.S. for the U-235 fuel for their reactors.

Harry Smyth and Bill Cargo received Senate confirmation as U.S. Ambassador and Assistant Ambassador to the International Atomic Energy Agency today.

I had a call from McCloy who said that on the basis of developments since the President's meeting with Khrushchev in Vienna, it is not very likely that we will have a test ban treaty; therefore, there is no point in making preparations for the control system. The contract would have been let next week, and the amount of money involved was \$750,000. He has been in touch with the Bell Laboratories who were bidding on the job. They are reluctant to put their best people on the job since this is all so tentative. This convinced McCloy that no contract should be let, but rather a task force should study the whole control system in preparation for the time when this subject can be resumed on a more intelligent basis. I agreed that the contract should be held in abeyance.

I had a working dinner at the Metropolitan Club with Hirsch, Guéron and Frederico Consuelo (of Euratom). Also attending were the other Commissioners, John Hall, Al Wells, Nelson Sievering, Frank Pittman, Neil Naiden and Ambassador W. Walton Butterworth. Hirsch wants the AEC to give Euratom some concessions for lease of U²³⁵ fuel, including a five-year waiver of use charges, as AEC gives to the U.S. utilities. Hirsch and Guéron described the Euratom program which has more extensive research and development than we had realized.

I sent my biweekly progress letter to President Kennedy (copy attached).

I wrote a letter to Helen and told her I signed the papers for the purchase of our house with the Baturins yesterday at the office of the title insurance company, Lyon & Roache, and that the material had been sent to her for her signature.

Wednesday, June 14, 1961 - D.C.

The Commissioners met this morning with Theos Thompson (Chairman), Leslie Silverman and Rogers McCullough of the ACRS to discuss their impending testimony before the JCAE on the AEC regulatory function. To some extent, they favor the Joint Committee staff's suggestion for an independent, presidentially-appointed Board within the AEC to handle the regulatory function but were less positive after we pointed out the disadvantages of this plan.

At 10:30 a.m. I presided at the beginning of the meeting between the AEC staff (Hall, Wells, Pittman, Hollingsworth, etc.) and the Euratom group (Hirsch, Guéron and Consuelo) to discuss U.S.-Euratom problems. Ambassador Butterworth (U.S. Ambassador to the three European Communities -- Coal and Steel, Common Market, Euratom) also participated.

At 11:15 a.m. I attended the JCAE Hearing on the AEC regulatory function; Harold Price (Acting Director of Regulation) testified.

June 13, 1961

PERSONAL AND CONFIDENTIAL

Dear Mr. President:

The following is my informal bi-weekly report on developments in the atomic energy program which I believe will be of interest to you:-

1. AEC and NASA Proceed with Contract Negotiations for NERVA (Unclassified)

The Commission and NASA are entering into negotiations with a contractor team - Aerojet General Corporation and Westinghouse Electric Corporation - for a first phase contract for development of the NERVA nuclear rocket engine. NERVA is the project name for "nuclear engine for rocket vehicle application" and is a part of Project ROVER.

At the end of six months, which is the period for the first phase contract, Mr. Webb and I propose to personally review the performance of these contractors and to evaluate again their competence to carry out the next phase of the project. I am mindful that this is perhaps the most important decision which the Commission will make concerning the ROVER Project, and I am extremely anxious that we select the best and most competent U.S. industrial firms for the task.

2. JCAE Hearings on Safety and Regulatory Program (Unclassified)

The Joint Committee on Atomic Energy Hearings on the AEC safety and regulatory program commenced on Monday, June 12th. Featured witnesses include the Honorable James M. Landis, AEC Commissioner Olson and Wilson, and Admiral Hyman G.

Rickover. The first fatal atomic reactor accident (stationary low-power reactor No. L (SL-1) which occurred on January 3, 1961, at the Commission's National Reactor Testing Station near Idaho Falls, Idaho) will be discussed in detail. In this connection, the Atomic Energy Commission has issued a report presenting findings on the accident. The report was released for use in Sunday newspapers on June 11th and received considerable press attention.

3. Supreme Court Decision - Fermi Plant (Unclassified)

By a 7 to 2 decision, the Supreme Court upheld the licensing procedures of the Atomic Energy Commission as applied to a 94, 000 KW fast breeder reactor being constructed near Detroit, Michigan. This plant is being built by the Power Reactor Development Company, a non-profit group of 21 companies, to demonstrate the feasibility of a breeder reactor for producing commercial power.

4. Visit of Mr. Etienne Hirsch, President of Euratom (Unclassified)

Several weeks ago, I invited Mr. Etienne Hirsch, President of the European Atomic Energy Community (Euratom), to visit with the Commission. Mr. Hirsch arrived today, and we plan to discuss future cooperation between the United States and Euratom, particularly with regard to joint reactor and research and development programs. I also plan to discuss the Commission's recent uranium fuel price change and its possible implication with respect to the U. S. - Euratom agreement.

5. Successful Completion of Strontium-90 Powered Automatic Weather Station (Unclassified)

The AEC, together with the Weather Bureau, has developed a completely automatic, unattended weather station, powered by a 5-watt, strontium-90 radioisotope generator. This station is now undergoing operational tests prior to placement in the Canadian Arctic this summer. As part of this test program, the station - now at the Martin Company in Baltimore, Maryland -

is routinely transmitting local weather information to AEC Headquarters.

The radioisotope generator will provide continuous power for at least 10 years, and the entire station has been designed to operate without servicing for a minimum of 3 years. An unattended meteorological observation station meets an important requirement for adequate weather forecasting in the U. S. and abroad, particularly in the remote areas where weather observations are minimal.

Respectfully submitted,

(Signed) Glenn T. Seaborg

Glenn T. Seaborg

The President
The White House

Distribution:-

Cys 1 & 2 - (Addressee - via Frederick Dutton)
3 - McGeorge Gundy

CHenderson:gl
6/13/61

At the invitation of the Belgian Ambassador, Louis Scheyven, I attended a luncheon at the Embassy in honor of Mr. Hirsch. Other guests included French Ambassador Herve Alphand, German Ambassador Wilhelm Grewe, Luxembourg Ambassador Georges Heisbourg, Netherlands Ambassador J. H. von Roijen, Italian Minister Carlo Perrone-Capano, Ambassador Butterworth, Edwin C. Martin (Assistant Secretary of State for European Affairs), Curt Heidenreich (Counselor of Foreign Relations, Euratom), Jules Guéron, Federico Consuelo, John Hall and others.

Edward Teller came in at 3:45 p.m. and we talked about the security problems attendant on instituting a School of Applied Science at the Livermore Radiation Laboratory. We also discussed a new Plowshare ditchdigger program that would make large amounts of transcurium elements as a by-product by designing the device to produce proper neutrons for the absorption in plutonium or americium.

At 4:15 p.m. I met with Dr. J. A. Hipple (Director of Research, Phillips Laboratories), Dr. A. C. van Dorsten (with Phillips Laboratories in the Netherlands), and Mr. Kavanagh (Phillips Development Laboratory) to hear their plans to produce and sell cyclotrons, with an energy range of 5-25 mev for protons and 3-13 mev for deuterons, for use in low energy physics. In answer to Mr. Kavanagh's question as to whether I had any feeling as to the market for such 25 mev machines over the next few years, I indicated that it was my general feeling that the energy ranges of interest in this country during the next few years, especially for deuterons, would be higher than those presently available in the Phillips cyclotron.

The Commission met at 5 p.m., meeting 1750 (action summary attached), to obtain concurrence on the proposals that will be presented to Hirsch tomorrow.

I attended a black tie dinner hosted by Under Secretary of State George Ball in honor of Mr. Hirsch at the Mayflower Hotel. Jean Monnet (the main originator of the European Coal and Steel Community, Common Market and Euratom), John Hall, Harry Smyth, Commissioner Wilson, Robert Schaetzel, Ambassador Butterworth and Senator Pastore were among those present.

Thursday, June 15, 1961 - D.C.

At 9:30 a.m. I met with Hirsch and Butterworth to present to Hirsch our (USAEC) proposals regarding the supply of fuel to Euratom. I made two suggestions: The first would be to continue the deferred payment plan in accordance with the present agreement. I said that, although we will be in some difficulty with having an interest charge different from the use charge rate in this country, we are prepared to continue the 4% fixed rate of interest. The second is that we lease the material at 4 3/4% use charge, with no waiver.

The lease arrangement would have a provision that would require Euratom to purchase the material whenever U.S. operators are required to purchase the material. In this event, however, Euratom will be entitled to purchase the material on a deferred payment basis at the rate of interest identical to the use charge applicable to U.S. industry at the time of conversion.

Mr. Hirsch's reaction was that these two proposals didn't present any additional incentives to their private utilities. Butterworth joined me in pointing out that the 4% interest rate could be considered as a concession and also that we were offering leasing for the first time. Butterworth's general reaction was that the proposals were quite reasonable. Hirsch said that, of course, he would

UNITED STATES GOVERNMENT

UNCL. BY DOE
NOV 86

Memorandum

TO : A. R. Luedtke, General Manager

Date: June 14, 1961

Approved: *[Signature]*

FROM : W. B. McCool, Secretary

A. R. Luedtke
Date: 6/14/61

SUBJECT: ACTION SUMMARY OF MEETING 1740, WEDNESDAY, JUNE 14, 1961, 5:10 P.M.,
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:WEM

Commission Business

1. Proposed Revisions to the U.S.-EURATOM Agreement

Discussed.

The Commission approved the staff's two alternative proposals discussed in the Meeting. (Wells)

The Commission approved June 1, 1960, as the cut-off date for submission of proposals by EURATOM. (Wells)

The Commission approved EURATOM's alternative to the "Buy-American" clause discussed in the Meeting. (Wells)

The Chairman said he would meet with Chairman Hirsch on Thursday morning to inform him of the Commission's decisions in the three above matters. The Commission requested preparation of an aide memoire for Chairman Hirsch outlining the three above actions. (Wells)

Subsequent to concurrence by the Department of State and the Hon. Earl Warren, the Commission requested the JCEC be informed of this action. (Wells)

2. ATC 604/52 - Draft Federal Radiation Council Memorandum for the President

The Commission requested revision of the minutes of Meeting 1743 in accordance with the discussion at the Meeting. (Secretary)

Other Business

Meeting with Admiral Rickover

The Commissioners said they would be pleased to see Admiral Rickover at the 9:30 Meeting on Friday morning. (Secretary)

have to go back to his Council of Ministers for further consideration. I also said that we are prepared to accept his Council of Ministers' suggestion regarding the "buy American" limitation, in which the matter is handled by directly advising the interested utilities rather than by introducing "buy American" language in the invitation.

I also stated that we are willing to extend the cut-off date from the presently contemplated date of October 15, 1961 to June 1, 1962. I said that I was favorably inclined toward the allocation of U²³⁵ for research purposes along the lines they had requested but that this is dependent on pending legislation.

At 11 a.m. I heard Commissioners Olson and Graham and Leslie Silverman (ACRS) testify at the JCAE hearing on the AEC regulatory function.

I had lunch at the Roger Smith Hotel with Jules Guéron.

At 2:30 p.m. I attended the swearing-in of Harry Smyth and Bill Cargo, as ambassadors to the IAEA, by Roger Jones (under Secretary of State for Administration) and Angie Biddle Duke (Head of Protocol) at the State Department.

A little later I talked to Smyth and John Hall in my office about the U.S. policy at the forthcoming fall IAEA meeting.

I received a call from Jack Horton of Southern California Edison saying they do not want a public dispute with the Marine Corps over the Camp Pendleton site for their reactor. General David Shoup told them that, unless he were directed otherwise, he would oppose vigorously the use of the site. He inquired whether there was any progress along the lines of having the BOB attempt to secure an Executive decision, as had been mentioned at one time. I said we have not been able to find any evidence that BOB had in mind doing this but we would try to convince them to take on the task.

We discussed the problem of termination. He said their lawyers are reviewing the draft we sent and they don't know how disturbed we will be by the changes they propose. I said we wouldn't want to have a unilateral situation up to the point of cut-off at the time of the first construction permit but we would await their comment.

Webb called at 5:40 p.m. regarding the communications satellite. He said that FCC Chairman Newton Minow has been before the Congressional Committee, and they were pressing him, along the lines taken by G.E., that this should be opened up to wide participation. More and more it is becoming clear that G.E. is applying pressure. Yesterday, for example, a Mr. Heeney, a lawyer introduced by Senator Humphrey, came in to see Webb, along with Mr. Atkinson (in charge of the satellite project) and Mr. Metcalf of G.E. Also, he has had a letter from G.E. stating that they are against what FCC is doing and expressing the thought that this should be taken up by the Space Council. Webb has replied to this letter in a very forthright manner, stating that, after careful study, he believes that the most expeditious way to bring a communications satellite into being is through some joint effort of the International Common Carrier, and not exclusively through any one company, with FCC responsible for regulation.

The International Common Carrier is composed of AT&T, IT&T, RCA, Mackay Radio and General Telephone. (The other half would be handled by foreign companies, such as the Company of Great Britain, which is largely government controlled, and the French Post Office, which is government-owned.) These five companies

rent space from AT&T on its cables, and they, in turn, are required under FCC regulation to make facilities available to their competitors. FCC simply wants to expand this present system and to add the satellite to the cable transmission system.

As soon as FCC selects the company and awards the franchise, an organizing company will be set up. That would take about a year. NASA's responsibility is to get the proper tools into the hands of whatever company evolves from FCC consideration. In the meantime, NASA would be working with RCA, under contract, to build a government-owned satellite for the Relay project. In addition, AT&T would have three built, and would pay for their launching. Full information would be used from all four satellites to evaluate the experiment. The organizing company would be urged to choose the satellite they would want.

Webb said that the President has sent a letter on the communications satellite to the Vice President, who will likely call the Space Council together, or else deal directly with the two of us. I said that I have been talking to the Vice President about identifying the bottlenecks to be sure the Russians don't beat us to satellite-beamed television. Webb says that this system will give us an experimental demonstration of television. I expressed the hope that we won't get bogged down in the international legal tangle; on the other hand, I pointed out that SNAP itself might turn into a bottleneck. Webb said that, after the organizing company is set up, the decision will have to be made by it whether to buy a satellite with a SNAP device, or one with a solar cell. If they don't buy SNAP, NASA may just test it itself.

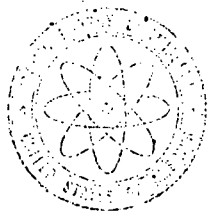
Webb said that everything went well Friday (June 9th) at the AEC/NASA meeting with Aerojet and Westinghouse (held at 2 p.m. at the 1717 H Street office). Cresap of Westinghouse said they will put everything into the project to make it work. They are satisfied with having Aerojet as the prime contractor. The meeting ran about one and one-half hours, and Webb stayed to the end. He expressed my regrets that I couldn't be there because of my trip to Columbus.

I attended a reception at the French Embassy given by Ambassador and Madame Herve Alphanand in honor of the engagement of their niece. Mme. Alphanand invited Mrs. Seaborg to visit her when she arrives.

I also attended a cocktail party for Mr. Hirsch given by Charles Weaver at the Sheraton Carlton Hotel.

Friday, June 16, 1961- D.C.

At Information Meeting 43 (notes attached) we heard a report by Rickover on the problem of the loss of a key nuclear physicist to Nuclear Utility Services, Inc., (who offered him an increase in salary) presumably to make them capable of carrying on AEC work. We discussed: 1. the President's letter to Vice President Johnson asking the Space Council to investigate the problem of which companies and/or government should be responsible for a U.S. worldwide satellite communications system (this is shaping up as a very important and difficult issue); 2. the Net Evaluation Report (on the effects of a nuclear war on the population); 3. the future of special laboratory experiments at Los Alamos and Livermore; 4. possible comments by Combustion Engineering on the SL-1 accident report issued last Friday; 5. the status of my talks with Hirsch; 6. the status of the AEC reorganization studies; 7. the impending Maritime strike and the effect on the NS Savannah; and 8. plans to have Commissioner Wilson visit Euratom at Brussels next month.



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

UNCL. BY DOE
NOV 86

June 16, 1961

INFORMATION MEETING 43

10:50 a.m., Friday, June 16, 1961 - Chairman's Office, D. C.

1. Joint Committee Hearing on ECNG-FWNG Proposal, Monday, June 19, 11:00 a.m. - Dr. Wilson will attend.
2. Dr. Wilson's Visit to EURATOM During the Week of July 10 - The Chairman said Dr. Wilson will undertake to follow EURATOM program developments. (Secy)
3. Joint Committee Hearing on Weapons Program, Wednesday, June 21 - The Commissioners requested a briefing by the Laboratory directors prior to the hearing. (Secy)
4. Discussions with Chairman Hirsch - The Chairman reported on the discussions and pointed out the desirability of consideration of the fuel guarantee matter. (Secy)
5. Agenda Planning - The Agenda for the week of June 19 was approved as revised:
 - (a) The meeting scheduled for Wednesday, June 21 will depend on the Weapons Hearing schedule. The Commissioners will be in D. C. Monday, Tuesday, Wednesday and Friday and in Germantown on Thursday the week of June 19.
 - (b) The Commissioners Vacation - The Chairman and Commissioners said they would try to take a two to three week holiday around August 14, 1961.
 - (c) Polaris Cruise July 29 and 30 - Commissioners Graham and Olson have accepted.
 - (d) Meeting of the Commissioners with the Advisory Committee on Isotopes and Radiation Development - Confirmed for June 29, Washington, D. C.
 - (e) Meeting of the Commissioners with the GAC, Los Alamos, July 13, 14 and 15 - Commissioners Olson and Haworth will attend.
 - (f) Briefing on Yankee Project - The Commissioners requested that the briefing be in Washington. (Secy)

INFORMATION MEETING 43 (continued)

6. Admiral Rickover's Memorandum of June 15 re AEC Laboratory Personnel - The Commissioners requested a report on this matter (GM - Tammaro)
7. Letter re Biological Effects of Nuclear War - The Commissioners requested recommendations on AEC participation (GM - Betts)
8. Special Laboratory Experiments - The Commissioners requested revision of the letter to the President, clarifying the proposed security procedures and requested revised reporting procedures. (GM - Betts)
9. Southern California Edison - Westinghouse Project - The Commissioners noted that this matter would probably be taken up the week of June 19. (GM - Secy)

Mr. Olson said he would discuss the Project with Assistant Secretary of the Navy, Mr. Kenneth E. Be Lieu. (Secy)

The Chairman requested a memo for use in his discussion of this Project with Mr. Bell. (GM - Pittman)
10. Letter to Mr. Bundy re Defense Agreements - The Chairman said the letter had been signed today. (Secy)
11. Investigation Report on SL-1 - The Commissioners requested consideration of the problem of Combustion Engineering's lack of opportunity to comment on the Report. (GC)
12. Meeting of the Principals, Today - The Chairman and Dr. English will attend.
13. AEC Scientific Representative at EURATOM
14. Effect of Maritime Union Strike on N. S. Savannah - The General Manager said it was hoped Secretary Goldberg would request the Union to exempt the N. S. Savannah.
15. AEC Staff Meeting with Joint Committee Staff - The General Manager reported AEC would discuss planning estimates with Joint Committee staff during week of June 19 and proposed extension of the contract with NRU during week of June 26.
16. Alson Article of June 16 re Neutron Bomb - The General Manager said he had requested an analysis of the article to determine if it contained classified material.

INFORMATION MEETING 43 (continued)

17. Joint Committee Hearing on AEC Omnibus Legislation Bill -
Tentatively scheduled for the week of June 26.
18. DOD Request for AEC Concurrence in Letter to President - The
Commissioners requested the matter be placed on the Agenda
during the week of June 19. (GM - Secy)

Present

Dr. Seaborg	Mr. Ferguson
Mr. Graham	Mr. Brown
Dr. Wilson	Mr. Henderson
Mr. Olson	Mr. McCool
Gen. Luedecke	

Distribution

Commissioners
General Manager (4)
General Counsel
Secretary

W. B. McCool
Secretary

I had lunch with Hirsch, Guéron, Consuelo, Hall and Wells at the Mayflower Hotel. We further discussed the U.S.-Euratom cooperative program, especially in the research area. I gave Hirsch a signed letter setting forth the terms of the U.S. fuel offer to Euratom (copy attached -- also attached are copies of Hirsch's reply and a subsequent letter to him on this subject).

I discussed the AEC reorganization plan in some detail with Al Luedecke and Dwight Ink.

From 5:30 to 6:45 p.m. I attended a meeting of the Principals. Rusk, McNamara, Wiesner, Bundy, plus many of their associates, and McCloy and his people were there to talk about participation (i.e., countries that would participate) in the discussions on general disarmament which will start August 1st. The Russians will be in Washington next week to make plans. They want the Troika arrangement -- 5 Soviet Bloc, 5 Western and 5 neutrals -- while the U.S. wants the 5-5 arrangement. Our other alternatives are a 5-5 plus 3 non-voting neutrals or 5-5 plus 10 voting neutrals. We also discussed a proposed statement of principles under which the disarmament conference would operate and the next steps to be taken by the U.S. in connection with the Geneva test ban negotiations. McNamara and I will draw up a plan of weapons to be tested, including time schedule and priority, for consideration at a future meeting of the Principals. The resumption of testing by the U.S. seems inevitable in view of the USSR attitude at Geneva; McCloy believes this attitude is a reflection of the fact that Khrushchev has made a deal with the Chinese promising that the USSR will not sign a test ban treaty with the U.S.

I received a Father's Day card from Eric.

Saturday, June 17, 1961 - D.C.

I worked in the office until about 3 p.m. reading papers. I worked on the details of an agreement with Rusk and McNamara concerning the Mutual Defense Agreement for Cooperation with the Government of France on the uses of atomic energy for mutual defense purposes (NATO) pursuant to sections 91c and 144b of the Atomic Energy Act.

I attended a performance of "The Music Man" at the National Theater.

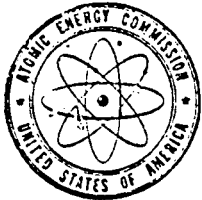
Sunday, June 18, 1961

I had lunch at the Chevy Chase Club with John and Elizabeth Graham, their daughters Terry and Susie, and Chet and Cam Holifield.

I visited at the Aebersolds, where Don and Milicent Cooksey and their children were visiting.

I had dinner at the Wiesner's. Jim Fisk, Det Bronk, Alexander Todd (of England -- a member of their Advisory Council on Science Policy, ACSP), Robert Woodward, George Kistiakowsky, Isidor Rabi and Paul Doty were guests also.

I phoned home and talked to Helen, Pete, Lynne and David. We discussed moving plans -- they are busy packing things to send by freight and getting ready for their jet flight to Washington on Wednesday, June 28th.



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

H
Chairman

DC FILE

UNCL. BY DO
NOV 86

JUN 16 1961

Dear Mr. Hirsch:

Following our discussion of June 15 in Washington, I am taking this opportunity to confirm our proposals for terms and conditions applicable to supply of enriched uranium fuel for reactors selected under the Joint Program.

As you know, AEC charges for enriched uranium have recently been substantially reduced, in accordance with the schedule of base charges which is attached. These price reductions are expected to reduce the cost of nuclear power generated from typical reactors by about 0.3 to 0.5 mills per kilowatt hours.

In accordance with the Joint Program Agreement for Cooperation, we are prepared to sell the enriched uranium required to fuel such reactors to Euratom. The price charged will be the U.S. domestic base charge in effect at the time of transfer of the material and will be payable upon transfer, except for the inventory of each reactor project upon which payment may be deferred until December 31, 1973 for reactors scheduled to be in operation by December 31, 1963 and until December 31, 1975 for reactors scheduled to be in operation by December 31, 1965, with interest on the deferred amount at the fixed rate of 4% per annum. At the end of the above mentioned period (December 31, 1973 or December 31, 1975) the deferred amount due on that date will be paid in ten equal annual installments with interest at 4% per annum on the unpaid balance, and liquidation of the entire amount not later than December 31, 1983 or December 31, 1985 whichever applies.

In computing the inventory on which payment may be deferred, the inventory will be valued at the enrichment of each of its various components. Determination of the inventory will be made individually for each reactor accepted under the Joint Program by an analysis of its proposed schedule of receipts, consumption, and returns of uranium. Factors to be considered in this analysis include (a) shipment and storage periods, (b) residence time in the reactor, (c) cooling time and, when carried on outside the United States, (d) fabrication time and (e) reprocessing period. In each instance, ample assumptions will be used and an over-all contingency factor may be applied to compensate for minor, unpredictable variations in the schedule. The actual inventory will fluctuate with time, and the estimated maximum value for normal operations will be used as the inventory on which payment is deferred. No payments for burnup will be required in advance of its actual occurrence. An illustrative calculation of the financial implications of this deferred payment plan is shown in Table I attached.

Alternatively, we are willing to lease the enriched uranium to you at the same financial terms as apply to domestic leases, which currently include a 4-3/4% per annum use charge on the value of enriched uranium as set forth in the forementioned schedule of base charges. The term of this lease would be for a period ending December 31, 1963 for reactors selected to be in operation by December 31, 1963 and December 31, 1965 for reactors selected to be in operation by December 31, 1965, except as mentioned below. The charges for burnup and use charges would be computed and payable on the same basis as for U.S. reactor operators. Under current domestic arrangements, burnup is paid for semiannually upon an estimate of fuel consumption, subject to later adjustment upon measurement of the quantities and enrichment of discharged material. An illustrative calculation of the financial implication of this lease plan is shown in Table II attached.

In the event that our domestic situation changes so that private parties in the United States are required to purchase special nuclear material for use in power reactors, we retain the option of converting this lease arrangement to sale. We have in mind that this would become effective when any private party operating a power reactor brought into operation in the United States by December 31, 1965, is required to purchase its enriched uranium fuel. In such event, we would be prepared to make the sale on terms similar to those for deferred payment outlined above, it being understood that the deferral of any payments would only apply for any remaining balance of the deferral periods ending December 31, 1973, or December 31, 1975, respectively, for reactors accepted under the 1963 or 1965 phases of the program. Principal payments would be divided equally among the last ten years, or such balance thereof as remained at the time of conversion from lease to sale. Interest charges on the deferred amounts would be fixed at the use charge in effect at the time of conversion.

We will be happy to receive your views with regard to the above proposals.

Sincerely yours,

Signed Glenn T. Seaborg

Chairman

cc: Chairman (2)
General Manager
AGMIA

Attachments:
As Stated.

Honorable Etienne Hirsch
President, European Atomic Energy
Commission DIA ~~OGG~~ OGC DRD OA AGM AGMIA GM
51, Rue Belliard
Brussels, Belgium AAWells:ja

6/16/61

COMMUNAUTE EUROPEENNE
DE L'ENERGIE ATOMIQUE

UNCL. BY DOE
NOV 86

LE PRESIDENT DE LA COMMISSION

Brussels, July 6. 1961

67261

838 7/26/61

Dear Dr. Seaborg,

I have purposely delayed writing to you because I wanted personally to inform you of the outcome of the meeting of Euratom's Council of Ministers on July 3 which considered the proposal of financial participation in power reactors. I am pleased to inform you that the Council of Ministers not only approved the Commission's proposal but approved also provision envisaging the participation in more than 3 reactors.

I want to tell you how much I enjoyed meeting you, the members of your Commission and of the AEC staff. I would like to thank you and your associates for the time and attention given to our affairs. My all too short visit, besides clearing up some specific problems, has laid, I feel, the basis for a continuing and mutually fruitful cooperation in fields which go beyond the scope of our Agreement for Cooperation. I am particularly pleased to learn of Commissioner Wilson's decision to visit us on July 13/14 and I look forward to your visit either in Ispra or here after the Vienna meeting in the Fall.

I would like to give you my understanding of various points discussed and the follow-up to be given.

Agreement for Cooperation

a) 2nd Invitation for reactor proposals

(i) Supply of fuel - By your letter of June 16, the USAEC has offered either lease at 4.75 % use charge with a switch to deferred payment if and when the USAEC changes its domestic policy, or sale on a deferred system at 4 % with a liberal interpretation of the inventory based, however, on the principles established by the USAEC. The Euratom Commission, in agreement with the USAEC, is leaving the choice to the utilities and this option will be inserted in the appropriate section of the Invitation. It is understood that should lease

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be chosen by one or more participants, then an amendment to the Agreement for Cooperation would provide for the lease. As you know, such an Amendment was already negotiated between our two staffs last year.

(ii) Financial clauses - It was agreed to return to the wording of the Invitation as originally drafted by the U.S.-Euratom Joint Reactor Board.

(iii) Cut-off date - June 1, 1962 has been agreed.

With these provisions and amendments, we see no reason for further delaying the issuance of the 2nd Invitation.

b) R&D

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We discussed the financial unbalance between the U.S. and the Community operations. We recognize on our side that the problem is mainly an accounting problem and we appreciate the value of the information we receive outside the legal framework of the Joint R&D program. Nevertheless we trust that with reactors coming into the program, it will be possible to improve the present situation.

Additional Agreement

a) Enabling Legislation

We understand that the Joint Committee will consider the Enabling Legislation in the very near future so as to avoid the recurrence of the difficulties encountered by ourselves and member countries because of unavailability of small quantities of special nuclear materials provided for in the Additional Agreement.

b) Expansion of Additional Agreement

As you know, the Additional Agreement originally discussed in April 1960 was very different, both in form and in substance, to the text which was finally signed in July 1960. The former covered a much broader field and envisaged a more liberal supply of special nuclear materials for various purposes but not on a project by project identification. The discussions we had with you and members of your staff have confirmed our view that the USAEC would be ready, at the appropriate time, to return to the original approach. We have pursued this in our discussions with Mr. Pittman and the other members of your staff, whom we have had the pleasure to see recently in Ispra and in Brussels. We understand that it will be possible to resume these discussions next Fall.

./...

Scope of further cooperation

It was agreed that cooperation (and exchange of information and personnel) in other fields could be best carried out on a subject by subject approach without the need of formalizing the procedure. This was also a matter pursued between Mr. Pittmann and Dr. Guéron. I understand that certain areas of particular interest were explored and that practical arrangements for the implementation for such cooperation were discussed in detail.

Free circulation of fuel within the Community

I need not stress the importance which we attach to this matter as a prerequisite to the development of the unified nuclear market in the Community. This represents one of the principal purposes for which Euratom (and its Supply Agency) was set up. I do hope that your Commission will find it possible to come to a favorable policy decision in this respect which, in so far as the Community Countries are concerned, would be implemented through Euratom as the appropriate channel for such movements.

Mechanics of cooperation

We have agreed to a regular exchange of views at Commission level. These meetings are to take place in Washington in the Spring and in the Community in the Fall. They will be prepared and eventually followed by meetings at staff level. As previously mentioned, I look forward to your visit in the Fall.

In closing I would like to tell you that after our very open discussions, I left Washington with a definite feeling of encouragement about the future of the relationship between Euratom and the USAEC thanks to your own personal and your colleagues' sympathetic understanding of our problems and I do hope that this will have been the first of a series of equally fruitful meetings.

Yours sincerely



E. HIRSCH

Hon. Glenn Seaborg
Chairman
United States Atomic Energy Commission
WASHINGTON D. C.

Our research groups are delighted with the gift you have so kindly provided me in Washington

6-10-61
DC FILE

UNCL. BY DOE
NOV 86

JUL 10 1961

Dear Mr. Hirsch:

As a result of our discussions in Washington, the AEC offered to supply enriched uranium fuel for Joint Program reactors under two optional plans, deferred payment or lease. The details of these arrangements were contained in my letter to you of June 16, 1961. Subsequently, you requested that we permit Euratom to offer each utility planning to participate in the program a choice of the plan which it prefers.

Confirming the information which I understand has already been given to you by our Mission, I am pleased to inform you that we will permit Euratom to obtain enriched uranium for fueling Joint Program reactors under either of the two financial arrangements, as selected by the utility. The utility must indicate the plan which it desires in its proposal for participation in the program. In the case of SEMN, its choice must be indicated either prior to execution of the supply contract or delivery to the U.S. fabricator of the special nuclear material for the first core, whichever occurs earlier. Once the utility has so indicated its selection, it will not be allowed to alter its choice at a later date.

Also, during our discussions, we expressed concern over the effect on the U.S. fuel cycle guarantees of that feature of the proposed Power Reactor Participation Program under which Euratom would make a contribution toward the fabrication cost of a core which was fabricated in the Community. On further analysis, and with the understanding that the first core would in any event be fabricated in the United States as a part of the overall arrangement for purchase of the reactor, we have determined that this Euratom policy would not conflict with the principles of the guarantee as set forth in Appendix "A" of the Joint Program Agreement for Cooperation and in the Invitation for Proposals. Of course, as we agreed, if the bid selected in this circumstance is not that which would impose the least contingent liability on the AEC, our guarantee normally will be based on the bid which would have minimized our contingent liability. (This does not prevent the reactor operator attempting to demonstrate - in accordance with the Invitation, Appendix "C", paragraph 32 - that his acceptance of the proposed bid is to the overall economic advantage of his operation, exclusive of the effect of the Euratom contribution.) As you are aware, authorization of funds to cover our contingent liability for each guaranteed core must be sought from our Congress, and we cannot at this time predict whether it will reach the same conclusions as we have in this matter.

I hope that these decisions, together with the other positions advanced at our recent meeting, will permit issuance of the invitation for the 1966 phase of the Joint Program in the near future, and will assist in the ultimate proposal of two additional power reactor projects of mutual interest.

With kindest personal regards,

Sincerely yours,

(Signed) Glenn T. Seaborg

Chairman

Honorable Etienne Hirsch
President
European Atomic Energy Community
SI rue Belliard
Brussels, Belgium

Chairman (2)
cc: Commissioner Graham
Commissioner Harworth
Commissioner Oloca
Commissioner Wilson
State/SAE (2)

GM
AGMIA
Secretariat
Brussels Office
STATE/SAE(2)
DRD
CGC
Euratom Br./DIA(2)
DIA Files (3)

DIA Concurrences:

DD _____

IA:ADTI:DBH IA:D CGC AGMIA AGM DGM

Hoyle:mks Wells

6/30/61

Monday, June 19, 1961 - D.C.

I spent nearly all day at the PSAC meeting. We discussed the status of the test ban negotiations most of the morning. Alexander Todd gave a description of the British Advisory Council on Science Policy; their problems resemble ours in many respects, such as, the dilemma of which aspects of science to choose for support within the confines of a limited budget.

Wiesner gave a summary of the last Federal Council for Science and Technology meeting.

We discussed possible candidates for the post of Assistant Secretary of Science in the Department of Commerce, a similar post in the Department of Health, Education and Welfare, and a similar post in ICA to supervise the research program in connection with technical aid to underdeveloped countries. Roger Revelle has indicated his acceptance of the position as Special Assistant for Science to the Secretary of the Interior. These appointments should greatly strengthen the Federal Council for Science and Technology. Bob Woodward gave an excellent presentation of "Modern Organic Chemistry."

I attended a reception at the State Department honoring the Soviet delegation that is in Washington to discuss the forthcoming bilateral disarmament talks. I met the chief Russian negotiator, Valerin A. Zorin, a Soviet Deputy Foreign Minister, and the present head of the Soviet mission to the United Nations. I got the impression, by talking to him, that he has a rather uncompromising attitude, reminiscent of the Stalin school.

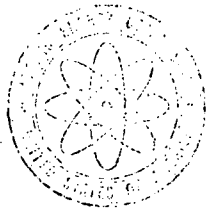
(Notes for Information Meeting 44, held this morning in my absence, are attached.)

Tuesday, June 20, 1961 - D.C.

At 9:50 a.m. Gilpatric called in response to the conclusion reached at the Meeting of Principals on June 16th that AEC and DOD get together and come up with a program in the event the President decides to resume testing. He wanted me to know that the AEC and DOD people at the working level are in contact, and General Betts has already been at the Pentagon to see John Rubel, of Harold Brown's office, who is keeping an eye on this. Rubel and John Early Jackson will be working with Betts; and on the policy end will be Paul Nitze, Assistant Secretary of Defense, who heads disarmament, and a good man of his, Harold Lanier. McNamara and Gilpatric feel that at the moment we should just wait and see how close our staffs can come together, and then we can meet to try and reach a common position.

He has read with care my recent letter regarding the need for information on weapons requirements, particularly in connection with the FY 1963 budget. He has told Harold Brown and Gerry Johnson to make this their first order of business. In this regard, I referred to John Finney's piece in the June 18th New York Sunday Times, which states that we are in disagreement. He assured me that we have the same philosophy; if there are any difficulties, it will be with the military, and he says they will work that out.

I said we are taking full cognizance of his letter of June 2nd, regarding the proposed Agreement for Cooperation for Mutual Defense Purposes with France. (This was in reply to our letter of May 25th to the Secretary of Defense, in which we stated that we have no objection to the initialing of this Agreement,



UNITED STATES
 ATOMIC ENERGY COMMISSION
 WASHINGTON 25, D. C.

UNCL. BY DOE
 NOV 86

June 19, 1961

INFORMATION MEETING 44

10:15 a.m., Monday, June 19, 1961 - Chairman's Office, D. C.

1. Letter of June 9 re Secretary Bibicoff's query on Uranium Mines - The Commissioners requested a report. (GC)
2. AEC Training Program for Reactor Inspectors - Dr. Haworth will study this matter with assistance from the General Manager and Mr. Price. (GM - Acting Director of Regulation)
3. Joint Committee Hearings on Weapons - 10:00 a.m., Wednesday, June 21 - The Commissioners will attend the Hearing and requested a briefing by the Laboratory Directors on Tuesday afternoon, June 20. (Secy - Betts)
4. Letter to Departments of State and Defense and Mr. Bundy re transmittal of information to France - Mr. Graham reported that the letter had been discussed over the week-end and the Commissioners agreed it should be sent today and circulated for their information. (GM - Secy)
re-processed on 6/22
5. Release of Information re Use of SAMP Devices - Mr. Luk said this matter was under discussion with the Department of Defense.
6. New York Times Editorial of Monday, June 19 re Nuclear Tests
7. Combustion Engineering Letter on Release of SJ-1 Report - Mr. Ferguson said Mr. Menden had discussed the report procedures with Combustion Engineering Counsel Mr. Norris, and Mr. Norris will send AEC a letter on the matter. (GC)
8. AEC 1042/11 - SOVIET-AMERICAN ELECTRIC-NUCLEAR-NEGOTIATIONS - Mr. McCool noted the issuance of this paper and the possibility of discussion later in the week.
9. AEC 327/35 - U. S. FINANCIAL ASSISTANCE FOR INDIAN NUCLEAR POWER PLANT - Dr. Wilson gave his views on the request from Ambassador Gelbraith and the Commissioners agreed that Dr. Wilson should determine from Mr. Wells the status of the request. (Secy)
10. National Parks Association letter of June 9 re Project Chariot (AEC 611/74) - Commissioners agreed a meeting with interested officials would be desirable and requested Dr. Haworth to explore the possibility with Mr. Kelly. (Secy - Kelly)

Present
 Mr. Graessle
 Dr. Wilson
 Dr. Haworth

Mr. Tarkenton
 Mr. Felt
 Mr. Henderson
 Mr. McCool

Distribution
 Commissioners
 General Manager (4)
 General Counsel
 Secretary

provided there is a review of the adequacy of the physical security arrangements to protect Restricted Data in weapons at U.S. overseas sites which support the Agreement. This refers mainly to French sites in Germany.) I mentioned that what Secretary Rusk requested was that we accede to the transmittal of Restricted Data to the Headquarters site, which is in Paris, and which has had recent surveys from this point of view, and, therefore, is not in the same category. As an exception, we would gladly do this.

We are sending our reply to Rusk, and in response to the DOD letter, we are cognizant of the additional point that they would like to have Bundy's office indicate whether the President agrees to our conditions. I am therefore sending a note to Bundy, calling attention to this, giving him a copy of the DOD letter, and the opportunity to respond. Gilpatric said this is fine.

I attended the PSAC meeting in the morning. W. T. Knox and Burton Adkinson discussed the NSF Scientific Information Program -- their national program to help scientific journals publish their extremely large, expanding volume of papers. Panofsky gave me a summary of his panel's report on anti-ICBM problems.

At 2:15 p.m. I attended a meeting of the Net Evaluation Sub-Committee in the Joint Chiefs of Staff room at the Pentagon. Lyman L. Lemnitzer (Chairman of the NESC and Chairman of the Joint Chiefs of Staff), Frank B. Ellis (Director, OCDM), Allen W. Dulles (Director, CIA), A. H. Belmont (Assistant Director, FBI, attending for J. Edgar Hoover), and John F. Doherty (Chairman, Interdepartmental Commission on Internal Security) were present.

At 4:30 p.m. the Commission met with John Foster (Director, Livermore Radiation Laboratory) and Norris Bradbury (Director, Los Alamos Laboratory) to discuss tomorrow's hearing before the JCAE Weapon Subcommittee (chaired by Senator Jackson). We also discussed a possible program of weapons testing for use in case President Kennedy decides that the U.S. should resume testing.

At 7 p.m. I attended a reception at the Shoreham Hotel for Prime Minister of Japan and Mrs. Ikedo given by the Japan-American Society of Washington.

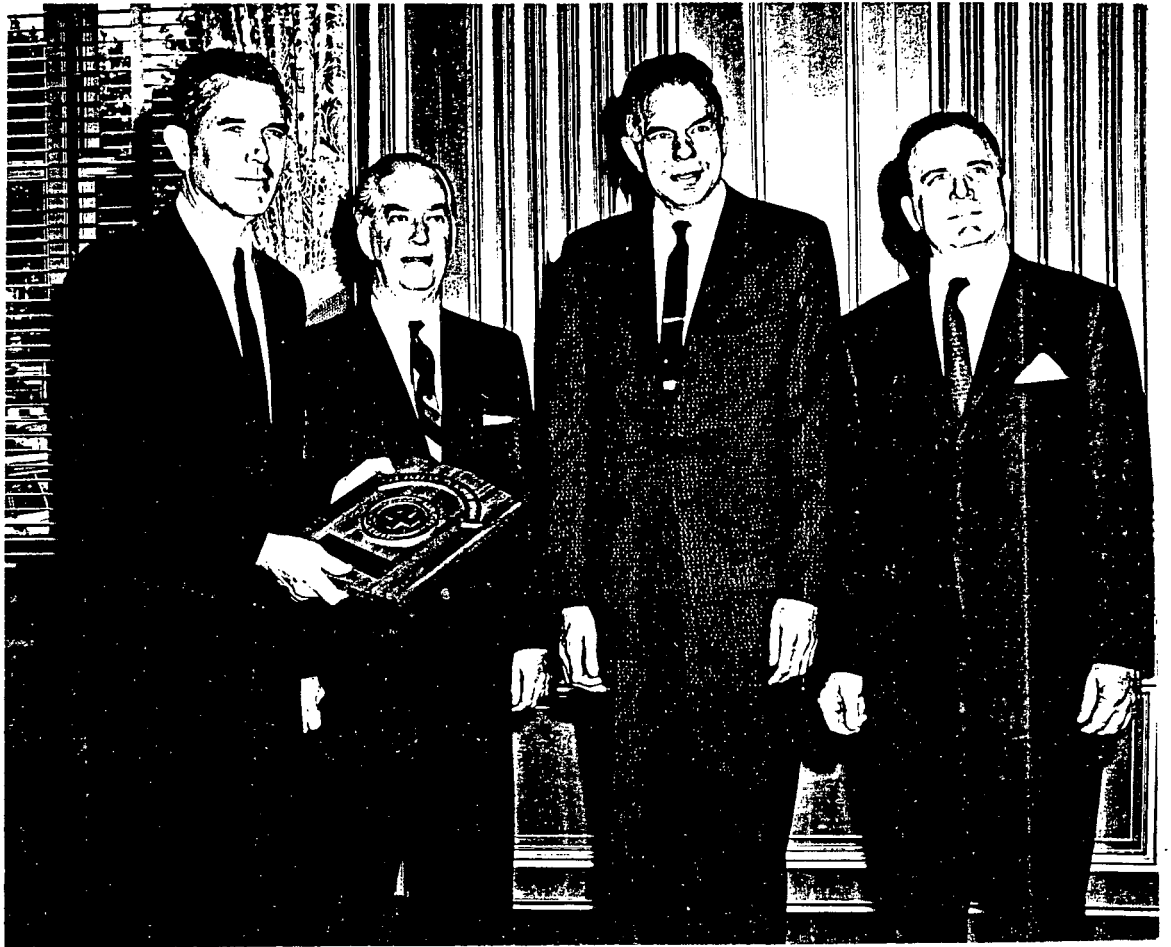
Tuesday, June 21, 1961 - D.C.

This morning at the Departmental Auditorium I received, on behalf of the AEC, the President's Safety Award for 1960 (for agency having less than 10,000 employees--copy of my response is attached). Jim Webb received a similar award for NASA (10,000-75,000 employee class) and John S. Gleason, Jr. received one for the Veterans Administration (greater than 75,000 employee class). Senator Hubert Humphrey gave an excellent keynote address.

I had lunch at the White House Mess with Jeeb Halaby and Ed Day (California Club).

At 2 p.m. I met with Maurice C. Timbs (Executive Commissioner of the Australian AEC), Ian J. W. Bissett (Atomic Energy Attache, Australian Embassy) and Al Wells. We discussed the possibility of a visit to Australia by Gary Higgs (Livermore Laboratory) to discuss Plowshare projects, cooperation in the research and development work on the high temperature gas-cooled reactor, and other matters.

I then went to the Hill to attend the JCAE Weapons Subcommittee hearing, presided over by Senator Jackson, concerned with the question of test



Presentation of President's 1960 Safety Award, Departmental Auditorium, Washington, D.C., June 21, 1961

L to R: James J. Reynolds, Assistant Secretary of Labor; John S. Gleason, Administrator, Veterans Administration; Seaborg; James E. Webb, Administrator, National Aeronautics & Space Administration

Remarks by Dr. Glenn T. Seaborg, Chairman
U. S. Atomic Energy Commission
In Acceptance of
President's Safety Award to AEC for 1960
Departmental Auditorium - Washington, D. C.
11:00 a.m., Wednesday, June 21, 1961

AEC SAFETY PROGRAM

It gives me great pleasure to accept this award on behalf of the six thousand nine hundred employees of the Atomic Energy Commission.

The Commission is proud that the men and women who work for it have brought to their agency the highest safety citation in Government -- and for the third time in the six years since this award was established. Those in charge of the Commission's safety program -- some of them are in the audience today -- deserve congratulations for their leadership and their administration of the safety effort. But while it is a splendid tribute to their efficient public service, the major credit belongs to the men and women who practice safety day by day.

In his Special Message on Education, President Kennedy said that a balanced Federal program must go well beyond incentives for investment in plant and equipment and include equally determined measures to invest in human beings -- both in their basic education and training. In his most recent Special Message on Urgent National Needs, he developed this theme in saying that our greatest asset is

the American people; and that we as a nation must strive for excellence in our schools, our cities, and in our physical fitness.

Safety is, of course, an obvious and important corollary of the high objectives the President has set for our nation. What would it gain us to achieve constantly higher goals in the excellence of our education -- in improving the mind and our physical fitness -- only to impair our national ability to work and to perform as a result of needless accidents? It must give the President deep satisfaction to know that there is a program in the Government dedicated to the preservation of our human resources and to the reduction in needless accidents which serve only to impair the health and productivity of the Nation.

Some may look upon the Atomic Energy Commission as an organization whose sole interest is to produce a devastating article of war -- namely, the nuclear weapon. There may be still others who are aware of the fact that a substantial portion of our program is devoted to the peaceful uses of atomic energy. But I believe all too few are aware of the emphasis which the Commission places on the health and safety of the public and on the health and safety and the welfare of the employees in the atomic energy program. As a matter of fact, the Statute which created the Atomic Energy Commission establishes two permanent conditions to virtually all of

our activities -- the common defense and security, and the health and safety of the public. We consider that those who work in the atomic energy program constitute a very special segment of the public.

There is continual emphasis by the Commission on measures to hold to a minimum accidents such as falls and motor vehicle collisions, as well as over-exposure to ionizing radiation. The application of present and yet-to-be-acquired scientific knowledge can still further reduce the serious toll taken by accidents.

The availability of insurance to the employees of the Commission and its contractors is perhaps the best evidence of progress in our safety programs. In general, these men and women do not have to pay premium rates for life insurance. Moreover, the rates they pay for compensation insurance are the same as, or less, than those paid by employees in other industrial activities.

Safety research and planning in the AEC covers the entire range of disabling accidents. One example of a new area in which health and safety are important is the application of nuclear energy to space exploration. Here again, safety is a prime consideration both for the workers and the public. Intensive studies have been under way for more than a year to assess all the possible hazards involved in nuclear rocket propulsion and in the future use of energy produced by the decay of radioactive materials to furnish power for instruments installed in our space vehicles.

Although we are proud of the fact that the employees of the Atomic Energy Commission have won this particular award on three previous occasions, I wish to assure all of you that we are not complacent.

I pledge our continuing efforts to serve these objectives -- so important to society and our national security.

* * * *

resumption. Witnesses from DOD, Sam Cohn from Rand Corporation, John Foster and General Austin Betts described the need for and suggested a program for testing, especially in regard to the development of the fusion (neutron) bomb. All members of the JCAE seem to favor resumption of testing with perhaps some differences in method and program.

I had dinner at the University Club with Lee Haworth.

Thursday, June 22, 1961 - Germantown

I phoned Gilpatric to ask him to try to get the SNAP-3 device into the Transit 4-A satellite now that its launching has been delayed again, thus effectively reversing the State Department decision. He saw McGeorge Bundy and Chester Bowles at lunch and got Bundy to agree but later found that there isn't sufficient time to get the device ready. Therefore, the plans still are to put it into Transit 4-B which is set for launching in August.

I visited the various Assistant General Managers' offices to meet their staffs.

I talked to Jay Holmes, who is writing a book entitled, Moon by 1970, to explain our nuclear rocket and auxiliary power program.

I had lunch with Fred Friendly (Executive Producer, CBS News and producer of "See It Now") and Arthur Morse of CBS to explore the program CBS has in mind to cover all phases of nuclear energy; the program will include me as well as, possibly, President Eisenhower, Wiesner, etc.

From 2 p.m. to 5 p.m. I met with Commissioners Graham, Wilson and Haworth (joined at 3 p.m. by Luedecke, Hollingsworth and Ink) to discuss the progress of the AEC reorganization plan; it is proceeding very well.

I called Howard K. Smith regarding a request we had from CBS to approve their filming at the Nevada Test Site.

I told him we feel this is probably the proper thing to do provided the proper security precautions are taken and, in addition, if the story is handled in such a manner that it will not place AEC in the position of using this as a propaganda piece. In this respect I said I would like to have his assurance that he would watch over it and keep it in the proper perspective. He said that he certainly would and would seek our advice as they proceed.

I had dinner at the home of Howard Brown.

I sent letters to Secretaries Rusk and Gilpatric and to Mac Bundy re transmittal of information to France (copies attached).

Friday, June 23, 1961 - D.C.

At Information Meeting 45 (notes attached) we discussed: 1. my conversation with Gilpatric re SNAP-3 device on Transit 4-A; 2. a contractor for the ORNL HFIR reactor; 3. the underground power reactor in Berlin; 4. Panofsky's PSAC Panel report on warhead vulnerability; 5. a possible "Atoms in Space" conference sponsored by the IAEA in 1963 (a third peaceful uses conference patterned after those of 1955 and 1958); 6. the possible use of closed circuit TV to help in the problem of access to the Germantown personnel for meetings at the D.C. office; 7. approval of the plan to establish a national laboratory for

JUN 22 1961

Dear Mr. Secretary:

I refer to previous correspondence in connection with the initialing of the proposed Agreement with France for Cooperation on the Uses of Atomic Energy for Mutual Defense Purposes and particularly your letter of June 10, 1961.

This is to confirm your understanding described in your June 10, 1961 letter that the Commission would not feel that all of the additional security measures which may be necessary to safeguard United States security interests in connection with the Agreement must be completed prior to any implementation of the Agreement. Specifically the Commission will be prepared, following the coming into force of the proposed Agreement, and without further security review, to consider determinations for the communication of Restricted Data to France for use for planning purposes by the Headquarters of the French Military establishment, the essential security elements of which were included during the October security review. It is my understanding that this modification will meet the concern expressed in your letter of June 10.

Our proposed letter to the Chairman of the Joint Committee on Atomic Energy has been rewritten to reflect the above arrangement. However, this letter contains the assurance that Restricted Data would not be available for transmission to French sites until an extension of the October 1960 survey of the French security system has been undertaken. This survey would include the review of security measures to be employed at selected French sites, including sites in Germany, which are to receive atomic information under the Agreement.

We believe that this review could also assist in providing reasonable assurance as to the physical security arrangements that will be employed to protect the Restricted Data contained in the weapons that will ultimately be placed at sites in support of this Agreement.

I am taking the liberty of providing the Secretary of Defense and Mr. McGeorge Bundy, Special Assistant to the President, copies of this letter.

Sincerely yours,

(Signed) Glenn T. Seaborg

Chairman

Honorable Dean Rusk
Secretary of State

cc: 1 - Addressee
2 - Sec. of Defense
3 - Graham
4 - Haworth
5 - Olson
6 - Wilson
7 - ACNIA
8 - Secretary
9 - Wells, DIA
10-11 - Chairman
12 - CI
13 - McGeorge Bundy

JUN 2 2 1961

Dear Ros:

I refer to previous correspondence and discussions between our staffs concerning the initialing of the proposed Agreement with France for Cooperation on the Uses of Atomic Energy for Mutual Defense Purposes and in particular to your letter of June 2, 1961.

This is to advise that the Commission will be prepared, following the coming into force of the proposed Agreement, and without any further security reviews, to consider determinations for the communication of Restricted Data to France for use for planning purposes by the Headquarters of the French military establishment, the essential security elements of which were included during an October 1960 security review. We understand that the Department of Defense is agreeable to the Commission's view that before Restricted Data communicated under the Agreement would be available for transmission to French sites an extension of the October 1960 survey of the French security system should be undertaken.

Our proposed letter to the Chairman of the Joint Committee on Atomic Energy has been modified to delete the reference in the last paragraph to the President and to reflect the above arrangement. However, this letter contains the assurance that Restricted Data would not be available for transmission to French sites until an extension of the October 1960 survey of the French security system has been undertaken. This survey would include the review of security measures to be employed at selected French sites, including sites in Germany, which are to receive atomic information under the Agreement. We believe that this review could also assist in providing reasonable assurance as to the physical security arrangements that will be employed to protect the Restricted Data contained in the weapons that will ultimately be placed at sites in support of this Agreement.

I should like also to affirm that nothing in the wording of our letter of May 23, 1961 to Secretary Hallmark was intended to suggest a desire by the Commission to modify the procedures for arriving at determinations under Executive Order 10841 in a way that would prejudice the recourse of the DoD to the President in the event of disagreement between our agencies.

I am enclosing for your information a copy of our letters to Secretary Rusk and Mr. Bundy on this matter. Unless Mr. Bundy perceives a problem, we believe that the Agreement may be initialed promptly.

Members of the Commission staff will be pleased to work with Colonel Shankle of the Office of the Assistant to the Secretary of Defense (Atomic Energy Commission) to draft appropriate letters to the President to forward the proposed Agreement to him.

Sincerely yours,

Signed Glenn T. Seaborg

Chairman

The Honorable Roswell Gilpatric
Deputy Secretary of Defense

Enclosures:

- Ltr to Secretary Rusk
- Ltr to Mr. Bundy

UNCL. BY DOE
NOV 86

JUN 22 1961

Dear Mr. Bundy:

This is to advise you that the Commission and the DoD expect shortly to recommend to the President a proposed Agreement for Cooperation with France pursuant to Section 144B of the Atomic Energy Act of 1954, as amended. Following customary practice, this will be done by letters submitted jointly by the Commission and the DoD.

By identical letters of May 25 (copies attached) we had advised the Secretaries of State and Defense of our concurrence in the initialing of the proposed agreement, provided the President was informed that certain further steps with respect to security would be taken before the Agreement would be implemented.

Deputy Secretary Gilpatric and Secretary Rusk indicated by letters of June 2 and June 10 (copies attached) that they did not object to these additional security reviews provided they were done in a timely manner. They were particularly desirous that Restricted Data could go forward without further security review, to the Headquarters of the French Military establishment (the essential security elements of which were included during an October 1960 security review) for general planning which must take place before the French sites which are to utilize the Restricted Data can be made ready for a security review.

The Commission has concurred in this approach. In addition, Deputy Secretary Gilpatric suggested that before the Commission and the DoD join in recommending Presidential approval of the Agreement, the President be advised of the additional security measures contemplated during the implementation of the Agreement.

We have replied to Secretary Rusk's letter of June 10, and Deputy Secretary Gilpatric's letter of June 2 (copies attached). Unless you perceive any problems in moving forward now with this Agreement,

we would plan to cooperate with the DID in preparing the necessary joint letters recommending to the President that approve the Agreement and make the necessary statutory changes. We will inform the Chairman of the Joint Committee on Atomic Energy of this matter at an appropriate time.

I would be glad to discuss this matter with you should you so desire.

Sincerely yours,

(Signed) Glenn T. Seaborg

Chairman

Mr. McGeorge Bundy
Special Assistant to the President
White House

Enclosures:

Cys of May 25 ltrs. to DoD and Sec. of State
Cy June 2 ltr fr DoD, Gilpatric
Cy June 10 ltr fr State, Rusk
Cy ltr to Sec of State, fr AEC
Dis ~~Emb~~ ~~side~~ DoD, fr AEC

THE SECRETARY OF DEFENSE
WASHINGTON

UNCL. BY 302E
NOV 86

June 2, 1961

Dear Glenn:

I have your letter of May 25,* 1961, to the Secretary of Defense which advised of the conditions upon which the Commission had concurred in the initialing of the Agreement for Cooperation for Mutual Defense Purposes with France. We have reviewed your conditions and they have been discussed by members of our respective staffs.

I understand that the wording in your letter was intended to reflect that the usual procedure for arriving at determinations required by the Atomic Energy Act would apply. Also, I am sure that we can arrange for an extension of the security survey to accommodate the timing problem in relation to implementation of the agreement. You will recall the concern in this regard expressed in my letter of May 17, 1961.** I understand your staff agrees.

I suggest that, before the Atomic Energy Commission and Department of Defense join in recommending Presidential approval of the French agreement, you obtain, through Mr. Bundy's office, an indication as to whether the President is agreeable to the conditions which the Commission seeks to impose. If the President is agreeable to the conditions, I suggest that our representatives cooperate in drafting appropriate letters to the President to forward the agreement to him. Colonel Shankle in the office of the Assistant to the Secretary of Defense (Atomic Energy) is available for this purpose.

I have also reviewed your proposed letter to the Joint Committee on Atomic Energy which was submitted for our concurrence. I suggest that this letter also be referred to Mr. Bundy to determine whether he approves the references to the White House and the President in the last paragraph. If Mr. Bundy approves, we have no objection to the letter.

Sincerely,

/s/

Roswell L. Gilpatric
Deputy Secretary of
Defense

Honorable Glenn T. Seaborg
Chairman
U.S. Atomic Energy Commission



ATOMIC ENERGY COMMISSION

WASHINGTON, D. C.

UNCL. BY DOE
NOV. 86

MAY 25 1961

Dear Mr. McNamara:

This is to advise you that the Commission concurs in the initialing of the proposed Agreement for Cooperation for Mutual Defense Purposes with France pursuant to Sections 91c and 144b of the Atomic Energy Act and that the Commission is prepared to join the Department of Defense in recommending to the President that he approve the Agreement and make the necessary statutory determination. The Commission's concurrence is conditioned upon the understanding that an extension of the October 1960 Security Survey of the French security system is undertaken, prior to implementation of the proposed Agreement, to include review of physical security measures employed at French sites in Germany which will receive atomic information under the Agreement. This review would include visits to selected sites for the purpose of examining the security measures in effect but it is not intended to include all such sites to which U.S. information will be communicated.

In concurring in this Agreement the Commission also wishes to note the discussions within the Executive Branch of the various security matters raised in the report of the Ad Hoc Subcommittee of the Joint Committee, which visited NATO bases during November - December 1960. The Commission's decision to join in moving forward to fulfill the various requirements of Section 123 of the Atomic Energy Act to bring this Agreement into effect is taken on the further understanding that such action will not prejudice the Executive Branch from taking whatever measures, including additional or specialized security reviews, that are determined to be necessary prior to implementing the Agreement to assure that the security interests of the United States are adequately safeguarded in the total program of military nuclear cooperation with France of which this Agreement is a part. In this connection and in keeping with the understanding reached at the White House on April 21, 1961, we understand the Agreement

will not be implemented until the Commission has reasonable assurance as to the adequacy of the physical security arrangements to protect restricted data in weapons at U.S. overseas sites which support the Agreement. The Commission desires that the joint letters to the President recommending that he approve the Agreement and make the necessary statutory determination explicitly note the foregoing considerations.

I am also informing the Secretary of State of this action.

Sincerely yours,

[Faint signature]

Chairman

Honorable Robert S. McNamara
Secretary of Defense

same to Sec-Rusk

June 10, 1961

Dear Dr. Seaborg:

*From the
Mr. D. The Russians
some day*

I refer to your letter of May 25, 1961, concurring, under certain conditions, in the initialing of the proposed agreement with France for cooperation on the uses of atomic energy for mutual defense purposes.

It is my understanding that the additional measures which may be judged necessary to safeguard United States security interests in connection with the agreement will be taken in a timely manner and as feasible in the course of making the required determinations of transmissibility of items of information. Specifically, I understand that it is not expected that all of these measures are required to be completed prior to any implementation of the agreement. Upon this basis I accept the conditions set forth in your letter.

My concurrence in the submission of the agreement to the President and recommendation of his favorable action would likewise be conditioned upon the same understanding.

I suggest that your proposed letter to the Chairman of the Joint Congressional Committee on Atomic Energy be amended to reflect the understanding set forth above. This can be accomplished by changing the phrase in the last sentence of the second paragraph "The Agreement will not be implemented..." to "Restricted Data would not be available for transmission to French sites..."

I would appreciate receiving your confirmation of the understanding set forth above as soon as possible, so that our Ambassador in Paris may be authorized to initial the agreement for the United States.

Sincerely yours,

Dean Rusk

Dean Rusk

The Honorable
Glenn T. Seaborg, Ph.D.,
Chairman,
U. S. Atomic Energy Commission.



1041 20 STATED
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

Handwritten notes:
4
J. H. ...

June 23, 1961

UNCL. BY DOE
NOV 86

MEMORANDUM DATES 45

1045 a.m., Friday, June 23, 1961 - Chairman's Office, D. C.

1. Report on Construction of Nuclear Power Reactor in Berlin -
Scheduled for the week of July 3. (Secy)
2. Commonwealth Edison Company Matter, Pocket No. 50-10 -
Scheduled for July 5 -(Secy)
3. N. S. Savannah Matter - Commissioners Graham and Olson urged early consideration of the record by the Commissioners.
4. Senator Jackson's Request at Hearings, June 21 -
Senator Jackson requested:
 - (a) A list of useful weapons resulting from unexpected beneficial test results. (Betts)
 - (b) A determination as to whether the Commission could lawfully expend money for weapons test subsequent to Congressional adjournment, in the absence of authoritacion legislation. (Naidon - Barrows)
5. Transit Shot - Mr. Graham reported on the Chairman's discussions with Secretary Gilpatric. (See Minutes of Meeting 1751 today).
6. Ferguson Contract at Oak Ridge - Mr. Graham said that Mr. Olson would study this matter and discuss it on Monday, June 26. (Secy)
7. Department of Interior Program on Desalinization of Sea Water -
Mr. Graham said that the Chairman would discuss with Secretary Udall possible assistance from AEC laboratories in this program. (Secy)
8. Use of Closed Circuit TV Between Government and the D. C. Offices -
Commissioners requested a report on this matter. (GK)
9. D. C. Commission Meeting Procedures
10. International Conference on Peaceful Uses of Atomic Energy -
The Chairman requested consideration of the desirability of:
 - (a) A theme of "Atoms in Space".
 - (b) Sponsorship by the IAEA. (Helle)

INFORMATION MEETING 45 (continued)

11. Parofsky Panel Report on Missiles - The Chairman requested Commissioners consideration and a report from the General Manager. (Betts)
12. Press Conference on SNAP Weather Device - The Chairman requested a report on desirability. (Duncan Clark)
13. News Media Photographs of Nevada Test Site - The Chairman requested a report. (Duncan Clark)
14. Commissioners Visit to SAC Headquarters July 10, 11, 12
15. Joint Committee Hearing on June 29 on nomination of Dr. Gerald Johnson to Chairmanship of ILC - The Chairman and Dr. Haworth will attend.
16. The Agenda was approved as revised. (Secy)

Present:

Dr. Seaborg	Gen. Lucdecke
Mr. Graham	Mr. Naiden
Dr. Wilson	Mr. Brown
Mr. Olson	Mr. McCool
Dr. Haworth	

Distribution

Commissioners
Gen. Manager (4)
General Counsel
Secretary

W. B. McCool
Secretary

water desalination within ORNL; 8. a press conference on SNAP device broadcasting weather data from the Martin Company in Maryland to the D.C. office; 9. approval for TV photography at the Nevada Test Site; and 10. the Commissioners' July 10-11th visit to SAC Headquarters in Omaha.

At 10:45 a.m. I met with Denis M. Robinson (President of High Voltage Engineering Corporation) and Dr. Robert J. Van de Graaff (also of High Voltage) to discuss their new three-stage 30 Mev proton tandem Van de Graaff and its place in the U.S. low energy physics programs. I told them, in response to a question, that we couldn't give them assurance as to the future budget in low energy nuclear physics because this involved a combination of the Commission position, the Bureau of the Budget and Congressional committees, but that they could assume that Haworth and I were favorably inclined toward increasing work in low energy physics.

At 11:45 a.m. I presided at Commission Meeting 1751 (action summary attached).

I had lunch at the Washington Post Building with James R. Wiggins (Editor and Executive Vice President), Alfred Friendly (Managing Editor), Chalmers Roberts (Chief, National News Bureau), John Norris (Pentagon reporter), Howard Simons (science reporter), Murray Marder (State Department reporter), James Truitt (Assistant to the Publisher), Chris Henderson and Duncan Clark. I was interviewed on the nuclear test ban, especially regarding the importance of the neutron bomb development as a reason for resuming testing; the man-to-moon program, which I endorsed; the communications satellite program and the importance of an early date; the civilian power program; and the importance of AEC international activities.

At 2:40 p.m. I met with Ted Merkle and Harry Reynolds of the Livermore Laboratory to discuss the success of the recent Tory II-a test, the plans for the Tory II-c test late next year and the general future plans for the Pluto program.

At the 3 p.m. Commission Meeting 1752 (action summary attached) we 1. approved the Ferguson Company as the contractor-builder of the Oak Ridge HFIR reactor, 2. approved the applicability of AEC fuel element guarantee to Euratom participation (subsidy) program and the right of individual utilities in the Euratom program to choose either the deferred payment or the fuel lease programs offered to Hirsch, 3. approved a recommendation to President Kennedy that he announce the availability of an additional 100,000 kg of U²³⁵ for domestic civilian power use and 65,000 kg for foreign use, 4. discussed the Presidential directive for FY 1962 on production and utilization of special nuclear material, 5. turned down an unsolicited proposal, involving Wolverine, Michigan, for a small nuclear power plant, 6. approved negotiations with the Bendix Company for a five-year renewal of their contract for the operation of the Kansas City plant, and 7. concurred in an amendment to Executive Order 10841 making it mandatory that the transfer of restricted data to a foreign country under section 144b of the Atomic Energy Act must be reported to the President before it becomes effective. We discussed the proposed joint statement by AEC-DOD on a program for testing (if the decision to resume is made) requested at the June 16th meeting of the Principals.

Further discussions during the day, involving Gilpatric, State Department representatives, Bundy, Welsh and others led to the reversal by State of their objection and the decision that, if time permits, the SNAP-3 device will be included in the Transit 4-A shot scheduled for June 27th. We decided there

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 86

TO : A. R. Luedecke, General Manager

DATE: June 23, 1961
Approved: *A. R. Luedecke*

FROM : W. B. McCool, Secretary *W. B. McCool*

Date: *6/23/61*

SUBJECT: ACTION SUMMARY OF MEETING 1751, FRIDAY, JUNE 23, 1961, 11:45 A.M.
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:JCH

Commission Decisions

1. Minutes of Meetings 1739, 1741, 1742, 1743, 1744, 1745, 1746, 1747, and 1748

Approved, as revised, Minutes of Meetings 1739, 1741, 1742, 1743, 1744, and 1748. Approved, as revised, Minutes of Meetings 1745, 1746, and 1747, subject to Commissioner Olson's review.

2. AEC 181/62 - AEC Cost Principles, and
AEC 181/68 - Supplement to AEC 181/62

Discussed.

The Commission requested AEC 181/68 be revised to include:

- a. Estimates of the difference in costs incurred from contracts now operating under ASPR and the result of bringing these contracts under the new principles.
- b. Statements of various staff judgments on the matter.
- c. Recommended differences in the application of cost principles to contracts with non-profit versus industrial firms.

(Burrows)

3. SNAP-Transit Satellite

The Commission concurred in the proposed action. (Pittman)

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 86

TO : A. R. Inselsie, General Manager

DATE: June 23, 1961
Approved: [Signature]
A. R. Inselsie

FROM : W. B. Richard, Director

Date: [Signature]

SUBJECT: ACTION SUMMARY OF MEETING 1962, WASHINGTON, JUNE 23, 1961, 2:45 P.M.,
ROOM 2213-B, D. C. OFFICE

SYMBOL: SDCR:DCR

Commission Decisions

1. MEG 471/57 - Fourth & General Revision of U.S. - FOREIGN Joint
Payroll Schedule

Approved. (Wells)

2. MEG 680/56 - Procedural For Revision of Estimated
Operating Costs Available for Electric and Water in
Disturbances

Approved as revised.

The Commission requested revision of Appendices "B", "C", "D",
and "G" in accordance with discussion at the Meeting. (June)

3. MEG 15/54 - Representative Memoranda for FY 1962 - Special
Review of Estimated Payroll for Administration Personnel, and
MEG 16/54 - Representative Memoranda for FY 1962 - Special
Review of Estimated Operating and Maintenance Expenses -
Supplement to MEG 15/54

Deferred.

The Commission requested replacement of paragraph 2. on
page 7 of MEG 15/54 to reflect discussions which at the White
House Meeting on April 21, 1961. (Wells)

The Commissioners requested a briefing on comparable figures
for FY 1960 and FY 1961. (George)

The Commission requested consideration of MEG 15/54
and MEG 16/54 at the next scheduled Commission Meeting.
(Secretaries)

would be no public announcement until after the shot.

I talked on the phone with Helen to discuss her progress in the moving preparations and their trip to Washington next Wednesday.

Saturday, June 24, 1961 - D.C.

I received a letter from Major General Robert H. Booth, requesting that we transfer to DOD the first portion of nuclear weapons for FY 1962.

I signed, with Gilpatric, a joint letter to President Kennedy suggesting an amendment to the U.S.-U.K. agreement for mutual defense purposes to allow greater transfer of material related to nuclear weapons (copy attached).

I worked on an announcement to be released to the public following the successful launching of navigational satellite Transit 4-A containing the SNAP-3 device.

I had lunch at the Black Steer restaurant with Dr. and Mrs. E. Morse (Bud and Harriet) Blue, and their daughter Bonnie, their two sons and his two sisters (Dr. Blue and Dr. Blue). They brought me up to date on many recent events at the University of California.

Sunday June 25, 1961

I spent a good part of the afternoon walking around the neighborhood of our Harrison Street home to familiarize myself with the location of stores, restaurants, schools, playgrounds, etc. I spent the remainder of the day reading. In a telephone conversation with Helen I learned that the Regents chose Edward Strong as Chancellor of the Berkeley campus at their meeting last Friday.

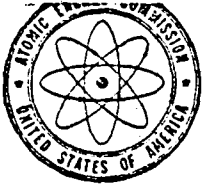
Monday, June 26, 1961 - Germantown

At the 9:30 a.m. Information Meeting 46 (notes attached) we discussed: 1. the Transit-SNAP plans and press release; 2. the AEC-DOD paper on the testing program; 3. the Nucleonics article on a possible Soviet lead in nuclear power propulsion; 4. President Kennedy's statement (copy attached) on Saturday directing the Space Council to study the Communications Satellite problems and speed-up; 5. the Administrative Conference to be attended by Commissioner Graham and Neil Maiden tomorrow.

I sent a letter to Gilpatric clearing with DOD, if possible, the matter of AEC participation in setting safety standards for DOD reactors (copy of letter attached).

The Commissioners and I worked on a letter to be sent to the Principals giving the AEC position on resuming testing, including a list of weapons to be tested and the timing. This was to be a joint AEC-DOD memorandum but after discussions with McNamara and Gilpatric we decided to send separate memos covering the arguments for testing (since we probably couldn't agree on this within the time allocated) but suggesting identical schedules for the tests.

I met with the Commission and Luedecke to discuss further the AEC reorganization, especially the question of national laboratory reporting in the organization structure.



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

UNCL. BY BOE
NOV 86

JUN 20 1961

Dear Mr. President:

The Amendment to the Agreement Between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland for Cooperation on the Uses of Atomic Energy for Mutual Defense Purposes, signed at Washington on May 7, 1959, provides for the transfer from the United States to the United Kingdom of (a) non-nuclear parts of atomic weapons and other non-nuclear parts of atomic weapons systems involving Restricted Data; (b) special nuclear material for research on, development of, production of, or use in utilization facilities for military applications; and (c) certain source, by-product, and special nuclear material, and other material as defined in the Amendment to the Technical Annex, for research on, development of, or use in atomic weapons necessary to improve the United Kingdom atomic weapon design, development or fabrication capability.

This Amendment was entered into under the authority of section 91 c. of the Atomic Energy Act of 1954, as amended, which requires that transfers of parts and material therein authorized be "in accordance with terms and conditions of a program approved by the President." It further provides that transfers are authorized only whenever the President determines that the proposed cooperation and each proposed transfer arrangement will promote and will not constitute an unreasonable risk to the common defense and security. By Executive Order 10841, dated September 30, 1959, authority to make this determination was delegated to the Secretary of Defense and the Atomic Energy Commission, acting jointly.

When the Amendment was negotiated, the types and quantities of non-nuclear parts of atomic weapons and atomic weapons systems which should be transferred to the United Kingdom in the interest of common defense could not be identified. Accordingly, the Amendment provides that the Parties will agree from time to time, prior to December 31, 1969, upon the types and quantities of non-nuclear parts of atomic weapons and other non-nuclear parts of atomic weapons systems involving Restricted Data to be transferred.

By memorandum of May 5, 1959, to the Chairman, Atomic Energy Commission, and the Secretary of Defense, the President approved a program for the transfer to the U.K. prior to December 31, 1969, of ---

"(i) non-nuclear parts of atomic weapons and other non-nuclear parts of atomic weapons systems involving restricted data; and

"(ii) source, by-product, special nuclear and other material in the types and quantities and under the terms and conditions provided in the joint letters dated May 2, 1959, to me from the Chairman, United States Atomic Energy Commission, and the Secretary of Defense and the proposed amendment to the Agreement of July 3, 1958, between the Government of the United States and the Government of the United Kingdom for Cooperation on the uses of atomic energy for mutual defense purposes; however, types, quantities and conditions of transfer not so provided are subject to my further approval."

Your approval of the types and quantities of non-nuclear parts of atomic weapons which are now proposed for transfer to the United Kingdom is therefore required.

On four previous occasions the President approved limited programs for the sale of certain non-nuclear parts of atomic weapons to the United Kingdom. The United Kingdom has now indicated a desire to purchase the additional non-nuclear parts of atomic weapons listed in Enclosure 1. These parts are needed by the United Kingdom for use in preparation for manufacture and in the manufacture by the United Kingdom of atomic weapons. Acquisition of these parts will improve the U.K.'s state of training and operational readiness.

The sale to the U.K. of the non-nuclear parts of atomic weapons proposed herein will not adversely interfere with our defense programs and will add to the U.K. defense capability without unnecessary duplication of effort and facilities.

The Atomic Energy Commission and the Secretary of Defense therefore are of the opinion, and have jointly determined, pursuant to Executive Order 10841 of September 30, 1959, that the proposed cooperation and the proposed transfer arrangements will promote and will not constitute an unreasonable risk to the common defense and security.

The President

- 3 -

We recommend, therefore, that you approve the program proposed herein for the transfer of the types and quantities of non-nuclear parts of atomic weapons listed in Enclosure 1.

Respectfully yours,

(Signed) Glenn T. Seaborg

ROSWELL L. GILPATRIC

SIGNED

DEPUTY

Secretary of Defense

Chairman, Atomic Energy Commission

The President
The White House

Enclosures (pages 4-6 of this letter):

1. Non-Nuclear Parts of Weapons to ^(RB) be Transferred Under the Agreement
2. Draft Letter to Chairman, AEC

Handwritten notes:
22-100-1000
Files



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

UNCL. BY DOE
NOV 86

June 26, 1961

INFORMATION MEETING 46

10:00 a.m., Monday, June 26, 1961 - Chairman's Office, Germantown

1. Nucleonics Article re Soviet Nuclear Rockets - The Chairman requested this report be checked with NASA and the Chairman also requested a report on the Air Force Spur Program. (Pittman)
2. Letter to Vice-President Johnson re Communications Satellite - The Chairman said our letter would emphasize the need for close coordination on technical aspects of the program. (Secy) *attached on July 7*
3. Letter from MLC re Cancellation of Missile Warheads 4
4. Omnibus Hearing June 27 - The General Manager said Messrs. Ink, Oulahan and Price will testify.
5. Disarmament Negotiations - The Commissioners requested status reports be presented during the Information Meetings. (English)
6. Press Release re Transit
7. Weather Satellite - The Chairman said he had discussed with White House staff the desirability of a presentation to the President and the possibility of an AEC press conference.
8. Administrative Conference of the United States - Mr. Graham discussed preparations for the Conference.
9. AEC 16/34 - The Commissioners approved revised subparagraph f. of page 7 and requested transmittal to Secretary Gilpatric today. The Chairman will telephone Mr. Gilpatric to discuss the letter. (Secy)
I will circulate previous year figures today. (Secy).

Present

Dr. Seaborg	Mr. Naiden
Mr. Graham	Mr. Henderson
Mr. Olson	Mr. McCool
Dr. Haworth	
Gen. Luedcke	

Distribution

Commissioners
General Manager (4)
General Counsel
Secretary

W. B. McCool
Secretary

IMMEDIATE RELEASE

June 24, 1961

Office of the White House Press Secretary

THE WHITE HOUSE

FOLLOWING IS THE TEXT OF A LETTER
FROM THE PRESIDENT ADDRESSED TO
VICE PRESIDENT LYNDON JOHNSON RE-
GARDING THE SPACE COUNCIL

June 15, 1961

Dear Lyndon:

I will appreciate your having the Space Council undertake to make the necessary studies and government-wide policy recommendations for bringing into optimum use at the earliest practicable time operational communications satellites. The Federal agencies concerned will provide every assistance which you may request.

I am anxious that this new technology be applied to serve the rapidly expanding communications needs of this and other nations on a global basis, giving particular attention to those of this hemisphere and newly developing nations throughout the world. Such communications needs include both governmental and non-governmental requirements. Throughout this analysis, public interest objectives should be given the highest priority.

Policy proposals should include recommendations not only as to the nature and diversity of ownership and operation of communications systems and parts thereof, but also proposed objectives. Effective utilization of both our public and private resources needs to be assured, as well as close cooperation with other countries and their communications systems. Continuing coordination of the governmental agencies responsible for regulatory, space, military, and other aspects of this field is essential.

I will appreciate receiving recommendations from you on these and other matters bearing on the development and use of communications satellites just as promptly as possible. Research and development should proceed at an accelerated pace while this study is in progress.

Sincerely,

/s/ John F. Kennedy

Honorable Lyndon B. Johnson
Vice President of the United States
Washington 25, D.C.

DO FILE

UNCL. BY DOE
NOV 86

JUN 26 1961

Dear Ros:

The Commission and the DOD are both interested in health and safety problems involving nuclear weapons, special nuclear materials and reactors acquired by the DOD pursuant to Presidential directive. You will recall we recently agreed upon, together with Mr. McGeorge Bundy in the White House, some language which describes the procedures applicable to the safety aspects of such weapons.

The attached language follows the same pattern, but has been modified to make it adaptable to the safety aspects of special nuclear materials and reactors.

Prior to presenting this language to the President, we would like to have it, if it is at all possible, coordinated with you by Wednesday, June 28. It is our thought that the language would be incorporated in a statement which the President would sign prior to June 30 directing control production of special nuclear material and weapons by the Commission and the transfer of reactors and special nuclear material to the DOD.

Sincerely yours,

(Signed) Glenn T. Seaborg

Chairman

Enclosure:
Proposed language

The Honorable Maxwell G. Silpatric
Deputy Secretary of Defense

cc: / Chairman (2)
General Manager
Dwight Tak, AGM
Frank Parks, OEC

OEC	AGM	DGM	CM
FParks/la			
6/26/61	6/ /61	6/ /61	6/ /61

I had lunch with Edward R. Gardner (Director, Division of Special Projects) and then visited his office to acquaint myself with their program of exhibits, conferences, etc.

I received a letter from President Kennedy in reply to the Gilpatric-Seaborg letter sent to him, approving the amendment to the U.S.-U.K. agreement for mutual defense purposes (copy attached).

I talked to Gilpatric on the phone and advised him there had been a leak to John Finney of the New York Times on the Transit shot. As a result there was a call to Pierre Salinger to alert him of the problem; apparently he began to question whether the device should be included. Evidently, there is fear that the President would not make the announcement at this step. Ros said he was sure Finney had not acquired his information from them; I said I had been assured that he had not received it from us either, but there are a lot of people involved. I said I thought Salinger was worried about the radiation, but in reality I didn't think he knew the complete background, and I felt that he (Ros) should call Bundy if this needs to be developed further.

I told him I had hand delivered to him today a letter on the matter of the interest of AEC and DOD in the health and safety problems with special nuclear materials and reactors. Some of our people are equally concerned with respect to Special Nuclear Material (SNM) and reactors acquired by the DOD, and we feel that a similar statement might be included in the President's annual directive, transferring SNM and reactors to DOD. We agreed that the General Manager should talk with General Holloway at DOD and try to come to an agreement. We discussed our statements on resumption of testing. I told him the Commissioners are in agreement insofar as the list of things to be tested is concerned, but we felt priorities should be indicated. However, with respect to the political implications and arguments as to why we should test, we might encounter difficulty in trying to coordinate.

He said that he and McNamara had discussed the whole matter with the Joint Chiefs of Staff this morning and that the two of them felt, if the Joint Chiefs went along with the Commission on the test program itself, we each (AEC and DOD) should send over individual papers for the meeting of the Principals (which will probably be held on Friday). He said Bundy feels that rather than take the time to coordinate the two papers each of us should send in separate papers setting forth the principal views and then at the meeting of the Principals Rusk and McCloy will have the voice of both agencies and the Principals can determine the points they want to stress.

I wrote a letter to Chancellor Ed Strong today and told him I was delighted to learn, during my phone calls to Helen this weekend, that the Regents had the good judgment at their meeting last Friday to appoint him as Chancellor for the Berkeley campus. I told him I wished for his greatest success and I was confident that this will be the case.

The telephones were installed in our Harrison Street home today. We were given Emerson 2-0616 (new installations are switching from letters to digits), so our dial will show 362-0616. My AEC number is 362-5780.

I had dinner at the Old Angus Restaurant with Lee Haworth so we could discuss the details of the AEC memorandum to the Principals regarding testing.

THE WHITE HOUSE
WASHINGTON

UNCL. BY DOE
NOV 86

June 21, 1961

1578 6/20/61

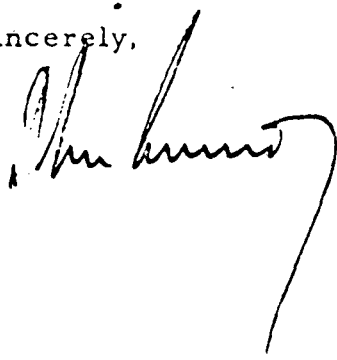
Dear Mr. Chairman:

Reference is made to your letter to me of June 20th concurred in by the Secretary of Defense, concerning proposed cooperation with and transfer of certain non-nuclear parts of atomic weapons to the United Kingdom pursuant to the "Agreement Between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland for Cooperation on the Uses of Atomic Energy for Mutual Defense Purposes."

I note that, pursuant to Executive Order 10841 dated September 30, 1959, the Atomic Energy Commission and the Secretary of Defense, acting jointly, have determined that the proposed cooperation and the proposed transfer arrangement for the non-nuclear parts of atomic weapons as set forth in your letter will promote and will not constitute an unreasonable risk to the common defense and security of the United States. I hereby approve the program for the transfer of the types and quantities of non-nuclear parts of atomic weapons as set forth in your letter.

By copy of this letter I am informing the Secretary of Defense of this action.

Sincerely,



The Honorable Glenn T. Seaborg
The Chairman
U. S. Atomic Energy Commission
Washington 25, D. C.

Tuesday, June 27, 1961 - D.C.

At 9:20 a.m. I met with McCloy in his office to explain to him my plan for resuming nuclear testing if the President decided that this should be necessary. The President would make an announcement saying that the U.S. is free to resume testing and will begin preparations to do so but will test thereafter only if national security seems to demand it, and then under the conditions of normal weapons secrecy.

McCloy seemed to be interested in this plan as a means of lessening adverse world opinion and as a means of keeping the Russians guessing and said that he might discuss it with the President. The plan is predicated on the assumption that the Russians are anxious to resume testing, would probably do so in the atmosphere, but want us to make the first test so that they could then do so with relative impunity. McCloy asked whether I thought the Russians were testing clandestinely. I said that I didn't know and didn't have any very positive opinion, but thought they probably hadn't been doing full-scale testing, but probably had carried on laboratory experiments and small explosions close to the limit of what might be called testing, but still within the limit of what they, within their own conscience, could claim to be not testing. I told him I thought the main arguments for resuming testing were that we couldn't go on indefinitely not testing if there was increasing probability that the Russians were testing, particularly because we would then need to broaden the base of our weapons laboratories, which is accomplished by testing, and to develop anti-measures against nuclear weapons in case this should be possible and the Russians were doing it.

After that, about 9:40 a.m., I spoke briefly to Ambassador Arthur Dean. He raised the question of whether the President's possible announcement concerning the resumption of testing should state that the U.S. would never again test in the atmosphere. We both agreed that this would be too strong a statement and that somehow the possibility for some tests in the atmosphere at some future time must be left open, particularly in the event the Russians go to full-scale testing in the atmosphere.

At 10:15 a.m. I met with Norman R. Sutherland (President), Herman Kruze (Executive Vice President), William W. Woodruff and Cornelius C. Welchel, all of Pacific Gas and Electric Company. Sutherland told me that the PG&E Board of Directors have decided to build a 325 Mw boiling water (G.E. type) reactor at Bodega Head because their studies show it is economically competitive; the announcement will be made tomorrow night. This is an important step forward in the development of civilian, private and nuclear power.

I had lunch with Howard Brown and Lee Haworth.

Haworth, Brown and I spent a good deal of time working on the letter regarding a policy on testing to go to McCloy (and the Principals) tomorrow, describing gains and giving a program for testing in case the President decides to resume testing.

I saw Salinger to explain the SNAP device in Transit which is about to be launched and its importance to the Communications Satellite program and American prestige in science. He had been doubtful as to its value compared with the risk involved due to information he had been given, but he seems to be convinced now. The launching, originally set for 11:31 p.m. tonight, has been postponed 24 hours due to bad weather at Cape Canaveral.

I attended a meeting of the Federal Council for Science and Technology from 1:30 p.m. to 4:30 p.m. The following agenda was taken up: 1. Wiesner's report on the PSAC meeting; 2. Whitman's report on international science and technology activities; 3. Waterman's report on atmospheric science in the Federal Government; and 4. Richard Bolt's report on "Investment in Scientific Progress", a report meant to implement the Seaborg PSAC Panel Report. I reported on the progress made, discussion state only, on the huge (approximately 300 BeV) international (U.S.-USSR) accelerator and high flux reactor for heavy transplutonium element production. I mentioned Commissioner Graham's proposal to put them in a new neutral zone (international) or corridor from Berlin to West Germany.

I sent my biweekly progress report to President Kennedy (copy attached).

Our Pontiac, driven by Frank Thorp of California, arrived this evening.

Wednesday, June 28, 1961 - D.C.

The President approved today our press release material on the SNAP device in the Transit shot that will be issued tomorrow if the shot is successful. In that case, I shall probably hold a press conference.

I received a letter from Hubert Humphrey, Chairman of the Senate Subcommittee on Governmental Operations, asking for our long range plans in funding for research.

I received a call from Secretary McNamara telling me that the President spoke to him yesterday regarding the test ban and resumption of testing. The President is thinking in terms of starting preparations within three to five weeks directed toward some important shots that might be scheduled six months from now.

McNamara told the President that he sent a paper to McCloy outlining DOD recommendations that such preparations be undertaken and stating that we could test much earlier than six months hence. The President feels that, apart from military requirements, there might be a political requirement to defer a shot for, say, six months. But he doesn't want to be in the position of attributing the delay to political reasons; therefore, he preferred that we say, in effect, that the earliest important shot for which we could be ready would be six months hence.

In order that there be nothing on the record to the contrary, McNamara withdrew his letter, addressed to McCloy, and will instead discuss it at the Meeting of the Principals, June 30th. I said I am satisfied to do the same with our paper. I mentioned to McNamara that I have an idea, which is somewhat unorthodox, on how to proceed with the resumption of testing, if the decision is made to do so. We agreed to meet a little before the scheduled Meeting of the Principals on Friday to discuss this.

At 10:10 a.m. I presided over Information Meeting 47 (notes attached).

Eugene Skolnikoff (PSAC Staff) who was in Vienna on Monday, June 26th, called to give me a firsthand report on the appointment of Dr. Eklund as Director General of the IAEA. Dr. Eklund hasn't accepted as yet, and Skolnikoff gathers that there is some concern on Eklund's part that the Soviet Union is opposed to him and that they might not cooperate with him. The American view is that this is just their way of putting pressure on him to decline the appointment. It was

June 27, 1961

PERSONAL AND CONFIDENTIAL

Dear Mr. President:

I am pleased to submit my bi-weekly report to you on significant developments in the atomic energy program.

1. SNAP-TRANSIT (Official Use Only)

Mr. Salinger, with whom I met this afternoon, has probably informed you that the Navy is scheduled to launch a TRANSIT navigational satellite tonight^{1/} about midnight on which will be mounted a small, light-weight isotopic thermoelectric nuclear generator. The term "SNAP" is derived from Systems-For-Nuclear-Auxiliary-Power. The SNAP unit will provide a few watts of direct electrical current to instrumentation and to two of the four transmitters in the TRANSIT. If all goes well, this should be a relatively important "first" in the U.S. space program, certainly the first known application of nuclear energy to space activities.

This SNAP device is a space version of the principle embodied in the 5-watt, strontium 90 radioisotope generator for remote, unattended weather transmitting stations which I reported to you on June 13th.

2. JCAE Hearings on Safety and Regulatory Program (Unclassified)

The Joint Committee on Atomic Energy concluded its hearings on the AEC Safety and Regulatory Program on June 15, 1961. The principal issues discussed were (1) whether there should be any drastic reorganization of the AEC, either by giving the present AEC licensing

^{1/} I have just learned that the launching of the TRANSIT will be delayed 24 hours due to adverse weather conditions.

functions to an independent licensing and safety board within the AEC, or by the creation of a separate agency which would handle all regulatory functions now under the jurisdiction of the AEC; and (2) whether the mandatory hearing and review requirements of the Atomic Energy Act should be relaxed.

There was agreement that the mandatory hearing and review requirements should be relaxed by amendment or repeal. While various approaches to AEC reorganization were discussed, the JCAE may not undertake legislative action or proceed further with its staff's recommendations on this subject.

3. Press Interest in Nevada Test Site (Unclassified)

We have recently received several requests for admittance of television and press photographers to the Nevada Test Site. This interest is obviously generated by the status of the Geneva talks and the increasing news coverage on the testing issue. Since general admittance to photographers has been permitted in the past, I did not feel we could or should deny the request for unclassified photography. However, in granting admittance, we have emphasized that it should not be construed as reflecting a Commission or Administration position either for or against the resumption of testing.

4. Appointment of Dr. Sigvard Edlund as Director General of the International Atomic Energy Agency (Unclassified)

Dr. Sigvard Edlund of Sweden was voted Director General of the International Atomic Energy Agency by the Board of Governors to the Agency at its meeting in Vienna on June 22nd. If Dr. Edlund accepts the appointment, he will replace Dr. Sterling Cole.

Dr. Edlund's candidacy was initially advanced by the United States.

Seventeen nations voted for Dr. Edlund, including

PERSONAL AND CONFIDENTIAL -3-

the United States. Only the USSR, Poland, and Bulgaria voted against Dr. Eklund. India, Ceylon, and Iraq abstained.

Respectfully submitted,

(Signed) Glenn T. Seaborg

Glenn T. Seaborg

The President
The White House

HCB:gl

DISTRIBUTION:

Cys 1&2 - Addressee - via Mr. Frederick Dutton
3 - McGeorge Bundy



UNITED STATES
 ATOMIC ENERGY COMMISSION
 WASHINGTON 25, D. C.

Handwritten notes:
 ...
 ...

UNCL. BY DOE
 NOV 86

June 23, 1961

INFORMATION MEETING 47

10:10 a.m., Wednesday, June 23, 1961 - Chairman's Office, D.C.

1. Site for International Research Facility - The Chairman reported on conversations at the Federal Council Meeting yesterday and said a joint AEC/Department of State proposal was requested. (McDaniel)
2. Expanded AEC/Euratom Cooperation - The Chairman said President Birch had discussed the possibility of further AEC/Euratom cooperation on Reactor Development and Research. The General Manager reported Dr. Wiseman would explore this matter with Euratom officials during his present trip.
3. Possible Press Conference on Transit - Weather Satellites - The Chairman reported on continuing discussion of the matter.
4. AEC/DOD Program Study - The Chairman reported on his call during the meeting with Secretary McManroe. Dr. Haworth is following this study.
5. Pacific Gas and Electric Boiling Water Reactor Project - The Chairman reported on Mr. Sutherland's visit and PG&E's plans for proceeding with the project.
6. AEC 552/52 "Sale of Components and Material to the U.K.:" The Chairman reported White House approval of the request.
7. AEC 937/20 - Mutual Defense Agreement for Cooperation with the Government of France - The Chairman reported White House approval of the request.
8. AEC 16/24 - President's Directive for FY 1962 - Special Nuclear Material Production and Utilization Program - The Chairman reported Secretary Cipriani requested coordination of proposed subparagraph f., page 7 by General Luedcke and General Holloway. (GM)
9. Congressman John E. Moss' Letter of June 23 re Monitoring of Telephone Conversations
10. Profit Letter to Congress William A. Franke re Dr. Haworth's Visit to Albany - Dr. Franke said he would inform the Joint Committee (Secy) the General Manager would provide Dr. Franke's views on legal considerations of the proposed project. (GM)

June 28, 1961

11. Senator Humphrey's Letter of June 26 on Long Range Budgeting for Research - Commissioners requested consideration of a draft letter at an early Information Meeting. (McDaniel - Burrows)
12. New York Shipbuilding Corporation Petition for Review (AEC-R 64/2)
Mr. Naiden said he would discuss this case with the Commissioners today or tomorrow. (GC)
13. Mr. Bell's Letter of June 23 re Budgeting for Standard Project
14. Schedule for SAC Trip

Present

Dr. Seaborg Mr. Naiden
Mr. Graham Mr. Brown
Mr. Olson Mr. McCool
Dr. Havorth
Gen. Luedcke

Distribution

Commissioners
General Manager (4)
General Counsel
Secretary

W. B. McCool
Secretary

learned from Eklund that Vasily Emelyanov misinterpreted his statement when he said that Eklund promised not to accept the job if he didn't get East-West support. The view in Vienna is that Eklund will accept.

At Commission Meeting 1753 at 11:15 a.m. (action summary attached) we approved the paper on declassification of isotopic composition of plutonium and a letter to the President recommending for his approval the rate of fissionable material and weapons production and transfer of weapons to DOD for FY 1962. Controller Don Burrows gave us a report of his visits to Oak Ridge National Laboratory, Los Alamos Laboratory, Atomic International, General Atomic, Idaho Reactor Station, Livermore Laboratory and Berkeley Radiation Laboratory, to discuss FY 1963 budgets; there will be many problems to resolve because many of these want, with justification, larger operating and construction budgets than we will be able to provide.

I had lunch with Dr. Haworth.

I left the office around 3 p.m. to go to Friendship Airport where my family was arriving at 4:30 p.m. on United Flight no. 808 from San Francisco. After they arrived I brought them to our home at 3825 Harrison Street and then we all went to the Howard Johnson restaurant at Chevy Chase Center on Wisconsin Avenue for dinner.

Thursday, June 29, 1961 - D.C.

At 10 a.m. I attended the JCAE Confirmation hearing of Gerald Johnson as Chairman of the Military Liaison Committee. Senators Pastore, Jackson, Aiken and Hickenlooper sat on the Committee. Lee Haworth, Harold Brown and I testified on Jerry's behalf.

Transit satellite 4-A was successfully launched from Cape Canaveral at 12:25 a.m. this morning and two transmitters, powered by a 2.7-watt SNAP device, using two different wave lengths are transmitting navigational data back to earth. The orbit is such as to suggest a long life.

I held a press conference at noon, attended by about 40 people from the press and TV and about 50 others, at which I answered numerous questions, described the SNAP device, emphasized its safety and described the SNAP device at the Martin Company in Maryland that is transmitting weather data to our H Street Headquarters.

I also described our entire SNAP program, including the development of compact reactors for use in such things as communication satellites for worldwide TV.

The press conference (transcript attached) seemed to go well and the Transit 4-A received national publicity as an example of U.S. science applied for the benefit of mankind. This was the first use of a nuclear power source (using Pu-238) in a satellite, a very important first in the U.S. space program.

After the press conference I went home with a severe migraine headache.

Friday, June 30, 1961 - D.C.

At the 9:30 a.m. Information Meeting 48 (notes attached) we discussed, among other things, a letter to Gilpatric, concerning weapons planning estimates for the next several years in response to his letter to me. We also discussed a

UNITED STATES GOVERNMENT

Memorandum

UNCL. BY DOE
NOV 86

TO : A. R. Luedcke, General Manager

DATE: June 28, 1961

Approved A. R. Luedcke
A. R. Luedcke

FROM : W. B. McCool, Secretary *W. B. McCool*

Date 6/27/61

SUBJECT: ACTION SUMMARY OF MEETING 1753, WEDNESDAY, JUNE 23, 1961, 11:15 a.m.,
ROOM 1113-B, D. C. OFFICE

SYMBOL: SECY:WLW

Commission Decisions

1. Minutes of Meetings 1749 and 1750

Approved, as revised, subject to Commissioner Haworth's concurrence.

2. AEC 25/142 - Proposed Air Force Safety Rules

Approved, as revised, subject to Commissioner Haworth's review.

The Commission requested the letter to the Secretary of Defense point out the AEC is approving the safety system employed and not the ~~total weapons system~~. (Batts)

System of maintenance of possession

3. AEC 25/143 - Revised Air Force Safety Rules

Approved, as revised, subject to Commissioner Haworth's review.

The Commission requested the letter to the Secretary of Defense point out the AEC is approving the safety system employed and not the ~~total weapons system~~. (Batts)

System of maintenance of possession

4. AEC 328/21 - Declassification of Isotopic Composition of Plutonium

Approved, *noted that* subject to Commissioner Wilson's discussion with Chairman-Designate Gerald Johnson of the Military Liaison Committee. (Marshall-Secretary)

5. AEC 1076 - AEC Participation in Interagency Radiological Assistance Plan

Approved. (Woodruff)

6-28-61

6. AEC 1079 - Safety Aspects of a Strontium-90 Powered Automatic Weather Station

Approved. (Aebersold)

7. AEC 16/34 - President's Directive for FY 1962 - Special Nuclear Material Production and Utilization Program, and AEC 16/35 - President's Directive for FY 1962 - Special Nuclear Material Production and Utilization Program - Supplement to AEC 16/34

Approved, as revised.

The letter to the President is to be circulated for the Commissioners' review. (George) - *Hand Carried & Approved*

Other Business

Briefing by Budget Review Committee on Field Budget Requests

The Commission requested a briefing by the Budget Review Committee on their trip to the Argonne and Brookhaven National Laboratories. (Secretary)

UNITED STATES
ATOMIC ENERGY COMMISSION
Washington 25, D. C.

NEWS CONFERENCE

June 29, 1961

PRESENT:

DR. GLENN T. SEABORG, Chairman

JOHN S. GRAHAM, Commissioner

LELAND J. HAWORTH, Commissioner

LOREN K. OLSON, Commissioner

ATOMIC ENERGY COMMISSION STAFF:

A. R. LUEDECKE, General Manager

DWIGHT A. INK, Assistant General Manager

COL. JACK ARMSTRONG, Assistant to the Director
Division of Reactor Develop-
ment

DR. PAUL C. AEBERSOLD, Director, Office of Isotopes
Development

DUNCAN CLARK, Director, Office of Public Information

NEWS CONFERENCE
THURSDAY, JUNE 29, 1961

P R O C E E D I N G S

CHAIRMAN SEABORG: Gentlemen, I think we might start. This is my first meeting with the Washington press since I became Chairman of the Atomic Energy Commission. Three of my four colleagues on the Commission are sitting here with me. I think that you know them. Commissioner Loren Olson on my right, and Commissioner John Graham and Commissioner Lee Haworth; and Commissioner Robert Wilson is out on the call of duty on another assignment. This, of course, is a very happy occasion. We can announce the successful culmination of a long program of investigation for the use of nuclear energy for such peaceful purposes as has been applied here. Actually this effort began as far back as 1955, and thus a couple of years even before the advent of Sputnik.

This particular device is an isotope-powered device. The heat from a radioactive isotope, in this case the alpha emitting plutonium 238, is changed into electrical power by thermoelectric conversion developing, as you know, from the material you have, just under three watts of electrical energy which is used for sending information back to earth useful for navigational purposes.

This was developed as a joint effort of the Air Force and the Atomic Energy Commission in a joint office headed by Colonel Jack Armstrong, who is sitting over on the far left here, and who will be available to answer detailed questions about the device.

It is part of a larger program, of course, for the development of these nuclear auxiliary power sources, for a wide range of uses, not only in satellites but in many terrestrial uses as well, due to their capacity to develop energy over long periods of time, and essentially completely unattended.

There are the two types, as you know, those where the heat is developed by radioactive isotope decay and then turned into electrical power, and then the type where larger amounts of energy are needed, where compact nuclear reactors develop the heat through the fission process which in turn is turned into electrical energy. I don't think that I will want to go

(more)

into any more detail than this in my opening statement. I think you are primarily here to ask questions about it, and I would like to start with that.

QUESTION: Sir, in this unnamed package, what is its power output and how does it compare with SNAP-3 and, the second part to the question, could this power a deep space probe?

CHAIRMAN SEABORG: The answer to the second part of the question is yes, it could power a deep -- well, it could give you that much power, the three watts. I don't know what you mean by powering a deep space probe. It develops three electrical watts of power.

QUESTION: Could the Seebeck effect be used to power larger reactors, compact ones for the propulsion of submarines or other vehicles, or even aircraft?

CHAIRMAN SEABORG: There is no theoretical limit, but in practice it would be hard and it will be hard to develop extremely high powers this way. We will -- our program envisages -- the development through the use of reactors, not the isotope source, tens of kilowatts of electrical energy, and then we hope to go up higher than that into hundreds of kilowatts some time in the future.

QUESTION: Just for my information, the original experiment by Seebeck used copper and bismuth as its connecting rods. What are you using?

CHAIRMAN SEABORG: I think that the exact elements, thermal elements that we are using in these devices, are classified. I should say that the efficiency of these thermoelectric devices that work on the Seebeck principle is inherently rather low. I think you probably know that. In the order of --

QUESTION: Ten to the minus sixth last time I saw it.

CHAIRMAN SEABORG: No, much larger than that, but the percentage of the heat energy that is converted into electrical energy is rather low. It is of the order of per cent; five per cent or something like that.

(more)

QUESTION: Dr. Seaborg, tell us how much radiation was packed into this thing in curies. I believe we were told at one time that the SNAP-3 had about 3,000 curies of radioactivity.

CHAIRMAN SEABORG: The number of curies of plutonium 238 in this device at the present time is classified, because that gives information or the possibility of deducing something about the types of conversion units that we have in the device.

QUESTION: You mentioned the prospect of going to higher power for an operational TRANSIT. What is the prospect with this kind of a device and what would you need for operational use?

CHAIRMAN SEABORG: The prospect of the amounts of power that we can develop from a device that uses isotopes?

QUESTION: Yes.

CHAIRMAN SEABORG: Again there is no real theoretical limit, but I would think in terms of practice, electrical power from isotope devices will probably be below the kilowatt range.

QUESTION: Dr. Seaborg, can we call this SNAP-3?

CHAIRMAN SEABORG: It has not been officially designated as SNAP-3, so I think it should not be referred to as SNAP-3. It is a device for this particular purpose. It is a special device for the purpose of this use in a navigational satellite and has not been given a number designation in this series where the odd numbers are the isotope-powered devices and the even numbers are the reactor-powered devices.

QUESTION: Isn't it basically a modification or improvement of what President Eisenhower was shown?

CHAIRMAN SEABORG: It is close, yes.

QUESTION: What is the temperature on the hot end of that thermocouple?

CHAIRMAN SEABORG: That is also at this time classified.

QUESTION: Can you give us a general range or not?

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CHAIRMAN SEABORG: I am not sure. I think not at this time. This changes as the art advances. I would imagine that in the not too distant future this information will be released, that is, the amount of plutonium in the device, and so forth.

QUESTION: What do you expect to be the useful life of this transmitter?

CHAIRMAN SEABORG: This would be determined by really the life of the materials. The plutonium has a half life of 90 years which, of course, means that it will generate heat at a rate that will diminish down to one half in 90 years' time. I don't believe that the other materials would stand up that long. By the way, as an interesting aside, this particular isotope of plutonium was the one by which the element plutonium was discovered, the plutonium 238.

QUESTION: You did not answer the question.

QUESTION: Didn't you discover it?

CHAIRMAN SEABORG: Yes, my colleagues and I did about 20 years ago.

QUESTION: Still how long do you expect this thing to last, to have a useful life?

CHAIRMAN SEABORG: Five years, I think is what it is designed for. But it could be longer.

QUESTION: Dr. Seaborg, could you explain the biological hazard of plutonium 238 which might ensue despite all these tests and safeguards if the thing had fallen down?

CHAIRMAN SEABORG: I am glad you brought that up because I meant to speak of that. I think the hazard in this case, in devices of this type, is essentially negligible. It is contained so completely. I think one of your sheets here, does it not, describes the very thorough proof testing that this device underwent, including tests at the temperatures that might be encountered, the shock that might be encountered on impact, and so forth. The container stood up without really any deleterious effect at all. I think that this device in particular is completely safe. But further than that, these devices are all being developed with safety as a paramount consideration.

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I might say that my fellow Commissioners and I regard this or take this whole problem of safety very seriously. In fact, that in a sense determines the date. Something like this might have been launched sooner. We engineer and test the devices to such a great extent that by the time they are launched there is almost no danger left. This is not to say you can eliminate that 100 per cent, but to all practical purposes that is the case. That is going to be our policy in the future, both with respect to the isotope devices and the reactor sources.

QUESTION: If safety is your primary consideration, why did you launch this thing over inhabited territory? Why didn't you wait and let it go next week or next month from the West Coast in polar orbit?

CHAIRMAN SEABORG: There was not a suitable launch in the immediate future.

QUESTION: Isn't the Air Force going to shoot a Midas?

CHAIRMAN SEABORG: I think in a sense it bespeaks of our confidence that the safety of the thing was assured and that we could use it under these conditions.

QUESTION: I understand that there was some consultation with the State Department on the diplomatic aspects of this. Were there any consultations with other countries? Was it necessary to talk with them in advance and assure them it was safe and notify them that it was going to happen?

CHAIRMAN SEABORG: This was coordinated with all of the interested departments within our own government. That is the extent of the coordination.

QUESTION: Were you saying now that this is the earliest date after which the safety requirements were satisfied that you could have flown such a device?

CHAIRMAN SEABORG: I would say yes. The earliest date that the safety requirements might be satisfied to the extent that we wanted them to be. Essentially, I mean. Give or take a few months. I don't know whether my fellow Commissioners agree with that. I think that would be true.

QUESTION: What particular safety problem did you have to lick before you were ready to launch?

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CHAIRMAN SEABORG: These containment problems -- to be sure that the container would successfully contain the radioactive isotopes under any conceivable mishap, and to test this with physical tests, as well. Before that, of course, it was necessary to design the device with this in mind.

QUESTION: What is the orbit of this? What inhabited territory does it go over?

CHAIRMAN SEABORG: It varies. It is a polar orbit. It does go over South America. Do you want to add to that?

COMMISSIONER HAWORTH: It eventually goes over all parts of the world that are not at the extreme north or south. That is, it is not a real polar orbit. So there is some area at the South and North Poles that it never gets over.

QUESTION: To what extent did you want to establish a precedent for firing nuclear devices over inhabited territory?

CHAIRMAN SEABORG: I don't think this was a primary aim for this shot.

QUESTION: As I remember in January, 1959, when this original device was first shown, it created quite a furor among some possible experts of the dangers. There was quite a fuss in the papers, if you remember it. I imagine you do. I just wonder if you are expecting anything like that with the announcement of this shot?

CHAIRMAN SEABORG: I don't think so. A device similar to this has been shown in a number of cities throughout the world. I might say in a sense -- somebody asked me about coordination with other countries -- this was accomplished at some of our Atoms-for-Peace exhibits. I think it was shown in Tokyo and Rio de Janeiro and somewhere else in South America. Buenos Aires. We thought it was quite well received in all of those exhibitions.

QUESTION: How did you get it to these places?

CHAIRMAN SEABORG: I think that it went to those places by commercial airline. I mean that in itself indicates that it has reached the stage where we consider it just essentially safe. There is really nothing that can happen to it in a commercial airline mishap at all that

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would endanger anybody.

QUESTION: Does this device emit heat?

CHAIRMAN SEABORG: Yes.

QUESTION: To a degree that might effect the operation of a satellite in which it is contained?

CHAIRMAN SEABORG: No. The heat is of the order of a few times, say ten times greater equivalent than the electrical wattage.

QUESTION: I am not trying to get you --

CHAIRMAN SEABORG: No, and I didn't give you a very precise answer. That is the order of magnitude.

QUESTION: Could you explain a little bit about the navigational device to which this is attached? What can you do with it? Can you navigate by it?

CHAIRMAN SEABORG: Yes. This transmits signals on, what is it, 54 and 320 megacycles. And from that transmitted signal and the Doppler effect which gives you a fix on where it is -- whether it is going away from you or coming towards you and so forth, so that you know in what part of the orbit it is -- you get a fix on your position. That is basically what the principle of the device is.

QUESTION: You only need one of these to do this?

CHAIRMAN SEABORG: One of these will give you that much information. I suppose you could check your position by having more than one. That would always be a possibility.

QUESTION: Can you do that now with this thing?

CHAIRMAN SEABORG: No. I think there are two transmitters from this, transmitting through the use of the power developed from this nuclear source. But that doesn't give you two fixes. It just transmits on two wave lengths.

QUESTION: Is this the beginning for testing out -- the beginning of a major test flight program for testing out a broad range of nuclear-powered SNAP systems in space vehicles?

CHAIRMAN SEABORG: I would say in a sense, yes. We do look forward to their use in many applications to space.

QUESTION: To hold about a two-year lead, which I have heard some experts say we have?

CHAIRMAN SEABORG: We don't know what kind of a lead we have.

QUESTION: You have to have this test flight program to maintain any advantage we may have now, though. Is that not right?

CHAIRMAN SEABORG: I would say that we do, yes. I think that having successfully tested this, our next devices will have particular applications in mind, as this one does.

A useful application will be in general combined with a test flight, particularly for these isotope-powered devices.

QUESTION: Do you have any ground experiments that you are planning to use this type of device with?

CHAIRMAN SEABORG: Yes. There are many possibilities for use by the Weather Bureau, the Navy, Coast Guard. You can transmit weather information this way, navigational information and warnings from terrestrially based devices powered in this way on buoys and on land, coast lines and so forth. There are very many applications for a device that can be sending information from a place on earth with an almost unlimited life and completely unattended.

QUESTION: Do you have plans to do so?

CHAIRMAN SEABORG: We have plans for devices of this sort, yes.

QUESTION: Have you licked the safety problem in the case of the reactor SNAPS?

CHAIRMAN SEABORG: The application of reactors for this purpose is not nearly as far along as is the application for isotopes. So that, as this is developed, as I said, the safety problem will be kept in mind and given a high position of importance. We have not licked it at the present time.

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QUESTION: Suppose despite all your precautions this rocket had fallen down on Cuba and the case had broken open and the plutonium 238 was disseminated in the atmosphere, can you tell us what the biological effect would be?

CHAIRMAN SEABORG: Quite negligible even so, because it is a rather small amount of plutonium.

QUESTION: A very small amount in relation to fallout from bomb tests and that sort of thing?

CHAIRMAN SEABORG: Yes. Compared to background and so forth.

QUESTION: What would be the effect if the package broke open in this room?

CHAIRMAN SEABORG: If the package broke open in this room? Without an explosion but just open, nothing, no effect. It is not a volatile material. It is quite non-volatile.

QUESTION: Tell some of us non-science types what this alpha radiation does or doesn't do?

CHAIRMAN SEABORG: It is quite analogous to the situation with radium that perhaps most of us are familiar with. You remember the situation with the dial painters in the radium industry. If the material is ingested one way or another, plutonium -- a fraction of plutonium -- tends to find a more or less permanent position in the bones.

Then the radiation there goes on for as long as it remains and over a long period of time leads to physiological damage.

QUESTION: But you have to eat it?

CHAIRMAN SEABORG: You have to get it into you some way. Yes, eat it or breathe it or something like that. I am very happy to dwell on this because there is a great deal of misunderstanding about this. It is not fissionable, it is not explosive. The radiation is not penetrating. The radiation gives its effect close up. It is not a penetrating radiation. It is not gamma radiation.

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QUESTION: Dr. Seaborg, would you mind having that particular package of plutonium 238 sitting on your desk there for the duration of this press conference?

CHAIRMAN SEABORG: What did you say?

QUESTION: Would you mind having that particular package of plutonium 238 sitting on your desk for the period of this conference?

CHAIRMAN SEABORG: Not at all. Perhaps that places it in perspective. I would be willing to sit on it during the duration of this press conference. Is that the model, Col. Armstrong?

COLONEL ARMSTRONG: This is polonium, but it is more active than plutonium 238.

CHAIRMAN SEABORG: That is polonium and that is more active. I think that there is ten times more radiation. If you want to bring it over here right now, I will prove my point. The amount of radiation in terms of technical language, if you put your hands right on it, is about 500 milliroentgens per hour on your hands only. That is quite a small amount of radiation. By the time it diffuses into the room, you would not get much whole body radiation, which is what one would worry about.

QUESTION: How does that 500 milliroentgens compare with a dental x-ray?

CHAIRMAN SEABORG: I will come back to this question. I should say there is a 20-minute film depicting the test -- the safety tests -- that have been made on this SNAP device or one like it or those like it, that went into this TRANSIT satellite, which is available for showing after this press conference in one of the neighboring rooms. In fact, I commend it to you. I have seen it and I think it is very worthwhile to see. Now, I interrupted a question here.

QUESTION: The dental x-ray. Yes. How does the radiation compare, the 500 milliroentgens per hour, with a dental x-ray?

CHAIRMAN SEABORG: If you had a dental x-ray machine on -- one x-ray, now you get into the time factor with a modern machine, Mr. Haworth, do you know what that is?

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COMMISSIONER HAWORTH: I think it is probably comparable -- one x-ray is of the same order of magnitude. I think, as this would be for an hour. That is very rough.

CHAIRMAN SEABORG: That would be my judgment, too; of that order.

QUESTION: Could you give us any estimate of the equivalent weight in storage batteries which would be required to give the equivalent amount of power over a five-year period? Dr. Haworth has been quoting figures. I wonder if he would quote one.

CHAIRMAN SEABORG: Jack, do you have one in mind?

COLONEL ARMSTRONG: First you would have to speak of what kind of storage batteries you are talking about. Let us say we are talking about the very finest light-weight storage batteries you can get for a period of five years. This is thousands and thousands of pounds.

COMMISSIONER HAWORTH: No vehicle would carry them.

QUESTION: Would 7,000 pounds be a good figure?

COLONEL ARMSTRONG: It would be low. Five tons. Colonel Anderson comes out with a figure of five tons.

COMMISSIONER HAWORTH: If you want to do a little calculating yourself, the ordinary automobile storage battery will give you about 600 watts for an hour or something of that sort. So that is 200 times as much as this would do for an hour, but then the storage battery would be done. The automobile storage battery would equal this for about 200 hours before it is run down.

QUESTION: How does this compare in weight with solar batteries and storage batteries you would need to store it on the dark side?

COLONEL ARMSTRONG: A factor of about five for this power. About five. This is a fifth as light.

QUESTION: This is five times heavier than the comparable solar cell battery.

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COLONEL ARMSTRONG: No, the other way around. The solar cell battery combination for this amount of power would be five times heavier than this.

QUESTION: And you feel its life span would be --

COLONEL ARMSTRONG: Much shorter.

QUESTION: Can you put a number on that?

COLONEL ARMSTRONG: This is entirely dependent on the altitude, the radiation belt it is in, solar activity. These things degrade solar cells. The number of times you cycle the battery. These are all dependent. I could not give you a specific answer.

COMMISSIONER HAWORTH: One additional thing might be said about the storage batteries, just straight storage batteries. Their shelf life would not be that long. They would not maintain their charge. So you literally could not do it.

CHAIRMAN SEABORG: I might say I have a sort of prototype of this fuel element here that has been put through these heating and impact tests, and so forth. It would be something like this that you would see in the movie if you choose to see it. I will just leave this here for anyone who wants to see it. That is the fuel element itself. That is where the radioisotope is contained.

QUESTION: You mentioned various terrestrial uses of this type of machine. What about the cost? Can you say anything about that? In other words, whether any time soon these could be manufactured for uses in large numbers?

CHAIRMAN SEABORG: I think the cost, with development, can be brought into a range where it would be reasonable. It is not going to be a deterring factor, in other words. Here we have a situation where we have a device that can do something that no other device can do, you see. It is difficult to decide in terms of relative cost what it is worth.

COMMISSIONER HAWORTH: One point I think about terrestrial uses, you do not have to push as hard. There are many isotopes that are cheaper than this one that you could use terrestrially. You would not push the way you do in a satellite to get everything as light as you can.

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QUESTION: May I ask a related question, Dr. Seaborg, in terms of nuclear power in air or space?

CHAIRMAN SEABORG: Yes.

QUESTION: Did this new bomber that a rough picture appeared in the newspaper indicate that on the day we got up a SNAP device the Russians perhaps got up a prototype of a nuclear airplane?

CHAIRMAN SEABORG: I do not think so. I think it is quite unlikely that they got up a prototype of a nuclear airplane.

QUESTION: At the end of the material we were given plans are given for testing other larger SNAP units, including the 8 and 10. The statement is made that you hope to fly the SNAP-10A in early 1963. Can you tell us what this would do?

CHAIRMAN SEABORG: SNAP-10A is a nuclear reactor from which the heat is transformed to electrical energy through the thermoelectric process. SNAP-10 is in the power range of about a half of a kilowatt or something of that order. The other SNAP devices, SNAP-2 and SNAP-8, these even-numbered SNAPS are those that use the nuclear reactor to develop the heat, are higher powered. I think around three kilowatts for the SNAP-2 complex.

QUESTION: All those figures are here.

CHAIRMAN SEABORG: SNAP-2 and -8 develop their electrical energy from the heat through the more conventional turbine equipment, miniaturized turbine equipment.

QUESTION: What would SNAP-10A do? Would it power some Air Force satellite?

CHAIRMAN SEABORG: Yes. Is 10 for the Air Force?

COLONEL ARMSTRONG: Yes, 10 is for the Air Force.

CHAIRMAN SEABORG: Power the equipment in it.

QUESTION: What satellite has been selected?

CHAIRMAN SEABORG: At this stage no satellite has been selected. Of course, the SNAP-8 with its potential of developing maybe 30 kilowatts or more might have very useful application to some of the advanced satellite systems, the

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communication satellites and so forth, where you might want to operate rather complex equipment and transmitting equipment, including perhaps even TV, leading to such possibilities as worldwide TV and comparable radio transmission and equivalent of telephonic communication, and so forth.

QUESTION: I am sorry; I did not understand your answer to an earlier question I asked. This thing is now up there with transmitters which, if you were in a boat in the middle of the ocean with equipment, you could now tune in?

CHAIRMAN SEABORG: You could now tune in the signal and from the details tell just about where you are.

QUESTION: Is there any program for sharing --

CHAIRMAN SEABORG: I should say that the satellite is programmed every 24 hours so it is transmitting information relevant to where its orbit is during that time, you see. Otherwise the orbit changes and you would not be able to get the information with the accuracy you want.

QUESTION: Is there any program to share this information with other countries? I mean the navigational. Can any other country tune into this or is there any program to help them do this?

CHAIRMAN SEABORG: This would be entirely feasible. The wave length is known, as I indicated here.

QUESTION: Does the Navy plan for an operational transit to use this isotope source or is this just one possibility?

CHAIRMAN SEABORG: For an operational TRANSIT?

QUESTION: TRANSIT system.

CHAIRMAN SEABORG: This is in a sense an operational TRANSIT.

QUESTION: They will use this as the power source.

CHAIRMAN SEABORG: Through the life of this.

QUESTION: Through the TRANSIT program?

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CHAIRMAN SEABORG: It is transmitting two -- two transmitters are using the nuclear source and two are using the solar source -- they will use them both, I guess. It may be that the nuclear source would be operating after the solar battery source has become inoperative.

QUESTION: The DOD release referred to this device by the initials RIPS, I believe.

CHAIRMAN SEABORG: RIPS?

COLONEL ARMSTRONG: Radioisotope power source.

CHAIRMAN SEABORG: I see. We have systems for nuclear auxiliary power, SNAP.

QUESTION: Can you tell us the weight of this particular device?

CHAIRMAN SEABORG: Yes, about 4-1/2 pounds; 4.6 pounds I believe somebody told me.

QUESTION: Has NASA expressed any interest for these devices for the relay or the commercial satellite program?

CHAIRMAN SEABORG: Yes. We are working on devices in cooperation with NASA.

QUESTION: Is there any hard plan afoot to put this in a relay project?

CHAIRMAN SEABORG: I think they contemplate using a similar device for some of their power for their first soft landing on the moon. Isn't that right?

COLONEL ARMSTRONG: Yes, sir.

CHAIRMAN SEABORG: As an example.

QUESTION: What is the next space effort experiment in which you have been requested to provide a SNAP?

CHAIRMAN SEABORG: I do not think anything has been definitely scheduled that might be announced. I believe that is right. Is that right?

COLONEL ARMSTRONG: Yes.

CHAIRMAN SEABORG: There is a definite SNAP program, in what we call SNAP-7 devices, where they will be used by the Navy and the Coast Guard, two each--five watts and 30 watts--for some of the applications that I mentioned to you earlier.

QUESTION: Will the navigational satellites use this power source or a more advanced or more developed power source, or is this the package or power source that will go into the communication satellite?

CHAIRMAN SEABORG: The communication satellite? The navigational satellites will use the best sources we have at the time and these will improve and probably develop more power as time goes on and as the needs for the power develop.

QUESTION: What was this you referred to a moment ago about the Navy and the Coast Guard and SNAP-7?

CHAIRMAN SEABORG: Let me amplify that a little because that is somewhat complicated, and then I will come back to another use, too, that is very interesting.

The odd-numbered are the isotope-powered. In this series there is a group known as SNAP-7, I guess 7-A, 7-B, 7-C, 7-D, which are being developed for the Navy and the Coast Guard, each to receive two of them. The two to be five watt powered -- five watt power and 30 watt power -- these to be used for terrestrially-based transmitting stations to aid in navigation and buoys, warning of coastlines, and so forth.

QUESTION: Is that LORAN or something? Is it any special type of system? Is that the LORAN you are referring to?

CHAIRMAN SEABORG: No. They are automatic weather stations. Weather information would be transmitted also.

COMMISSIONER HAWORTH: LORAN needs a good deal more power.

CHAIRMAN SEABORG: Yes. Since the question has been raised about these other uses, and in particular the weather use, it seems to me -- although I had not intended to mention it today -- I might tell you at this time about another development that is almost at the same stage as this SNAP device that was used in TRANST last night, and that is a device that

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we have under development in cooperation with the Martin Company for transmitting weather data preparatory to its use in remote areas of the earth.

We actually have such a device operating now that is transmitting weather data. As a matter of fact, we are receiving it in this building and I do not see any reason why this group could not see that information being received, do you?

COMMISSIONER HAWORTH: No.

CHAIRMAN SEABORG: This is based down in Maryland near Baltimore at the Martin plant, and it is sending on command information such as the temperature and the barometric pressure and the wind velocity. That is being received here on a test basis by a receiver in our AEC headquarters here at H Street, by a sort of a coded mechanism, in a way that we can decipher it and learn what these parameters are at any given time when we command it to deliver that information to us.

This, then, would be a device that would be placed at perhaps some remote part of the earth and transmit this information on command to us from there, completely unattended for years at a time.

QUESTION: Can you tell us what the power of that device is? The wattage?

CHAIRMAN SEABORG: I think that one is developing about five watts also. Five watts.

COMMISSIONER HAWORTH: Aebersold has a sample in his hand. This is not radioactive.

CHAIRMAN SEABORG: I had not thought we would go into this today, but in view of the interest in these other applications, this is powered by strontium 90, and this is a strontium-titanate sample -- cold, there is no strontium 90 in this -- of the type that is used as a fuel element in that particular device.

QUESTION: Is that a SNAP-7 device, Sir?

DR. AEBERSOLD: No. It is completely different.

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CHAIRMAN SEABORG: I think that does not relate. I do not know of any number that would relate this to the SNAP number series at the present time.

QUESTION: Would you explain that again? That works on strontium 90, but you said it didn't contain it.

CHAIRMAN SEABORG: This works on strontium 90 instead of plutonium 238. Strontium 90 is a beta emitter -- low energy beta particles, electrons, instead of alpha particles -- and has a half-life of about 27 years. If you want more details, actually there is a daughter -- it is a two-decay chain -- the yttrium 90 has a shorter half-life but is in equilibrium with it and gives a higher energy beta particle.

The reason I go into this detail is that there is an important difference here, namely, the beta particles give off what we call Bremsstrahlung, which are the same as gamma rays and, therefore, you get more penetrating radiation than you get from a device like this or the one that was sent up last night. Therefore, it is a bigger device. It is a huge device. But that doesn't matter for this use. You therefore shield from the gamma rays. You surround it with lead or something of that sort.

I want to make it extremely clear, since I brought this up, that this strontium 90 which is something that people have concern about is in this weather device and not in any of the devices we have been talking about here up to now. That was plutonium 238, or in that particular case here, polonium 210. This one is strontium 88.

DR. AEBERSOLD: It is cold.

COMMISSIONER HAWORTH: You might say it is a stable isotope of strontium that is not radioactive.

CHAIRMAN SEABORG: This is not radioactive.

COMMISSIONER HAWORTH: That is what I am trying to say.

CHAIRMAN SEABORG: He wanted to be too subtle. He wanted me to say it is a different isotope from strontium 90, namely, a stable isotope of strontium that exists in nature.

QUESTION: Would you say that this transmitting station does not use a SNAP-7 or does?

CHAIRMAN SEABORG: It is a SNAP-7 type of device. But it differs from the device in the TRANSIT satellite in that it is this strontium 90 with this different method of developing the energy. In particular, the different requirement to shield against the gamma rays, the Bremsstrahlung.

THE PRESS: Thank you very much, Dr. Seaborg.



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

June 30, 1961

UNCL. BY DOE
NOV 86

INFORMATION MEETING 48

10:50 a.m., Friday, June 30, 1961 - Chairman's Office, D.C.

1. International Accelerator - The Chairman said he had requested Dr. Haworth to follow this matter with appropriate assistance from the Staff. (Secy - Hall - McDaniel)
2. AEC 536/4 - CONTAMINATION OF THE COLUMBIA RIVER - The Chairman requested Dr. Haworth to follow this matter with assistance from appropriate Staff. (Secy - Quinn)
3. Letter to Joint Committee re Weapons Tests - The Chairman requested information on the details of the attachment to the letter. (Betts)
4. AEC 580/123 - PLANNING ESTIMATES
AEC 580/129 - DELIVERY OF WEAPONS
AEC 580/130 - MAY 1961 PLANNING ESTIMATES - The Chairman said Mr. Graham would coordinate the response to these letters with assistance from appropriate Staff. (Secy - Betts)
5. Letter to Secretary of Defense re Security Case - The Chairman said Commissioners Graham and Olson would report on this matter next week. (Secy)
6. Commission Cruise on Polaris, July 28 and 29 - The Commissioners said they would take this opportunity to inspect Cape Canaveral facilities. (Secy)
7. AEC 867/53 - DISPERSAL (TOP SECRET - CA-LIV-964-116) - The General Manager said he planned no action unless Mr. Bundy had comments on the matter. (Secy)
8. New York Shipbuilding Group Matter - The Chairman said Commissioners Graham, Olson and Haworth would proceed upon completion of their consideration of the matter. (General Counsel - Secy)
9. Letter from Allied Chemical Corporation re AEC Supply of Liquid Fluorine to Air Force - The Chairman requested preparation of a reply. (Quinn)
10. UAR Interest in Cooperative Atomic Energy Program - The Chairman reported the matter was under discussion by Mr. Hall. (Hall)
11. Correspondence re Wolverine Project
12. AEC 54/1 - EMPLOYEE-MANAGEMENT RELATIONS IN THE FEDERAL SERVICE - The Chairman emphasized the importance of AEC compliance with the Directive. The General Manager said a draft letter was forthcoming. (Tackman)

13. Southern California-Edison - Westinghouse Project - The Chairman emphasized the need for careful consideration of the site matter and said he would talk to the BoB about it. (Secy)
14. Pacific Gas and Electric Announcement of Wednesday, June 28, 1961, re Nuclear Power Project
15. N.S. SAVANNAH - Commission requested a presentation by Dr. Beck on Thursday, July 6, 1961, 10:30 a.m., D. C. Office, with Dr. Mann and an ACRS representative present. (Secy)
16. Papers for Consideration at Information Meetings
17. Schedule for Monday, July 3rd - There will be no morning Information Meeting on July 3rd.
18. Letter to Joint Committee re Weather Station - Mr. Graham requested preparation of a letter to the Joint Committee. (Acbersold)
19. Agenda - Approved as Revised. (Secy)

Present

Dr. Seaborg	Gen. Luedecke
Mr. Graham	Mr. Henderson
Mr. Olson	Mr. Naiden
Dr. Haworth	Mr. Price (Agenda Planning Only)
	Mr. McCool

Distribution:

Commissioners
General Manager (4)
General Counsel
Secretary

W. B. McCool
Secretary

controversy between General Electric and a U.S. Public Health Service group regarding possible harmful contamination of the Columbia River with radioactive products from the Hanford plant. This is a potentially serious matter and bears close watching.

I signed and sent the letter to President Kennedy recommending for his approval fissionable and weapons production and transfers to DOD for FY 1962.

I called McNamara at noon and asked him what we were supposed to be doing on the test paper; he said nothing that he knew of. I also asked if there were to be a meeting of the Principals today; he said that he thought the President found it impossible to get the group together and it probably would be held next week.

I had lunch with Howard Brown and Chris Henderson.

After lunch I called Budget Director Bell and raised the matter of the Southern California Edison proposal for constructing a reactor at Camp Pendleton and wondered if this would be a better use for this site than its present use. I said I have not wanted to be a public protagonist for this since it is a private utility which would be using public land. I told Bell that I had been told by the Southern California Edison people that they had learned that the Bureau of the Budget would be willing to act as an arbitrator but that informal checks by AEC at the staff level had not indicated this to be the case. Bell stated that he did not think the BOB could be an arbitrator but that the way to settle the matter would be to send something to the President. He said I should tell the President that I am not in a position to judge the relative merits of the matter; so he may want to have somebody look at it, possibly the BOB or someone on his staff. Bell felt this approach would not put AEC in the position of being an advocate but of just looking into it. I commented that I didn't want to argue strongly for it because of course the country can get along without one more power plant. Bell then suggested that I might wish to check with Gilpatric to see if he concurred and considered it the appropriate thing to do. I replied that I may do that, if it would be appropriate, although I hadn't wanted to press the matter. Bell said that it would be appropriate; that I could tell Gilpatric that I was not asking for a military decision but wanted to get a reading on the matter before bothering the President with it. I said that I may do this.

At 2:40 p.m. I presided over Commission Meeting 1754 (action summary attached).

I called Dick Smith of Nucleonics to tell him how much I appreciated his article. He said he enjoyed my press conference yesterday and he gathered I was saying we are really going to start an all-out effort to get SNAP in space vehicles and asked if it were going to be a concrete formal program. I told him that we planned to move along as fast as we can. We think it is important and one of the best uses of nuclear energy.

I had dinner with the family at a Hot Shoppes restaurant on Connecticut and Yuma Avenue near our home.

UNCL. BY DOE
NOV 86

Memorandum

TO : A. R. Luedcke, General Manager

DATE: June 30, 1961

Approved *[Signature]*

FROM : W. B. McCool, Secretary

A. R. Luedcke

Date *[Signature]*

SUBJECT: ACTION SUMMARY OF MEETING 1754, FRIDAY, JUNE 30, 1961, 2:40 P.M.
ROOM 1113-B, D. C. OFFICE

SERIAL: SECV:DCR

Commission Business

Report on Proposed Federal Regulations on Equal Employment Opportunity

1. The Commissioners requested quarterly reports beginning September 30, 1961 on specific actions taken to comply with recommendations on non-discrimination in Commission and Commission-contractor employment. (Inaynor)

2. Resolution on Colonel Armstrong

Approved. (Secretariat)

Item of Information

Film on Operations at the Savannah River Plant

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TECHNICAL INFORMATION DEPARTMENT
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BERKELEY, CALIFORNIA 94720