

Y4
AEC 7/2 Joint - Atomic energy 87Y4
B49/ A+7/2
96/ B49/961

AEC OMNIBUS BILLS, 1961, AND AMENDMENT TO
SECTION 170 OF THE ATOMIC ENERGY ACT

GOVERNMENT

Storage

HEARINGS

BEFORE THE

SUBCOMMITTEE ON LEGISLATION

OF THE

JOINT COMMITTEE ON ATOMIC ENERGY

CONGRESS OF THE UNITED STATES

EIGHTY-SEVENTH CONGRESS

FIRST SESSION

ON

AEC OMNIBUS BILLS, 1961, AND AMENDMENT TO SECTION 170
OF THE ATOMIC ENERGY ACT

JUNE 27 AND 29, 1961

Printed for the use of the Joint Committee on Atomic Energy



U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON : 1961

73086 O

KSU LIBRARIES



✓
A11900 480169

JOINT COMMITTEE ON ATOMIC ENERGY

CHET HOLIFIELD, California, *Chairman*

JOHN O. PASTORE, Rhode Island, *Vice Chairman*

MELVIN PRICE, Illinois

WAYNE N. ASPINALL, Colorado

ALBERT THOMAS, Texas

THOMAS G. MORRIS, New Mexico

JAMES E. VAN ZANDT, Pennsylvania

CRAIG HOSMER, California

WILLIAM H. BATES, Massachusetts

JACK WESTLAND, Washington

RICHARD B. RUSSELL, Georgia

CLINTON P. ANDERSON, New Mexico

ALBERT GORE, Tennessee

HENRY M. JACKSON, Washington

BOURKE B. HICKENLOOPER, Iowa

HENRY DWORSHAK, Idaho

GEORGE D. AIKEN, Vermont

WALLACE F. BENNETT, Utah

JAMES T. RAMEY, *Executive Director*

JOHN T. CONWAY, *Assistant Director*

SUBCOMMITTEE ON LEGISLATION

JOHN O. PASTORE, Rhode Island, *Chairman*

CHET HOLIFIELD, California

WAYNE N. ASPINALL, Colorado

JAMES E. VAN ZANDT, Pennsylvania

WILLIAM H. BATES, Massachusetts

ALBERT GORE, Tennessee

HENRY M. JACKSON, Washington

BOURKE B. HICKENLOOPER, Iowa

HENRY DWORSHAK, Idaho

JACK R. NEWMAN, *Professional Staff Member*

CONTENTS

AEC OMNIBUS BILLS—1961

	Page
Tuesday, June 27, 1961-----	1
Atomic Energy Commission witnesses:	
Ink, Dwight A., Assistant General Manager-----	24
Wells, A. A., Director, Division of International Affairs-----	24
Vander Weyden, Dr. Allen, Deputy Director, Division of Reactor Development-----	24
Lowenstein, Robert, Acting Director, Division of Licensing and Regulation-----	24
Oulahan, Courts, Deputy General Counsel-----	24
Anderson, Roland A., Assistant General Counsel for Patents, Office of the General Counsel-----	24
Brunenkant, Edward J., Acting Director, Office of Technical Information-----	24
Fleming, Thomas O., Litigation and Legislative Counsel, Office of the General Counsel-----	24
Correspondence inserted in the record: Bowles, Chester, Acting Secretary, Department of State, to Congressman Chet Holifield, dated May 20, 1961, urging early consideration of the draft AEC omnibus bill-----	24
Additional material submitted for the record:	
AEC's testimony on the omnibus bill of 1961 (S. 2117 and H.R. 7798), June 27, 1961-----	53
Comparative draft bill to amend various sections of the Atomic Energy Act of 1954 and the Euratom Cooperation Act of 1958. H.R. 7798 (S. 2117)-----	6 1
Appendixes:	
Appendix 1: Analysis of draft bill to amend the Atomic Energy Act of 1954, as amended, and the Euratom Cooperation Act of 1958, and for other purposes (1961 omnibus legislation)-----	66
Appendix 2: Letter from Bennett Boskey, of Volpe, Boskey & Skallerup, to Chairman Holifield, dated July 5, 1961, com- menting on the AEC omnibus bill (H.R. 7798)-----	76
Appendix 3: Letter from C. J. Thomsen, vice president, Texas Instruments, Inc., to Chairman Holifield, dated June 29, 1961, concerning the AEC omnibus bill-----	77
Appendix 4: Letter from A. A. Wells, Director, Division of International Affairs, AEC, to James T. Ramey, executive director, JCAE, dated August 3, 1961, regarding possible effect of the amendment proposed to section 4(c) of the Euratom Cooperation Act-----	78
Appendix 5: H.R. 8599 (S. 2391)-----	79

AMENDMENT TO SECTION 170 OF THE ATOMIC ENERGY ACT

Thursday, June 29, 1961:	
Statement of-----	85
Bessinger, B. L., International Minerals & Chemical Corp-----	85
Browder, Lewis B., consulting physicist, International Minerals & Chemical Corp-----	104
Leet, Dr. L. Don, seismologist, Harvard University-----	104
Morris, Hon. Thomas G., Representative from New Mexico-----	132
Neal, Caswell E., attorney, International Minerals & Chemical Corp-----	121
Speer, Paul, director, U.S. Borax & Chemical Corp-----	131
White, Nelson C., International Minerals & Chemical Corp-----	85

Thursday, June 29, 1961—Continued

Correspondence inserted in the record:

Duval Sulphur & Potash Co., letter from W. P. Morris, president, in support of bills.....	Page 97
National Potash Co., letter from T. G. Ferguson, in support of bills.....	97
Potash Co. of America, letter from H. N. Clark, vice president in charge of production, in support of bills.....	98
Southwest Potash Corp., letter from F. H. Stewart, vice presi- dent, in support of bills.....	98

Appendixes:

Appendix 1. Correspondence from AEC and the Department of Justice, on bills to amend the Atomic Energy Act of 1954....	134
Appendix 2. Letter from Chairman Seaborg (AEC), to Chairman Holifield (JCAE), regarding proposed substitute language for S. 1144 and H.R. 5215.....	137
Appendix 3. Correspondence from various private corporations, concerning the proposed amendment to section 170 of the Atomic Energy Act of 1954.....	138
Appendix 4. S. 1144 and H.R. 5215, and draft substitute bill....	139

AEC OMNIBUS BILLS—1961

TUESDAY, JUNE 27, 1961

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON LEGISLATION,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m., in room F-82, the Capitol, Senator John O. Pastore (chairman of the subcommittee) presiding.

Present: Senators Pastore and Hickenlooper; Representative Van Zandt.

Also present: James T. Ramey, executive director; Jack R. Newman, professional staff member; and Edward J. Bauser, technical adviser, Joint Committee on Atomic Energy.

Senator PASTORE. The Subcommittee on Legislation of the Joint Committee on Atomic Energy is commencing public hearings today on S. 2117 and H.R. 7798, the AEC-proposed omnibus bills for 1961. The bills contain some 20 proposed amendments to various sections of the Atomic Energy Act of 1954 and the Euratom Cooperation Act of 1958.

The majority of the proposals contained in this year's bills are identical, or substantially similar to, the proposals which were contained in the AEC's 1960 omnibus bill, H.R. 11979 and S. 3461. The subcommittee last year held 2 days of hearings on these bills but was unable to act prior to the adjournment of the 86th Congress, 2d session.

We plan to consider carefully each proposal in the 1961 omnibus bill although we will ask the AEC to start its testimony with a discussion of those proposals which are new in this year's bill.

Without objection we will insert in the record at this point a copy of H.R. 7798 (S. 2117),¹ and a comparative bill showing the proposed changes to existing law. I would also like to insert in the record a copy of a letter from the Under Secretary of State concerning the proposed amendments to the Euratom Cooperation Act. We will also include an analysis of the bill, as prepared by the AEC, as an appendix to these hearings (p. 66).

(The documents referred to follow:)

[H.R. 7798 (S. 2117), 87th Cong., 1st sess.]

A BILL To amend various sections of the Atomic Energy Act of 1954, as amended, and the EURATOM Cooperation Act of 1958, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby retroceded to the State of California the exclusive jurisdiction heretofore acquired from the State of California by the United States of America over the following land of the United States

¹ The clean bill, H.R. 8599 (S. 2391), appears as app. 5, p. 79.

Atomic Energy Commission located in Alameda County, State of California, and within the boundaries of the Commission's Livermore site:

Beginning at a post marked L.P. XII, in the exterior boundary line of the Rancho Las Positas, set at the southeast corner of subdivision numbered 6 of plot J, of said rancho, as said plot is described in the decree of partition of said rancho rendered June 18, 1873, in case 2798, Aurrecoechea against Mahoney, certified copy of which decree was recorded December 13, 1873, in book 95 of deeds at page 206, Alameda County Records, and as said subdivision is shown on the map hereinafter referred to; and running thence west along the southern boundary line of said plot J 79.28 chains to a post marked L.P. XI, set at the southwest corner of subdivision numbered 5 of said plot J, as said subdivision numbered 5 is shown on said map; and thence north along the western boundary line of said subdivision numbered 5 and along the western boundary line of subdivision numbered 8, as said subdivision numbered 8 is shown on said map, 19.46 chains to a post set at the northwest corner of said subdivision numbered 8; thence east along the northern boundary line of said subdivision numbered 8 and subdivision numbered 7 as shown on said map, 79 chains to a post marked L.P. XIII; and thence south along the eastern boundary line of subdivision numbered 7, as said subdivision numbered 7 is shown on said map, and along the eastern boundary line of said subdivision numbered 6 of said plot J to the point of beginning.

Being a portion of said plot J of said rancho, as shown upon a certain map of a portion of the Rancho Las Positas surveyed for J. Aurrecoechea, August 1876, by Luis Castro, county surveyor, and also known as subdivisions 5, 6, 7, and 8 in the official map of the county of Alameda, State of California, made by George L. Nusbaumer and W. F. Boardman, adopted by the supervisors of said county, September 24, 1888, and issued May 1, 1889.

Beginning at the northeast corner of the northwest quarter of section 13, township 3 south, range 2 east, Mount Diablo base and meridian, being also the northeast corner of the 160 acre tract owned by Louis Madsen, thence south 2,640 feet, more or less, along the east line of said quarter section and along the east boundary fence of said 160 acre tract to the southeast corner of said northwest quarter of said section 13, being the southeast corner of said 160 acre tract and the northeast corner of a 30.66 acre tract owned by John and Dora Bargman; thence south 506 feet, more or less, to the southeast corner of said 30.66 acre tract; thence south 965 feet, more or less, along the east fence of a 129.34 acre tract owned by Charles M. and Sue I. G. Nissen to a fence running east and west through said 129.34 acre parcel; thence west 500 feet along said fence through said 129.34 acre tract; thence north, parallel to the east line of the northwest quarter of said section 13, 4,111 feet, more or less, to north boundary of said section 13; thence east 500 feet to the point of beginning, containing 47.175 acres, more or less.

Beginning at a point 30 feet east of the northeast corner of the northwest quarter of said section 13; thence due south, 4,111 feet, more or less, to a point 30 feet due east of the end of a fence across the 129.34 acre tract owned by Charles M. and Sue I. G. Nissen; thence west 30 feet; thence north 4,111 feet, more or less, to the northeast corner of the northwest quarter of said section 13; thence due east 30 feet to the point of beginning, containing 2.83 acres, more or less.

This retrocession of jurisdiction shall take effect upon acceptance by the State of California.

Sec. 2. Subsection 11 b. of the Atomic Energy Act of 1954, as amended, is amended to read as follows:

"b. The term 'agreement for cooperation' means any agreement with another nation or regional defense organization authorized or permitted by sections 54, 57, 64, 82, 91c., 103, 104, or 144, and made pursuant to section 123."

Sec. 3. Subsection 11 u. of the Atomic Energy Act of 1954, as amended, is amended to read as follows:

"u. The term 'public liability' means any legal liability arising out of or resulting from a nuclear incident, except: (i) claims under State or Federal workmen's compensation acts of employees of persons indemnified who are employed at the site of and in connection with the activity where the nuclear incident occurs; (ii) claims arising out of an act of war; and (iii) whenever used in subsections 170 a., c., and k., claims for loss of, or damage to, or loss of use of property which is located at the site of and used in connection with the licensed activity where the nuclear incident occurs. 'Public liability' also includes damage to property of persons indemnified: *Provided*, That such property is covered under the terms of the financial protection required, except property which is located at the site of and used in connection with the activity where the nuclear incident occurs."

SEC. 4. Section 54 of the Atomic Energy Act of 1954, as amended, is amended by inserting after the words "five thousand kilograms of contained uranium 235" the following "five hundred grams of uranium 233 and three kilograms of plutonium".

SEC. 5. Section 143 of the Atomic Energy Act of 1954, as amended, is amended by striking out "subsection 145 b." and adding in lieu thereof subsection 145 b. and 145 c."

SEC. 6. Section 145 of the Atomic Energy Act of 1954, as amended, is amended by deleting subsections d., e., and f., redesignating subsection "c." as subsection "d." and subsection "g." as subsection "h." and adding the following subsections:

"c. In lieu of the investigation and report to be made by the Civil Service Commission pursuant to subsection b. of this section, the Commission may accept an investigation and report on the character, associations, and loyalty of an individual made by another Government agency which conducts personnel security investigations, provided that a security clearance has been granted to such individual by another Government agency based on such investigation and report.

"e. If the President deems it to be in the national interest he may from time to time determine that investigations of any group or class which are required by subsections a., b., and c. of this section be made by the Federal Bureau of Investigation.

"f. Notwithstanding the provisions of subsections a., b., and c. of this section, a majority of the members of the Commission shall certify those specific positions which are of a high degree of importance or sensitivity, and upon such certification, the investigation, and reports required by such provisions shall be made by the Federal Bureau of Investigation.

"g. The Commission shall establish standards and specifications in writing as to the scope and extent of investigations, the reports of which will be utilized by the Commission in making the determination, pursuant to subsections a., b., and c. of this section, that permitting a person access to restricted data will not endanger the common defense and security. Such standards and specifications shall be based on the location and class or kind of work to be done, and shall, among other considerations, take into account the degree of importance to the common defense and security of the restricted data to which access will be permitted."

SEC. 7. Section 151 of the Atomic Energy Act of 1954, as amended, is amended by deleting in the descriptive title the words "MILITARY UTILIZATION," and inserting in lieu thereof "INVENTIONS RELATING TO ATOMIC WEAPONS, AND FILING OF REPORTS."

SEC. 8. Subsection c. of section 151 of the Atomic Energy Act of 1954, as amended, is amended to read as follows:

"c. Any person who has made or hereafter makes any invention or discovery useful in the production or utilization of special nuclear material or atomic energy, shall file with the Commission a report containing a complete description thereof unless such invention or discovery is described in an application for a patent filed with the Commissioner of Patents by such person within the time required for the filing of such report. The report covering any such invention or discovery shall be filed on or before the one hundred and eightieth day after such person first discovers or first has reason to believe that such invention or discovery is useful in such production or utilization."

SEC. 9. Section 151 of the Atomic Energy Act of 1954, as amended, is amended by adding at the end thereof the following new subsection:

"e. Reports filed pursuant to subsection c. of this section, and applications to which access is provided under subsection d. of this section, shall be kept in confidence by the Commission, and no information concerning the same given without authority of the inventor or owner unless necessary to carry out the provisions of any Act of Congress or in such special circumstances as may be determined by the Commission."

SEC. 10. Section 152 of the Atomic Energy Act of 1954, as amended, is amended to read as follows:

"SEC. 152. INVENTIONS MADE OR CONCEIVED DURING COMMISSION CONTRACTS.—Any invention or discovery, useful in the production or utilization of special nuclear material or atomic energy, made or conceived in the course of or under any contract, subcontract, or arrangement entered into with or for the benefit of the Commission, regardless of whether the contract, subcontract, or arrangement involved the expenditure of funds by the Commission, shall be vested in, and be the property of, the Commission, except that the Commission may waive its claim to any such invention or discovery under such circumstances as the Commission may deem appropriate. No patent for any invention or dis-

covery, useful in the production or utilization of special nuclear material or atomic energy, shall be issued unless the applicant files with the application, or within thirty days after request therefor by the Commissioner of Patents (unless the Commission advises the Commissioner of Patents that its rights have been determined and that accordingly no statement is necessary) a statement under oath setting forth the full facts surrounding the making or conception of the invention or discovery described in the application and whether the invention or discovery was made or conceived in the course of or under any contract, subcontract, or arrangement entered into with or for the benefit of the Commission, regardless of whether the contract, subcontract, or arrangement involved the expenditure of funds by the Commission. The Commissioner of Patents shall as soon as the application is otherwise in condition for allowance forward copies of the application and the statement to the Commission.

"The Commissioner of Patents may proceed with the application and issue the patent to the applicant (if the invention or discovery is otherwise patentable) unless the Commission, within 90 days after receipt of copies of the application and statement, directs the Commissioner of Patents to issue the patent to the Commission (if the invention or discovery is otherwise patentable) to be held by the Commission as the agent of and on behalf of the United States.

"If the Commission files such a direction with the Commissioner of Patents, and if the applicant's statement claims, and the the applicant still believes, that the invention or discovery was not made or conceived in the course of or under any contract, subcontract or arrangement entered into with or for the benefit of the Commission entitling the Commission to the title to the application or the patent the applicant may, within 30 days after notification of the filing of such a direction, request a hearing before a Board of Patent Interferences. The Board shall have the power to hear and determine whether the Commission was entitled to the direction filed with the Commissioner of Patents. The Board shall follow the rules and procedures established for interference cases and an appeal may be taken by either the applicant or the Commission from the final order of the Board to the Court of Customs and Patent Appeals in accordance with the procedures governing the appeals from the Board of Patent Interferences.

"If the statement filed by the applicant should thereafter be found to contain false material statements any notification by the Commission that it has no objections to the issuance of a patent to the applicant shall not be deemed in any respect to constitute a waiver of the provisions of this section or of any applicable civil or criminal statute, and the Commission may have the title to the patent transferred to the Commission on the records of the Commissioner of Patents in accordance with the provisions of this section. A determination of rights by the Commission pursuant to a contractual provision or other arrangement prior to the request of the Commissioner of Patents for the statement, shall be final in the absence of false material statements or nondisclosure of material facts by the applicant."

SEC. 11. Section 155 of the Atomic Energy Act of 1954, as amended, is repealed effective as to applications for patents filed after the date of this Act.

SEC. 12. Section 156 and section 157 of the Atomic Energy Act of 1954, as amended, are renumbered section 155 and section 156, respectively, and section 156 as so renumbered is amended by adding at the end thereof the following new subsection:

"d. PERIOD OF LIMITATIONS.—Every application under this section shall be barred unless filed within six years after the date on which first accrues the right to such reasonable royalty fee, just compensation, or award for which such application is filed."

SEC. 13. Section 158 of the Atomic Energy Act of 1954, as amended, is repealed, and sections 159 and 160 are renumbered accordingly.

SEC. 14. Section 161 of the Atomic Energy Act of 1954, as amended, is amended by adding thereto the following new subsection:

"w. make a grant of not less than \$50,000 or more than \$350,000, on a matching fund basis, to any State, upon the submission of a proposal by the Governor acceptable to the Commission, during the period beginning July 1, 1961, and ending June 30, 1966, for the purpose of assisting such State in establishing an atomic energy exhibit. Such proposals shall set forth the general features of the proposed exhibit, the provisions for its operation and maintenance and such other information as the Commission deems appropriate. The grants made by the Commission under this authority shall not exceed \$5,000,000 in the aggregate. The grants shall not be utilized for the acquisition, purchase, or lease of land or buildings or for the operation or

maintenance of the exhibit. As used in this subsection, the term 'State' means any State, territory, or possession of the United States, the Canal Zone, Puerto Rico, and the District of Columbia. As used in this subsection, the term 'Governor' shall include the Commissioners of the District of Columbia."

SEC. 15. Section 167 of the Atomic Energy Act of 1954, as amended, is amended to read as follows:

"SEC. 167. CLAIMS SETTLEMENTS.—The Commission, acting on behalf of the United States, is authorized to consider, ascertain, adjust, determine, settle, and pay, any claim for money damage of \$5,000 or less against the United States for bodily injury, death, or damage to or loss of real or personal property resulting from any detonation, explosion, or radiation produced in the conduct of any program undertaken by the Commission involving the detonation of an explosive device, where such claim is presented to the Commission in writing within one year after the accident or incident out of which the claim arises: *Provided, however,* That the damage to or loss of property, or bodily injury or death, shall not have been caused in whole or in part by any negligence or wrongful act on the part of the claimant, his agents, or employees. Any such settlement under the authority of this section shall be final and conclusive for all purposes, notwithstanding any other provision of law to the contrary. If the Commission considers that a claim in excess of \$5,000 is meritorious and would otherwise be covered by this section, the Commission may report the facts and circumstances thereof to the Congress for its consideration."

SEC. 16. The Atomic Energy Act of 1954, as amended, is amended by adding thereto the following new section:

"SEC. 190. LICENSEE INCIDENT REPORTS.—No report by any licensee of any incident arising out of or in connection with a licensed activity made pursuant to any requirement of the Commission shall be admitted as evidence or used in any suit or action for damages growing out of any matter mentioned in such report."

SEC. 17. Section 4(c) of the EURATOM Cooperation Act of 1958 is amended to read as follows:

"SEC. 4. (c) The Commission shall establish and publish criteria for computing the maximum fuel element charge and minimum fuel element life to be guaranteed by the manufacturer as a basis for inviting and evaluating proposals."

SEC. 18. Section 4(e) of the EURATOM Cooperation Act of 1958 is amended to read as follows:

"SEC. 4. (e) The Commission shall receive a royalty-free, nonexclusive, irrevocable license for governmental purposes to any patents on inventions or discoveries made or conceived by the manufacturer on the fuel elements to be guaranteed, in the course of and under the contract for the supply of such fuel elements, and inventions or discoveries made or conceived on such fuel elements during the period of the Commission's guarantee contract."

SEC. 19. Section 5 of the EURATOM Cooperation Act of 1958 is amended in the following particulars:

(a) by deleting the words "One kilogram" and substituting the words "Nine kilograms" immediately following "Thirty thousand kilograms of contained uranium 235",

(b) by adding the words "Thirty kilograms of uranium 233" as an additional item immediately following "Nine kilograms of plutonium", and

(c) by adding the words "or agreements" immediately following the words "an agreement".

SEC. 20. Section 7 of the EURATOM Cooperation Act of 1958 is amended by deleting the period after the word "amended" and inserting thereafter the following: "And provided further, That nothing in this section shall apply to arrangements made by the Commission under a research and development program authorized in section 3."

COMPARATIVE DRAFT BILL

To amend various sections of the Atomic Energy Act of 1954, as amended, and the EURATOM Cooperation Act of 1958, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, There is hereby retroceded to the State of California the exclusive jurisdiction heretofore acquired from the State of California by the United States of America over the following land of the United States Atomic Energy Commission located in Alameda County, State of California and within the boundaries of the Commission's Livermore Site:

Beginning at a post marked L.P.XII, in the exterior boundary line of the Rancho Las Positas, set at the southeast corner of subdivision No. 6 of plot "J", of said Rancho, as said plot is described in the decree of partition of said Rancho rendered June 18, 1873 in case 2798, Aurrecochea, v. Mahoney, certified copy of which decree was recorded December 13, 1873, in book 95 of Deeds at page 206, Alameda County Records, and as said subdivision is shown on the map hereinafter referred to; and running thence west along the southern boundary line of said plot "J" 79.28 chains to a post marked L.P. XI, set at the southwest corner of subdivision No. 5 of said plot "J", as said subdivision No. 5 is shown on said map; and thence north along the western boundary line of said subdivision No. 5 and along the western boundary line of subdivision No. 8, as said subdivision No. 8 is shown on said map, 79.46 chains to a post set at the northwest corner of

said subdivision No. 8; thence east along the northern boundary line of said subdivision No. 8 and subdivision No. 7 as shown on said map, 79 chains to a post marked L.P. XIII; and thence south along the eastern boundary line of subdivision No. 7, as said subdivision No. 7 is shown on said map, and along the eastern boundary line of said subdivision No. 6 of said plot "J" to the point of beginning.

Being a portion of said plot "J" of said rancho, as shown upon a certain map of a portion of the Rancho Las Positas surveyed for J. Aurrecochea, August, 1876, by Luis Castro, County Surveyor and also known as subdivision 5, 6, 7, and 8 in the Official map of the County of Alameda, State of California, made by George L. Nusbaumer and W. F. Boardman, adopted by the Supervisors of said County, September 24, 1888 and issued May 1, 1889.

Beginning at the northeast corner of the northwest quarter of Section 13, T3S., R2E., M.D.B.&M., being also the northeast corner of the 160 acre tract owned by Louis Madsen, thence south 2640 feet more or less, along the east line of said quarter section and along the east boundary fence of said 160 acre tract to the southeast corner of said northwest quarter of said Section 13, being the southeast corner of said 160 acre tract and the northeast corner of a 30.66 acre tract owned by John and Dora Bargman; thence south 506 feet, more or less, to the southeast corner of said 30.66 acre tract; thence south 965 feet, more or less, along the east fence of a 129.34 acre tract owned by Charles M. and Sue I. G. Nissen to a fence running east and west through said 129.34 acre parcel; thence west 500 feet along said fence through said 129.34 acre tract; thence north,

parallel to the east line of the northwest quarter of said Section 13, 4111 feet, more or less, to north boundary of said Section 13, thence east 500 feet to the point of beginning, containing 47.175 acres, more or less.

Beginning at a point 30 feet east of the northeast corner of the northwest quarter of said Section 13, thence due south, 4111 feet, more or less, to a point 30 feet due east of the end of a fence across the 129.34 acre tract owned by Charles M. and Sue I. G. Nissen, thence west 30 feet, thence north 4111 feet more or less to the northeast corner of the northwest quarter of said Section 13, thence due east 30 feet to the point of beginning, containing 2.83 acres, more or less.

This retrocession of jurisdiction shall take effect upon acceptance by the State of California.

Sec. 2. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"Sec. 11. DEFINITIONS.--

"b. The term 'agreement for cooperation' means any agreement with another nation or regional defense organization, authorized or permitted by sections 54, 57, 64, 82, 91 c., 103, 104, or 144, and made pursuant to section 123."

Sec. 3. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"Sec. 11. DEFINITIONS.--

"u. The term 'public liability' means any legal liability arising out of or resulting from a

nuclear incident, except: (i) claims under State or Federal Workmen's Compensation Acts of employees of persons indemnified who are employed at the site of and in connection with the activity where the nuclear incident occurs [], and except for (i) claims arising out of an act of war [.]; and (iii) whenever used in subsections 170 a., c., and k., claims for loss of, or damage to, or loss of use of property which is located at the site of and used in connection with the licensed activity where the nuclear incident occurs. 'Public liability' also includes damage to property of persons indemnified: Provided, That such property is covered under the terms of the financial protection required, except property which is located at the site of and used in connection with the activity where the nuclear incident occurs."

Sec. 4. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"Sec. 54. FOREIGN DISTRIBUTION OF SPECIAL NUCLEAR MATERIAL.--

"The Commission is authorized to cooperate with any nation by distributing special nuclear material and to distribute such special nuclear material, pursuant to the terms of an agreement for cooperation to which such nation is a party and which is made in accordance with section 123. Unless hereafter otherwise authorized by law the Commission shall be compensated for special nuclear material so distributed at not less than the

Commission's published charges applicable to the domestic distribution of such material, except that the Commission to assist and encourage research on peaceful uses or for medical therapy may so distribute without charge during any calendar year only a quantity of such material which at the time of transfer does not exceed in value \$10,000 in the case of one nation or \$50,000 in the case of any group of nations. The Commission may distribute to the International Atomic Energy Agency, or to any group of nations, only such amounts of special nuclear materials and for such periods of time as are authorized by Congress. Provided, however, That, notwithstanding this provision, the Commission is hereby authorized subject to the provisions of section 123, to distribute to the Agency five thousand kilograms of contained uranium-235, five hundred grams of uranium-233 and three kilograms of plutonium, together with the amounts of special nuclear material which will match in amount the sum of all quantities of special nuclear materials made available by all other members of the Agency to July 1, 1960."

Sec. 5. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"Sec. 143. DEPARTMENT OF DEFENSE PARTICIPATION.--

"The Commission may authorize any of its employees, or employees of any contractor, prospective contractor, licensee or prospective licensee of the Commission or any other person authorized access to Restricted Data by the Commission under subsection 145 b., 145 b. and 145 c., to permit any employee

of an agency of the Department of Defense or of its contractors, or any member of the armed forces to have access to Restricted Data required in the performance of his duties and so certified by the head of the appropriate agency of the Department of Defense or his designee: Provided, however, That the head of the appropriate agency of the Department of Defense or his designee has determined, in accordance with the established personnel security procedures and standards of such agency, that permitting the member or employee to have access to such Restricted Data will not endanger the common defense and security: And provided further, That the Secretary of Defense finds that the established personnel and other security procedures and standards of such agency are adequate and in reasonable conformity to the standards established by the Commission under section 145.

Sec. 6. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"Sec. 145. RESTRICTIONS.--

"a. No arrangement shall be made under section 31, no contract shall be made or continued in effect under section 41, and no license shall be issued under section 103 or 104, unless the person with whom such arrangement is made, the contractor or prospective contractor, or the prospective licensee agrees in writing not to permit any individual to have access to Restricted Data until the Civil Service Commission shall have made an investigation and report to the Commission on the character, associations, and loyalty of such individual, and the Commission shall have determined that permitting such person to have access to Restricted Data will not endanger the common defense and security.

"b. Except as authorized by the Commission or the General Manager upon a determination by the Commission or General Manager that such action is clearly consistent with the national interest, no individual shall be employed by the Commission nor shall the Commission permit any individual to have access to Restricted Data until the Civil Service Commission shall have made an investigation and report to the Commission on the character, associations, and loyalty of such individual, and the Commission shall have determined that permitting such person to have access to Restricted Data will not endanger the common defense and security.

"c. In lieu of the investigation and report to be made by the Civil Service Commission pursuant to subsection b. of this section, the Commission may accept an investigation and report on the character, associations and loyalty of an individual made by another government agency which conducts personnel security investigations, provided that a security clearance has been granted to such individual by another government agency based on such investigation and report.

[c]"d. In the event an investigation made pursuant to subsections a. and b. of this section develops any data reflecting that the individual who is the subject of the investigation is of questionable loyalty, the Civil Service Commission shall refer the matter to the Federal Bureau of Investigation for the conduct of a full field investigation, the results of which shall be furnished to the Civil Service Commission for its information and appropriate action.

[d]"d. If the President deems it to be in the national interest, he may from time to time cause investigations of any group or class which are required by subsections a. and b. of this section to be made by the

Federal Bureau of Investigation instead of by the Civil Service Commission.]

"e. If the President deems it to be in the national interest, he may from time to time determine that investigations of any group or class which are required by subsections a., b., and c. of this section be made by the Federal Bureau of Investigation.

["e. Notwithstanding the provisions of subsection a. and b. of this section, a majority of the members of the Commission shall certify those specific positions which are of a high degree of importance or sensitivity and upon such certification the investigation and reports required by such provisions shall be made by the Federal Bureau of Investigation instead of by the Civil Service Commission.]

"f. Notwithstanding the provisions of subsections a., b. and c. of this section, a majority of the members of the Commission shall certify those specific positions which are of a high degree of importance or sensitivity, and upon such certification, the investigation and reports required by such provisions shall be made by the Federal Bureau of Investigation.

["f. The Commission shall establish standards and specifications in writing as to the scope and extent of investigations to be made by the Civil Service Commission pursuant to subsections a. and b. of this section. Such standards and specifications shall be based on the location and class or kind of work to be done, and shall, among other considerations, take into account the degree of importance to the common defense and security of the Restricted Data to which access will be permitted.]

"g. The Commission shall establish standards and specifications in writing as to the scope and extent of investigations, the reports of which will be utilized by the Commission in making the determination, pursuant to subsections a., b., and c. of this section, that permitting a person access to Restricted Data will not endanger the common defense and security. Such standards and specifications shall be based on the location and class or kind of work to be done, and shall, among other considerations, take into account the degree of importance to the common defense and security of the Restricted Data to which access will be permitted."

g"h. Whenever the Congress declares that a state of war exists, or in the event of a national disaster due to enemy attack, the Commission is authorized during the state of war or period of national disaster due to enemy attack to employ individuals and to permit individuals access to Restricted Data pending the investigation report, and determination required by section 145 b., to the extent that and so long as the Commission finds that such action is required to prevent impairment of its activities in furtherance of the common defense and security."

Sec. 7. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"Sec. 151. MILITARY UTILIZATION INVENTIONS RELATING TO ATOMIC WEAPONS AND FILING OF REPORTS."

Sec. 8. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"Sec. 151 c. Any person who has made or hereafter makes any invention or discovery useful [(1)] in the production or utilization of special nuclear material or atomic energy [j], [(2)] in the utilization of special nuclear material in an atomic weapon; or (3) in the utilization of atomic energy in an atomic weapon,] shall file with the Commission a report containing a complete description thereof unless such invention or discovery is described in an application for a patent filed with the Commissioner of Patents by such persons within the time required for the filing of such report. The report covering any such invention or discovery shall be filed on or before [whichever of the following is the later; either the ninetieth day after completion of such invention or discovery; or the ninetieth day] the one hundred and eightieth day after such person first discovers or first has reason to believe that such invention or discovery is useful in such production or utilization."

Sec. 9. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"e. Reports filed pursuant to subsection c. of this section, and applications to which access is provided under subsection d. of this section, shall be kept in confidence by the Commission, and no information concerning the same given without authority of the inventor or owner unless necessary to carry out the provisions of any Act of Congress or in such special circumstances as may be determined by the Commission."

Sec. 10. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"Sec. 152. INVENTIONS MADE OR CONCEIVED DURING COMMISSION CONTRACTS.--

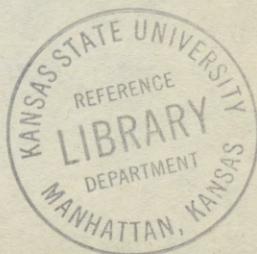
"Any invention or discovery, useful in the production or utilization of special nuclear material or atomic energy, made or conceived in the course of or under any contract, subcontract, or arrangement [, or other relationship with the Commission,] entered into with or for the benefit of the Commission, regardless of whether the contract, subcontract, or arrangement involved the expenditure of funds by the Commission, shall be [deemed to have been made or conceived by the Commission,] vested in, and be the property of, the Commission, except that the Commission may waive its claim to any such invention or discovery [if made or conceived by any person at or in connection with any laboratory under the jurisdiction of the Commission as provided in section 33, or] under such [other] circumstances as the Commission may deem appropriate. No patent or any invention or discovery, useful in the production or utilization of special nuclear material or atomic energy, shall be issued unless the applicant files with the application, or within thirty days after request therefor by the Commissioner of Patents (unless the Commission advises the Commissioner of Patents that its rights have been determined and, that accordingly no statement is necessary) a statement under oath setting forth the full facts surrounding the making or conception of the invention or discovery described in the application and

whether the invention or discovery was made or conceived in the course of in connection with, or under the terms of any contract, subcontract or arrangement, or other relationship with the Commission, or under any contract, subcontract, or arrangement entered into with or for the benefit of the Commission, regardless of whether the contract, subcontract, or arrangement involved the expenditure of funds by the Commission. The Commissioner of Patents shall forthwith as soon as the application is otherwise in condition for allowance forward copies of the application and the statement to the Commission.

"The Commissioner of Patents may proceed with the application and issue the patent to the applicant (if the invention or discovery is otherwise patentable) unless the Commission, within

90 days after receipt of copies of the application and statement, directs the Commissioner of Patents to issue the patent to the Commission (if the invention or discovery is otherwise patentable) to be held by the Commission as the agent of and on behalf of the United States.

"If the Commission files such a direction with the Commissioner of Patents, and if the applicant's statement claims, and the applicant still believes, that the invention or discovery was not made or conceived in the course of in connection with, or under the terms of any contract, subcontract or arrangement or other relationship with the Commission entered into with or for the



benefit of the Commission entitling the Commission to [take] the title to the application or the patent the applicant may, within 30 days after notification of the filing of such a direction, request a hearing before a Board of Patent Interferences. The Board shall have the power to hear and determine whether the Commission was entitled to the direction filed with the Commissioner of Patents. The Board shall follow the rules and procedures established for interference cases and an appeal may be taken by either the applicant or the Commission from the final order of the Board to the Court of Customs and Patent Appeals in accordance with the procedures governing the appeals from the Board of Patent Interferences.

"If the statement filed by the applicant should thereafter be found to contain false material statements any notification by the Commission that it has no objections to the issuance of a patent to the applicant shall not be deemed in any respect to constitute a waiver of the provisions of this section or of any applicable civil or criminal statute, and the Commission may have the title to the patent transferred to the Commission on the records of the Commissioner of Patents in accordance with the provisions of this section. A determination of rights by the Commission pursuant to a contractual provision or other arrangement prior to the request of the Commissioner of Patents for the statement, shall be final in the absence of false material statements or nondisclosure of material facts by the applicant."

Sec. 11. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"Sec. 155. Prior Art. -- In connection with applications for patents covered by this Chapter, the fact that the invention or discovery was known or used before shall be a bar to the patenting of such invention or discovery even though such prior knowledge or use was under secrecy within the atomic energy program of the United States."

Sec. 12. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

Section 156 is renumbered "Sec. 155".

"Sec. 156. COMPENSATION, AWARDS, AND ROYALTIES.--

"d. PERIOD OF LIMITATIONS.--

"Every application under this section shall be barred unless filed within six years after the date on which first accrues the right to such reasonable royalty fee, just compensation, or award for which such application is filed."

Sec. 13. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"Sec. 158. MONOPOLISTIC USE OF PATENTS.--Whenever the owner of any patent hereafter granted for any invention or discovery of primary use in the utilization or production of special nuclear material or atomic energy is found by a court of competent jurisdiction to have intentionally used such patent in a manner so as to violate any of the antitrust laws specified in subsection 105 a., there may be included in the judgment of the court, in its discretion and in addition to any other lawful sanctions, a requirement that such owner license

such patent to any other licensee of the Commission who demonstrates a need therefor. Such licensee shall pay a reasonable royalty fee, to be determined in accordance with section 157, to the owner of the patent.]"

Section 159 is renumbered "Sec. 157".

Section 160 is renumbered "Sec. 158".

Sec. 14. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"Sec. 161. GENERAL PROVISIONS.--In the performance of its functions the Commission is authorized to--

"w. make a grant of not less than \$50,000 or more than \$350,000, on a matching fund basis, to any State, upon the submission of a proposal by the Governor acceptable to the Commission, during the period beginning July 1, 1961, and ending June 30, 1966, for the purpose of assisting such State in establishing an atomic energy exhibit. Such proposals shall set forth the general features of the proposed exhibit, the provisions for its operation and maintenance and such other information as the Commission deems appropriate. The grants made by the Commission under this authority shall not exceed \$5,000,000 in the aggregate. The grants shall not be utilized for the acquisition, purchase or lease of land or buildings or for the operation or maintenance of the exhibit. As used in this subsection, the term 'State' means any State, Territory, or possession of the United States, the Canal Zone, Puerto Rico, and the District of Columbia. As used in this

subsection, the term 'Governor' shall include the Commissioners of the District of Columbia."

Sec. 15. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"Sec. 167. CLAIM SETTLEMENTS.--

"The Commission, acting on behalf of the United States, is authorized to consider, ascertain, adjust, determine, settle, and pay, any claim for money damage of \$5,000 or less against the United States for bodily injury, death, or damage to or loss of real or personal property resulting from any detonation, explosion, or radiation produced in the conduct of [the Commission's program for testing atomic weapons] any program undertaken by the Commission involving the detonation of an explosive device, where such claim is presented to the Commission in writing within one year after the accident or incident out of which the claim arises: Provided, however, That the damage to or loss of property, or bodily injury or death, shall not have been caused in whole or in part by any negligence or wrongful act on the part of the claimant, his agents, or employees. Any such settlement under the authority of this section shall be final and conclusive for all purposes, notwithstanding any other provision of law to the contrary. If the Commission considers that a claim in excess of \$5,000 is meritorious and would otherwise be covered by this section, the Commission may report the facts and circumstances thereof to the Congress for its consideration."

Sec. 16. (ATOMIC ENERGY ACT OF 1954, AS AMENDED)

"Sec. 190. LICENSEE INCIDENT REPORTS.--

"No report by any licensee of any incident arising out of or in connection with a licensed activity made pursuant to any requirement of the Commission shall be admitted as evidence or used in any suit or action for damages growing out of any matter mentioned in such report."

Sec. 17. (EURATOM COOPERATION ACT OF 1958)

"Sec. 4 (c). The Commission shall establish and publish [minimum levels of fuel element cost and life] criteria for computing the maximum fuel element charge and minimum fuel element life to be guaranteed by the manufacturer as a basis for inviting and evaluating proposals."

Sec. 18. (EURATOM COOPERATION ACT OF 1958)

"Sec. 4 (e). The Commission shall [obtain] receive a royalty-free, non-exclusive, irrevocable license for governmental purposes to any patents on inventions or discoveries made or conceived by the manufacturer on the fuel elements to be guaranteed, in the course of and under the contract for the supply of such fuel elements, and inventions or discoveries made or conceived on such [in the course of development or fabrication of] fuel elements during the period [covered by] of the Commission's guarantee contract."

Sec. 19. (EURATOM COOPERATION ACT OF 1958)

"Sec. 5. Pursuant to the provisions of section 54 of the Atomic Energy Act of 1954, as amended, there is hereby authorized for sale or lease to the Community:

Thirty thousand kilograms of contained uranium 235

One kilogram Nine kilograms of plutonium

Thirty kilograms of uranium 233

in accordance with the provisions of an agreement or agreements for cooperation between the Government of the United States and the Community entered into pursuant to the provisions of section 123 of the Atomic Energy Act of 1954, as amended: Provided, That the Government of the United States obtains the equivalent of a first lien on any such material sold to the Community for which payment is not made in full at the time of transfer."

Sec. 20. (EURATOM COOPERATION ACT OF 1958)

"Sec. 7. The Government of the United States of America shall not be liable for any damages or third-party liability arising out of or resulting from the joint program: Provided, however, That nothing in this section shall deprive any person of any rights under section 170 of the Atomic Energy Act of 1954, as amended [.] and provided further that nothing in this section shall apply to arrangements made by the Commission under a research and development program authorized in section 3. The Government of the United States shall take such steps as may be necessary, including appropriate disclaimer or indemnity arrangements, in order to carry out the provisions of this section."

DEPARTMENT OF STATE,
Washington, D.C., May 20, 1961.

Hon. CHET HOLIFIELD,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. HOLIFIELD: I'm sure the JCAE has plenty of business during the next few weeks, but I am writing to urge early consideration of the draft AEC omnibus bill. I am told the committee held hearings on this bill toward the end of the last session but that action was forestalled by the calendar.

Sections 17, 18, 19, and 20 of the bill would authorize AEC to proceed with supply of fissionable material to Euratom as contemplated in our additional agreement for cooperation and are of interest to the State Department. The Euratom people have planned a number of research projects based on the use of this material, and it would be of great help to them if we could make delivery for two specific projects in the next few weeks.

As you know far better than I, our original high hopes for the U.S.-Euratom joint power program have been dampened in the past 2 years, chiefly for reasons nobody could control. With today's unappealing economics for power reactors, further incentives will be needed to persuade European community utilities to push ahead with power projects.

The Euratom Commission has recognized this situation and has drafted a proposal under which Euratom would undertake financial participation in selected power reactors. This proposal must pass the scrutiny of a consultative committee of experts in early June and be approved by the Euratom Council of Ministers the first week in July. The proposal requires substantial outlay of funds, and we expect it will have hard sailing. Concrete evidence of continuing U.S. cooperation and support for Euratom in the form of early committee action on the AEC omnibus bill would have a highly salutary effect.

I would very much appreciate any effort you can make to give this bill an early hearing.

Sincerely yours,

CHESTER BOWLES, *Acting Secretary.*

Senator PASTORE. We understand that the principal witness for the AEC this morning will be Mr. Dwight A. Ink, Assistant General Manager. Please proceed.

**STATEMENT OF DWIGHT A. INK, ASSISTANT GENERAL MANAGER;
ACCOMPANIED BY GEN. A. W. BETTS, DIRECTOR, DIVISION OF
MILITARY APPLICATION; A. A. WELLS, DIRECTOR, DIVISION
OF INTERNATIONAL AFFAIRS; DR. ALLEN VANDER WEYDEN,
DEPUTY DIRECTOR, DIVISION OF REACTOR DEVELOPMENT;
ROBERT LOWENSTEIN, ACTING DIRECTOR, DIVISION OF
LICENSING AND REGULATION; PAUL F. GAUGHRAN, DEPUTY
DIRECTOR, DIVISION OF SECURITY; COURTS OULAHAN, DEP-
UTY GENERAL COUNSEL; ROLAND A. ANDERSON, ASSISTANT
GENERAL COUNSEL FOR PATENTS, OFFICE OF THE GENERAL
COUNSEL; EDWARD J. BRUNENKANT, ACTING DIRECTOR,
OFFICE OF TECHNICAL INFORMATION; THOMAS O. FLEMING,
LITIGATION AND LEGISLATIVE COUNSEL, OFFICE OF THE
GENERAL COUNSEL, ALL OF THE ATOMIC ENERGY COMMISSION**

Mr. INK. Thank you, Mr. Chairman.

Senator PASTORE. We will insert your entire statement in the record at the end of the Commission's testimony (p. 53).

Mr. INK. The Commission has been requested to discuss S. 2117 and H.R. 7798 which would amend the Atomic Energy Act of 1954, as amended, in several particulars. These amendments have been proposed by the Commission in the belief that these amendments will

aid the Commission in carrying out its functions and at the same time keep the 1954 Atomic Energy Act current with the ever-changing developments within the atomic energy program.

I would like, with your permission, to review briefly section by section the proposals which we are asking you to consider today. Except as noted below, the proposals were the subject of our testimony before you on May 17 and 18, 1960, in connection with S. 3461 and H.R. 11979, sometimes referred to herein as the 1960 omnibus bill. The proposals in sections 1, 14, 15, and 19 are new; the proposals in sections 4, 16, and 18 differ somewhat from similar proposals in the 1960 omnibus bill. In accordance with our understanding of the committee's desires, we propose to discuss first the new proposals, then those proposals which differ somewhat from similar proposals in the 1960 omnibus bill, and lastly, if you wish, those proposals which are the same as in the 1960 omnibus bill. Members of the Commission's staff present here will be prepared to discuss in more detail the various amendments contained in the proposed legislation.

Section 1: The proposed amendment would retrocede to the State of California the exclusive jurisdiction which the United States presently holds over certain portions of the Commission's Livermore site. Under its present exclusive jurisdiction, the Federal Government replaces the State at the Livermore site with respect to executive, legislative, and judicial powers.

The Livermore site consists principally of two tracts, one consisting of approximately 640 acres and the other consisting of approximately 50 acres. Custody to both tracts was obtained by the Commission from the Navy in 1950. The Navy purchased the 640-acre tract, acquiring title by deed dated March 24, 1942. The Navy condemned the 50-acre tract, acquiring title by declaration of taking filed October 15, 1942. Exclusive jurisdiction of both tracts was acquired by the Navy under the authority of 54 Stat. 1083, approved October 9, 1940, and former California Political Code, section 34. The acquisition of jurisdiction by the United States with respect to the 640-acre tract was effected by a letter of acceptance from the Secretary of the Navy to the Governor of California dated February 4, 1943, and was effected with respect to the 50-acre tract by a letter from the Secretary of the Navy to the Governor of California dated November 25, 1942.

The description of the land in the draft bill covers both of these tracts. The 50-acre tract comprises the Sandia portion of the Livermore site. There are certain other small tracts within the Livermore site which are already under State jurisdiction. These are not included in the draft bill.

Retrocession of jurisdiction to California would be advantageous to the Atomic Energy Commission for the following reasons:

(a) This retrocession will place the Livermore site in the identical jurisdictional status as the vast majority of the Commission's sites, including those at Los Alamos, Hanford, Oak Ridge, and Idaho Falls.

(b) State and local law-enforcement agencies would be available to maintain law and order, including the prevention of riots and other unlawful mob actions, and picketing involving violence. Contractor guards and, in certain areas, University of California guards, could be given peace officer status with power to make arrests as peace officers rather than as private citizens, thereby reducing the risk of an arrest being held unlawful and the risk of the guards being held personally liable for false arrest.

(c) State and local law-enforcement agencies would be available for the disposition of State and local law violations committed on the site of such as trespass, theft of private property, assault and battery, and traffic violations. Such cases now have to be tried before the U.S. commissioner or in the Federal courts. In addition, retrocession would obviate the need for FBI investigation and the U.S. attorney prosecution of these routine, and in most instances, misdemeanors and petty crimes.

Retrocession of jurisdiction to California would result in no material disadvantage to the Federal Government. Federal laws would apply to this area as they would to any area under normal State jurisdiction. The retrocession would in no way take away from the Federal Government its authority under the Constitution and Federal law over the lands to which the Federal Government has title. This retrocession will not in any way restrict the security authority of the Commission granted by the Atomic Energy Act. It is believed that California could not exercise any jurisdiction which would interfere with the use of the land by the Federal Government. The word "believe" was used because we cannot anticipate or give a guarantee that the State of California would not in some manner try to tax, perhaps, the property of a contractor, say Sandia, for example. However, in accordance with the usual procedures of the Commission, of which the Joint Committee is aware, we would oppose any taxation of our contractors on the sites.

Senator PASTORE. I quite agree with you that there may be some degree of speculation involved, but you do have an understanding on this whole retrocession.

Mr. INK. We would have, in order for it to come into effect.

Senator HICKENLOOPER. What does the act of retrocession provide? What is the verbiage?

Mr. INK. This retrocession would not take effect—

Senator HICKENLOOPER. You don't need all that is in the bill?

Mr. INK. The retrocession of jurisdiction shall take effect upon acceptance by the State of California.

Senator HICKENLOOPER. Where are the specific provisions in words that California could not exercise any jurisdiction?

Mr. INK. What I just read from was the last sentence in the proposed legislation. It follows the legal description of the land that is involved in the retrocession.

Senator HICKENLOOPER. What authority do you rely upon for saying it is believed that California would not exercise any jurisdiction which would interfere with the use of the land by the Federal Government? Is there any document that accompanies the statute? How does this go into effect? We pass a statute here and there must be some kind of acceptance or agreement by the State of California?

Mr. INK. Yes, sir; I will ask the Deputy General Counsel to answer that question further, Senator.

Senator HICKENLOOPER. Is there any act or collateral document of any kind that implements this statute and the acceptance of this statute by California which would verify this statement that California could not exercise any jurisdiction to interfere with the use of the land by the Government?

Mr. OULAHAN. Senator Hickenlooper, the State of California will have to enact legislation accepting the retrocession. So far as I know,

there would be no provision in that acceptance which would contain the exact words of the statement to which you have referred. We would rely on the traditional immunity of the Federal Government and it is to afford us the protection here, and this would be a matter eventually which we might or might not have to fight out in the courts as we have in connection with the attempts by other States to tax the Commission.

Senator PASTORE. In other words, the status would be the same as now exists in any post office area or any other federally owned property. You are relying on that?

Mr. OULAHAN. Yes, sir.

Senator PASTORE. There is nothing specific in here that gives you any additional guarantees?

Mr. OULAHAN. Yes, sir.

Senator PASTORE. You are merely bringing this under existing constitutional and statutory rights enjoyed by the Federal Government that there is no intercession on the part of State authority on Federal property.

Mr. INK. Yes, sir.

Senator PASTORE. That is about as far as it goes?

Mr. INK. We would face these problems in the same way, subject of course to the differences of State legislation, that we now face in the other installations where this step has been taken, such as Los Alamos.

Mr. RAMEY. Do you have any present tax problems with the State of California?

Mr. FLEMING. Mr. Ramey, we have a few isolated instances in California, with the city of Los Angeles, concerning taxes on gross receipts. We have no pending litigation.

Mr. RAMEY. How would this retrocession affect Livermore with regard to taxes?

Mr. INK. It is possible that some tax problems would develop as the result of retrocession which we do not now have. There is this possibility.

Senator PASTORE. Are you going to give us a little bit of a background of why we got into this sort of arrangement to begin with and why we are changing it back? For purposes of background on this legislation, why do we do it differently here than we have been doing it in Hanford and Los Alamos and Idaho?

Mr. INK. In several of these places we have made changes, such as we are doing here. We have approached them on a case-by-case basis as we felt the need arose. At Livermore we have concluded, although we have not yet had serious problems, there have been some difficulties and some more acute situations which we thought might develop in the future in which the reliance upon the authority of the private citizen to make arrests would create difficulties for us. It was our view that we ought to move here in case of Livermore to provide guards with the same kind of authority we have provided elsewhere.

Senator PASTORE. I understand that theory. I am looking at the other side of the coin. Why did we have such stringent exclusive jurisdiction on the part of the Federal Government in this particular instance that we are now retroceding to the State of California? Just for the purposes of the record, if the question should arise on the floor, I would like to take your statement why we are in this present situation now that we want to change? That is, short of anything

that involves security. You know enough about that to guard your statement.

Mr. INK. This property came from the Navy and I believe we inherited the kind of situation which existed when the Navy had this property.

Mr. RAMEY. This was an old naval air station. I happened to be on the committee that selected the site.

Mr. INK. This is the reason that it came about in the beginning because it was taken over from the Navy rather than initially as an AEC facility.

Senator PASTORE. You may proceed.

Senator HICKENLOOPER. May I ask one question, Mr. Chairman?

Senator PASTORE. Yes, of course.

Senator HICKENLOOPER. After this retrocession has gone through, if it goes through as contemplated in this bill and on any agreement by the State of California, suppose a question would come up about the disposal of radioactive waste material, and the Commission wanted to dispose of that material on the land involved here, and the California authorities said no, they will not permit that, "Our public health department won't permit you to do that because it is dangerous to the surrounding territory." Is it your contention that under the existing setup the Government would have the right to dispose of it despite the objections of the California health authorities?

Mr. INK. I will ask counsel to respond to that.

Senator HICKENLOOPER. I am assuming that this retrocession goes through as you outlined it.

Mr. OULAHAN. As you are aware, in section 274 of the act we carry out the congressional intent of trying to cooperate with the States so long as the Federal jurisdiction is not adversely affected and the implementation of the atomic energy program is not adversely affected. With respect to your specific question, I am sure that the Commission would cooperate with the State of California.

Senator HICKENLOOPER. I am not asking you that. What is the law? Could California step in and stop it?

Mr. OULAHAN. No, sir; I do not believe they could. I will give you a good example. At Hanford, for example, we have proprietary jurisdiction which would be similar to the jurisdiction which is proposed for Livermore. We store radioactive waste at Hanford, store them there, and hold the title as long as we can because we have to prevent those radioactive wastes from getting out. So we would take a similar position in this retrocession.

Senator PASTORE. What if a policeman of the local police department wanted to conduct an investigation inside the gate, could you keep him out?

Mr. INK. He would have access only to those areas that we permitted him to have access to. In other words, this does not affect the security provisions and precautions that we take and would continue to take within the plant area.

Senator PASTORE. Is that by agreement with the State of California, or is that by sovereign right of the Federal Government under the Constitution and the Federal statutes?

Mr. INK. That's another legal question I think I had better let counsel respond to.

Mr. OULAHAN. I think, Senator Pastore, it would be under our construction of the Federal Government's rights. Naturally, of

course, we would seek to cooperate with the local law enforcement agencies. As in the case of many of our other properties, we would set up some arrangement whereby we would have a system to bring in local law-enforcement people as the need arose with appropriate security clearance, so that we would hope this problem would not arise.

Senator PASTORE. This leads to the next question. Why do you have to retrocede at all?

Mr. INK. Again the problem which we are now confronted with is that the individuals, the site guards, which are provided by the Laboratory and the Sandia Corp. have only the authority of a private citizen for making arrests.

Senator PASTORE. Inside or outside?

Mr. INK. Inside. Mr. Oulahan, does that not also apply at the fence and the gate also?

Mr. OULAHAN. Yes.

Mr. INK. Some of the problems are in conjunction with entry of the site and not only after they are once inside. We cannot give the guards peace officer status. Of course, as you know, this places a risk of false arrest upon the individual that we would like to avoid.

Senator PASTORE. Have we yet been charged with false arrest?

Mr. INK. I do not believe that we have. I would say this, however, Senator, that on some occasions we have gone to considerable lengths to try to avoid and to minimize this situation which we thought might arise and in which we contemplated substantial difficulties.

Senator PASTORE. Have we had demonstrations there?

Mr. INK. We have. We thought at one time we might have substantially larger demonstrations than actually took place. Conceivably they could occur in the future.

Senatore PASTORE. If these demonstrations do arise, you think by compact and agreement with the State of California giving them the authority to supervise the police functions in the neighborhood or vicinity that you would be much better off?

Mr. INK. I think it is not so much supervision as it is their authority to arrest. They are given peace officer status and they are not arresting as a private citizen, as I would, for example.

Mr. RAMEY. These are contractor guards employed by the Livermore Laboratory?

Mr. INK. That's right.

Senator PASTORE. Their only way of arresting now is as a private citizen?

Mr. INK. Yes, sir.

Senator PASTORE. This would give them authority to arrest as a deputy sheriff?

Mr. INK. That's right, which is now the case in most of our other installations.

Senator PASTORE. Argonne, Oak Ridge, and so on?

Mr. INK. Yes, sir. As it now stands, even for fairly routine problems, apart from any kind of mob action, as for example, traffic violations, arrest is subject to the same uncertainties.

Senator PASTORE. Is this the principal reason why we proposed retroceding?

Mr. INK. Yes, sir; this is.

Mr. RAMEY. Will the Commission adopt a policy on handling these demonstrators? I recall a case back in the early fifties at Argonne where a newspaper and radio commentator climbed the fence and was caught and arrested under the State law as well as under the Federal law, and then the Commission went ahead and tried to indict him under Federal law rather than prosecute him under State law, and the grand jury refused to indict. So this fellow got off scot free.

Mr. OULAHAN. May I answer that, sir? In the recent events last year, to give you an example of how it would work, the four persons involved were arrested at the gate for violation of the criminal trespass statute in California. This was a Federal offense by virtue of the Federal assimilation of crimes statute.

Senator PASTORE. What were they doing? This is for the purpose of the record if the question should arise.

Mr. OULAHAN. They were attempting to enter our property, sir, without permission.

Senator PASTORE. Did they say why?

Mr. OULAHAN. Yes, sir. They were demonstrating against the Commission and the atomic energy program of the United States, particularly the weapons program. These people were arrested, taken before a U.S. commissioner, and they all pleaded guilty, so there was no necessity for the filing of an information or taking them before a grand jury. I would assume that this would be our policy in the other instances. To clarify this, sir, in that instance in the Sandia area, for example, the contract guards were all deputy sheriffs, but they could not exercise their authority as deputy sheriffs because of the exclusive Federal jurisdiction which existed at Sandia. Under the retrocession the fact that the guards were deputy sheriffs would permit them to exercise their arrest rights as peace officers rather than as private citizens.

Senator PASTORE. Are there any further questions? If not, you may proceed.

Mr. INK. The next section which involves a change is section 4 which begins on page 9.

Section 4: The proposed amendment to provide for the distribution of 3 kilograms of plutonium to the International Atomic Energy Agency was submitted as section 3 of the Commission's 1960 omnibus bill. However, that part of the proposed amendment for the distribution of 500 grams of U^{233} to the IAEA is new.

Pursuant to the restrictions in section 54 of the Atomic Energy Act of 1954, as amended, U^{233} and plutonium, falling within the category "special nuclear material," can be made available to the International Atomic Energy Agency only: (1) if such materials are furnished to the IAEA to match material made available by another member, prior to July 1, 1960, or (2) if such materials are furnished pursuant to a specific authorization by the Congress.

Since no other nation has contributed U^{233} or plutonium, the AEC is precluded from furnishing such material on a matching basis. In order to assist the IAEA's development as a distribution center for special nuclear material, the Commission seeks this "specific authorization" for the distribution of 500 grams of U^{233} and 3 kilograms of plutonium to the IAEA.

The plutonium to be distributed to IAEA is expected to be used primarily in the form of plutonium-beryllium neutron sources. Eight-

een of these sources (ordinarily containing 80 grams of Pu^{239}) have been furnished by the U.S. Atomic Energy Commission to its bilateral partners and requests for 12 more sources are pending.

Senator HICKENLOOPER. Is that word "for" or "from"?

Mr. INK. The word is "for." These are the neutron sources.

The sources requested have in most cases been for use in subcritical assemblies or for the startup of research reactors. Such requests indicate a continuing need which the IAEA should be in a position to meet. Several nations, Pakistan, Mexico, Finland, and Yugoslavia, which are member states of the IAEA have in recent months requested the AEC to furnish Pu-Be sources; this has not been possible, however, either because the United States did not have an agreement for cooperation with the requesting nation, or because the agreement for cooperation in force did not provide for transfer of plutonium. In each case, the AEC suggested that the member state discuss its needs with IAEA. In addition to filling requests for neutron sources, the 3 kilograms to be distributed to the IAEA might be used by the IAEA to provide research quantities of plutonium required by member states.

The U^{233} to be distributed to the IAEA is expected to be used principally for research in basic physics and chemistry. Pakistan, for example, has recently indicated a need for approximately 10 milligrams of U^{233} for use as a tracer in solvent extraction studies, and Finland needs 5-10 grams for separation of thorium 229. In view of the increasing number of countries, such as Pakistan, which are prepared to let their bilateral agreements with the United States lapse with the intention of looking to the IAEA to fulfill their future special nuclear material requirements and the developing requirements for research quantities of U^{233} , it is necessary that the agency be able to supply small quantities of this material to member states. Five hundred grams of U^{233} should be sufficient to meet the IAEA's needs for a reasonable period of time.

Senator HICKENLOOPER. The statement that it is necessary that the agency be able to supply small quantities of this material to member states, is that through the International Atomic Energy Agency or directly?

Mr. INK. This is through the agency.

Senator PASTORE. Would the agency act as a broker? Is the transfer made from us to the nations that receive it, or do we deposit it with the IAEA and IAEA distributes it? What Mr. Hickenlooper is raising is the question of control.

Mr. WELLS. Yes, sir.

Senator HICKENLOOPER. I am just raising the question why don't we supply direct and why go through the IAEA if in effect we are going to supply it direct? Why don't we supply it on a bilateral basis, rather than through the IAEA?

Mr. WELLS. In the first place may I say that the word "agency" here refers to the IAEA. It is necessary that the IAEA be able to do so. The reason we consider that so, Senator, is that it has been the policy of the U.S. Government for several years now to use the agency as a means of assisting other countries whenever the other countries find it possible to go to the agency for their assistance. The desire is to be able to bring the materials under a scheme of safeguards which would be administered by the international agency and thus

relieve the United States of having to do the safeguarding bilaterally. It is also desired to strengthen the international cooperation through the mechanism of a broadly based agency.

Senator HICKENLOOPER. Let me ask you this: It was one of our purposes when this agency was set up that it would be a cooperative operation, that other nations—Russia, for instance and some other nations—would contribute nuclear materials to the agency. Isn't that correct?

Mr. WELLS. Yes, sir.

Senator HICKENLOOPER. They are not contributing these materials to the agency and you now want to change the law so that we can go in unilaterally and contribute to the agency materials which we could otherwise contribute when there was a corresponding amount contributed by other nations, or a matching amount, according to the formula, isn't that right?

Mr. WELLS. Senator, actually no other nation has offered nearly as much material as the 5,000 kilograms of U^{231} which the United States has offered. Other nations have, however, offered some quantities. The United Kingdom has offered, I believe, 60 kilograms, and the Russians have offered approximately the same amount. To date the agency has not distributed very much material. I think the total of U^{235} which the agency has made commitments to distribute would be less than 12 kilograms. That is for two projects only, one in Finland and one in Yugoslavia. I think perhaps, Senator, it is too early to know whether or not, when the agency's needs become greater, other countries who are able to do so will contribute.

Senator HICKENLOOPER. There is a change in the approach?

Mr. WELLS. No, sir.

Senator HICKENLOOPER. This lets us contribute what we would otherwise not be able to contribute under existing law?

Mr. WELLS. That's right.

Senator HICKENLOOPER. Then why do we have to do that? Doesn't that defeat the purpose or one of the purposes of the agency that was intended to secure the cooperation physically so far as contributions are concerned of the other countries?

Mr. WELLS. I think the willingness of the United States to supply materials of the type that we had hitherto not offered to the agency is consistent with what was done in 1957 when we made our first offer of 5,000 kilograms of U^{235} . At that time no country had offered any materials and we deliberately wanted to set an example. We viewed the very small quantities of plutonium, the small quantities of U^{235} as another example of the United States showing its willingness to take the lead in supporting the agency.

Mr. INK. We are anxious to strengthen the agency. Some of the agency programs which we had hoped might develop of course have not materialized.

Senator HICKENLOOPER. What are you trying to do here that you can't already do?

Mr. WELLS. Of course we could go our bilateral route. The reason for this is to really try to strengthen the agency.

Senator HICKENLOOPER. It is only a unilateral strengthening. It is not strengthening by cooperation, is it?

Mr. INK. It may prove to be unilateral. We are hopeful, however, that this will not be the case and we are anxious to maintain an

activity and a strength within the IAEA until such time as we would hope that there is a true reciprocity. Certainly it is true at this point in time there is a certain unilateral aspect to some of our agency activities.

Senator HICKENLOOPER. Have any of the countries that are demanding this put any pressure on some of these other countries that are dragging their feet on contributions to get those countries to make contributions to the agency?

Mr. INK. I could not answer that. Can you, Mr. Wells?

Mr. WELLS. Yes, Senator, may I again stress that both the United Kingdom and the U.S.S.R., both—and those are the only two countries that I know of that are producing any substantial quantities of U^{235} —have offered to the agency materials in excess of what the agency has been able to use. Frequently both the United Kingdom and the U.S.S.R. have stated that they will offer more materials as the need may arise. In the case of the materials that we are talking about here; namely, plutonium and U^{233} , the United States is taking the leadership again. We thought that this was the thing that we ought to do as we did in the case of the U^{235} —to show our willingness to support the agency. I don't know whether the United Kingdom and the U.S.S.R. would come along and say they are likewise prepared to make quantities of plutonium and U^{235} available. These are very small quantities anyway. Certainly we are in a position to put moral pressure on them to do so after we have made the offer.

Senator HICKENLOOPER. Are there any conditions that these offers be contingent upon their cooperation? I have reference to these other countries.

Mr. WELLS. No, sir; there are no conditions on these offers that they be on a matching basis. As you may recall, sir, our original offer of 5,000 kilograms of U^{235} was not on a matching basis. It was provided that we would provide materials over and above the 5,000 kilograms if other countries matched. These quantities are frankly so small that I believe that if we should attach a matching basis to them that it would make us appear somewhat less than cooperative in our support of the agency.

Senator HICKENLOOPER. How about the other countries that don't give any? Doesn't it make them appear less cooperative?

Mr. WELLS. I think it does, Senator. I think the U.S.S.R. in some respects appears less than cooperative. But on the other hand, in many areas they have cooperated. Of course the entire exercise with the agency is to try over a period of years and patiently to see if there is an opportunity to build cooperation.

Senator PASTORE. This authorization concerns the distribution of 300 grams of U^{233} and 3 kilograms of plutonium to the agency. Is this amount the amount that is necessary to meet the requirements that you have spelled out here, or is this a gross amount that would be placed at the disposal of the agency to give to other nations as they make a request for it?

Mr. INK. This would be placed at the disposal of the agency, and is not restricted to these countries which I have enumerated here.

Senator PASTORE. Now as a practical proposition, once we pass this legislation which authorizes you to do this, is it the intention of the U.S. Government to offer this 500 grams and these 3 kilograms immediately to the agency and put it at its disposal?

Mr. WELLS. Yes, sir. We would let the agency know that it is available. I should hasten to point out that the material is not transferred. It is retained in the United States until it is actually needed.

Senator PASTORE. As a practical proposition then we retain it here?

Mr. WELLS. Yes, sir. That is specifically written into the agreement with the agency under which the materials would move.

Senator PASTORE. If the agency gets any further requests on the part of other countries, are we compelled at that moment to transfer anything that we may be requested to transfer by the agency or do we have any hold on the material as of that moment? Let us assume any other country—I was going to say Red China but they are not part of the agency—as to which we might be a little cautious in transferring this material, would we at that time have any hold or would we be precluded from any further restraint?

Mr. WELLS. We would be obliged under agreement to transfer the material, Senator, provided that the conditions of the agreement were met with respect to the safeguards and that kind of thing. In other words we would not be able to say, "we don't like the particular country that is making this application and therefore we won't transfer it."

Senator PASTORE. Is this 500 grams a large amount or a small amount, vis-a-vis our weapons concept? What chances of risk are involved here?

Mr. WELLS. I think that the chances are almost nil, Senator, for the reason that the quantities that individual nations are asking for would be very small.

Senator PASTORE. I am talking about the whole 500 and the 3 kilograms. The agency could give it all to one country, could it not?

Mr. WELLS. No, sir. I think that would be most unlikely that there would be a research project that would require all this material at one transfer. Otherwise it would be retained in this country.

Senator PASTORE. Would the agency pay for this?

Mr. WELLS. Yes, sir. Under the agreement we have with the agency the material could be either sold or leased.

Mr. INK. This follows the present pattern.

Senator PASTORE. The reason we are doing this through the agency rather than a bilateral arrangement is because for some time we have adopted the policy that we would rather put this whole safeguard and safety requirement under the agency rather than administer it ourselves; isn't that right?

Mr. WELLS. That's right.

Senator PASTORE. This is in line with American policy?

Mr. INK. It is in line with American policy both from the standpoint of safeguards and from the standpoint of encouraging the agency.

Senator PASTORE. If we got into anything beyond 500 grams, you would have to come back to Congress for further permission and authorization?

Mr. INK. Yes, sir.

Senator PASTORE. That is the 500 grams and the 3 kilograms?

Mr. INK. Yes, sir; these are ceilings placed by the Congress which we could not exceed. The next section, which is new, is section 14, and begins on page 19.

Section 14.

The Commission recently has received proposals from educational institutions requesting financial support for atomic energy exhibit and demonstration programs. Typical of these is a proposal from the California Museum of Science for \$350,000. Inquiries have been received from other institutions. A brief summary of the proposal from the California Museum of Science and Industry is attached to this as appendix I to this statement.

The Commission believes that exhibits of the type proposed would increase public understanding of atomic energy and heighten the interest of youth in science.

It has always been an important objective of the Commission to report to the public the facts essential for understanding Commission programs and the scientific and technical foundations thereof. Recognizing that exhibits are effective instruments for conveying information on complex technical subjects to lay audiences, the Commission approved early in 1956 the establishment of a traveling exhibits program. Today this program encompasses 26 exhibits units operated for the Commission by the Oak Ridge Institute of Nuclear Studies (ORINS).

In addition to the traveling exhibits, the Commission has two permanent exhibits for domestic viewing.

The American Museum of Atomic Energy at Oak Ridge, operated for the Commission by ORINS, offers a 12,000-square-foot exhibit of the history and peaceful uses of atomic energy which is open to the public without charge. During its 12 years of operation, the museum has been visited by U.S. citizens from every State and residents of 72 foreign countries.

Another long-term exhibit, but smaller, is at the Chicago Museum of Science and Industry. Since 1955, the Chicago museum has devoted 5,500 square feet of space to an atoms-for-peace exhibit composed of items and displays from the Geneva 1955 and 1958 technical exhibits.

Returning now to the proposed legislation, the Commission believes there is merit in encouraging the States to take an active role in providing educational exhibits on atomic energy. Therefore, the Commission, as a matter of policy, does not favor exhibit financial support of the type proposed unless equal opportunity is available to similar institutions in other States for comparable proposals. Rather than offer financial help to all institutions on a case-by-case basis without regard to location, the Commission believes that equity would be better served if assistance were offered directly to all the States on a matching funds basis.

The proposed bill would authorize the Commission to make grants to a State, which is defined to include any State, territory, or possession of the United States, the Canal Zone, Puerto Rico, and the District of Columbia, on a matching-fund basis, for the purpose of establishing an atomic energy exhibit in each State. To be eligible for such a grant, a proposal must be made by the Governor, or, in case of the District of Columbia, by the District Commissioners, and must be acceptable to the Commission. Further, the proposal must be received, but not necessarily acted upon by the Commission, between July 1, 1961, and June 30, 1966. The size of the grant is to be not less than \$50,000 or more than \$350,000.

Senator PASTORE. Could it be conceivably 51 times \$350,000?

Mr. INK. There might be that many proposals. However, this legislation places a total ceiling, as shown on the next page, of \$5 million.

The minimum amount of \$50,000 has been specified in order to eliminate requests for small or relatively inexpensive exhibits which the Commission believes each State should provide without Commission financial assistance. The maximum amount which the Commission may contribute will not limit the maximum amount that a State may expend in excess of the matching Commission funds. The Commission would propose to furnish to the State, in addition to the grant, such technical advice and other assistance as the Commission may deem necessary or desirable.

In addition, the draft bill provides that the proposal must set forth the general features of the proposed exhibit and the provisions for its operation and maintenance. Other pertinent information may be required by the Commission.

In this connection, the Commission will grant funds only for an exhibit which will be used to fulfill generally the Commission's informational and educational objectives. The Commission, in developing guidelines for the program, will give full recognition to the differing requirements of the States including the preferences of the States for either stationary or mobile type exhibits. The Commission's criteria will provide that the AEC's contribution may be expended for such items, among others, as designing, fabricating, installing, or purchasing of the atomic energy exhibit and associated equipment. In addition, the criteria will require the State to meet minimum Commission information and education objectives and minimum AEC guidelines for good exhibit practices. Further, the criteria will include provisions requiring continued operation and maintenance of the exhibit for a minimum period at no expense to the Commission.

The maximum cost to be incurred by the Commission by this grant program shall not exceed \$5 million over the 5-year period specified for the program. The Commission will budget for this program in each of the fiscal years involved based on qualified, valid proposals submitted to the Commission by the Governors of the States, which includes certification as to availability of the necessary State funds.

The draft legislation makes it clear that the grants made by the Commission under the authority of the bill may not be utilized for the acquisition, purchase, or lease of land or buildings, or for the operation or maintenance of the exhibit.

Senator PASTORE. What pressure has there been for this kind of a program?

Mr. INK. I would not say that there has been substantial pressure, Senator.

Senator PASTORE. I am using the word "pressure" in a very, very broad sense. What requests have been made?

Mr. INK. There has been interest which we have had in the past year or so. Mr. Brunenkant can probably answer that in more detail.

Mr. BRUNENKANT. Mr. Chairman, we have had at least two proposals from the State of California which if this legislation were enacted would be qualified.

Senator PASTORE. Who from California has made the requests?

Mr. BRUNENKANT. The San Diego Hall of Science and Industry and the Los Angeles Museum of Science and Industry. In addition

there was another proposal from the University of California that is slightly different and which might be entitled to aid under this legislation if enacted.

Senator PASTORE. You would only set up one in each State, wouldn't you?

Mr. INK. Yes, sir. That is one of the purposes of this legislation. The very thing which he is referring to made us feel as time passed, particularly if a grant were made in one State, that there would be interest in other States and we would be in the posture of having to distinguish or choose between various proposals that might come in from the State or from municipalities or from universities within that State. The principal purpose of this proposed legislation is to find some way of treating States on an equitable basis so that we deal really with one proposal from a State rather than the Federal Government trying to make a choice between political subdivisions within the State.

Senator PASTORE. I suppose we are a Government of States, but I think we are a Government of people more than we are a Government of States. You set up this exhibit in Los Angeles. What good is it going to do anybody in San Francisco who might be interested in attending an exhibit of this kind as against someone in Rhode Island where you don't have one but who could go to an exhibit in Boston. He would travel only 50 miles out of Rhode Island that doesn't have one. Yet you have one in California and the fellow in San Francisco might have to travel 450 miles to go to Los Angeles. What are we accomplishing? Don't we get into a concept here that leads us into a sort of an uneven situation? For example, you say you set up one in California and you set up one in Rhode Island, I don't know how many millions of people live in California, I know there are only about 900,000 that live in Rhode Island. We would like very much to have one. I am talking about the convenience of reaching people. We are trying to develop the interest of people in atomic science. I am wondering what kind of a program this is.

Mr. INK. Senator, we would certainly agree with your comment concerning the reaching of people. I should point out that although we would deal with one proposal from a State, a proposal from California might—I don't know what California would propose, but it is conceivable that the proposal might contemplate utilizing part of these funds in San Francisco and part of them in Los Angeles. It does not have to be one exhibit. But it does have to come in as one proposal because we feel that the people within a State should determine through their Governor the best way in which to utilize these funds rather than our making the choice within the State. It might be that, if a State should decide to add a considerable amount of matching funds, they might add considerably more than \$350,000 to the grant of the Federal Government.

Senator PASTORE. Now let me speculate a little further. If California had not written to you on this we would not have even thought of this legislation, would we?

Mr. INK. We probably would not have come forward if we had not had these expressions of interest.

Senator PASTORE. In other words, we are building up a whole national program because we have two requests out of California. Aren't we better off to stay with our former procedure of having a mobile

traveling exhibit that could deposit itself in the major cities at various times so that people who are interested in it could go and look at it? Aren't you better off with that kind of a program? Here we are. We started out by saying we are going to encourage this and then we put in a lot of limitations. We are saying we won't give you a dime for operation, we won't give you a nickel for buying a building, we won't give you 10 cents for acquiring the land, we are putting in all the things we won't do just to emphasize the little we are going to do. I don't know, sometimes we put our tongue in our cheek when we begin to make a proposal.

Mr. INK. What we are trying to do here is to get the most for our dollar and we want to direct these funds at the exhibit.

Senator PASTORE. But you are going to sell this whole program to the United States. The Congress of the United States is budget-conscious, as you well know. Here we are starting a whole national program that may cost \$5 million—you don't think you will ever spend it, except in a few large States that might be interested in some of these projects—just in order to meet the situation of these two establishments in California that are interested in this. We are getting ourselves into a 50-State plus the District of Columbia kind of a program which the Congress of the United States looks upon a little askance. I am all for training people in atomic energy and arousing the interest of the pupils in science; don't misunderstand me. I would rather do it in a more practical fashion, and in a way that might appeal to the Congress and might lead to some good results.

How anxious is the Commission about this program? Are they taking the cat off their back by throwing it into the lap of Congress. What is the story?

Mr. INK. This was a sincere proposal by the Commission. I would not suggest that we regard that as a high priority item or one which will meet an immediate crisis that is upon us. It was a sincere proposal by the Commission. The money would follow the usual budgeting route. This is merely authorization. We do not feel that we can within the law provide funds for this kind of purpose although we can for the traveling exhibits. The funding for the individual proposals, however, would come through the normal budgeting route.

Senator PASTORE. I realize that. Here again you would rather not do it on a case-by-case basis and maybe that might be the answer for the whole thing. If the people of California show an interest, certainly I would do nothing to discourage them. But why do we have to get into a 50-State program when only 1 State is perhaps interested in it? I think it would delay the program more than anything else. Maybe we ought to consider it on a case-by-case basis. If there is this immense interest in California, maybe some other program ought to be devised where the whole agreement might be spelled out. If we have to put up a little money on the part of the Federal Government in order to initiate this and to inspire the people in California, who might want to join on a partnership basis, that might be the better way of doing it. I understand from my staff member here that there is considerable interest in California in this. Yet in order to comply with that interest we are getting into a large program that might doom it to failure from the very beginning.

Mr. BRUNENKANT. Mr. Chairman, there have been other expressions of interest outside of the State of California. The two proposals

from California were mentioned because they were more formal expressions of interest.

Senator PASTORE. What other States?

Mr. BRUNENKANT. Nineteen museums scattered all over the country have expressed an interest in obtaining surplus components or complete exhibit units that are no longer used in the AEC traveling program; or have requested some form of assistance from the Commission. These requests have not been as formal as two from California in the sense that two of the California proposals were rather carefully drafted and were formally submitted to the Commission.

Senator PASTORE. The Federal Government's participation in this kind of program would be only a small fraction of the overall cost, would it not?

Mr. BRUNENKANT. That's right, sir.

Mr. INK. Yes, because the building and the maintenance would have to come from the States.

Senator PASTORE. That is the big cost?

Mr. INK. Yes. So that we do not feel that a State would come forward with a proposal unless it had a very strong interest and was willing to invest rather heavily itself, as you indicate, Senator. Certainly the Commission can go another route on a case-by-case basis. Our purpose here was to move ahead of possible pressures and set up a pattern which we thought would insure equity from one area to the other. That was really our purpose. We are not responding to a tremendous amount of pressure that has developed in California.

Senator PASTORE. The reason I raise the question is if you confine this to one grant to each State, some States are large and some States are small. This does not mean that the grants would be the same to each State.

Mr. INK. No, but it would have to be from \$50,000 to \$350,000. You could not go above that. That would be the maximum, although a large State might want to put in considerably more funds of its own than a smaller State.

Senator PASTORE. Do you want to add anything else to this?

Mr. INK. No, sir; I believe not.

Senator PASTORE. Section 15.

Mr. INK. Yes, sir.

An act to amend section 167 of the Atomic Energy Act of 1954, as amended, to permit settlement of claims for damages resulting from programs carried on by the Commission involving the detonation of nuclear explosive devices was informally discussed with the staffs of the JCAE and BOB during the latter part of 1959 and early part of 1960, and agreement was reached in principle.

Section 167 now authorizes the Commission, without a showing of fault on the part of the Government, to settle claims for \$5,000 or less against the United States for money damages resulting from the Commission's program for testing weapons. At the time section 167 was enacted, the only program carried on by the Commission which involved the detonation of nuclear or other explosive devices was weapons testing. Such weapons testing program was carried on either in the Pacific or at the Nevada Test Site, both relatively remote places. Under such circumstances the Commission's claims settlement authority under section 167 was then believed to be adequate.

The Commission now is carrying on two other programs which will at some point require the detonation of nuclear or other explosive devices (the Plowshare and the seismic improvement programs). It is possible that the Commission may undertake other programs of similar nature in the future. Further, for technical reasons, such programs may be carried on in areas that are less remote than those carried on in the weapons testing program. Therefore, claims for damages from such programs are more likely to result.

It is therefore believed desirable that the Commission's authority to settle claims under section 167 be expanded to cover these other programs. The amended section 167 will also provide the Commission's reporting to Congress, for its consideration, meritorious claims in excess of \$5,000, a provision similar to that contained in the claim settlement authority of the armed services and NASA. The experience of the armed services appears to be that the \$5,000 limitation presents no administrative difficulty. The Navy Department, for example, routinely recommends to Congress settlement of many claims in excess of \$5,000 and there are no known cases in which Congress has denied the claims recommended to it by the Navy.

Enactment of the proposed amendment would enable the Commission to settle small claims for damages resulting from the seismic improvement and plowshare programs, as it now can do in connection with the weapons testing program. The proposed reporting procedure would enable the Commission to recommend to Congress payment of claims which are in excess of this amount, with a reasonable assurance that Congress will carry out these recommendations. Such procedure should do much to meet the problems raised by industries which may suffer damage over \$5,000 as a result of the programs. For example, the potash mining industry near Carlsbad, N. Mex., claims that it would suffer damages amounting to millions of dollars in the event one of its mines were damaged by a proposed Plowshare shot.

It is not expected that this proposed legislation will satisfy the potash industry because the industry argues that, if potash mines are damaged, the damages will total millions of dollars.

Senator PASTORE. Isn't there a separate bill now pending in the Congress on this?

Mr. INK. Yes, sir; there is.

Senator PASTORE. What would be the limit on your recommendation? The sky would be the limit, wouldn't it?

Mr. INK. Any amount which we thought was reasonable.

Senator PASTORE. Let us assume that the amount reasonable would be \$10 million; could you make that recommendation?

Mr. INK. I see no reason why we could not.

Mr. OULAHAN. Sir, the armed services' experience, according to the information we have, has never exceeded claims of over \$300,000—\$200,000, and \$300,000 have been the maximum amounts.

Senator PASTORE. But they are not dealing with nuclear explosions.

Mr. OULAHAN. It is conceivable there would be no limit on this.

Senator PASTORE. You are getting into a very, very extraordinary science insofar as damage is concerned. Heaven forbid that you have an accident. I am wondering here whether or not you can put this in the same category as the others. The reason why you were given the \$5,000 leeway is because there might be a multitude of small claims. But now you are taking that ceiling right off. That is the

reason I asked you if the sky would not be the limit. You could have a hundred-million-dollar claim in which you could make a recommendation. Then you go on to say with a reasonable assurance that Congress would carry out these recommendations. What kind of an assurance are you talking about? Who could ever get that kind of assurance from the Congress of the United States?

Mr. OULAHAN. Senator, I can only refer you to the procedure which is used by the armed services which has certain built-in safeguards. First of all, you have a full investigation by the agency concerned, and a certification by the agency to the Bureau of the Budget that the claim in excess of \$5,000 appears to be meritorious. The Bureau of the Budget then consolidates all of the claims of all of the agencies of the Government into a special compensation bill which is then sent to Congress. Last year, for example, I understand there was a compensation bill for some \$20 million for all of the agencies of the Federal Government. That, to some extent, affords a safeguard for the thing you are worried about.

Senator PASTORE. Why do you need a law to receive that kind of authority? Couldn't you always recommend to the Bureau of the Budget that certain claims be adjusted and that a compensation bill be drawn up and it be sent to the Congress?

Mr. INK. We could.

Senator PASTORE. Why do you need any special authority for that? Here you are not asking for the right to settle. You are only asking for the right to recommend a settlement.

Mr. INK. Yes.

Senator PASTORE. Why can't you do that without law? I may be wrong about this.

Mr. INK. We could, but this provides a procedure which we feel would considerably facilitate our ability to do just what you are speaking of.

Senator PASTORE. In what way? I want you to explain that to me.

Mr. INK. We would then be able to follow the same procedure that the Defense Department does, which is well established, rather than going independently. We feel this would greatly facilitate our ability.

Senator PASTORE. This even removes the ceiling on any weapons testing. Let us assume that the President of the United States decides that we resume underground testing. In that event even claims in excess of \$5,000 would be included under this amendment of the law. Is this only on Plowshare and seismic testing or does it include weapons testing as well?

Mr. OULAHAN. The proposed amendment applies to weapons testing, the seismic improvement program and plowshare. With respect to each one of those three, the procedure for claims in excess of \$5,000 would be similar to that of the other agencies. The major benefit from this, sir, is to set up a regularized procedure whereby such claims could be processed through the BOB. Let me say, if Congress decided that a claim was excessive and that the evidence did not demonstrate that the claim should be paid, you are the gentlemen who vote the money and you can turn it down.

Senator PASTORE. That is the reason I am asking you these questions. That is the reason I raised the question on the sentence that you put on page 24 which says with a reasonable assurance that Congress will carry out these recommendations. I don't know what that

means. You tell me what that means. You say in one breath the final decision is up to Congress, but you want a reasonable assurance that we will see it your way. I don't see laws written that way that easily.

Mr. INK. I think this wording is not the best, Senator. We certainly cannot provide these people with assurance that Congress will act.

Senator PASTORE. In other words, what you are trying to say here is that we would hope that the Congress would have confidence in your competence.

Mr. INK. Yes. Furthermore, we think with this kind of procedure set up that we are better able to come to the Congress.

Senator PASTORE. Would you still have the right to make a settlement up to \$5,000 without consulting Congress?

Mr. INK. Yes, sir.

Senator PASTORE. You would have that?

Mr. INK. Yes, sir.

Senator PASTORE. You would have that in weapons, you would have that in seismic testing and you would have that in plowshare.

Mr. INK. Yes, sir.

Senator PASTORE. You would have that anyway.

Mr. INK. That is right.

Senator PASTORE. Above the figure of \$5,000, all you want is to set up certain procedures—correct me if I am wrong, because I am trying to make history on this—you would set up authority to set up certain procedures whereby these claims in excess of \$5,000 could be investigated by you, that they could be studied and analyzed and referred to the Budget Bureau with your recommendations, and they in turn would draft legislation that would be submitted to the Congress and that is about as far as it would go.

Mr. INK. That is correct.

Senator PASTORE. Without any obligation on the part of the U.S. Government to pay the claim without the action of the Congress.

Mr. INK. That is correct. The Congress would make the decision. The action of the executive would not prejudice the action of the legislature.

Senator PASTORE. The reason why this matter comes up is because now we are thinking in terms of plowshare and seismic which would not necessarily be conducted in the same place as a weapons test.

Mr. INK. That is correct.

Senator PASTORE. I think you have made your position clear. Insofar as the bill is concerned, there is no draft procedure set up at all, is there?

Mr. INK. No what?

Senator PASTORE. No draft procedure. The procedure is something that you will have to do later on.

Mr. INK. Yes, sir.

Senator PASTORE. This is merely the authority to do it.

Mr. INK. This is merely the authority, that is right.

Senator PASTORE. Section 16 is next.

Mr. INK. Maybe the regulatory people ought to speak to this section.

Mr. LOWENSTEIN. The proposed amendment to add a new section 190 to the Atomic Energy Act of 1954, as amended, was submitted

as section 15 of the Commission's 1960 omnibus bill. As submitted in the 1960 omnibus bill, the section would have included Commission accident report as well as licensee accident reports. However, during the JCAE "hearings" on May 17-18, 1960 concerning the 1960 omnibus bill, the JCAE requested and the Commission representatives agreed to drop the "Commission reports" portion from the bill.

The proposed new section 190 provides that no report of any licensee of any incident arising out of or in connection with a licensed activity, made pursuant to any requirement of the Commission, is to be admitted into evidence or used in any suit or action for damages growing out of any matter mentioned in such report.

In recommending the above legislation, the Commission believes that members of the public are entitled to reports of incidents which occur in licensed operations, since their health and safety may be involved. The Commission is under an obligation to investigate such incidents and to report to the public the facts relating to such incidents, together with its opinion as to the cause of the incident. By prohibiting the use of licensee accident reports in civil actions arising out of such accident, the public may be kept informed without prejudicing the licensee in suits arising out of such accidents and without permitting the reports to become a matter of controversy in civil litigation.

The practice of other agencies which receive accident reports in connection with their licensing functions is not uniform. For example, aircraft accident reports of the operators submitted to the CAB are submitted on forms provided by the Board and are available for public inspection, and are admissible in evidence. On the other hand, accident reports prepared by the CAB itself are not admissible in evidence. The ICC, which requires the submission of accident reports on interstate motor vehicle transportation accidents, does not make such reports available for public inspection except under specified circumstances after approval by the ICC. With respect to both motor carrier and railroad accident reports, there is specific legislation prohibiting the use of such reports in any tort litigation resulting from the accidents.

Mr. LOWENSTEIN. I would like to qualify that last sentence, if I may, Senator. The legislation which the CAB has provides immunity from use in civil litigation of agency reports. The ICC legislation provides immunity from use in civil litigation for both ICC and carrier reports.

Senator PASTORE. How far does this go? Does this go to the limitation of prohibiting an attorney, let us say, to introduce in evidence ex parte the whole report and submit that to the jury, or could that attorney use it for purposes of questioning witnesses?

Mr. LOWENSTEIN. Yes, sir. He could use it in anyway except introduction as evidence. He could use it to help him in preparing his case. He could not use it as evidence.

Mr. NEWMAN. I wonder whether the language in the proposed amendment is not too broad because you go beyond saying that the report can't be used as evidence. You say it can't be used for any other purpose.

Mr. LOWENSTEIN. Perhaps this should be clarified. The purpose here is to prevent use as evidence. It could be used by the attorney, we would contemplate, in questioning witnesses. Perhaps a further modification is necessary.

Senator PASTORE. Would you sit down with our staff member and get your language polished?

Mr. LOWENSTEIN. Yes, sir.

Senator PASTORE. Is there anything further on this? If not, the next one.

Mr. INK. The next one is section 18 which begins on page 28. This again refers to Euratom.

A proposed amendment to section 4(e) of the Euratom Cooperation Act of 1958 was submitted as section 15 of the Commission's 1960 omnibus bill. The present proposed amendment differs from that in the 1960 omnibus bill.

Subsection (e) of section 4 of the Euratom Cooperation Act states:

(e) The Commission shall obtain a royalty-free, nonexclusive, irrevocable license for governmental purposes to any patents on inventions or discoveries made or conceived by the manufacturer in the course of development or fabrication of fuel elements during the period covered by the Commission's guarantee.

It has been noted that the wording of subsection 4(e) of the act may oblige the Commission to obtain a license to use any patent on inventions or discoveries conceived by the fuel fabricator during the period of the Commission's guarantee even though the invention related to fuel elements is not covered by the Commission's guarantee. This language, which has been severely criticized by industry, permits a broader interpretation than we believe was intended by the Congress. Accordingly, the proposed amendment will relate the patent rights to be received by the Government to the particular fuel elements covered by the AEC guarantee. Limiting Commission license rights to fuel elements covered by our guarantees is believed to be reasonable and would be beneficial to the Euratom program in that it should encourage more companies to participate.

Senator PASTORE. What is the construction they are placing on it now?

Mr. INK. I will ask Mr. Anderson to respond to that.

Mr. ANDERSON. The present language?

Senator PASTORE. Yes.

Mr. ANDERSON. It would cover the period of the guarantee as presently written.

Senator PASTORE. In other words, any manufacturer who produces a fuel element will be subject to granting these licenses for patents to the Government now merely because there is a law that provides a guarantee.

Mr. ANDERSON. He would not. As presently written, he would not.

Senator PASTORE. You tell me, Mr. Anderson, for the purposes of the record what are we up against, and what are we trying to do.

Mr. ANDERSON. The proposal of the Commission is to cover the invention and the improvements in the inventions—let me qualify this and start all over again. The present act covers any inventions in any fuel elements during the period of the guarantee.

Senator PASTORE. What does that mean?

Mr. ANDERSON. That means that we have a guarantee covering a particular type of fuel element. The intent of the committee, we gather, was to cover any improvements in that fuel element that was guaranteed.

Senator PASTORE. By contract?

Mr. ANDERSON. By contract during the period of the guarantee.

Senator PASTORE. You think that the law as written now might cover a guarantee even where you have not negotiated a contract with a manufacturer?

Mr. ANDERSON. It would cover fuel elements other than the one that is under the guarantee. It may cover any, and as so interpreted is deemed too broad. We recommended in 1960 and 1959 a change which would limit it to the inventions that pertain to that particular fuel element that is under the guarantee. The present proposal attempts to do that. I think last year, however, it was pointed out that isn't it true that the inventions that may be made will be made during the period of the contract for the fabrication of the fuel elements that are to be guaranteed. Subsequent to the hearings last year we consulted with the staff of the Joint Committee and worked out provisions which, as our testimony says—

Mr. INK. His point now goes on to the next paragraph.

Mr. ANDERSON. That not only should cover the period of the guarantee but we should cover the period—preguarantee period, that is—during the contract for the fabrication of the fuel elements which are to be guaranteed. To make it specific, let us say that you have a contract for fuel elements negotiated January 1, 1959. The guarantee does not start in until July 1, 1962. The 1960 bill as proposed by the Commission would only cover the period starting July 1, 1962. This was of concern to the staff of the Joint Committee last year, and they wanted to cover the period from January 1, 1959, to July 1, 1962, when the invention would be apt to be made.

The language as expressed in section 18 attempts to cover both the period of contract as well as the period of the guarantee.

Senator PASTORE. So we are sewing it up on both ends.

Mr. ANDERSON. Yes, sir.

Mr. INK. We agreed with this thinking that if the period of probable invention were to be covered, it should be effective as of the date of the execution of the fabrication contract, rather than waiting until the guarantee contract.

Mr. Anderson has covered the next two paragraphs.

Senator PASTORE. In other words, this is even to the benefit of the Government; not only do we exclude, which the context here is that we never intended to include, fuel elements to which the guarantee itself did not apply, but now we even have the coverage where the guarantee is not applied, but the contract for the construction of that particular element is in effect and it covers that period, too, which is now excluded under existing law. Is that correct?

Mr. ANDERSON. That is correct. I would correct that in this respect; that was a suggestion and such a provision is set forth in present section 18. It was not the original proposal of the Commission but has been expressed in the present bill, S. 2117.

Senator PASTORE. Is there any objection here on the part of the industry with regard to that? Has the industry been consulted?

Mr. ANDERSON. The industry felt initially so far as our records disclose, as we said before, that it was too broad as first written. We recognized, as we set forth in our testimony, that industry may well object to the fact that we are covering the period of the contract. We have consulted certain representatives of the industry and they have expressed this concern. However, I think they feel that this is a matter for the Congress to determine. As to whether or not it

would materially affect our program would depend on those who are administering it as to whether they feel they could get industry to go into the program with this kind of modification.

Senator PASTORE. Are there any members of industry here to testify for or against this amendment?

Mr. INK. As I indicated we agreed that these discoveries will come into being probably to a large extent before the effective date of the guarantees.

Senator PASTORE. The only reason why I raise the question is because here we are bringing in a new element that may be very desirable—I am not questioning that at all—I merely question the fact whether or not industry was consulted, how they feel about it, and whether or not they wanted to be heard on it. There has been a public notice of this hearing.

Mr. INK. I wonder if Dr. Vander Weyden might comment on this.

Dr. VANDER WEYDEN. Senator, you remember historically when we talked about this guarantee of the fuel, the question was raised by the Congress of what does the Government get out of it. What the Government gets out of it is the research and development information and the patent rights on what we guarantee. The actual fact is that it is most likely that the inventions, if there are inventions, would be made during the contract period before we give the guarantee. So looking at it from the Government standpoint this is where we are most likely to get benefit out of the money we may have to put in.

Senator PASTORE. Yes, but at the time they give the guarantee they could include that in the instrument of guarantee, couldn't they, that they would want an exclusive right on all the inventions, made from the time of the contract? You would not have to get a modification of the law here that might be obnoxious. You could give yourself certain discretion to protect the American Government. You are not compelled to give the guarantee. The Government gives that. The Government is not compelled to give the guarantee without condition. It can say we will give the guarantee but we want a right to these patents that have developed from the time that the contract was instituted. You could always protect the Government on that. Industry could raise that argument. I only bring it up as a matter of argument. That is all.

Mr. ANDERSON. I think it would be very difficult for the Commission to seek to cover the period of the contract in the guarantee arrangement.

Senator PASTORE. You think so? You raise that question as a legal proposition?

Mr. ANDERSON. I think as a general practical proposition, aside from the legal proposition. Unless we have the authority expressed in this act, I don't believe that we would be able to negotiate guarantees where we go back into the period covered by the contract for the manufacture of that fuel element.

Senator PASTORE. Therefore, they would have to manufacture the fuel element without the Government guarantee. That is the chance they take. It all depends which is more important for them. After all, the guarantee is not for the benefit of the Government. It is for the benefit of the manufacturer, is it not? It all depends on how badly you want it. Am I right or wrong on that?

Mr. INK. Yes, sir.

Senator PASTORE. I don't want to do anything to tie the hands of industry here in exploring and developing this art. I think we have been, sometimes—maybe my colleagues disagree with me—we have been overly cautious. We have to take into consideration here that there is an element of speculation and gamble even on the part of the manufacturers. That is the reason why we got into a guarantee, in order to encourage the art. You cannot unshackle their hands by one method and then shackle them by another. I don't want to do anything to shackle the hands of industry in order to develop this art to its optimum. We have been too slow thus far anyway. That is the only reason I raise the question. If the question develops on the floor, I wanted the record abundantly to show at least we were conscious of that today, and let the chips fall where they may. If this turns out to be impractical, if this turns out to be unfair, I think the matter ought to be reviewed and reopened.

Mr. ANDERSON. I think this was one of the suggestions to cover the period of the contract made by the Joint Committee staff. As we said before, we worked with the Joint Committee staff to prepare language which would cover this.

Mr. NEWMAN. Do you say the Commission agrees with the committee staff? Have they or have they not expressed a position on this?

Mr. ANDERSON. We agree if you are going to cover the period of contract this is the way to do it.

Senator PASTORE. But you are not recommending that the period of the contract be covered. Are you or aren't you?

Mr. INK. We agree that this is the period in which inventions or discoveries will normally come into being. We agree with the reasoning here.

Senator PASTORE. In other words, we are agreed here that unless you include the contract period we are actually insuring the Government against nothing of any substantial importance, because any inventions that do develop usually develop during the contract period before the guarantee takes place.

Mr. INK. Usually; not necessarily.

Dr. VANDER WEYDEN. I think the point should be made that this does not go to background rights. It is not the intent of this language to go to background rights.

Senator PASTORE. Only for the time of the contract.

Dr. VANDER WEYDEN. Yes, sir.

Senator PASTORE. I think that clears it up pretty well.

Mr. INK. Section 19 is a new provision on page 30.

The proposed amendment to section 5 of the Euratom Cooperation Act of 1958, after clearance by the Bureau of the Budget, was submitted by the AEC to the 86th Congress on June 10, 1960.

Section 5 of the Euratom Cooperation Act of 1958 now authorizes the Commission to transfer 1 kilogram of plutonium under the U.S.-Euratom Agreement for Cooperation. No provision is made for the transfer of uranium 233. The proposed amendment to section 5 authorizes the Commission to transfer 8 additional kilograms of plutonium and 30 kilograms of uranium 233. Some of these materials, together with part of the 30,000 kilograms of uranium 235 now included in section 5, but no longer needed in the joint program, would be provided Euratom under the U.S.-Euratom additional agreement which came into effect on July 25, 1960, rather than under the present

joint program agreement. Therefore, the proposed amendment to section 5 also adds the words "or agreements" in order that the additional agreement, as well as the joint program agreement are contained within the scope of the Euratom Cooperation Act.

The act now reads in the singular. It is now made in a plural sense "or agreements."

Euratom has underway a research and development program which will require relatively substantial quantities of plutonium over the next 4 years. The most pressing and immediate need is for about 8.3 kilograms of plutonium for two multimillion-dollar plutonium recycling research projects which are planned to be initiated in the Community under the U.S. Euratom joint research and development program. Work in this area is specifically provided for under article II of the joint program agreement. The two projects are of considerable interest to U.S. investigators in this field, and they have already been approved by the Joint Research and Development Board. Euratom also requires approximately 700 grams of plutonium for uses outside the joint program, including early bench scalework related to the development of fast breeder reactors and miscellaneous basic research projects.

Senator PASTORE. Do I understand this correctly, Mr. Wells, that if we were asked to give this to the Euratom Community for purposes of a reactor that there is permission in the law to do so?

Mr. WELLS. Yes, sir.

Senator PASTORE. But if we have to give it to Euratom for purposes of research and development, the law is not clear on that point and there is a serious question whether or not we have the authority to give it. Am I right in this or do I simplify it too much? I like to simplify these things for the record as much as possible.

Mr. WELLS. I think it is substantially correct, Senator, with perhaps a minor modification.

Senator PASTORE. You make the minor modification so that the record will be complete.

Mr. WELLS. Under the existing agreement with Euratom, the 30,000 kilograms can be used in power reactors under the joint program. A thousand kilograms can be used for research and development of the joint Euratom-U.S. program. But what is needed is some material other than the U^{235} to be used for the joint power program; namely, the plutonium in excess of 1 kilogram. In addition some materials are needed for use outside of the joint research and development program.

Mr. BAUSER. Do you have any examples, Mr. Wells, on what you intend to use of that U^{235} for other programs?

Mr. WELLS. Yes; we do. These examples are covered in the agreement for cooperation which was before Congress last summer, and which is now in effect but requires this authorization before the transfer of materials can be made. I have the agreement in front of me. If you wish, Senator, I will read these uses for the record:

The United States will sell or lease as the parties may agree to the Community for use in an organic-moderated reactor experiment, an organic-cooled heavy-water moderated reactor experiment, and an experimental plant for the chemical processing or fabrication of special nuclear materials.

In these specific programs, we might transfer up to 140 kilograms of U^{235} contained in uranium and then in irradiated fuel element out of the Elk River

plant there would be contained 30 kilograms of U^{233} and 200 kilograms of U^{235} . That would bring us up to the total of 340 kilograms covered by this agreement. Those are uses outside of what we have called the joint reactor program.

Senator PASTORE. Mr. Wells, on the bottom of page 31 you speak of the Italian National Committee for Nuclear Research plans to start up an experimental plant for reprocessing irradiated uranium-thorium fuel elements during the first half of 1964. This project has received the endorsement of the AEC Division of Reactor Development. But it has stated that it will not be able to initiate construction of this project on schedule unless it can be assured that the Commission is willing to transfer the needed materials, including 30 kilograms of uranium 233 and fuel elements from the U.S. Elk River reactor when they are available. If Italy through Euratom were building a power reactor and needed this kind of fuel, could they get this kind of authorization without law? There is existing law. If Italy required this for power reactors, it could have it under existing law without any further amendment.

Mr. WELLS. The U^{233} , Senator, is not provided for in the existing authorization. The U^{235} it could have, but not the U^{233} .

Senator PASTORE. Therefore, this is a new material that we are talking about.

Mr. WELLS. That is right, sir.

Senator PASTORE. This is an authorization in order to provide this new material for research purposes.

Mr. WELLS. That is correct.

Senator PASTORE. Is that correct?

Mr. WELLS. That is right.

Senator PASTORE. That new material is 30 kilograms of uranium 233?

Mr. WELLS. Yes, sir.

Senator PASTORE. Does this go beyond that? From now on could you transfer without further permission, let us say, 100 kilograms of uranium 233 to the Euratom Community?

Mr. WELLS. No, sir. The authorization is limited to the 30 kilograms spelled out in the bill.

Senator PASTORE. There is a cooperative effort insofar as the exchange of information is concerned with the Italian Government.

Mr. WELLS. Yes, sir. It is one, I might say, that the Commission is deeply interested in because it is one of the first times that we have been able simply by supplying materials to find a project which complements our own work and from which we will get the results without any expenditure of funds.

Senator PASTORE. This will be a direct grant to the Italian Government of 30 kilograms?

Mr. WELLS. No, sir. The material will be sold.

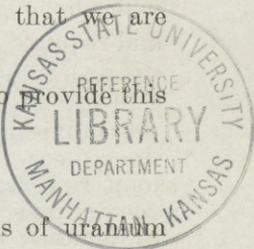
Senator PASTORE. They will pay for it?

Mr. WELLS. Yes, sir. Under the applicable arrangement it can be sold or leased. As of now, it is only contemplated that it would be sold.

Senator PASTORE. Whether they lease it or whether they buy it we get consideration for the transfer.

Mr. WELLS. Yes, sir.

Mr. INK. That is true of all of these materials on the lease or sale arrangement as authorized by Congress.



Senator PASTORE. Doesn't that complete all the new and modified amendments?

Mr. INK. Yes, sir, it does, Senator.

Senator PASTORE. Let us get to section 20. Let us review that one, too. I understand that the record is not complete on that.

Mr. INK. Section 20. The proposed amendment of section 7 of the Euratom Cooperation Act of 1958 would exempt U.S. research and development contracts from the requirement of disclaimer or indemnity arrangements in favor of the U.S. Government. The proposed amendment was submitted as section 18 of the Commission's 1960 omnibus bill.

This amendment eliminates the requirement for the United States to secure disclaimer or indemnity agreements from its contractors under the joint research and development program of the Euratom Cooperation Act.

Section 7 of the Euratom Cooperation Act of 1958 provides that the United States—

shall not be liable for any damages or third party liability arising out of or resulting from the joint program—

and requires that the U.S. Government—

take such steps as may be necessary, including appropriate disclaimer or indemnity arrangements, in order to carry out—

this provision. This language requires the Atomic Energy Commission to secure indemnity agreements from its contractors under the joint research and development program. This is contrary to the general policy normally followed by the Atomic Energy Commission in domestic research and development contracts under which either there is no indemnity agreement or the Commission indemnifies the contractor. No necessity for this reversal of policy in the joint program is perceived, nor is it believed that Congress intended this result which stems from the broad language of section 7. It is probable that the requirement for inclusion of such indemnities in favor of the Government would impede acceptances by prospective U.S. contractors of tasks under the Euratom research and development program. The proposed amendment would remedy this situation by exempting Commission research and development contracts from the requirements of section 7.

The Bureau of the Budget has advised that there is no objection to the presentation of this statement from the standpoint of the administration's program.

Senator PASTORE. Are we saying as a matter of fact there is no liability on the part of the U.S. Government to begin with, so why ask for the indemnification? Is that correct, Mr. Wells?

Mr. WELLS. That is substantially correct, sir. What we are asking for here is to put ourselves in a position with our domestic research contractors which is the same, whether the research is under the Euratom program or not.

Senator PASTORE. Even so, do you see any liability on the part of the U.S. Government merely because it is a party to the Euratom Agreement?

Mr. WELLS. I do not, no, sir.

Senator PASTORE. In other words, if Euratom decides to go to General Electric and negotiate for certain manufacturing of fuel

elements or the building of a reactor, there is no liability on the part of the U.S. Government, if anything goes wrong with that machine, is there?

Mr. WELLS. No, sir.

Senator PASTORE. Yet under the existing law we are required or we require of that manufacturer to get an agreement for indemnification of the U.S. Government in case anything happens; is that correct?

Mr. WELLS. Senator, the case you mention where Euratom might go to one of the domestic concerns, say General Electric, to learn some technical know-how from them and put it in the reactor, and then be able to hold the United States liable, is a matter which has been discussed from time to time theoretically in legal seminars. But I do not believe, and I don't think there is any legal basis for feeling that that kind of liability exists. It is very tenuous.

Senator PASTORE. Isn't that what the present law is protecting the U.S. Government against?

Mr. WELLS. I don't believe it was, sir. I don't believe that was the intention of the present law. As we testified on this last year in the discussion before the Joint Committee, the thrust of this law was to get indemnity from Euratom research contractors. It was the intention that the U.S. Government should not be held liable for the reactors built in Western Europe, so this was a broad inclusive provision.

Representative VAN ZANDT. That is the present language?

Mr. WELLS. Yes, sir, that is the present language. As we testified last year, out of an abundance of caution we felt that this was broad enough to cover our own contractors and we felt that Congress never intended to do that. So we are asking for this clarifying legislation. I don't think it can be said that the reason the Congress enacted this particular provision in the first place was to take care of this, what I would term a rather tenuous basis for liability in the kind of example you cited, Senator.

Mr. INK. So this takes out or makes clear that it takes out from under the coverage of this section our contractors in the research and development program.

Senator PASTORE. This language requires the Atomic Energy Commission to secure indemnity agreements from its contractors under the joint research and development program. You mean with Euratom?

Mr. WELLS. Let me explain that, Senator. When we say the joint research and development program, we mean that Euratom has decided with our concurrence to have certain research done in Europe for which Euratom pays. The United States on the other hand has likewise decided, with the concurrence of Euratom, that it will do some complementary work in the United States, paid for by the Commission through a direct contract. It is the latter contracts that we are talking about.

Representative VAN ZANDT. They will be covered.

Mr. WELLS. The latter contracts in the language that we are proposing for amendment, it would relieve us from having to get an indemnity from General Electric, let us say, if they were doing that kind of research work. We don't do it in any case in all of the millions of dollars we spend for research and development contracts. We

have never required the contractor to indemnify us. As a matter of fact, as you gentlemen readily see, they would not do it. They would be more inclined to ask us to indemnify them. What we are trying to do here is to get ourselves relieved from the possible interpretation of this provision that would require us to ask the American contractor to indemnify the Commission for any damage that might be sustained as the result of his carrying out the contract.

Senator PASTORE. You mean in this country?

Mr. WELLS. In this country.

Mr. INK. Yes, sir. This contractor then would be in the same position in doing this work that he now is doing work for another part of the Commission program, say in our domestic reactor program. The same situation would then apply.

Senator PASTORE. What is the theory behind that, Mr. Wells? The reason why we are not asking for indemnity is because we, a government, would not be responsible anyway for any negligence on the part of GE in that particular case?

Mr. WELLS. Senator, may I answer it in two parts? Let us assume that Euratom was not involved in this at all, and there was not any Euratom existing, and the Commission goes to a domestic concern and says we would like to have research and development done. When we do that, we are in the position of asking someone to do something for us.

Senator PASTORE. Under a private contract.

Mr. WELLS. Under a private contract. The normal proposition would be for them to say very well, we will do this, but you must indemnify us against any loss. When you introduce the Euratom factor into this, it seems to us that it does not really alter that for the reason I mentioned before. This is work which is done here. It is basic technology. To find the possibility that if the contractor is negligent in doing research work and if the data were incorporated in some machine in Western Europe and that machine should cause damage to some third party, that then Euratom would have a cause of action against the U.S. Government seems to me to be beyond the realm of probability. You do not do business that way.

Senator PASTORE. You are talking about legal possibility.

Mr. WELLS. That is right. You don't do business that way.

Senator PASTORE. That is the point I am trying to establish. In other words, we are protecting ourselves against liability that does not exist.

Mr. WELLS. That is right. The important point, it seems to me, Senator, is that I don't believe any of us, either the Congress or the Commission, intended to try to protect against that. I think that this language that is presently in the act was directed at another problem entirely.

Senator PASTORE. Very well. This will conclude the AEC testimony on the omnibus bill. The hearings which were scheduled for this afternoon will not be necessary, and are therefore canceled.

We are meeting again on Thursday to receive testimony from public witnesses on S. 1144 and H.R. 5215. These bills are related to liability for underground nuclear detonation.

Representative VAN ZANDT. May I ask one question? What success have the European countries had as the result of the convention that was scheduled last year or this year concerning this indemnity question?

Mr. WELLS. I wonder if I might not ask Mr. English to report on that. He has taken part in some of these conferences.

Mr. ENGLISH. Mr. Van Zandt, if you are asking in terms of success, whether or not a convention has been ratified and become effective concerning third party liability of operators of land based nuclear installations, the answer is no. But a convention has been developed and has been signed by, I think, 16 of the 17 OEEC countries and is presently being considered by those countries or most of those countries for presentation to their respective parliaments for ratification.

Representative VAN ZANDT. Then the answer is that they are making progress.

Mr. WELLS. They are making very good progress.

(The full statement of the Atomic Energy Commission, referred to on p. 24, follows:)

ATOMIC ENERGY COMMISSION'S TESTIMONY ON OMNIBUS BILL OF 1961 (S. 2117 AND H.R. 7798), JUNE 27, 1961

Mr. Chairman and members of the committee, the Commission has been requested to discuss S. 2117 and H.R. 7798 which would amend the Atomic Energy Act of 1954, as amended, in several particulars. These amendments have been proposed by the Commission in the belief that these amendments will aid the Commission in carrying out its functions, and at the same time keep the 1954 Atomic Energy Act current with the ever-changing developments within the atomic energy program.

I would like, with your permission, to review briefly section by section the proposals which we are asking you to consider today. Except as noted below, the proposals were the subject of our testimony before you on May 17 and 18, 1960, in connection with S. 3461 and H.R. 11979, sometimes referred to herein as the 1960 omnibus bill. The proposals in sections 1, 14, 15 and 19 are new; the proposals in sections 4, 16 and 18 differ somewhat from similar proposals in the 1960 omnibus bill. In accordance with our understanding of the committee's desires, we propose to discuss first the new proposals, then those proposals which differ somewhat from similar proposals in the 1960 omnibus bill and lastly, if you wish, those proposals which are the same as in the 1960 omnibus bill. Members of the Commission's staff present here will be prepared to discuss in more detail the various amendments contained in the proposed legislation.

SECTION I

The proposed amendment would retrocede to the State of California the exclusive jurisdiction which the United States presently holds over certain portions of the Commission's Livermore site. Under its present exclusive jurisdiction, the Federal Government replaces the State at the Livermore site with respect to executive, legislative, and judicial powers.

The Livermore site consists principally of two tracts, one consisting of approximately 640 acres and the other consisting of approximately 50 acres. Custody to both tracts was obtained by the Commission from the Navy in 1950. The Navy purchased the 640-acre tract, acquiring title by deed dated March 24, 1942. The Navy condemned the 50-acre tract, acquiring title by a declaration of taking filed October 15, 1942. Exclusive jurisdiction of both tracts was acquired by the Navy under the authority of 54 Stat. 1083, approved October 9, 1940, and former California Political Code section 34. The acquisition of jurisdiction by the United States with respect to the 640-acre tract was effected by a letter of acceptance from the Secretary of the Navy to the Governor of California, dated February 4, 1943, and was effected with respect to the 50-acre tract by a letter from the Secretary of the Navy to the Governor of California dated November 25, 1942.

The description of the land in the draft bill covers both of these tracts. The 50-acre tract comprises the Sandia portion of the Livermore site. There are certain other small tracts within the Livermore site which are already under State jurisdiction. These are not included in the draft bill.

Retrocession of jurisdiction to California would be advantageous to the Atomic Energy Commission for the following reasons:

(a) This retrocession will place the Livermore site in the identical jurisdictional status as the vast majority of the Commission's sites, including those at Los Alamos, Hanford, Oak Ridge, and Idaho Falls.

(b) State and local law enforcement agencies would be available to maintain law and order, including the prevention of riots and other unlawful mob actions, and picketing involving violence. Contractor guards and, in certain areas, University of California guards, could be given peace officer status with power to make arrests as peace officers rather than as private citizens, thereby reducing the risk of an arrest being held unlawful and the risk of guards being held personally liable for false arrest.

(c) State and local law enforcement agencies would be available for the disposition of State and local law violations committed on the site such as trespass, theft of private property, assault and battery, and traffic violations. Such cases now have to be tried before the U.S. Commission or in the Federal courts. In addition, retrocession would obviate the need for FBI investigation and U.S. attorney prosecution of these routine, and in most instances, misdemeanors and petty crimes.

Retrocession of jurisdiction to California would result in no material disadvantage to the Federal Government. Federal laws would apply to this area as they would to any area under normal State jurisdiction. The retrocession would in no way take away from the Federal Government its authority under the Constitution and Federal law over the lands to which the Federal Government has title. This retrocession will not in any way restrict the security authority of the Commission granted by the Atomic Energy Act. It is believed that California could not exercise any jurisdiction which would interfere with the use of the land by the Federal Government.

SECTION 2

The proposed amendment would eliminate a technical inconsistency between section 11b and section 91c of the Atomic Energy Act of 1954, as amended. The proposed amendment was submitted as section 1 of the Commission's 1960 omnibus bill.

Section 91c of the Atomic Energy Act of 1954, as amended, authorizes "the Commission or the Department of Defense, with the assistance of the other" to enter into certain bilateral agreements "with another nation." However, section 11b defines "agreement for cooperation" as "any agreement with another nation or regional defense organization, authorized or permitted by sections 54, 57, 64, 82, 103, 104, or 144, and made pursuant to section 123." This definition does not mention section 91c although section 123 does include cooperative agreements made pursuant to section 91. The proposed amendment eliminates the technical inconsistency by adding 91c to section 11b.

SECTION 3

The proposed amendment to subsection 11u of the Atomic Energy Act of 1954, as amended, is designed to exclude from Commission indemnity coverage any liability for damage to property which is at the site of and used in connection with the licensed activity. Such property is herein referred to as onsite property. The proposed amendment was submitted as section 2 of the Commission's 1960 omnibus bill.

By letter dated April 8, 1959, and again in a letter dated April 15, 1960, the Commission recommended to the Congress the adoption of an amendment to the indemnity provisions of the 1954 act to eliminate coverage of liability for damage to property, which is at the site of, and used in connection with, the licensed activity. The proposed amendment would affect indemnity agreements which the Commission enters into with licensees, but would not affect indemnity agreements between the Commission and its contractors. The present text of the Price-Anderson Act seems clearly to require that the Commission's indemnity coverage include indemnity against any legal liability arising out of a nuclear incident, including liability for damage to onsite property. The relevant provision of the Price-Anderson Act is section 11u of the Atomic Energy Act of 1954, as amended. This subsection provides that—

"u. The term 'public liability' means any legal liability arising out of or resulting from a nuclear incident, except claims under State or Federal Workmen's Compensation Acts of employees of persons indemnified who are employed at the site of and in connection with the activity where the nuclear incident occurs, and except for claims arising out of an act of war. 'Public liability' also includes damage to property of persons indemnified: *Provided*, That such property is covered

under the terms of the financial protection required, except property which is located at the site of and used in connection with the activity where the nuclear incident occurs.”

The first sentence clearly covers any legal liability arising out of a nuclear incident except for claims under workmen's compensation acts of onsite employees, and claims arising out of an act of war. There is no exception for claims for damage to onsite property. In other words, where a person is legally liable for the nuclear incident and for damage to onsite property, such as the reactor, such person would be indemnified under this sentence against his liability for damage to onsite as well as other property.

The second sentence provides coverage for damage to the property of persons legally liable for the nuclear incident except “property which is located at the site of and used in connection with the activity where the nuclear incident occurs.” Thus, the sentence provides coverage for property damage which would not otherwise be indemnified because a person cannot be liable to himself for damage to his own property. The exception contained in the second sentence does not appear to apply, however, to claims covered by the first sentence of the definition. The proposed amendment would add such an exception to the first sentence of the definition, but limit the applicability of the exception to indemnity agreements entered into with licensees. The amendment, thus, would exclude from Price-Anderson agreements entered into with licensees coverage of “property which is located at the site of and used in connection with” the licensed activity.

The Commission continues to believe that enactment of this proposed amendment is desirable. Coverage of liability for damage to onsite property diminishes the \$500 million indemnity protection available to the general public under the Commission's indemnity agreement. There does not appear to have been, nor does it appear likely that there will arise any need for, Government coverage of onsite property. Commercial property insurance for such property is available at the present time up to at least \$60 million. As we understand it, the basic purposes of the Government indemnity afforded by the Price-Anderson Act were twofold: (1) to protect the public in the event of a large-scale accident and (2) to remove the deterrent of the entry of private companies in a business in which there is a large potential third-party liability. Extending Government indemnity for the protection of the investment in the reactor plant does not appear to be needed for these purposes.

In proposing this amendment, the Commission recognizes that, if the amendment is enacted, there may be uninsurable risks, not covered by the Commission's indemnity, for liability for damage to licensed reactor facilities to the extent that the damage to the reactor exceeds the amount of nuclear energy property insurance available. From the standpoint of the industry in general, the problem of liability for damage to onsite property has been ameliorated by the inclusion of a provision in the NEPIA-MAERP nuclear energy property insurance policies waiving any right of subrogation against various classes of suppliers who might be liable for onsite property damage. On the other hand, indemnity of a supplier for damage to onsite property in excess of property insurance available would be uninsurable.

The elimination of coverage of onsite property will also be in keeping with what we believe to have been the congressional intent with respect to licensed facilities of enactment of the Price-Anderson Act; namely, that the Government indemnity not include damage to or destruction of the nuclear facility.

The NEPIA-MAELU liability insurance policies furnished by reactor licensees as financial protection do not cover liability of other persons for damage to onsite property. Accordingly, in order that the licensee furnish financial protection covering such liability, a provision has been incorporated in the proposed indemnity agreement which would require the licensee to indemnify other persons who may be liable for damage to onsite property up to the amount of financial protection. If the proposed amendment were to be enacted, this provision of the indemnity agreement would be eliminated.

Government coverage of liability for damage to onsite property introduces a number of additional complexities into the administration of the Price-Anderson Act. As provided in subsection 170b of the act, the required amounts of financial protection have been determined generally in light of the amount of liability insurance available from private sources. Thus, in particular cases, the value of the licensed nuclear facility may considerably exceed the amount of financial protection required. Moreover, in a particular case it might be relatively easy for the licensee to claim against the Government indemnity for damage to the nuclear facility by establishing that an employee of the licensee is “legally liable” for damage to the property.

SECTION 4

The proposed amendment to provide for the distribution of 3 kilograms of plutonium to the International Atomic Energy Agency was submitted as section 3 of the Commission's 1960 omnibus bill. However, that part of the proposed amendment for the distribution of 500 grams of U^{233} to the IAEA is new.

Pursuant to the restrictions in section 54 of the Atomic Energy Act of 1954, as amended, U^{233} and plutonium, falling within the category "special nuclear material," can be made available to the International Atomic Energy Agency only (1) if such materials are furnished to the IAEA to match material made available by another member, prior to July 1, 1960, or (2) if such materials are furnished pursuant to a specific authorization by the Congress.

Since no other nation has contributed U^{233} or plutonium, the AEC is precluded from furnishing such material on a matching basis. In order to assist the IAEA's development as a distribution center for special nuclear material, the Commission seeks this "specific authorization" for the distribution of 500 grams of U^{233} and 3 kilograms of plutonium to the IAEA.

The plutonium to be distributed to IAEA is expected to be used primarily in the form of plutonium-beryllium neutron sources. Eighteen of these sources (ordinarily containing 80 grams of Pu^{239}) have been furnished by the U.S. Atomic Energy Commission to its bilateral partners and requests for 12 more sources are pending. The sources requested have in most cases been for use in subcritical assemblies or for the startup of research reactors. Such requests indicate a continuing need which the IAEA should be in a position to meet. Several nations (New Zealand, Pakistan, Mexico, Finland, and Yugoslavia) which are member states of the IAEA have in recent months requested the AEC to furnish Pu-Be sources; this has not been possible, however, either because the United States did not have an agreement for cooperation with the requesting nation, or because the agreement for cooperation in force did not provide for transfer of plutonium. In each case, the AEC suggested that the member state discuss its needs with IAEA. In addition to filing requests for neutron sources, the 3 kilograms to be distributed to the IAEA might be used by the IAEA to provide research quantities of plutonium required by member states.

The U^{233} to be distributed to the IAEA is expected to be used principally for research in basic physics and chemistry. Pakistan, for example, has recently indicated a need for approximately 10 milligrams of U^{233} for use as a tracer in solvent extraction studies, and Finland needs 5 to 10 grams for separation of thorium 229. In view of the increasing number of countries, such as Pakistan, which are prepared to let their bilateral agreements with the United States lapse with the intention of looking to the IAEA to fulfill their future special nuclear material requirements and the developing requirements for research quantities of U^{233} , it is necessary that the Agency be able to supply small quantities of this material to member states. Five hundred grams of U^{233} should be sufficient to meet the IAEA's needs for a reasonable period of time.

Approximately 39 grams of U^{233} have, to date, been furnished to other countries for research purposes under bilateral agreements for cooperation.

SECTION 5

The proposed amendment to section 143 of the Atomic Energy Act of 1954, as amended, is a technical amendment made necessary by the proposed amendment to section 145c as discussed in the next section of this testimony. The proposed amendment was submitted as section 5 of the Commission's 1960 omnibus bill.

The Commission's security clearances and access authorizations granted under the proposed new subsection 145c of the Atomic Energy Act of 1954, as amended (sec. 6 of this bill), should have the same force and effect as clearances and authorizations granted under subsection 145b. Unless there is a reference to subsection 145c in section 143, individuals granted security clearance or access authorization under the new subsection 145c cannot be authorized to exchange restricted data with Department of Defense personnel under the provisions of section 143.

Prior to the issuance of Executive Order 10865 all authorizations for access to classified information were termed "security clearances" but with the issuance of the executive order and our implementation of it as 10 CFR 10, all authorizations for access in the industrial program are termed "access authorizations." The Department of Defense also uses the term "access authorization" in its industrial program. We wish the legislative history to show clearly that the term "security clearance" also means "access authorization" in the industrial program.

SECTION 6

This proposed amendment would amend section 145 of the Atomic Energy Act of 1954, as amended, by adding a new subsection c which would permit the Commission to grant access to restricted data to any individual who possesses or has possessed a security clearance granted by another Government agency provided that: (1) the security clearance is or was based upon an investigation and report, furnished to the Commission, on the character, associations, and loyalty of such individual and made by a Government agency which conducts personnel security investigations, and (2) the Commission shall have determined that permitting the individual to have access to restricted data will not endanger the common defense and security. The proposed amendment was submitted as section 6 of the Commission's 1960 omnibus bill.

By addition of the new subsection c, the present subsection c and those that follow are redesignated; certain minor amendments are made in the redesignated subsections to carry out the purposes of the proposed new subsection c.

In the implementation of the Commission's security clearance and access authorization program, numerous instances have arisen in which persons seeking access to restricted data have been required by the Atomic Energy Act to undergo a Civil Service Commission or Federal Bureau of Investigation background investigation notwithstanding the fact that such persons previously had been cleared for access to classified information by another agency of the Government which does not utilize CSC or FBI investigations. Considerable objection to this practice has been raised on the grounds of unnecessary and costly duplication of effort and delay in time.

Illustrative of the foregoing is the case of CIA. CIA representatives have pointed out on numerous occasions the position taken by their agency as to the need for access to restricted data by employees without the additional FBI or CSC investigation required by the Atomic Energy Act. They have emphasized that their own security investigations, which are conducted by CIA personnel, are on a parity with those now conducted for the Commission.

The proposed amendment to section 145 would allow the Commission to grant access to restricted data to CIA employees on the basis of that Agency's investigative reports. This would leave the clearance determination with the AEC and, at the same time, obviate the delay attendant a new background investigation by the FBI or CSC. The proposed legislation would resolve the CIA problem and, in addition, would permit the AEC to grant access to restricted data to other individuals who possess or have possessed a security clearance granted by another Federal agency, conditioned on the two provisos discussed above. Such an amendment would give the AEC desirable flexibility while, at the same time, eliminate delays, duplication of investigative effort, and unnecessary expenditure of funds estimated to be not less than \$100,000 to \$125,000 in fiscal year 1961 on the basis of fiscal year 1960 experience.

SECTIONS 7 THROUGH 13

Extensive hearings on "Chapter 13, Patents," of the Atomic Energy Act of 1954, as amended, were held by this committee on April 21-23, 1959. The testimony of the Commission's representatives at the 1959 hearings are set forth on pages 2-38; 59-84; 190-194 of the committee print of the hearings before the Subcommittee on Legislation, 86th Congress, 1st session, on Atomic Energy Patents. Further testimony on chapter 13 was given by the Commission's representative in connection with the Commission's 1960 omnibus bill and is set forth on pages 21-40 of the committee print of the hearings before the Subcommittee on Legislation, 86th Congress, 2d session, on omnibus bill 1960. These Patent Section recommendations are the same as presented in the 1960 omnibus bill.

The proposed amendment to the title of section 151 of the Atomic Energy Act of 1954, as amended, would change the descriptive title of section 151 from the present inadequate "Military utilization" to the more accurate title "Inventions relating to atomic weapons, and filing of reports." The proposed amendment was submitted as section 7 of the Commission's 1960 omnibus bill.

SECTION 8

The proposed amendments to subsection c to section 151 of the Atomic Energy Act of 1954, as amended, would eliminate redundancy and extend the period for filing reports. The proposed amendment was submitted as section 8 of the Commission's 1960 omnibus bill.

The proposal would amend in three respects subsection c of section 151 of the act by—

(a) Deleting as superfluous existing clauses (2) and (3) which read: “(2) in the utilization of special nuclear material in an atomic weapon; or (3) in the utilization of atomic energy in an atomic weapon,” since they would appear not to embrace any subject not covered by undeleted clause (1) which reads: “(1) in the production or utilization of special nuclear material or atomic energy.”

(b) Extending from 90 to 180 days—a more reasonable period—the time in which to file reports.

(c) Deleting as superfluous the existing clause “whichever of the following is the later: either * * * days after completion of such invention or discovery; or the ninetieth” since it would appear not to embrace any circumstance not covered by the undeleted clause “after such person first discovers or first has reason to believe that such invention or discovery is useful in such production or utilization.”

SECTION 9

This proposed amendment to section 151 would add a new subsection e to section 151 of the Atomic Energy Act of 1954, as amended, to afford express statutory sanction to existing Commission practice. The form of the proposed subsection e follows closely that of title 35 United States Code, section 122. The proposed amendment was submitted as section 9 of the Commission's 1960 omnibus bill.

SECTION 10

The proposed amendments to section 152 of the Atomic Energy Act of 1954' as amended, would substitute clarifying phrases for existing language as well as to eliminate certain phrases. The proposed amendment was submitted as section 10 of the Commission's 1960 omnibus bill.

The proposed amendments would amend the section in nine respects by—

(a) Substituting the phrase “contract, subcontract or arrangement entered into with or for the benefit of the Commission” for the existing phrase “contract, subcontract, arrangement or other relationship with the Commission” wherever the latter phrase appears.

(b) Substituting the phrase “contract, subcontract or arrangement,” for the existing phrase “contract or arrangement” wherever the latter phrase appears. This substitution would be a corollary of the substitution discussed immediately above.

(c) Substituting the phrase “in the course of or under” for the existing word “under” and the existing phrase “in the course of, in connection with, or under the terms of” wherever that word or phrase appears.

(d) Substituting the clarifying phrase “shall be vested in, and be the property of” for the rather vague existing phrase “shall be deemed to have been made or conceived by” which appears in the first sentence.

(e) Adding the clarifying parenthetical phrase “(unless the Commission advises the Commissioner of Patents that its rights have been determined and that accordingly no statement is necessary)” thereby obviating the necessity for a statement where the rights of the Government have been determined.

(f) Substituting the clarifying phrase “as soon as the application is otherwise in condition for allowance” for the existing word “forthwith” which appears in the last sentence of the first paragraph and which has no express antecedent.

(g) Substituting the phrase “under such” for the existing superfluous phrase “if made or conceived by any person at or in connection with any laboratory under the jurisdiction of the Commission as provided in section 31 or under such other” which appears in the first paragraph.

(h) Adding the following sentence to the end of the last paragraph:

“A determination of rights by the Commission pursuant to a contractual provision or other arrangement prior to the request of the Commissioner of Patents for the statement, shall be final in the absence of false material statement of nondisclosure of material facts by the applicant.”

This amendment is intended to afford the applicant reasonable assurance that should the Commission (although not required to do so) make the determination prior to the request of the Commissioner of Patents for the statement, such determination would be final in the absence of special circumstances warranting subsequent modification.

SECTION 11

The proposed amendment would amend section 155 of the Atomic Energy Act of 1954, as amended, by deleting it. The proposed amendment was submitted as section 11 of the Commission's 1960 omnibus bill.

Most technical data, except for weapon technology, on which patents cannot be secured pursuant to section 151a., is declassifiable or has been declassified for some time so that there is no longer a large area of classified general technology. In the Commission's experience the U.S. Patent Office has been applying section 155 rigidly in the prosecution of Commission patent applications necessitating considerable work in the preparation of affidavits and other materials to overcome references which has delayed the issuance of patents to the Commission.

SECTION 12

The proposed amendment to section 157 of the Atomic Energy Act of 1954, as amended, would amend section 157 of the act by renumbering the section as required by the deletion of section 155 and by adding a subsection (d) a 6-year period of limitation. The proposed amendment was submitted as section 12 of the Commission's 1960 omnibus bill.

In the absence of an express period of limitation, doubt might arise as to whether any period of limitation exists. We note in this connection that a 6-year period of limitations is imposed in 35 U.S.C. 286 with regard to suits for patent infringement, and the same period is imposed in 28 U.S.C. 2401a, with regard to civil actions against the Government.

SECTION 13

The proposed amendment would amend section 158 of the Atomic Energy Act of 1954, as amended, by deleting it as superfluous and would renumber sections 159 and 160, accordingly. The proposed amendment was submitted as section 13 of the Commission's 1960 omnibus bill.

The proposed amendment would delete section 158 since Federal courts often without express statutory authority require in their antitrust decrees that patents be licensed. Furthermore, such decrees may not even require the licensee to pay royalties. Since section 158 requires the payment of a reasonable royalty fee, the patent owner may be subject to a less onerous penalty for violating the antitrust laws if the patents involved are subject to section 158 of the act.

While the Commission recommends the deletion of section 158, we note that at the April 1959 hearings (see p. 77) it was indicated by the now chairman, Mr. Holifield, and Mr. Ramey, that they "might very well consider language to make it conform to the actions of the court * * * so it would be discretionary rather than require that compensation be paid."

The Commission stated at last year's hearings (see p. 34):

"If the committee is still of this opinion, the suggestion, if adopted, would cause the Commission no administrative problems."

To assist the committee in this matter it was then suggested by the Commission that the last sentence of section 158 might be changed to read:

"If the court, at its discretion, deems that such licensee shall pay a reasonable royalty to the owner of the patent, the reasonable royalty fee shall be determined in accordance with section 157."

SECTION 14

The Commission recently has received proposals from educational institutions requesting financial support for atomic energy exhibit and demonstration programs. Typical of these is a proposal from the California Museum of Science for \$350,000. Inquiries have been received from other institutions. A brief summary of the proposal from the California Museum of Science and Industry is attached as appendix I to this statement.

The Commission believes that exhibits of the type proposed would increase public understanding of atomic energy and heighten the interest of youth in science.

It has always been an important objective of the Commission to report to the public the facts essential for understanding Commission programs and the scientific and technical foundations thereof. Recognizing that exhibits are effective instruments for conveying information on complex technical subjects to lay audiences, the Commission approved early in 1956 the establishment of a traveling exhibits program. Today this program encompasses 26 exhibits units

operated for the Commission by the Oak Ridge Institute of Nuclear Studies (ORINS).

In addition to the traveling exhibits, the Commission has two permanent exhibits for domestic viewing.

The American Museum of Atomic Energy at Oak Ridge, operated for the Commission by ORINS, offers a 12,000-square-foot exhibit of the history and peaceful uses of atomic energy which is open to the public without charge. During its 12 years of operation, the museum has been visited by U.S. citizens from every State and residents of 72 foreign countries.

Another long-term exhibit, but smaller, is at the Chicago Museum of Science and Industry. Since 1955, the Chicago museum has devoted 5,500 square feet of space to an "atoms-for-peace" exhibit composed of items and displays from the Geneva 1955 and 1958 technical exhibits.

Returning now to the proposed legislation, the Commission believes there is merit in encouraging the States to take an active role in providing educational exhibits on atomic energy. Therefore, the Commission, as a matter of policy, does not favor exhibit financial support of the type proposed unless equal opportunity is available to similar institutions in other States for comparable proposals. Rather than offer financial help to all institutions on a case-by-case basis without regard to location, the Commission believes that equity would be better served if assistance were offered directly to all the States on a matching funds basis.

The proposed bill would authorize the Commission to make grants to a "State," which is defined to include any State, territory, or possession of the United States, the Canal Zone, Puerto Rico, and the District of Columbia, on a matching fund basis, for the purpose of establishing an atomic energy exhibit in each State. To be eligible for such a grant, a proposal must be made by the Governor or, in case of the District of Columbia, by the District Commissioners, and must be acceptable to the Commission. Further, the proposal must be received, but not necessarily acted upon by the Commission, between July 1, 1961 and June 30, 1966. The size of the grant is to be not less than \$50,000 or more than \$350,000.

The minimum amount of \$50,000 has been specified in order to eliminate requests for small or relatively inexpensive exhibits which the Commission believes each State should provide without Commission financial assistance. The maximum amount which the Commission may contribute will not limit the maximum amount that a State may expend in excess of the matching Commission funds. The Commission would propose to furnish to the State, in addition to the grant, such technical advice and other assistance as the Commission may deem necessary or desirable.

In addition, the draft bill provides that the proposal must set forth the general features of the proposed exhibit and the provisions for its operation and maintenance. Other pertinent information may be required by the Commission.

In this connection, the Commission will grant funds only for an exhibit which will be used to fulfill generally the Commission's informational and educational objectives. The Commission, in developing guidelines for the program, will give full recognition to the differing requirements of the States including the preferences of the States for either stationary or mobile type exhibits. The Commission's criteria will provide that the AEC's contribution may be expended for such items, among others, as—designing, fabricating, installing or purchasing of the atomic energy exhibit and associated equipment. In addition, the criteria will require the State to meet minimum Commission information and education objectives and minimum AEC guidelines for good exhibit practices. Further, the criteria will include provisions requiring continued operation and maintenance of the exhibit for a minimum period of time at no expense to the Commission.

The maximum cost to be incurred by the Commission by this grant program shall not exceed \$5 million over the 5-year period specified for the program. The Commission will budget for this program in each of the fiscal years involved based on qualified, valid proposals submitted to the Commission by the Governors of the States, which includes certification as to availability of the necessary State funds.

The draft legislation makes it clear that the grants made by the Commission under the authority of the bill may not be utilized for the acquisition, purchase or lease of land or buildings, or for the operation or maintenance of the exhibit. The Commission believes that the State, rather than the Commission, should provide for the housing of the exhibits and for the continued maintenance thereof.

Joint Committee print "Atomic Energy Legislation through 86th Congress, 2d Session", designates the last subsection in section 161 as u. Footnotes 53-56 of the print note that Public Law 85-507, section 21, approved July 7, 1958,

repealed former subsection n and relettered subsections o, p, q, r, and s, accordingly. However, Public Law 85-681, approved thereafter on August 19, 1958, added new subsections t, u, and v. We have accordingly designated the proposed amendment as subsection w.

SECTION 15

An act to amend section 167 of the Atomic Energy Act of 1954, as amended, to permit settlement of claims for damages resulting from programs carried on by the Commission involving the detonation of nuclear explosive devices was informally discussed with the staffs of the JCAE and BOB during the latter part of 1959 and early part of 1960, and agreement was reached in principle.

Section 167 now authorizes the Commission, without a showing of fault on the part of the Government, to settle claims for \$5,000 or less against the United States for money damages resulting from the Commission's program for testing weapons. At the time section 167 was enacted, the only program carried on by the Commission which involved the detonation of nuclear or other explosive devices was weapons testing. Such weapons testing program was carried on either in the Pacific or at the Nevada Test Site, both relatively remote places. Under such circumstances the Commission's claims settlement authority under section 167 was then believed to be adequate.

The Commission now is carrying on two other programs which will require the detonation of nuclear or other explosive devices (the Plowshare and the seismic improvement programs). It is possible that the Commission may undertake other programs of similar nature in the future. Further, for technical reasons, such programs may be carried on in areas that are less remote than those carried on in the weapons testing program. Therefore, claims for damages from such programs are more likely to result.

It is therefore believed desirable that the Commission's authority to settle claims under section 167 be expanded to cover these other programs. The amended section 167 also will provide the Commission's reporting to Congress, for its consideration, meritorious claims in excess of \$5,000, a provision similar to that contained in the claim settlement authority of the armed services and NASA. The experience of the armed services appears to be that the \$5,000 limitation presents no administrative difficulty. The Navy Department, for example, routinely recommends to Congress settlement of many claims in excess of \$5,000 and there are no known cases in which Congress has denied the claims recommended to it by the Navy.

Enactment of the proposed amendment would enable the Commission to settle small claims for damages resulting from the seismic improvement and Plowshare programs, as it now can do in connection with the weapons testing program. The proposed reporting procedure would enable the Commission to recommend to Congress payment of claims which are in excess of this amount, with a reasonable assurance that Congress will carry out these recommendations. Such procedure should do much to meet the problems raised by industries which may suffer damage over \$5,000 as a result of the programs. For example, the potash mining industry near Carlsbad, N. Mex., claims that it would suffer damages amounting to millions of dollars in the event one of its mines were damaged by a proposed Plowshare shot.

It is not expected that this proposed legislation will satisfy the potash industry because the industry argues that, if potash mines are damaged, the damages will total millions of dollars.

SECTION 16

The proposed amendment to add a new section 190 to the Atomic Energy Act of 1954, as amended, was submitted as section 15 of the Commission's 1960 omnibus bill. As submitted in the 1960 omnibus bill, the section would have included Commission accident report as well as licensee accident reports. However, during the JCAE hearings on May 17 and 18, 1960, concerning the 1960 omnibus bill, the JCAE requested and the Commission representatives agreed to drop the "Commission reports" portion from the bill.

The proposed new section 190 provides that no report by any licensee of any incident arising out of or in connection with a licensed activity, made pursuant to any requirement of the Commission, is to be admitted into evidence or used in any suit or action for damages growing out of any matter mentioned in such report.

In recommending the above legislation, the Commission believes that members of the public are entitled to reports of incidents which occur in licensed operations, since their health and safety may be involved. The Commission is under an obli-

gation to investigate such incidents and to report to the public the facts relating to such incidents, together with its opinion as to the cause of the incident. By prohibiting the use of licensee accident reports in civil actions arising out of such accident, the public may be kept informed without prejudicing the licensee in suits arising out of such accidents and without permitting the reports to become a matter of controversy in civil litigation.

The practice of other agencies which receive accident reports in connection with their licensing functions is not uniform. For example, aircraft accident reports of the operators submitted to the CAB are submitted on forms provided by the Board and are available for public inspection, and are admissible in evidence. On the other hand, the accident reports prepared by the CAB itself are not admissible in evidence. The ICC, which requires the submission of accident reports on interstate motor vehicle transportation accidents, does not make such reports available for public inspection except under specified circumstances after approval by the ICC. Similarly, reports of railroad accidents submitted to the ICC are also unavailable for public examination except under specified circumstances after approval by the ICC. With respect to both motor carrier and railroad accident reports, there is specific legislation prohibiting the use of such reports in any tort litigation resulting from the accidents.

SECTION 17

The proposed amendment of section 4(c) of the Euratom Cooperation Act of 1958 would eliminate language relating to the establishment of minimum levels of fuel element cost in order to remove any statutory implication that the AEC is obliged to publish specific numerical values for fuel element performance and fabrication costs. The proposed amendment was submitted as section 16 of the Commission's 1960 omnibus bill.

Section 4 of the act, which pertains to the fuel cycle guarantee portion of the Euratom program, includes principles to guide the Commission in the selection of joint projects. Subsection (c) provides that the Commission shall establish and publish minimum levels of fuel element cost and life to be guaranteed by the manufacturer as a basis for inviting and evaluating proposals.

The objectives of subsection (c) are to assure that both industry and the Government would share the burden of fuel cycle guarantees, that private manufacturers would have to provide a certain level of guarantees on their own before the projects involved could qualify for the supplementary guarantees offered by the Commission, and that the liability of the Government would be limited to a reasonable amount.

The committee report on the Euratom Cooperation Act (S. Rept. 2370, 85th Cong., 2d sess.) makes it clear that Congress intended the Commission to publish standards as to the maximum fuel element costs and minimum fuel performance (or life) which private manufacturers would have to meet in order to qualify for the supplementary guarantees offered by the Commission under the program. Subsection (c) is misleading, however, in that it indicates that the Commission will publish minimum, rather than maximum, fuel element costs to be guaranteed by manufacturers. More importantly, the language now in the law might be interpreted as requiring the Commission to publish specific numerical values for fuel element performance and accompanying fabrication costs which manufacturers would have to meet for each type of fuel element considered for a Commission guarantee.

Because of the variation in type and extent of the guarantees which may be offered by private manufacturers, establishment of such specific numerical values is believed to be neither practicable nor equitable. Further, it would not meet the objectives of the Congress to encourage the joint reactor program at minimum cost to the United States. The Commission has established, instead, a flexible formula which, in effect, permits each manufacturer to calculate, on the basis of his particular element and reactor design, the guarantees which he must offer. This system, employing the principle of pro rata distribution of the maximum contingent liability (\$90 million), limits each manufacturer to a proportionate share of the \$90 million based on the ratio of the reactor net electrical output to the 1,000 megawatt goal of the joint program, and the ratio of the commercial guaranteed core life to the 10-year period of the program. The proposed amendment would eliminate possible confusion emanating from the phrase "minimum levels of fuel element cost," and would remove any implication that the Commission is obliged to publish specific numerical values. It also would permit an

equitable distribution of the protection under the guarantee program among various manufacturers. Further, the Commission believes the proposed amendment is consistent with the congressional objectives regarding the program.

SECTION 18

A proposed amendment to section 4(e) of the Euratom Cooperation Act of 1958 was submitted as section 15 of the Commission's 1960 omnibus bill. The present proposed amendment differs from that in the 1960 omnibus bill.

Subsection (e) of section 4 of the Euratom Cooperation Act states:

"(e) The Commission shall obtain a royalty-free, nonexclusive, irrevocable license for governmental purposes to any patents on inventions or discoveries made or conceived by the manufacturer in the course of development or fabrication of fuel elements during the period covered by the Commission's guarantee."

It has been noted that the wording of subsection 4(e) of the act may oblige the Commission to obtain a license to use any patent on inventions or discoveries conceived by the fuel fabricator during the period of the Commission's guarantee even though the invention related to fuel elements in not covered by the Commission's guarantee. This language, which has been severely criticized by industry, permits a broader interpretation than we believe was intended by the Congress. Accordingly, the proposed amendment will relate the patent rights to be received by the Government to the particular fuel elements covered by the AEC guarantee. Limiting Commission license rights to fuel elements covered by our guarantees is believed to be reasonable and would be beneficial to the Euratom program in that it should encourage more companies to participate.

At the hearings in May 1960 on the omnibus bill, Representative Holifield and Mr. Ramey of the Joint Committee expressed the opinion that it appeared desirable that the present proposed language of subsection 4(e) be expanded so that it would extend to the period before the guarantee but not include background patents. It is understood that what they were particularly desirous of covering was the period after the effective date of the contract for the fuel elements but before the effective date of the guarantee.

The staff of the Joint Committee subsequently communicated with the Commission staff in order to develop language to accomplish the above-mentioned objectives. The Commission staff made certain suggestions for revision with the understanding that it was being done purely for drafting purposes. The suggested revision reads as follows:

"Sec. 4. (e) The Commission shall receive a royalty-free, nonexclusive, irrevocable license for governmental purposes to any patents on inventions or discoveries made or conceived by the manufacturer on the fuel elements to be guaranteed, in the course of and under the contract for the supply of such fuel elements, and inventions or discoveries made or conceived on such fuel elements during the period of the Commission's guarantee contract."

The Commission agrees with Mr. Holifield and the Joint Committee staff that the inventions or discoveries will usually come into being before the effective date of the guarantee. Under the revised language the Commission would receive rights in exchange for the guarantee during the period of time when the inventions are most likely to be made. However, it should be recognized that industry may well object to this provision.

SECTION 19

The proposed amendment to section 5 of the Euratom Cooperation Act of 1958, after clearance by the Bureau of the Budget, was submitted by the AEC to the 86th Congress on June 10, 1960.

Section 5 of the Euratom Cooperation Act of 1958 now authorizes the Commission to transfer one kilogram of plutonium under the U.S. Euratom Agreement for Cooperation. No provision is made for the transfer of uranium 233. The proposed amendment to section 5 authorizes the Commission to transfer 8 additional kilograms of plutonium, and 30 kilograms of uranium 233. Some of these materials, together with part of the 30,000 kilograms of uranium 235 now included in section 5, but no longer needed in the joint program, would be provided Euratom under the U.S. Euratom Additional Agreement which came into effect on July 25, 1960, rather than under the present joint program agreement. Therefore, the proposed amendment to section 5 also adds the words "or agreements" in order that the additional agreement, as well as the joint program agreement are contained within the scope of the Euratom Cooperation Act.

Euratom has underway a research and development program which will require relatively substantial quantities of plutonium over the next 4 years. The

most pressing and immediate need is for about 8.3 kilograms of plutonium for two multimillion dollar plutonium recycling research projects which are planned to be initiated in the Community under the U.S.-Euratom joint research and development program. Work in this area is specifically provided for under article II of the joint program agreement. The two projects are of considerable interest to U.S. investigators in this field, and they have already been approved by the Joint Research and Development Board. Euratom also requires approximately 700 grams of plutonium for uses outside the joint program, including early bench scale work related to the development of fast breeder reactors and miscellaneous basic research projects. This 700 grams, plus the 8.3 kilograms of plutonium described in the previous paragraph, constitute the 9 kilograms quantity proposed in the amendment to section 5.

The Italian National Committee for Nuclear Research plans to start up an experimental plant for reprocessing irradiated uranium-thorium fuel elements during the first half of 1964. This project has received the endorsement of the AEC's Division of Reactor Development. Italy, however, has stated that it will not be able to initiate construction of this project on schedule unless it can be assured that the Commission is willing to transfer the needed materials, including 30 kilograms of uranium 233 in fuel elements from the U.S. Elk River reactor when they are available. Italy has expressed a strong interest in supporting Euratom and in receiving the foregoing fuel requirements through the Community, and provision has been made for supply of the material under the additional agreement.

SECTION 20

The proposed amendment of section 7 of the Euratom Cooperation Act of 1958 would exempt U.S. research and development contracts from the requirement of disclaimer or indemnity arrangements in favor of the U.S. Government. The proposed amendment was submitted as section 18 of the Commission's 1960 omnibus bill.

This amendment eliminates the requirement for the United States to secure disclaimer or indemnity agreements from its contractors under the joint research and development program of the Euratom Cooperation Act.

Section 7 of the Euratom Cooperation Act of 1958 provides that the United States "shall not be liable for any damages or third party liability arising out of or resulting from the joint program," and requires that the U.S. Government "take such steps as may be necessary, including appropriate disclaimer or indemnity arrangements, in order to carry out" this provision. This language requires the Atomic Energy Commission to secure indemnity agreements from its contractors under the joint research and development program. This is contrary to the general policy normally followed by the Atomic Energy Commission in domestic research and development contracts under which either there is no indemnity agreement or the Commission indemnifies the contractor. No necessity for this reversal of policy in the joint program is perceived, nor is it believed that Congress intended this result which stems from the broad language of section 7. It is probable that the requirement for inclusion of such indemnities in favor of the Government would impede acceptance by prospective U.S. contractors of tasks under the Euratom research and development program. The proposed amendment would remedy this situation by exempting Commission research and development contracts from the requirements of section 7.

The Bureau of the Budget has advised that there is no objection to the presentation of this statement from the standpoint of the administration's program.

SUMMARY OF CALIFORNIA MUSEUM OF SCIENCE AND INDUSTRIAL PROPOSAL

The State of California and the California Museum Foundation are prepared to take the following steps to provide adequate facilities and operational costs for a major exhibit on the peaceful uses of atomic energy to be built adjacent to the science wing of the California Museum of Science and Industry in Exposition Park:

- A. (1) For actual construction of a 12,000-square-foot building, \$200,000;
- (2) For provision of utilities and air conditioning, \$36,000;
- (3) For parking facilities, landscaping, and service walks, \$40,000;
- (4) Land estimated at approximately \$75,000 for the site of the wing; and
- (5) To be spent each year for additional lectures, guide service, janitorial service, tours under the direction of the Department of Education of the Museum, administrative costs, and employee fringe benefit costs, \$30,000.

Please note that the actual amount of the expenditures for (1) through (4) total \$351,000 and that this amount is available and on hand at this moment for immediate use. In addition, the museum is prepared and has permission to budget, as soon as such is necessary, the \$30,100 necessary for the items listed in (3).

The California Museum of Science and Industry has requested that the Atomic Energy Commission of the U.S. Government join in this program by—

B. (1) Advancing \$350,000 necessary for construction of the exhibit on atomic energy;

(2) Supervise all design for technical accuracy;

(3) Assist with a small yearly sum to keep the exhibit up-to-date.

(Thereupon at 12 o'clock noon, Tuesday, June 27, 1961, the hearing on the AEC Omnibus Bills for 1961 was concluded.)

APPENDIXES

APPENDIX 1

ANALYSIS OF DRAFT BILL TO AMEND THE ATOMIC ENERGY ACT OF 1954, AS AMENDED, AND THE EURATOM COOPERATION ACT OF 1958, AND FOR OTHER PURPOSES (1961 OMNIBUS LEGISLATION)

Section 1. Amendment to retrocede to the State of California the exclusive jurisdiction heretofore acquired by the United States over lands within the boundaries of the Livermore site of the U.S. Atomic Energy Commission.

The proposed amendment would retrocede to the State of California the exclusive jurisdiction which the United States presently holds over certain portions of the Commission's Livermore site. Under its present exclusive jurisdiction, the Federal Government replaces the State at the Livermore site with respect to executive, legislative, and judicial powers.

The Livermore site consists principally of two tracts, one consisting of approximately 640 acres and the other consisting of approximately 50 acres. Custody to both tracts was obtained by the Commission from the Navy in 1950. The Navy purchased the 640-acre tract, acquiring title by deed dated March 24, 1942. The Navy condemned the 50-acre tract, acquiring title by a declaration of taking filed October 15, 1942. Exclusive jurisdiction of both tracts was acquired by the Navy under the authority of 54 Stat. 1083, approved October 9, 1940, and former California Political Code section 34. The acquisition of jurisdiction by the United States with respect to the 640-acre tract was effected by a letter of acceptance from the Secretary of the Navy to the Governor of California, dated February 4, 1943, and was effected with respect to the 50-acre tract by a letter from the Secretary of the Navy to the Governor of California dated November 25, 1942.

The description of the land in the draft bill covers both of these tracts. The 50-acre tract comprises the Sandia portion of the Livermore site. There are certain other small tracts within the Livermore site which are already under State jurisdiction. These are not included in the draft bill.

For the past 2 years on the anniversary dates of the Hiroshima and Nagasaki bomb explosions, demonstrators have picketed and have deliberately trespassed on the Commission's Livermore site. Since California has no criminal jurisdiction over the Livermore site areas, California peace officers could not make arrests in their capacity as peace officers. Any such arrests made by University of California officers (who are State peace officers) or site guards furnished by contractors have been made by them as private citizens.

Retrocession of jurisdiction to California would be advantageous to the Atomic Energy Commission for the following reasons:

(a) University of California and contractor guards could be given peace officer status with power to make arrests as peace officers rather than as private citizens, thereby reducing the risk of an arrest being held unlawful and the risk to guards of being held personally liable for false arrest.

(b) State and local law enforcement agencies would be available for the handling of State and local law violations committed on the site such as trespass, theft of private property, assault and battery, and traffic violations. This would obviate the need for FBI investigation and U.S. attorney prosecution of these routine, and in most instances, misdemeanors, and petty crimes.

(c) State and local law enforcement agencies would be available to maintain law and order, including the prevention of riots and other unlawful mob actions, and picketing involving violence. In addition, local and county justice courts would be available in most cases for the trial of law violations. Such cases now have to be tried before the U.S. commissioner or in the Federal courts.

Retrocession of jurisdiction to California would result in no material disadvantage to the Federal Government. Federal laws would apply to this area as they would to any area under normal State jurisdiction. The retrocession would in no way take away from the Federal Government its authority under the Consti-

tution and Federal law over the lands to which the Federal Government has title. This retrocession will not in any way restrict the security authority of the Commission granted by the Atomic Energy Act. It is believed that California could not exercise any jurisdiction which would interfere with the use of the land by the Federal Government.

This retrocession will place the Livermore site in the identical jurisdictional status as the vast majority of the Commission's sites, including those at Los Alamos, Hanford, Oak Ridge, and Idaho Falls.

Section 2. Amendment to subsection 11b of the Atomic Energy Act of 1954, as amended, to eliminate the technical inconsistency between subsection 11b and subsection 91c.

The proposed amendment was submitted to the 86th Congress as part of the Commission's 1960 omnibus bill and was incorporated in H.R. 11979 and S. 3461 as section 1.

The proposed amendment would eliminate a technical inconsistency between section 11b and section 91c of the Atomic Energy Act of 1954, as amended.

Section 91c of the Atomic Energy Act of 1954, as amended, authorizes "the Commission or the Department of Defense, with the assistance of the other" to enter into certain bilateral agreements "with another nation." However, section 11b defines "agreement for cooperation" as "any agreement with another nation or regional defense organization, authorized or permitted by sections 54, 57, 64, 82, 103, 104, or 144, and made pursuant to section 123." This definition does not mention section 91c although section 123 does include cooperative agreements made pursuant to section 91. The proposed amendment eliminates the technical inconsistency.

Section 3. Amendment to subsection 11u of the Atomic Energy Act of 1954, as amended, to eliminate coverage of damage to onsite property used in connection with a licensed activity.

The proposed amendment to subsection 11u was submitted to the 86th Congress as part of the Commission's 1960 omnibus bill and was incorporated in H.R. 11979 and S. 3461 as section 2.

The proposed amendment to subsection 11u of the Atomic Energy Act of 1954, as amended, is designed to exclude from Commission indemnity coverage any liability for damage to property which is at the site of and used in connection with the licensed activity. Such property is herein referred to as onsite property. The first sentence of the subsection as now enacted does not include any exceptions for claims for damage to onsite property. In other words, where a person is legally liable for the nuclear incident and for damage to onsite property, such as the reactor, such person would be indemnified under the first sentence against his liability for damage to onsite as well as other property. The second sentence of the subsection as now enacted provides coverage for property damage which would not otherwise be indemnified because a person cannot be liable to himself for damage to his own property. The exception contained in the second sentence could be claimed not to apply, however, to claims covered by the first sentence of the definition. The proposed amendment would add such an exception to the first sentence of the definition, but limit its applicability to indemnity agreements entered into with licensees. It would exclude from Price-Anderson agreements entered into with licensees coverage of "property which is located at the site of and used in connection with the licensed activity."

Coverage of liability for damage to onsite property diminishes the \$500 million indemnity protection available to the general public under the Commission's indemnity agreements. There does not appear to have been, nor does it appear likely that there will arise, any need for Government coverage of onsite property. Commercial insurance for such property is available at the present time up to \$60 million. In proposing this amendment, it is recognized that, if the amendment is enacted, there may be uninsurable risks, not covered by the Commission's indemnity, for liability for damage to licensed reactors to the extent that the damage to the reactor exceeds the amount of nuclear energy property insurance available.

Section 4. Amendment to section 54 of the Atomic Energy Act of 1954, as amended, to provide for the distribution of 500 grams of uranium 233 and 3 kilograms of plutonium to the International Atomic Energy Agency.

A proposed amendment to section 54 to provide for the distribution of 3 kilograms of plutonium to the International Atomic Energy Agency was submitted to the 86th Congress as part of the Commission's 1960 omnibus bill and was incorporated in H.R. 11979 and S. 3461 as section 3. The proposed amendment has been amended to provide, also, for the distribution of 500 grams of U²³³ to the IAEA.

Pursuant to the restrictions in section 54 of the Atomic Energy Act of 1954, as amended, U^{233} and plutonium, falling within the category "special nuclear material," can be made available to the International Atomic Energy Agency only: (1) if such materials are furnished to the IAEA to match material made available by another member, prior to July 1, 1960, or (2) if such materials are furnished pursuant to a specific authorization by the Congress.

Since no other nation has contributed U^{233} or plutonium, the AEC is precluded from furnishing such material on a matching basis. In order to assist the IAEA's development as a distribution center for special nuclear material, the Commission seeks this "specific authorization" for the distribution of 500 grams of U^{233} and 3 kilograms of plutonium to the IAEA.

The plutonium to be distributed to IAEA is expected to be used primarily in the form of plutonium-beryllium neutron sources. Twelve of these sources (ordinarily containing 80 grams of Pu^{239}) have been furnished by the U.S. Atomic Energy Commission to its bilateral partners and requests for eight more sources are pending. The sources requested have in most cases been for use in subcritical assemblies or for the startup of research reactors. Such requests indicate a continuing need which the IAEA should be in a position to meet. Several nations (Pakistan, Mexico, Finland, and Yugoslavia) which are member states of the IAEA have in recent months requested the AEC to furnish Pu-Be sources; this has not been possible, however, either because the United States did not have an agreement for cooperation with the requesting nation, or because the agreement for cooperation in force did not provide for transfer of plutonium. In each case, the AEC suggested that the member state discuss its needs with IAEA. In addition to filling requests for neutron sources, the 3 kilograms to be distributed to the IAEA might be used by the IAEA to provide research quantities of plutonium required by member states.

The U^{233} to be distributed to the IAEA is expected to be used principally for research in basic physics and chemistry. Pakistan, for example, has recently indicated a need for approximately 10 milligrams of U^{233} for use as a tracer in solvent extraction studies. In view of the increasing number of countries, such as Pakistan, which are prepared to let their bilateral agreements with the United States lapse with the intention of looking to the IAEA to fulfill their future special nuclear material requirements and the developing requirements for research quantities of U^{233} , it is necessary that the Agency be able to supply small quantities of this material to member states. Five hundred grams of U^{233} should be sufficient to meet the IAEA's needs for a reasonable period of time.

Approximately 35 grams of U^{233} have, to date, been furnished to other countries for research purposes under bilateral agreements for cooperation.

Section 5. Technical amendment to section 143 of the Atomic Energy Act of 1954, as amended.

The proposed amendment was submitted to the 86th Congress as part of the Commission's 1960 omnibus bill and was incorporated in H.R. 11979 and S. 3461 as section 5.

The Commission's security clearances granted under the proposed new subsection 145c of the Atomic Energy Act of 1954, as amended (sec. 6 of this bill) should have the same force and effect as clearances granted under subsection 145b. Unless there is a reference to subsection 145c in section 143, individuals granted security clearance under the new subsection 145c cannot be authorized to exchange restricted data with Department of Defense personnel under the provisions of section 143.

Section 6. Amendment to section 145 of the Atomic Energy Act of 1954, as amended, to permit the Commission to grant access to restricted data to individuals who possess a security clearance granted by another Government agency.

The proposed amendment was submitted to the 86th Congress as part of the Commission's 1960 omnibus bill and was incorporated in H.R. 11979 and S. 3461 as section 6.

This proposed amendment would amend section 145 of the Atomic Energy Act of 1954, as amended, by adding a new subsection c which would permit the Commission to grant access to restricted data to any individual who possesses or has possessed a security clearance granted by another Government agency provided that (1) the security clearance is or was based upon an investigation and report, furnished to the Commission, on the character, associations, and loyalty of such individual and made by a Government agency which conducts personnel security investigations, and (2) the Commission shall have determined that permitting the individual to have access to restricted data will not endanger the common defense and security.

By addition of the new subsection c, the present subsection c and those that follow are redesignated; certain minor amendments are made in the redesignated subsections to carry out the purposes of the proposed new subsection c.

In the implementation of the Commission's security clearance program, numerous instances have arisen in which persons seeking access to restricted data have been required by the Atomic Energy Act to undergo a Civil Service Commission or Federal Bureau of Investigation background investigation notwithstanding the fact that such persons previously had been cleared for access to classified information by another agency of the Government which does not utilize CSC or FBI investigations. Considerable objection to this practice has been raised on the grounds of unnecessary and costly duplication of effort and delay in time.

Illustrative of the foregoing is the case of CIA. CIA representatives have pointed out on numerous occasions the position taken by their agency as to the need for access to restricted data by employees without the additional FBI or CSC investigation required by the Atomic Energy Act. They have emphasized that their own security investigations, which are conducted by CIA personnel, are on a parity with those now conducted for the Commission.

The proposed amendment to section 145 would allow the Commission to grant access to restricted data to CIA employees on the basis of that agency's investigative reports. This would leave the clearance determination with the AEC and, at the same time, obviate the delay attendant a new background investigation by the FBI or CSC. The proposed legislation would resolve the CIA problem and, in addition, would permit the AEC to grant access to restricted data to other individuals who possess or have possessed a security clearance granted by another Federal agency, conditioned on the two provisos discussed above. Such an amendment would give the AEC desirable flexibility while, at the same time, eliminate delays, duplication of investigative effort, and unnecessary expenditure of funds estimated to not less than \$100,000 to \$125,000 in fiscal year 1961 on the basis of fiscal year 1960 experience.

Section 7. Amendment to section 151 of the Atomic Energy Act of 1954, as amended, to change the descriptive title.

The proposed amendment to the title of section 151 would change the descriptive title of section 151 from the present inadequate "military utilization" to the more accurate "inventions relating to atomic weapons, and filing of reports."

Section 8. Amendment to subsection c to section 151 of the Atomic Energy Act of 1954, as amended, to eliminate redundancy and extend the period for filing reports.

The proposed amendments to subsection c to section 151 would eliminate redundancy and extend the period for filing reports. The proposal would amend in three respects subsection c of section 151 of the act by—

(a) Deleting as superfluous existing clauses (2) and (3) which read: "(2) in the utilization of special nuclear material in an atomic weapon; or (3) in the utilization of atomic energy in an atomic weapon," since they would appear not to embrace any subject not covered by undeleted clause (1) which reads: "(1) in the production or utilization of special nuclear material or atomic energy."

(b) Extending from 90 to 180 days—a more reasonable period—the time in which to file reports.

(c) Deleting as superfluous the existing clause "whichever of the following is the later: either—days after completion of such invention or discovery; or the ninetieth" since it would appear not to embrace any circumstance not covered by the undeleted clause "after such person first discovers or first has reason to believe that such invention or discovery is useful in such production or utilization."

Section 9. Amendment to add subsection e to section 151 of the Atomic Energy Act of 1954, as amended, to afford statutory sanction to existing Commission practice.

The proposed amendment to section 151 would add subsection e to afford express statutory sanction to existing Commission practice. The form of the proposed subsection e follows closely that of 35 U.S.C. 122.

Section 10. Amendment to section 152 of the Atomic Energy Act of 1954, as amended, to substitute clarifying phrases for existing language as well as to eliminate "relationship" and the phrase "in connection with."

The proposed amendments to section 152 would substitute clarifying phrases for existing language as well as to eliminate certain phrases and would amend the section in nine respects by—

(a) Substituting the phrase "contract, subcontract, or arrangement entered into with or for the benefit of the Commission" for the existing phrase

"contract, subcontract, arrangement, or other relationship with the Commission" wherever the latter phrase appears.

(b) Substituting the phrase "contract, subcontract, or arrangement," for the existing phrase "contract or arrangement" wherever the latter phrase appears. This substitution would be a corollary of the substitution discussed immediately above.

(c) Substituting the phrase "in the course of or under" for the existing word "under" and the existing phrase "in the course of, in connection with, or under the terms of" wherever that word or phrase appears.

(d) Substituting the clarifying phrase "shall be vested in, and be the property of" for the rather vague existing phrase "shall be deemed to have been made or conceived by" which appears in the first sentence.

(e) Adding the clarifying parenthetical phrase "(unless the Commission advises the Commissioner of Patents that its rights have been determined and that accordingly no statement is necessary)" thereby obviating the necessity for a statement where the rights of the Government have been determined.

(f) Substituting the clarifying phrase "as soon as the application is otherwise in condition for allowance" for the existing word "forthwith" which appears in the last sentence of the first paragraph and which has no express antecedent.

(g) Substituting the phrase "under such" for the existing superfluous phrase "if made or conceived by any person at or in connection with any laboratory under the jurisdiction of the Commission as provided in section 31 or under such other" which appears in the first paragraph.

(h) Adding the following sentence to the end of the last paragraph:

"A determination of rights by the Commission pursuant to a contract, provision or other arrangement prior to the request of the Commissioner of Patents for the statement, shall be final in the absence of false material statement or nondisclosure of material facts by the applicant."

This amendment is intended to afford the applicant reasonable assurance that should the Commission (although not required to do so) make the determination prior to the request of the Commissioner of Patents for the statement, such determination would be final in the absence of special circumstances warranting subsequent modification.

Section 11. Amendment to delete section 155 of the Atomic Energy Act of 1954, as amended.

The proposed amendment would amend section 155 of the act by deleting it as most technical data, except for weapon technology, on which patents cannot be secured pursuant to section 151 a., is declassifiable or has been declassified for some time so that there is no longer a large area of classified general technology. In the Commission's experience the U.S. Patent Office has been applying section 155 rigidly in the prosecution of Commission patent applications necessitating considerable work in the preparation of affidavits and other materials to overcome references which has delayed the issuance of patents to the Commission.

Section 12. Amendment to section 157 of the Atomic Energy Act of 1954, as amended, to renumber the section and to add subsection (d), 6-year period of limitation.

The proposed amendment would amend section 157 of the act by renumbering the section as required by the deletion of section 155 and by adding a subsection (d) a 6-year period of limitation. In the absence of an express period of limitation, doubt might arise as to whether any period of limitation exists. We note in this connection that a 6-year period of limitations is imposed in 35 U.S.C. 286 with regard to suits for patent infringement, and the same period is imposed in 28 U.S.C. 2401 a. with regard to civil actions against the Government.

Section 13. Amendment to delete section 158 and to renumber sections 159 and 160, of the Atomic Energy Act of 1954, as amended.

The proposed amendment would amend section 158 of the act by deleting it as superfluous, since Federal courts often without express statutory authority require in their antitrust decrees that patents be licensed. Furthermore, such decrees may not even require the licensee to pay royalties. Since section 158 requires the payment of a reasonable royalty fee, the patent owner may be subject to a less onerous penalty for violating the antitrust laws if the patents involved are subject to section 158 of the act.

This proposal would also amend sections 159 and 160 of the act by renumbering them as would be required by the deletion of sections 155 and 158.

Section 14. Amendment to add new subsection w to section 161 of the Atomic Energy Act of 1954, as amended, to establish atomic energy exhibits.

The Commission recently has received proposals from educational institutions requesting financial support for atomic energy exhibit and demonstration programs. Typical of these is a proposal from the California Museum of Science and Industry for \$350,000. Less formal overtures have been made by other institutions, including one other located in California. A brief summary of the proposal from the California Museum of Science and Industry is attached as annex 1 to this appendix.

The Commission believes that exhibits of the type proposed would increase public understanding of atomic energy and heighten the interest of youth in science.

From its inception, the Commission has reported to the U.S. public the facts essential for understanding Commission programs and the scientific and technical foundations thereof. Recognizing that exhibits are effective instruments for conveying information on complex technical subjects to lay audiences, the Commission approved early in 1956 the establishment of a traveling exhibits program. Today this program encompasses 26 exhibits units operated for the Commission by the Oak Ridge Institute of Nuclear Studies (ORINS).

In addition to the traveling exhibits, the Commission has two permanent exhibits for domestic viewing.

The American Museum of Atomic Energy at Oak Ridge, operated for the Commission by ORINS, offers a 12,000-square-foot exhibit of the history and peaceful uses of atomic energy which is open to the public without charge. During its 12 years of operation, the museum has been visited by U.S. citizens from every State and residents of 72 foreign countries.

Another long-term exhibit, but smaller, is at the Chicago Museum of Science and Industry. Since 1955, the Chicago museum has devoted 5,500 square feet of space to an "Atoms for Peace" exhibit composed of items and displays from the Geneva 1955 and 1958 technical exhibits.

However, the Commission, as a matter of policy, does not favor exhibit financial support of the type proposed unless equal opportunity is available to similar institutions in other States for comparable proposals. Rather than offer financial help to all institutions on a case-by-case basis without regard to location, the Commission believes that equity would be better served if assistance were offered directly to all the States on a matching funds basis.

The proposed bill would authorize the Commission to make grants to a "State," which is defined to include any State, Territory, or possession of the United States, the Canal Zone, Puerto Rico, and the District of Columbia, on a matching fund basis, for the purpose of establishing an atomic energy exhibit in each State. To be eligible for such a grant, a proposal must be made by the Governor or, in case of the District of Columbia, by the District Commissioners, and must be acceptable to the Commission. Further, the proposal must be received, but not necessarily acted upon by the Commission, between July 1, 1961, and June 30, 1966. The size of the grant is to be not less than \$50,000 or more than \$350,000.

The minimum amount of \$50,000 has been specified in order to eliminate requests for small or relatively inexpensive exhibits which the Commission believes each State should provide without Commission financial assistance. The maximum amount which the Commission may contribute will not limit the maximum amount that a State may expend in excess of the matching Commission funds. The Commission would propose to furnish to the State, in addition to the grant, such technical advice and other assistance as the Commission may deem necessary or desirable.

In addition, the draft bill provides that the proposal must set forth the general features of the proposed exhibit and the provisions for its operation and maintenance. Other pertinent information may be required by the Commission.

In this connection, the Commission will not grant funds for an exhibit which will not be used to fulfill generally the Commission's informational and educational objectives. The Commission, in developing standards for the program, will give full recognition to the differing requirements of the States including the preferences of the States for either stationary or mobile-type exhibits. The Commission's criteria will provide that the AEC's contribution may be expended for such items, among others, as designing, fabricating, installing or purchasing of the atomic energy exhibit and associated equipment. In addition, the criteria will require the State to meet minimum Commission information and education objectives and minimum AEC standards for good exhibit practices. Further, the criteria will include provisions requiring continued operation and maintenance of the exhibit for a minimum period of time at no expense to the Commission.

The maximum cost to be incurred by the Commission by this grant program shall not exceed \$5 million over the 5-year period specified for the program. The

Commission will budget for this program in each of the fiscal years involved based on qualified, valid proposals submitted to the Commission by the Governors of the States.

The draft legislation makes it clear that the grants made by the Commission under the authority of the bill may not be utilized for the acquisition, purchase or lease of land or buildings, or for the operation or maintenance of the exhibit. The Commission believes that the State, rather than the Commission, should provide for the housing of the exhibits and for the continued maintenance thereof.

Section 15. Amendment to section 167 of the Atomic Energy Act of 1954, as amended, to permit settlement of claims for damages resulting from programs carried on by the Commission involving the detonation of explosive devices.

An act to amend section 167 of the Atomic Energy Act to permit settlement of claims for damages resulting from programs carried on by the Commission involving the detonation of nuclear explosive devices was informally discussed with the staffs of the JCAE and BOB during the latter part of 1959 and early part of 1960, and agreement was reached in principle.

Section 167 now authorizes the Commission, without a showing of fault on the part of the Government, to settle claims for \$5,000 or less against the United States for money damages resulting from the Commission's program for testing weapons. At the time section 167 was enacted, the only program carried on by the Commission which involved the detonation of nuclear or other explosive devices was weapons testing. Such weapons testing program was carried on either in the Pacific or at the Nevada test site, both relatively remote places. Under such circumstances the Commission's claims settlement authority under section 167 was then believed to be adequate.

The Commission now is carrying on two other programs which will require the detonation of nuclear or other explosive devices (the Plowshare and the seismic improvement programs). It is possible that the Commission may undertake other programs of similar nature in the future. Further, for technical reasons, such programs may be carried on in areas that are less remote than those carried on in the weapons testing program. Therefore, claims for damages from such programs are more likely to result.

It is therefore believed desirable that the Commission's authority to settle claims under section 167 be expanded to cover these other programs. The amended section 167 also will provide for the Commission's reporting to Congress, for its consideration, meritorious claims in excess of \$5,000, a provision similar to that contained in the claim settlement authority of the armed services and NASA. The experience of the armed services appears to be that the \$5,000 limitation presents no administrative difficulty. The Navy Department, for example, routinely recommends to Congress settlement of many claims in excess of \$5,000 and there are no known cases in which Congress has denied the claims recommended to it by the Navy.

Enactment of the proposed amendment would enable the Commission to settle small claims for damages resulting from the seismic improvement and Plowshare programs, as it now can do in connection with the weapons testing program. The proposed reporting procedure would enable the Commission to recommend to Congress payment of claims which are in excess of this amount, with a reasonable assurance that Congress will carry out these recommendations. Such procedure should do much to meet the problems raised by industries which may suffer damage over \$5,000 as a result of the programs. For example, the potash mining industry near Carlsbad, N. Mex., claims that it would suffer damages amounting to millions of dollars in the event one of its mines were damaged by a proposed Plowshare shot.

It is not expected that this proposed legislation will entirely satisfy the potash industry because the industry argues that, if potash mines are damaged, the damages will total millions of dollars.

Section 16. Amendment to add a new section 190 to the Atomic Energy Act of 1954, as amended, to prohibit the use of licensee accident reports as evidence in civil litigation for damages arising out of any matter mentioned in such reports.

A proposed amendment to add a new section 190 was submitted to the 86th Congress as part of the Commission's 1960 omnibus bill and was incorporated in H.R. 11979 and S. 3461 as section 15. As submitted in the 1960 omnibus bill, the section would have included Commission accident reports as well as licensee accident reports. However, during the JCAE "hearings" on May 17-18, 1960, concerning the 1960 omnibus bill the JCAE requested and the Commission representatives agreed to drop the "Commission reports" portion from the bill.

The proposed new section 190 to the Atomic Energy Act of 1954, as amended, provides that no report by any licensee of any incident arising out of or in con-

nection with a licensed activity, made pursuant to any requirement of the Commission, is to be admitted into evidence or used in any suit or action for damages growing out of any matter mentioned in such report.

In recommending the above legislation, the Commission believes that members of the public are entitled to reports of incidents which occur in licensed operations, since their health and safety may be involved. The Commission is under an obligation to investigate such incidents and to report to the public the facts relating to such incidents, together with its opinion as to the cause of the incident. By prohibiting the use of licensee accident reports in civil actions arising out of such accidents, the public may be kept informed without prejudicing the licensee in suits arising out of such accidents and without permitting the reports to become a matter of controversy in civil litigation.

The practice of other agencies which receive accident reports in connection with their licensing functions is not uniform. For example, aircraft accident reports of the operators submitted to the CAB are submitted on forms provided by the Board and are available for public inspection, and are admissible in evidence. On the other hand, the accident reports prepared by the CAB itself are not admissible in evidence. The ICC, which requires the submission of accident reports on interstate motor vehicle transportation accidents, does not make such reports available for public inspection. Similarly, reports of railroad accidents submitted to the ICC are also unavailable for public examination except under specified circumstances after approval by the ICC. With respect to both motor carrier and railroad accident reports, there is specific legislation prohibiting the use of such reports in any tort litigation resulting from the accidents.

Section 17. Amendment of section 4(c) of the Euratom Cooperation Act of 1958 to eliminate "minimum levels of fuel element cost" and to eliminate any implication that the AEC is obliged to publish specific numerical values for fuel element performance and fabrication costs.

The proposed amendment was submitted to the 86th Congress as part of the Commission's 1960 omnibus bill and was incorporated in H.R. 11979 and S. 3461 as section 16.

The proposed amendment of section 4(c) would eliminate language relating to the establishment of minimum levels of fuel element cost in order to remove any statutory implication that the AEC is obliged to publish specific numerical values for fuel element performance and fabrication costs.

Section 4 of the act, which pertains to the fuel cycle guarantee portion of the Euratom program, includes principles to guide the Commission in the selection of joint projects. Subsection (c) provides that the Commission shall establish and publish minimum levels of fuel element cost and life to be guaranteed by the manufacturer as a basis for inviting and evaluating proposals.

The objectives of subsection (c) are to assure that both industry and the Government would share the burden of fuel cycle guarantees, that private manufacturers would have to provide a certain level of guarantees on their own before the projects involved could qualify for the supplementary guarantees offered by the Commission, and that the liability of the Government would be limited to a reasonable amount.

The committee report on the Euratom Cooperation Act (S. Rept. No. 2370, 85th Cong., 2d sess.) makes it clear that Congress intended the Commission to publish standards as to the maximum fuel element costs and minimum fuel performance (or life) which private manufacturers would have to meet in order to qualify for the supplementary guarantees offered by the Commission under the program. Subsection (c) is misleading, however, in that it indicates that the Commission will publish minimum, rather than maximum, fuel element costs to be guaranteed by manufacturers. More importantly, the language now in the law might be interpreted as requiring the Commission to publish specific numerical values for fuel element performance and accompanying fabrication costs which manufacturers would have to meet for each type of fuel element considered for a Commission guarantee.

Because of the variation in type and extent of the guarantees which may be offered by private manufacturers, establishment of such specific numerical values is believed to be neither practicable nor equitable. Further, it would not meet the objectives of the Congress to encourage the joint reactor program at minimum cost to the United States. The Commission has established, instead, a flexible formula which, in effect, permits each manufacturer to calculate, on the basis of his particular element and reactor design, the guarantees which he must offer. This system, employing the principle of pro rata distribution of the maximum contingent liability (\$90 million), limits each manufacturer to a proportionate share of the \$90 million based on the ratio of the reactor net electrical output to

the 1,000 megawatt goal of the joint program, and the ratio of the commercial guaranteed core life to the 10-year period of the program. The proposed amendment would eliminate possible confusion emanating from the phrase "minimum levels of fuel element cost," and would remove any implication that the Commission is obliged to publish specific numerical values. It also would permit an equitable distribution of the protection under the guarantee program among various manufacturers. Further, the Commission believes the proposed amendment is consistent with the congressional objectives regarding the program.

Section 18. Amendment to section 4(e) of the Euratom Cooperation Act of 1958 to make clear that the Commission's patent rights are limited to inventions made or conceived in the course of the supply contract on the fuel element to be guaranteed and inventions on such fuel elements during the guarantee contract.

A proposed amendment to section 4(e) was submitted to the 86th Congress as part of the Commission's 1960 omnibus bill and was incorporated in H.R. 11979 and S. 3461 as section 15. The present proposed amendment differs from that in the 1960 omnibus bill.

Subsection (e) of section 4 of the Euratom Cooperation Act states:

"(e) The Commission shall obtain a royalty-free nonexclusive, irrevocable license for governmental purposes to any patents on inventions or discoveries made or conceived by the manufacturer in the course of development or fabrication of fuel elements during the period covered by the Commission's guarantee." It has been noted that the wording of subsection 4(e) of the act may oblige the Commission to obtain a license to use any patent on inventions or discoveries conceived by the fuel fabricator during the period of the Commission's guarantee even though the invention related to fuel elements not covered by the Commission's guarantee. This language, which has been severely criticized by industry, permits a broader interpretation than we believe was intended by the Congress. Accordingly, the proposed amendment will relate the patent rights to be received by the Government to the particular fuel elements covered by the AEC guarantee. Limiting Commission license rights to fuel elements covered by our guarantees is believed to be reasonable and would be beneficial to the Euratom program in that it should encourage more companies to participate.

At the hearings in May 1960 on the omnibus bill, Representative Holifield and Mr. Ramey of the Joint Committee expressed the opinion that it appeared desirable that the present proposed language of subsection 4(e) be expanded so that it would extend to the period before the guarantee but not include background patents. It is understood that what they were particularly desirous of covering was the period after the effective date of the contract for the fuel elements but before the effective date of the guarantee.

The staff of the Joint Committee subsequently communicated with the Commission staff in order to develop language to accomplish the above-mentioned objectives. The Commission staff made certain suggestions for revision with the understanding that it was being done purely for drafting purposes. The suggested revision reads as follows:

"SEC. 4(e). The Commission shall receive a royalty-free, nonexclusive, irrevocable license for governmental purposes to any patents on inventions or discoveries made or conceived by the manufacturer on the fuel elements to be guaranteed, in the course of and under the contract for the supply of such fuel elements, and inventions or discoveries made or conceived on such fuel elements during the period of the Commission's guarantee contract."

The Commission agrees with Mr. Holifield and the Joint Committee staff that the inventions or discoveries will usually come into being before the effective date of the guarantee. Under the revised language the Commission would receive rights in exchange for the guarantee during the period of time when the inventions are most likely to be made. However, it should be recognized that industry may well object to this provision.

Section 19. Amendment to section 5 of the Euratom Cooperation Act of 1958 to permit the Atomic Energy Commission to distribute by sale or lease additional quantities of plutonium and uranium 233 under an agreement or agreements with Euratom.

The proposed amendment, after clearance by the Bureau of the Budget was submitted by the AEC to the 86th Congress on June 10, 1960.

Section 5 of the Euratom Cooperation Act of 1958 now authorizes the Commission to transfer 1 kilogram of plutonium under the U.S. Euratom Agreement for Cooperation. No provision is made for the transfer of uranium 233. The proposed amendment to section 5 authorizes the Commission to transfer 8 additional kilograms of plutonium, and 30 kilograms of uranium 233. Some of these

materials, together with part of the 30,000 kilograms of uranium 235 now included in section 5, but no longer needed in the joint program, would be provided Euratom under the U.S.-Euratom additional agreement which came into effect on July 25, 1960, rather than under the present joint program agreement. Therefore, the proposed amendment to section 5 also adds the words "or agreements" in order that the additional agreement, as well as the joint program agreement are contained within the scope of the Euratom Cooperation Act.

Euratom has underway a research and development program which will require relatively substantial quantities of plutonium over the next 4 years. The most pressing and immediate need is for about 8.3 kilograms of plutonium for 2 multi-million-dollar plutonium recycling research projects which are planned to be initiated in the Community under the U.S.-Euratom joint research and development program. Work in this area is specifically provided for under article II of the joint program agreement. The two projects are of considerable interest to U.S. investigators in this field, and they have already been approved by the Joint Research and Development Board. Euratom also requires approximately 700 grams of plutonium for uses outside the joint program, including early bench scalework related to the development of fast breeder reactors and miscellaneous basic research projects. This 700 grams plus the 8.3 kilograms of plutonium described in the previous paragraph, constitute the 9 kilograms quantity proposed in the amendment to section 5.

The Italian National Committee for Nuclear Research plans to start up an experimental plant for reprocessing irradiated uranium-thorium fuel elements during the first half of 1964. This project has received the endorsement of the AEC's Division of Reactor Development. Italy, however, has stated that it will not be able to initiate construction of this project on schedule unless it can be assured that the Commission is willing to transfer the needed materials including 30 kilograms of uranium 233 in fuel elements from the U.S. Elk River reactor when they are available. Italy has expressed a strong interest in supporting Euratom and in receiving the foregoing fuel requirements through the Community, and provision has been made for supply of the material under the additional agreement.

Section 20. Amendment to section 7 of the Euratom Cooperation Act of 1958, to exempt U.S. research and development contracts from the requirement of disclaimer or indemnity arrangements in favor of the U.S. Government.

The proposed amendment was submitted to the 86th Congress as part of the Commission's 1960 omnibus bill and was incorporated in H.R. 11979 and S. 3461 as section 18.

The proposed amendment of section 7 would exempt U.S. research and development contracts from the requirement of disclaimer or indemnity arrangements in favor of the U.S. Government. This amendment eliminates the requirement for the United States to secure disclaimer or indemnity agreements from its contractors under the joint research and development program of the Euratom Cooperation Act.

Section 7 of the Euratom Cooperation Act of 1958 provides that the United States "shall not be liable for any damages or third party liability arising out of or resulting from the joint program," and requires that the U.S. Government "take such steps as may be necessary, including appropriate disclaimer or indemnity arrangements, in order to carry out" this provision. This language requires the Atomic Energy Commission to secure indemnity agreements from its contractors under the joint research and development program. This is contrary to the general policy normally followed by the Atomic Energy Commission in domestic research and development contracts under which either there is no indemnity agreement or the Commission indemnifies the contractor. No necessity for this reversal of policy in the joint program is perceived, nor is it believed that Congress intended this result which stems from the broad language of section 7. It is probable that the requirement for inclusion of such indemnities in favor of the Government would impede acceptance by prospective U.S. contractors of tasks under the Euratom research and development program. The proposed amendment would remedy this situation by exempting Commission research and development contracts from the requirements of section 7.

ANNEX TO APPENDIX 1

SUMMARY OF CALIFORNIA MUSEUM OF SCIENCE AND INDUSTRIAL PROPOSAL

The State of California and the California Museum Foundation are prepared to take the following steps to provide adequate facilities and operational costs for a major exhibit on the peaceful uses of atomic energy to be built adjacent to the science wing of the California Museum of Science and Industry in Exposition Park:

- A. (1) \$200,000 for actual construction of a 12,000-square-foot building;
- (2) \$36,000 for provision of utilities and air conditioning;
- (3) \$40,000 for parking facilities, landscaping, and service walks;
- (4) Land estimated at approximately \$75,000 for the site of the wing;
- (5) \$30,000 each year to be spent for additional lectures, guide service, janitorial service, tours under the direction of the department of education of the museum, administrative costs, and employee fringe benefit costs.

Please note that the actual amount of the expenditures for (1) through (4) total \$351,000 and that this amount is available and on hand at this moment for immediate use. In addition, the museum is prepared and has permission to budget, as soon as such is necessary, the \$30,100 necessary for the items listed in (3).

The California Museum of Science and Industry has requested that the Atomic Energy Commission of the U.S. Government join in this program by—

- B. (1) Advancing \$350,000 necessary for construction of the exhibit on atomic energy;
- (2) Supervising all design for technical accuracy;
- (3) Assisting with a small yearly sum to keep the exhibit up to date.

APPENDIX 2

VOLPE, BOSKEY & SKALLERUP,
Washington, D.C., July 5, 1961.

HON. CHET HOLIFIELD,
*Chairman, Joint Committee on Atomic Energy,
Congress of the United States, Washington, D.C.*

DEAR MR. HOLIFIELD: In examining the AEC omnibus bill which the Atomic Energy Commission has put forward for consideration this year (H.R. 7798), I note that the bill once again includes a number of proposals (secs. 7 through 13) relating to patents and inventions. These are in substance the same as proposals which, although suggested by the Commission in previous years, have not as yet been either recommended by the Joint Committee or enacted by the Congress.

A number of these proposals were the subject of testimony before the Joint Committee in April 1959, at which time I appeared as one of the witnesses and presented my own views concerning their merits.

The intervening lapse of time, it seems to me, has not yielded experience which substantially alters the situations to which these particular proposals of the Commission previously have been and now are once again addressed. Some of the amendments proposed by the Commission would bring about improvement in the patent and invention sections of the act. Others, in my view, are changes which it would be better to leave unmade.

In the latter category I would particularly include the Commission's proposal (sec. 13 of H.R. 7798) to delete the present section 158 of the Atomic Energy Act, entitled "Monopolistic Use of Patents." Section 158, it will be recalled, now provides that where atomic energy patents have been found by a court to have been intentionally used in violation of the antitrust laws, the court in its decree may (in addition to any other lawful sanctions) direct that the patents shall be made available to other Commission licensees on a reasonable royalty basis, with the reasonable royalty being subject to determination in a proceeding before the AEC Patent Compensation Board. It may be that, as the Commission has suggested, the special provisions now contained in section 158 can in one sense be looked upon as somewhat superfluous—the argument being that they do not add anything, or at least not anything very much, to the remedies which would otherwise be available under generally applicable existing law if there were no section 158. Yet even in this connection it should be noted that—with respect to those patents which as a result of antitrust violations are opened up by court decree for licensing on a reasonable royalty basis—section 158 in its present form

does provide for the more flexible and possibly more desirable procedure of having the reasonable royalty determined by the AEC Patent Compensation Board rather than by the court itself.

Far more important than this, however, is the fact that the presence of section 158 in the Atomic Energy Act constitutes a wholesome and express affirmation of the principle that in the field of atomic energy the use of patents in violation of the antitrust laws would be a serious matter. Deletion of section 158 from the act would serve no useful purpose and might create the erroneous impression that the Congress is less interested today than it was in 1954 in assuring effective antitrust safeguards in the field of atomic energy. Indeed, if any thought is now to be given to changing section 158, I suggest it would be more in the public interest for the Joint Committee to consider whether the practical remedies furnished to combat antitrust violations ought to be strengthened, rather than whether section 158 ought to be deleted.

Another point of difficulty arises in connection with the Commission's proposed amendment (sec. 8 of H.R. 7798) to the provision governing reporting of atomic energy inventions. There the Commission, among other things, would amend the act so that the inventor would be required to file his invention report within a specified period of time "after such person first discovers or first has reason to believe that such invention or discovery is useful" in the production or utilization of atomic energy. The present section 151, by contrast, expressly authorizes the inventor to file his report within a specified period of time "after completion of such invention." This test at least has a reasonable degree of definiteness and certainty for the inventor; he knows that until he has completed his invention the reporting obligation does not attach. The Commission's proposed change would make the matter far more ambiguous. It would leave the inventor uncertain as to whether the period begins to run from the day on which he first conceives the idea relating to the invention, no matter how much longer it may take and how many changes may be required before the idea is worked out to a stage where a completed invention could be deemed to exist. The present test of "completion" avoids this ambiguity; it prevents the inventor from being plagued by the uncertainty as to whether he must spend his time engaging in premature reporting instead of working out his invention. There already are enough obstacles standing in the way of inventors in the atomic energy field without making changes in the act which would add this unnecessary and burdensome kind of uncertainty.

As already indicated, my own view is that some of the Commission's proposed changes in the patent and invention sections have considerable merit—although it is doubtful whether any of them can be said to be urgently needed from the standpoint of the atomic energy program in its larger aspects. But it would seem clearly undesirable to accept the Commission's proposals in their entirety. If any of them are to be approved, a process of careful selection is in order. In other words, while the Commission has once again offered proposals in this area which are the same as proposals it offered in past years, this circumstance does not mean that objections previously voiced to certain of these proposals have been overcome or have disappeared.

With all good wishes.

Sincerely yours,

BENNETT BOSKEY.

APPENDIX 3

TEXAS INSTRUMENTS, INC.,
Dallas, Texas, June 29, 1961.

HON. CHET HOLIFIELD,
Congress of the United States,
Joint Committee on Atomic Energy,
House Office Building, Washington, D.C.

DEAR SIR: Texas Instruments, Inc., understands that the Joint Committee is now holding hearings on the Atomic Energy Commission omnibus bill. We also understand that this bill once again contains a proposal to amend the definition of "public liability" so as to exclude from Price-Anderson Act indemnity coverage the presently existing statutory indemnity for damage to onsite property, that is, damage to property located at the site of and used in connection with the licensed activities where the nuclear incident occurs. When this same proposal was pending before the Joint Committee last year, Texas Instruments, Inc., urged

that it would be definitely contrary to the public interest to adopt this proposed amendment at the present time and in its present form. We pointed out that while the problems in this area are of a complex nature, our view was that it clearly would hinder rather than help the development of nuclear energy by private enterprise if suppliers were now to be deprived of this existing reasonable and much-needed type of statutory indemnity protection without comparable indemnity protection becoming available from private insurance coverage.

We urge that for the same reasons this proposed amendment should not be adopted this year.

As we pointed out last year, the enactment of the proposed amendment in its present form would produce most serious and undesirable major gaps in coverage. The illustration which we submitted last year is equally applicable today. Let it be assumed that a nuclear incident has destroyed a reactor having a value of \$100 million, and that claims are asserted against a supplier, claiming the supplier is liable for such damage. As we understand the private insurance situation, there is at present a ceiling on the maximum insurance coverage which can be obtained from the insurance pools to cover property damage, such ceiling being in the neighborhood of approximately \$60 million. If it is assumed that \$60 million of coverage would be paid off by the insurance companies, and that their waiver of the right of subrogation would be fully effective to protect the supplier against this portion of the claim, nevertheless there would remain a very sizable gap of \$40 million of claim against the supplier. This \$40 million of gap could not be covered by private insurance at the present time. It is a very sizable gap, to which the supplier would be exposed if the existing Price-Anderson coverage were to be taken away by enactment of the proposed amendment of the law.

As we stated last year to the Joint Committee, it appears to us definitely contrary to the public interest for Congress now to create such gaps. We feel this would not be fair to suppliers, and that it would be unfortunate for the atomic energy program as a whole, and that it would help to create the very type of unjust exposure to pecuniary loss which the wise policy of Price-Anderson is designed to eliminate for the benefit of everyone.

Accordingly, once again we strongly urge that the law should not be amended in a manner which would deprive suppliers of the necessary coverage which Price-Anderson now furnishes in this respect. Last year we said that no such amendment should be adopted unless and until some other fully effective measures had been taken to eliminate the threat of these kinds of gaps in coverage. During the intervening year we have not seen any adequate exploration of these problems or any effort to find alternative solutions which would prevent such undesirable gaps from being created. Accordingly, we once again urge most strongly on the Joint Committee the undesirability and the untimeliness of this proposed amendment.

We request that this statement of our views be made a part of the record of your hearings.

Yours sincerely,

C. J. THOMSEN, *Vice President.*

APPENDIX 4

U.S. ATOMIC ENERGY COMMISSION,
August 3, 1961.

MR. JAMES T. RAMEY,
*Executive Director,
Joint Committee on Atomic Energy, Congress of the United States.*

DEAR MR. RAMEY: This is in response to your query regarding the possible effect of the amendment proposed by the AEC to section 4(c) of the Euratom Cooperation Act on the fuel element guarantees and on the U.S. contingent liabilities under such guarantees. As explained at our meeting this morning, this amendment, if adopted, will not alter in any way the original fuel guarantee arrangements which we have always envisaged as a part of the United States-Euratom joint program.

For example, the invitation to be issued shortly for power reactors to be completed by December 31, 1965, will contain the same criteria and numerical examples for computing the AEC's fuel cycle guarantee and its contingent liability thereunder as published in the 1963 invitation which was forwarded to you 2 years ago. These criteria are consistent with the provisions of the Euratom Cooperation Act and of attachment A to the United States-Euratom memoran-

dum of understanding signed in the spring of 1958 as provided in section 4(b) of the Cooperation Act. The pro rata principle for determination of compliance with minimum standards, as set forth in annex 3 of the 1963 invitation, will continue to be based on the original program goal of 1,000 MWe, thereby assuring that no additional contingent liabilities will be assumed for an individual reactor because of the presently reduced scope of the program.

The 1965 invitation will use the same guarantee levels for uranium oxide fuel elements—a minimum irradiation level of 10,000 MWD/MT and a maximum fabrication cost of \$100 and \$140 per kilogram of contained uranium for stainless steel and zircalloy elements, respectively—as given in attachment A and in the 1963 invitation. Since oxide elements are not optimum for organic-cooled reactors, we propose to include in the 1965 invitation a guarantee for uranium metal—molybdenum—aluminum elements for such reactors of 6,500 MWD/MT and \$60 per kilogram of contained uranium. Supplemental guarantees were contemplated in paragraph B.4 of attachment A, and the proposed guarantee level is supported by available data. Further, application of this guarantee for metallic uranium elements will not result in a more favorable fuel cycle cost for the reactor operator than under the earlier oxide fuel element guarantees nor will it result in exposure of the AEC to a greater contingent liability.

Finally, we should like to point out that before the AEC can assume a contingent fuel cycle guarantee liability for any specific reactor core under the joint program the contractual undertaking must be authorized by Congress.

Sincerely yours,

A. A. WELLS,

Director, Division of International Affairs.

APPENDIX 5

[H.R. 8599 (S. 2391), 87th Cong., 1st sess.]

A BILL To amend various sections of the Atomic Energy Act of 1954, as amended, and the EURATOM Cooperation Act of 1958, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby retroceded to the State of California the exclusive jurisdiction heretofore acquired from the State of California by the United States of America over the following land of the United States Atomic Energy Commission located in Alameda County, State of California, and within the boundaries of the Commission's Livermore site:

Beginning at a post marked L.P. XII, in the exterior boundary line of the Rancho Las Positas, set at the southeast corner of subdivision numbered 6 or plot J, of said rancho, as said plot is described in the decree of partition of said rancho rendered June 18, 1873, in case 2798, Aurrecoechea against Mahoney, certified copy of which decree was recorded December 13, 1873, in book 95 of deeds at page 206, Alameda County Records, and as said subdivision is shown on the map hereinafter referred to; and running thence west along the southern boundary line of said plot J 79.28 chains to a post marked L.P. XI, set at the southwest corner of subdivision numbered 5 of said plot J, as said subdivision numbered 5 is shown on said map; and thence north along the western boundary line of said subdivision numbered 5 and along the western boundary line of subdivision numbered 8, as said subdivision numbered 8 is shown on said map, 79.46 chains to a post set at the northwest corner of said subdivision numbered 8; thence east along the northern boundary line of said subdivision numbered 8 and subdivision numbered 7 as shown on said map, 79 chains to a post marked L.P. XIII; and thence south along the eastern boundary line of subdivision numbered 7, as said subdivision numbered 7 is shown on said map, and along the eastern boundary line of said subdivision numbered 6 of said plot J to the point of beginning.

Being a portion of said plot J of said rancho, as shown upon a certain map of a portion of the Rancho Las Positas surveyed for J. Aurrecoechea, August 1876, by Luis Castro, county surveyor, and also known as subdivisions 5, 6, 7, and 8 in the official map of the county of Alameda, State of California, made by George L. Nusbaumer and W. F. Boardman, adopted by the supervisors of said county, September 24, 1888, and issued May 1, 1889.

Beginning at the northeast corner of the northwest quarter of section 13, township 3 south, range 2 east, Mount Diablo base and meridian, being also the northeast corner of the 160 acre tract owned by Louis Madsen, thence south 2,640 feet, more or less, along the east line of said quarter section and along the east boundary

fence of said 160 acre tract to the southeast corner of said northwest quarter of said section 13, being the southeast corner of said 160 acre tract and the northeast corner of a 30.66 acre tract owned by John and Dora Bargman; thence south 506 feet, more or less, to the southeast corner of said 30.66 acre tract; thence south 965 feet, more or less, along the east fence of a 129.34 acre tract owned by Charles M. and Sue I. G. Nissen to a fence running east and west through said 129.34 acre parcel; thence west 500 feet along said fence through said 129.34 acre tract; thence north, parallel to the east line of the northwest quarter of said section 13, 4,111 feet, more or less, to north boundary of said section 13; thence east 500 feet to the point of beginning, containing 47,175 acres, more or less.

Beginning at a point 30 feet east of the northeast corner of the northwest quarter of said section 13; thence due south, 4,111 feet, more or less, to a point 30 feet due east of the end of a fence across the 129.34 acre tract owned by Charles M. and Sue I. G. Nissen; thence west 30 feet, thence north 4,111 feet, more or less, to the northeast corner of the northwest quarter of said section 13; thence due east 30 feet to the point of beginning, containing 2.83 acres, more or less.

This retrocession of jurisdiction shall take effect upon acceptance by the State of California.

SEC. 2. Subsection 11 b. of the Atomic Energy Act of 1954, as amended, is amended, to read as follows:

"b. The term 'agreement for cooperation' means any agreement with another nation or regional defense organization authorized or permitted by section 54, 57, 64, 82, 91 c., 103, 104, or 144, and made pursuant to section 123."

SEC. 3. Subsection 11 u. of the Atomic Energy Act of 1954, as amended, is amended to read as follows:

"u. The term 'public liability' means any legal liability arising out of or resulting from a nuclear incident, except: (i) claims under State or Federal workmen's compensation acts of employees of persons indemnified who are employed at the site of and in connection with the activity where the nuclear incident occurs; (ii) claims arising out of an act of war; and (iii) whenever used in subsections 170 a., c., and k., claims for loss of, or damage to, or loss of use of property which is located at the site of and used in connection with the licensed activity where the nuclear incident occurs. 'Public liability' also includes damage to property of persons indemnified: *Provided*, That such property is covered under the terms of the financial protection required, except property which is located at the site of and used in connection with the activity where the nuclear incident occurs."

SEC. 4. Section 54 of the Atomic Energy Act of 1954, as amended, is amended by inserting after the words "five thousand kilograms of contained uranium 235" the following: "five hundred grams of uranium 233 and three kilograms of plutonium".

SEC. 5. Section 143 of the Atomic Energy Act of 1954, as amended, is amended by striking out "subsection 145 b." and adding in lieu thereof "subsection 145 b. and 145 c."

SEC. 6. Section 145 of the Atomic Energy Act of 1954, as amended, is amended by deleting subsections d., e., and f., redesignating subsection "c." as subsection "d." and subsection "g." as subsection "h." and adding the following subsections:

"c. In lieu of the investigation and report to be made by the Civil Service Commission pursuant to subsection b. of this section, the Commission may accept an investigation and report on the character, associations, and loyalty of an individual made by another Government agency which conducts personnel security investigations, provided that a security clearance has been granted to such individual by another Government agency based on such investigation and report.

"e. If the President deems it to be in the national interest, he may from time to time determine that investigations of any group or class which are required by subsections a., b., and c. of this section be made by the Federal Bureau of Investigation.

"f. Notwithstanding the provisions of subsections a., b., and c. of this section, a majority of the members of the Commission shall certify those specific positions which are of a high degree of importance or sensitivity, and upon such certification, the investigation, and reports required by such provisions shall be made by the Federal Bureau of Investigation.

"g. The Commission shall establish standards and specifications in writing as to the scope and extent of investigations, the reports of which will be utilized by the Commission in making the determination, pursuant to subsections a., b., and c. of this section, that permitting a person access to restricted data will not endanger the common defense and security. Such standards and specifications shall be based on the location and class or kind of work to be done, and shall, among other considerations, take into account the degree of importance to the common defense and security of the restricted data to which access will be permitted."

SEC. 7. Section 151 of the Atomic Energy Act of 1954, as amended, is amended by deleting in the descriptive title the words "MILITARY UTILIZATION," and inserting in lieu thereof "INVENTIONS RELATING TO ATOMIC WEAPONS, AND FILING OF REPORTS."

SEC. 8. Subsection c. of section 151 of the Atomic Energy Act of 1954, as amended, is amended to read as follows:

"c. Any person who has made or hereafter makes any invention or discovery useful in the production or utilization of special nuclear material or atomic energy, shall file with the Commission a report containing a complete description thereof unless such invention or discovery is described in an application for a patent filed with the Commissioner of Patents by such person within the time required for the filing of such report. The report covering any such invention or discovery shall be filed on or before the one hundred and eightieth day after such person first discovers or first has reason to believe that such invention or discovery is useful in such production or utilization."

SEC. 9. Section 151 of the Atomic Energy Act of 1954, as amended, is amended by adding at the end thereof the following new subsection:

"e. Reports filed pursuant to subsection c. of this section, and applications to which access is provided under subsection d. of this section, shall be kept in confidence by the Commission, and no information concerning the same given without authority of the inventor or owner unless necessary to carry out the provisions of any Act of Congress or in such special circumstances as may be determined by the Commission."

SEC. 10. Section 152 of the Atomic Energy Act of 1954, as amended, is amended to read as follows:

"SEC. 152. INVENTIONS MADE OR CONCEIVED DURING COMMISSION CONTRACTS.—Any invention or discovery, useful in the production or utilization of special nuclear material or atomic energy, made or conceived in the course of or under any contract, subcontract, or arrangement entered into with or for the benefit of the Commission, regardless of whether the contract, subcontract, or arrangement involved the expenditure of funds by the Commission, shall be vested in, and be the property of, the Commission, except that the Commission may waive its claim to any such invention or discovery under such circumstances as the Commission may deem appropriate, consistent with the policy of this section. No patent for any invention or discovery, useful in the production or utilization of special nuclear material or atomic energy, shall be issued unless the applicant files with the application, or within thirty days after request therefor by the Commissioner of Patents (unless the Commission advises the Commissioner of Patents that its rights have been determined and that accordingly no statement is necessary) a statement under oath setting forth the full facts surrounding the making or conception of the invention or discovery described in the application and whether the invention or discovery was made or conceived in the course of or under any contract, subcontract, or arrangement entered into with or for the benefit of the Commission, regardless of whether the contract, subcontract, or arrangement involved the expenditure of funds by the Commission. The Commissioner of Patents shall, as soon as the application is otherwise in condition for allowance, forward copies of the application and the statement to the Commission.

"The Commissioner of Patents may proceed with the application and issue the patent to the applicant (if the invention or discovery is otherwise patentable) unless the Commission, within 90 days after receipt of copies of the application and statement, directs the Commissioner of Patents to issue the patent to the Commission (if the invention or discovery is otherwise patentable) to be held by the Commission as the agent of and on behalf of the United States.

"If the Commission files such a direction with the Commissioner of Patents, and if the applicant's statement claims, and the the applicant still believes that the invention or discovery was not made or conceived in the course of or under any contract, subcontract, or arrangement entered into with or for the benefit of the Commission entitling the Commission to the title to the application or the patent, the applicant may, within 30 days after notification of the filing of such a direction, request a hearing before a Board of Patent Interferences. The Board shall have the power to hear and determine whether the Commission was entitled to the direction filed with the Commissioner of Patents. The Board shall follow the rules and procedures established for interference cases and an appeal may be taken by either the applicant or the Commission from the final order of the Board of the Court of Customs and Patent Appeals in accordance with the procedures governing the appeals from the Board of Patent Interferences.

"If the statement filed by the applicant should thereafter be found to contain false material statements any notification by the Commission that it has no objections to the issuance of a patent to the applicant shall not be deemed in any respect to constitute a waiver of the provisions of this section or of any applicable civil or criminal statute, and the Commission may have the title to the patent transferred to the Commission on the records of the Commissioner of Patents in accordance with the provisions of this section. A determination of rights by the Commission pursuant to a contractual provision or other arrangement prior to the request of the Commissioner of Patents for the statement, shall be final in the absence of false material statements or nondisclosure of material facts by the applicant."

SEC. 11. Section 157 of the Atomic Energy Act of 1954, as amended, is amended by adding at the end thereof the following new subsection:

"d. PERIOD OF LIMITATIONS.—Every application under this section shall be barred unless filed within six years after the date on which first accrues the right to such reasonable royalty fee, just compensation, or award for which such application is filed."

SEC. 12. The second sentence of section 158 of the Atomic Energy Act of 1954, as amended, is amended to read as follows: "If the court, at its discretion, deems that such licensee shall pay a reasonable royalty to the owner of the patent, the reasonable royalty shall be determined in accordance with section 157."

SEC. 13. Subsections 161 t., u., and v. of the Atomic Energy Act of 1954, as amended, are hereby redesignated respectively as subsections 161 s., t., and u.

SEC. 14. Section 167 of the Atomic Energy Act of 1954, as amended, is amended to read as follows:

"SEC. 167. CLAIMS SETTLEMENTS.—The Commission acting on behalf of the United States, is authorized to consider, ascertain, adjust, determine, settle, and pay any claim for money damage of \$5,000 or less against the United States for bodily injury, death, or damage to or loss of real or personal property resulting from any detonation, explosion, or radiation produced in the conduct of any program undertaken by the Commission involving the detonation of an explosive device where such claim is presented to the Commission in writing within one year after the accident or incident out of which the claim arises: *Provided, however,* That the damage to or loss of property, or bodily injury or death, shall not have been caused in whole or in part by any negligence or wrongful act on the part of the claimant, his agents, or employees. Any such settlement under the authority of this section shall be final and conclusive for all purposes, notwithstanding any other provision of law to the contrary. If the Commission considers that a claim in excess of \$5,000 is meritorious and would otherwise be covered by this section, the Commission may report the facts and circumstances thereof to the Congress for its consideration."

SEC. 15. Subsection d. of section 170 of the Atomic Energy Act of 1954, as amended, is amended by adding at the end thereof the following new sentence: "A contractor with whom an agreement of indemnification has been executed and who is engaged in activities connected with the underground detonation of a nuclear explosive device shall be liable, to the extent so indemnified under this section, for injuries or damage sustained as a result of such detonation in the same manner and to the same extent as would a private person acting as principal, and no immunity or defense founded in the Federal, State, or municipal character of the contractor or of the work to be performed under the contract shall be effective to bar such liability."

SEC. 16. The Atomic Energy Act of 1954, as amended, is amended by adding thereto the following new section:

"SEC. 190. LICENSEE INCIDENT REPORTS.—No report by any licensee of any incident arising out of or in connection with a licensed activity made pursuant to any requirement of the Commission shall be admitted as evidence in any suit or action for damages growing out of any matter mentioned in such report."

SEC. 17. The second sentence of section 202 of the Atomic Energy Act of 1954, as amended, is amended by striking out the word "sixty" and adding in lieu thereof the word "ninety".

SEC. 18. Section 4(c) of the EURATOM Cooperation Act of 1958 is amended to read as follows:

"SEC. 4. (a) The Commission shall establish and publish criteria for computing the maximum fuel element charge and minimum fuel element life to be guaranteed by the manufacturer as a basis for inviting and evaluating proposals."

SEC. 19. Section 5 of the EURATOM Cooperation Act of 1958 is amended in the following particulars:

(a) by deleting the words "One kilogram" and substituting the words "Nine kilograms" immediately following "Thirty thousand kilograms of contained uranium 235",

(b) by adding the words "Thirty kilograms of uranium 233" as an additional item immediately following "Nine kilograms of plutonium", and

(c) by adding the words "or agreements" immediately following the words "an agreement".

SEC. 20. Section 7 of the EURATOM Cooperation Act of 1958 is amended by deleting the period after the word "amended" and inserting thereafter the following: "*And provided further, That nothing in this section shall apply to arrangements made by the Commission under a research and development program authorized in section 3.*"

AN AMENDMENT TO SECTION 170 OF THE ATOMIC ENERGY ACT

THURSDAY, JUNE 29, 1961

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON LEGISLATION,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D.C.

The subcommittee met at 3 p.m., pursuant to call, in room P-63, the Capitol, Senator John O. Pastore (chairman of the subcommittee) presiding.

Present: Senators Pastore, Anderson, and Hickenlooper; Representatives Morris and Van Zandt.

Present also: James T. Ramey, executive director, and Jack R. Newman, professional staff member, Joint Committee on Atomic Energy.

Senator PASTORE. The Joint Committee will receive testimony this afternoon from several public witnesses concerning S. 1144, introduced by Senator Anderson, and H.R. 5215,¹ introduced by Congressman Morris. These bills would amend section 170 of the Atomic Energy Act of 1954 to make the Government liable without proof of fault for damages resulting from deliberate underground nuclear detonations.

Consideration of these bills is especially timely now, in view of the Commission's contemplated detonation of a 5-kiloton nuclear device underground at a site near Carlsbad, N. Mex., the so-called Project Gnome experiment. This experiment is part of the Commission's Plowshare program.

The AEC will testify on these bills during the course of the annual indemnity hearings to be held during the week of July 17, 1961. At that time, we also expect to hear from other public witnesses on this project.

Our first witness this afternoon is Mr. Nelson C. White, vice president in charge of planning for the International Minerals & Chemical Corp.

It is a pleasure to have you with us, Mr. White; and if you are ready, so are we. You may take your seat there at the witness table and testify in any fashion you deem appropriate and convenient for yourself.

STATEMENTS OF NELSON C. WHITE AND B. L. BESSINGER, INTERNATIONAL MINERALS & CHEMICAL CORP., CHICAGO, ILL.

Mr. WHITE. Gentlemen of the Joint Committee, my name is Nelson C. White. I am vice president in charge of planning for International Minerals & Chemical Corp. My address is International Minerals &

¹ See appendix 4, p. 139, for H. R. 5215 and S. 1144, and the draft substitute bill, which became section 15, of H. R. 8599 and S. 2319, the 1961 AEC "Omnibus" bills.

Chemical Corp., Administrative Center, Old Orchard Road, Skokie, Ill. I have been employed by International Minerals & Chemical Corp. since 1942 in the capacity of production engineer of the magnesium plant operated by it in Austin, Tex., as supervisor of chemical research, as assistant manager at the Carlsbad mines, as general manager of the potash division of the company, and as vice president of the potash division of the company. In 1925 I received a degree in chemical engineering from the University of Rhode Island and a professional chemical engineering degree from the same school in 1931.

Senator PASTORE. You were never more welcome, Mr. White.

Mr. WHITE. I have actively engaged in the practice of my profession since my graduation.

I am accompanied to the stand by Mr. B. L. Bessinger, a graduate of the Colorado School of Mines with a professional degree as engineer of mines. Prior to becoming employed by International, Mr. Bessinger was employed by Phelps Dodge Corp. of Bisbee, Ariz. He was employed 7 years by Duval Sulphur and Potash Co. as mining engineer, and is presently project engineer for International Minerals and Chemical Corp. at its potash mine in Carlsbad. He is a registered professional engineer.

We very much appreciate this opportunity to present the views of the potash industry to the Joint Committee on Atomic Energy in support of S. 1144 and H.R. 5215, which we consider to be legislation of the most vital importance, not only to the potash industry, but to all who may be subjected to the possibility of damages from the deliberate underground detonation of nuclear explosive devices not arising out of an act of war.

We speak here not only for our company, International Minerals and Chemical Corp.—the mine and ore-bodies of which are closest to the proposed blast site—but also for the six other companies which have potash mines, refineries and ore bodies in the general area of the blast site near Carlsbad, N. Mex. These companies are: United States Borax and Chemical Co., Potash Co. of America, Duval Sulphur and Potash Co., Southwest Potash Co., National Potash Co., and Farm Chemical Resources Development Corp. These companies represent the entire industry in the United States engaged in mining and refining of potassium salts from the salt beds of the Permian Basin.

The major known deposits of potassium salts in the United States occur within the Permian Basin. Aside from the Utah and Canadian deposits not yet in production, the Carlsbad deposits are the only major commercial potassium deposits known in the Western Hemisphere.

The committee is of course aware that the Atomic Energy Commission's Project Gnome contemplates the underground detonation of a 5-kiloton nuclear device at a site in the salt beds near Carlsbad, wherein our deposits are located.

Each of the companies recognize the important and lasting benefits which may result from this experiment, and it is our purpose to cooperate in every way possible with the Commission for the public welfare. However, because of the tremendous investments which we have in mining installations, refineries, and ore reserves in the area, we feel that we are not unreasonable in asking that we be compensated by the Government for any damages we might suffer from the

contemplated experiment. It is estimated conservatively that the investment in the New Mexico potash industry is in excess of \$200 million. The mines employ approximately 3,800 men, with an approximate \$24 million annual payroll. The average earnings of employees are approximately \$6,800 a year. The annual product sales from the New Mexico mines amount to approximately \$80 million, and account for 90 to 95 percent of all domestic production.

Other witnesses will discuss the extent to which available technical data fail to support the conclusion that no damage will in fact result to some or all of us from the blast.

Senator PASTORE. Mr. White, are you familiar with the bill?

Mr. WHITE. Just in general form.

Senator PASTORE. May I address a question to you? Because it has aroused some curiosity.

On page 2 of the bill, among other things, we say:

* * * which occurs in the course of the conduct of an activity of the Commission involving the deliberate underground detonation of a nuclear explosive device.

Now, what is your construction of the word "deliberate"?

Mr. WHITE. Senator, I would prefer to pass that question along to one of the other witnesses, if I may.

Senator PASTORE. All right.

Mr. WHITE. Mr. Neal?

Senator PASTORE. Won't you take a seat here, sir? Come right up here and sit next to Mr. White.

Mr. NEAL (Caswell F. Neal, law firm of Neal, Neumann, Neal and Fort, Carlsbad, N. Mex.). By the term "deliberate" we mean thought out beforehand, something that is not accidental, something that the Government is deliberately doing.

Senator PASTORE. In other words, you mean that there would be liability if it were by accident, and you want to cover this in the case that there is a planned underground detonation? The thing that is bothering me is whether this might preclude you in the case of an accident.

Mr. NEAL. I will discuss that fully when I present the legal phases of it, if the Senator will wait, please.

Senator PASTORE. All right.

Mr. WHITE. I was just about to state that other witnesses will also explain the legal difficulties which present themselves under existing laws in attempting to effect recovery of any damages which might result to the potash companies. We will limit our testimony to a general description of potash mining methods in the area around Carlsbad, and to a detailed description of the property closest to the blast, that belonging to the International Minerals & Chemical Corp., which seems to us most vulnerable to damages from the blast. We will also discuss the nature of how these damages could conceivably occur.

First of all, a brief description of the potash mining industry and its importance for public and private good may be helpful to those unfamiliar with this important but specialized field.

Potash mining is done underground at various levels where the potash salts are found. In the case of International Minerals & Chemical Corp., these are found in beds which lie approximately 800, 850, and 900 feet, respectively, below the surface. International

has approximately 600 miles of tunnels at these three depths, where mining is carried on. All seven of the New Mexico companies combined have approximately 1,900 miles of underground mining tunnels in the area at depths which vary from about 800 to 2,100 feet below the surface of the ground.

In the potash salt formations, the room-and-pillar method of mining is used, and recovery from first mining is about 72 percent. Subsequent pillar robbing, as practiced in the New Mexico field, increases the recovery to as much as 96 percent. All mines are highly mechanized, using electric and diesel equipment. Undercutters and drilling jumbos prepare the mining face for blasting or continuous mining machines rip the ore from the beds. Crawler-type loading machines load the broken ore into shuttle cars for delivery to underground transfer points. From these points the ore is transferred by electric train or belt conveyors to crushing stations where the material is crushed before hoisting. Skip loading and hoisting are automatic at most mines. All of the mines are equipped to refine their potash ore at the mine site except United States Borax & Chemical Co., which has a separate refining site.

Potash is one of the three major plant-nutrient elements, and approximately 95 percent of the potassium used in the United States is used in agriculture, usually in mixed fertilizers. The remaining percentage is used by the chemical industry.

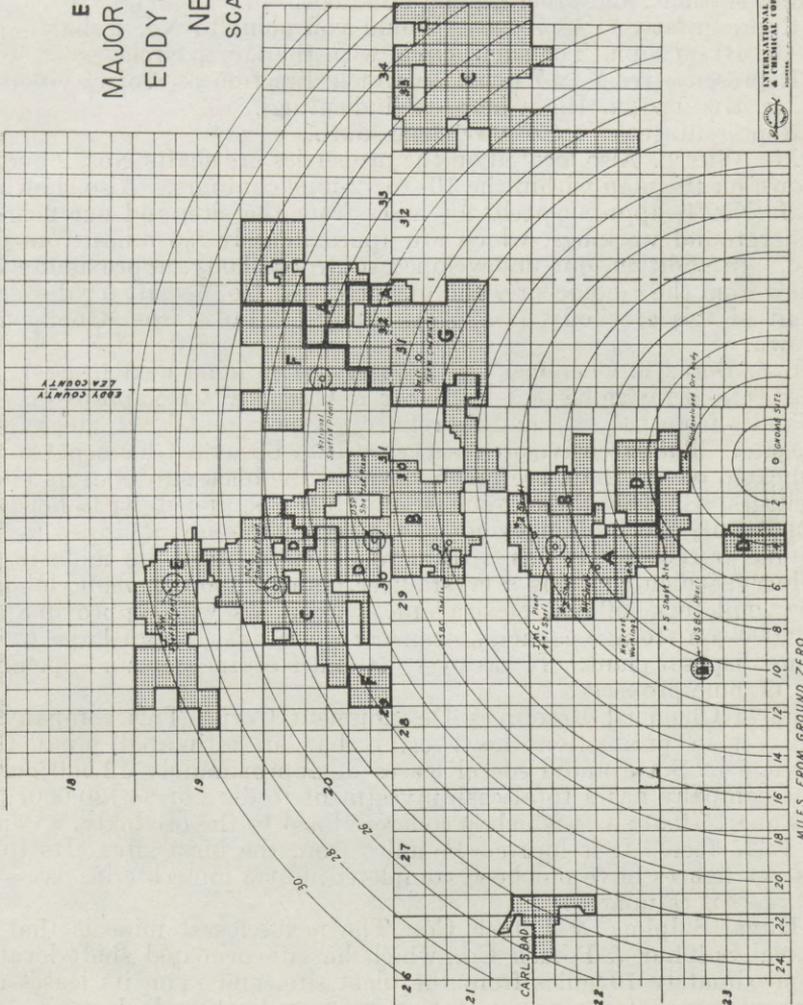
There is no substitute for potassium compounds in agriculture. It is essential to the maintenance and expansion of food production. Potash is necessary not only for plant growth, but regulates the intake by plants of other minerals and elements needed for normal growth.

I would now like to explain the location of the potash mining installations and deposits with respect to the site of the proposed Project Gnome nuclear explosion. There is attached to my statement a map, marked "Exhibit A", showing the location of Project Gnome, an outline of known potash holdings, and mining and refining installations within a radius of 30 miles of this site. I would like permission to have this map, exhibit A, included in the record of these hearings.

Senator PASTORE. Without objection, it is so ordered.

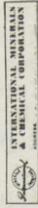
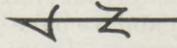
(The map referred to follows:)

EXHIBIT A
MAJOR POTASH LEASES
EDDY & LEA COUNTIES
NEW MEXICO
SCALE 1"=2 MILES
5-23-61



LEGEND

- IMC
- USBC
- PCA
- DSP
- SW
- NATIONAL FARM CHEMICAL



Mr. WHITE. International Minerals & Chemical Corp. properties: The mine and leasehold properties and reserves closest to the blast site are the properties of International Minerals & Chemical Corp., which consist of State and Federal leases covering more than 15,000 acres.

Our present cash investment in the property and equipment is approximately \$35 million. The property has been mined since October 1940, and we have sufficient ore reserves to permit mining for many years to come. Located on these properties is the No. 1 shaft which is approximately 10.7 miles from Project Gnome. Adjacent to this shaft are located our refinery, warehouses, loading docks, storerooms, power stations, and other mining buildings.

Representative VAN ZANDT. Would you point to No. 1 shaft?

Mr. BESSINGER. The small circle with the larger circle.

Representative VAN ZANDT. In which direction is Project Gnome?

Mr. BESSINGER. Right here, sir [indicating].

Representative VAN ZANDT. Due south.

Mr. WHITE. Also located on the properties are shafts Nos. 2 and 3, shown on the map within the 10- to 12-mile contours. Also shown is shaft No. 4, approximately 9½ miles from the site, and our nearest underground workings, which are approximately 8.6 miles from the site. In addition, our undeveloped south ore body, approximately 4 miles from the Gnome site, and our proposed No. 5 shaft for development of this ore body at approximately 6.4 miles from Gnome are shown.

U.S. Borax & Chemical Co. property: The mine next nearest the blast site is the mine of U.S. Borax & Chemical Co., approximately 16 miles from the site, and its refinery, approximately 11 miles from the site. The extensive ore reserves of U.S. Borax & Chemical Co., as indicated on the map, are much closer to the blast site than its plant facilities. It has three mine shafts fully equipped with hoisting equipment, and buildings and machinery completely equipped for all mining purposes. It has a tram road leading from its mine to its refinery, which contains a crystallizer plant, dissolver plant, laboratory buildings, offices, powerplant, warehouses with approximately 270,000-ton storage capacity, transportation lines, and a large waste brine disposal plant. It has over 500 miles of underground openings on its mine property.

Farm Chemical Resources Development Corp.: This company is not yet in production; however, it has an estimated productive acreage in State and Federal leases of approximately 12,600 acres. The company has a total cash investment to date of \$3,120,000. It has one 15-foot shaft which is concrete lined to the ore body, a depth of 1,625 feet. It is located 17 miles from the blast site. Its total reserve figures have not been completed, but a mine life in excess of 20 years is estimated.

Duval Sulphur & Potash Co.: The next closest mine is that of Duval Sulphur & Potash Co., which has its principal shaft located approximately 19 miles from the blast site, and upon its leases are located two shafts, a power station, refinery, loading docks, and complete mining facilities. The shafts are concrete lined to 60 feet below the top of the salt, and unlined in the balance of the shaft. There are approximately 78 miles of mine openings. This company also owns

a substantial undeveloped potash reserve approximately 6.5 miles from the blast site.

National Potash Co.: The next closest mine is that of National Potash Co. Its mine shafts and plants are approximately 21 miles from the blast site. On this property there is located a refinery, surface installation, warehouses, and other storage and mining facilities, and extensive potassium reserves. There are 32 miles of open workings in this mine.

Potash Co. of America: The next closest property is the property of Potash Co. of America, upon which are located three shafts, a refinery, and other surface installations. The mine is located approximately 24 miles from the blast site, with reserve ore bodies extending toward the blast site. It has over 700 miles of open workings.

Southwest Potash Co.: The last potash mine and plant is the Southwest Potash Co., whose mine is located approximately 29 miles from the blast site. This company has two shafts, a refinery, and mining and storage facilities upon its property. Water is now entering each shaft, and being diverted to sumps and pumped to the surface. The company's workings cover an area of 1,184.7 acres, of which about 487 acres have been mined out and permitted to cave.

Reserves: The companies all together have Federal and State leases deemed commercial covering an area of approximately 140,000 acres, with estimated reserves ranging from 16 to 50 years, with an average of approximately 30 years. It is estimated the shutdown cost per day for all the producing companies is approximately \$229,000.

I have pointed out these locations in detail so that the committee may visualize the physical picture and understand our extreme concern with reference to possible injury to our properties and reserves and particularly those nearest the proposed blast. While we have been assured by the AEC that in the opinion of its experts no damage is likely to result our own experts tell us that no satisfactory assurance along these lines can be given on the basis of existing data, because of the unknown factors which cast severe doubts on any precise prediction.

Senator ANDERSON. Now, does that apply to all the companies?

Mr. WHITE. I would think yes.

Senator ANDERSON. Do you think Southwest Potash is worried about that? Twenty-nine miles away?

Mr. WHITE. I would say that the data which our experts have examined lead them to the conclusion that it is impossible to predict precisely what will happen.

Senator ANDERSON. Even with a 5-kiloton blast?

Mr. WHITE. Even with a 5-kiloton blast.

Without getting into this complex technical question, which will be dealt with by other witnesses who are more qualified in the fields of geology and seismology, I would like to mention briefly some of the reasons we believe our properties are particularly vulnerable to damage from shock or radioactive contamination. Among these are:

1. Possible injury to shafts, particularly some of the older shafts in the field which were sunk with limited funds, and without the shaft sinking "know-how" possessed by the industry today. These include some of the earlier shafts sunk in 1931 to 1933 by United States Borax & Chemical Co., shafts of Potash Co. of America sunk in 1933 and 1934, and the shafts of International Minerals & Chemical Corp. sunk in 1936 to 1940.

In 1949 the water stratum broke into the hoisting shaft of International Minerals & Chemical Corp. by natural means, and without the impact of any underground shock. This resulted in substantial losses and extensive repairs were required to shut off the water. It is still necessary that sumps be maintained in the shaft area for the purpose of containing and pumping the flow of water from the upper stratum. Other companies have also been burdened with this overlying water stratum, with some damage to their shafts. The concrete used to shut off the water in the early-day shaft linings was not of the strength used today, and it is impossible to predict the amount of damage which might occur to the mine and equipment if the seismic shock should rupture this shaft lining. A small amount of water could shut down operation, and flooding of the mine might result in abandonment of the property.

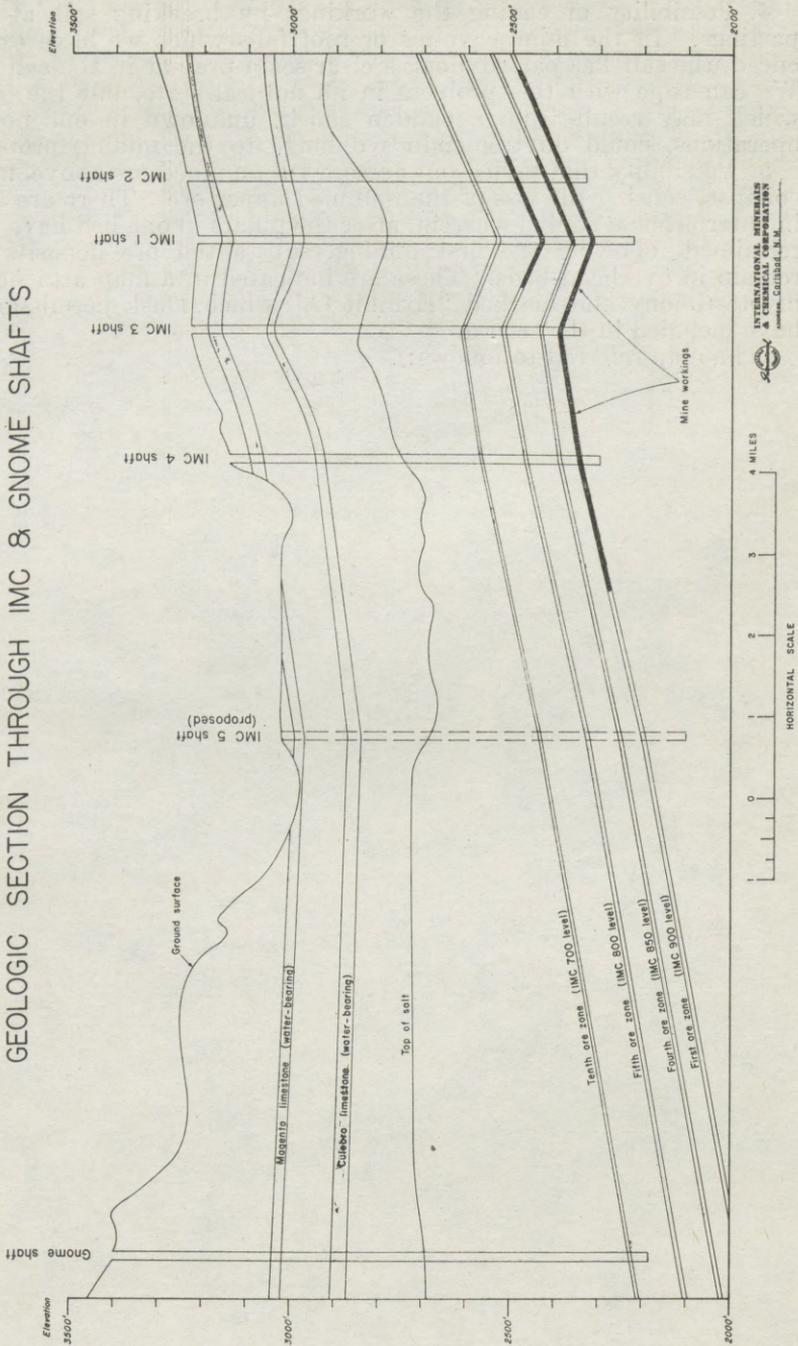
2. Possibility of roofs caving in. Roof bolting is practiced in the potash basin for securing loose overhead slabs and providing safe working conditions. This practice is perfectly safe under normal conditions; however, there is no way of telling the extent to which the sudden shock of a nuclear blast of the character contemplated would cause the falling in of any of these more than 1,900 miles of open workings. It might be explained here, for the benefit of those of you who come from coal or hardrock mining States, that very little timber or props are used or have ever been used in potash mining. In the room-and-pillar method, the overburden is supported by pillars of ore left in place in the mined areas, and the natural rock conditions permit safe mining of the properties without timbers.

3. Possibility of fracturing the overhead salt section to the regional aquifer and flooding of the mine. It is well known that the several formations above the potash producing beds of all the mines, and overlying the Gnome blast site, are water bearing. From our experience, we know that the salt beds will fracture. Should this calamity occur and the mines be flooded, total loss would be a likely result.

Attached to my testimony, marked "Exhibit B," is a cross-section map showing the location of these water beds and their relation to the mines, which I ask permission to have included in the record.

(The map referred to follows:)

EXHIBIT B
GEOLOGIC SECTION THROUGH IMC & GNOME SHAFTS



INTERNATIONAL MINERALS
& CHEMICAL CORPORATION
INCORPORATED IN U.S.A.

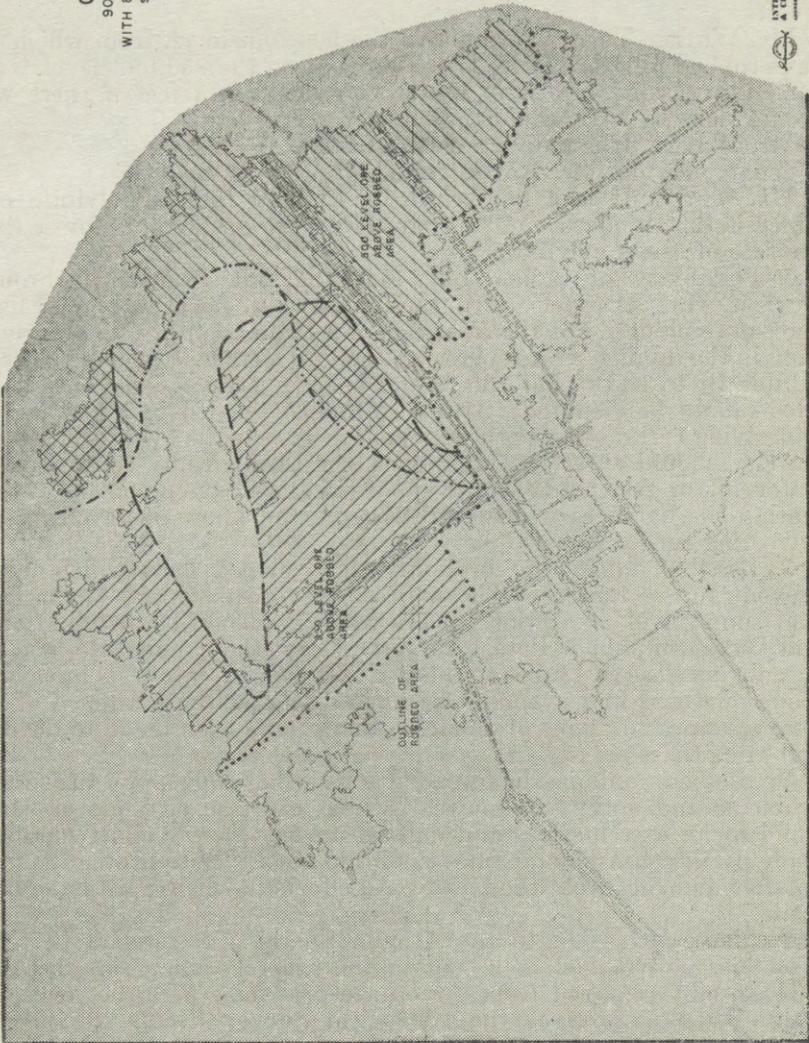
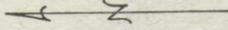
4. Possibility of caving the workings by breaking salt at clay partings. In the mine cave-ins or roof falls which we have experienced, the salt has parted along a clear seam present in the salt bed. We can cope with this problem in its natural state, but the forces which may result from a sudden shock, unknown in our normal operations, could do tremendous damage to the mining property.

5. Possibility that mined-out areas, with unmined ore above, might collapse, causing the loss of the unmined upper ore. There are areas in International's mine wherein, after the pillars in one bed have been reclaimed following the first mining, substantial ore deposits still remain in overhead beds. These are indicated in a map attached to my testimony and marked "Exhibit C," which I ask permission to have included in the record.

(The map referred to follows:)

EXHIBIT C

OUTLINE MAP
900 LEVEL ROBBED AREA
WITH 800 & 850 LEVEL RESERVES
SCALE: 1"=500' 5-22-61



INTERNATIONAL MINERAL
& CHEMICAL CORPORATION



Mr. WHITE. On this map, exhibit C, the mined-out areas which have unmined ore above them, which ore might be lost if the mined-out areas should collapse, are indicated by the lined areas. I would like to emphasize again that the unknown quantity of a sudden shock might disrupt the present equilibrium in the mine, with devastating results, and might mean a collapse resulting in a loss of all of the unmined ore in the overhead beds.

Senator ANDERSON. How far down is that work now?

Mr. WHITE. 800, 850, and 900 feet.

Senator ANDERSON. You have a label on here, "850 foot level or above." Is there an estimation that there is ore above the 850 foot level?

Mr. WHITE. There is ore above the 900 foot level, from which we have robbed pillars. There is ore above it on the 850 foot level.

Senator ANDERSON. Why would you drill extra feet if there was ore up there? Why would they not be mined first?

Mr. WHITE. It is a different type of ore.

Senator ANDERSON. Not as valuable?

Mr. WHITE. It is a langbeinite ore rather than a sylvinite ore, which is the standard, and the rate of use is considerably lower than the rate of use of sylvinite.

6. Possibility of radioactivity entering mine workings through crevices, water channels, or contaminated oil or gas escaping. I have heretofore pointed out the existence of a large amount of water overhead in the mining area. I have referred to a cross section of the area, exhibit B, to show that this water-bearing stratum is continuous. This cannot be disputed. It is also known that there is gas and oil underlying certain parts of the potash field. In the event that radioactivity should enter the mine workings through any contaminated water, oil, or gas channels or from crevices, we have no means of estimating the damages which might occur, and know of no means for correcting such a catastrophe.

7. Possible damage to presently undeveloped beds which might prevent future mining. The map of the area, exhibit A, discloses that some 14 or 15 sections of ore reserves owned by International, and Duval Sulphur & Potash Co. are nearest the Gnome site, and are actually as close as 4 miles to the site. Extensive core tests have been made on these lands, and these have disclosed the existence of ore reserves worth millions of dollars. Plans have been made to develop and mine these areas.

Gentlemen, we hope the foregoing survey has shown you the serious problems and many "unknowns" which we face, any one of which could mean extreme loss and damage to us. Every effort has been made by the potash companies to obtain insurance to protect us from possible damages from the blast. All efforts in this regard have been futile.

We have suggested to the Atomic Energy Commission that the blast site be changed to a spot in the same Permian salt bed, but substantially removed from the potash-producing area; however, the Commission as well as the Geological Survey deems the present location most desirable for their purposes, and, of course, that decision is theirs, and one which we cannot compel them to change, other than by giving them suggestions, which we have already done by letter and in numerous conferences.

Under the circumstances, all we are requesting now is that, if injured or damaged, we be given positive assurance of adequate indemnification by the U.S. Government, and we request your support in securing this protection. We feel that if a neighbor intentionally sets off a powerful blast which damages our property and leasehold estates, he should be required to compensate his neighbor accordingly, and we feel that no different rule should apply to the United States if it causes damage to its neighbor's property from a deliberate underground detonation of the character contemplated at Project Gnome.

Senator PASTORE. Are there any questions of Mr. White?

Mr. WHITE. Mr. Chairman, I have with me four letters addressed to the Joint Committee on Atomic Energy in support of these pending bills, one from each of four other potash companies with properties located in the general vicinity of Carlsbad. These letters are as follows: from Duval Sulphur & Potash Co., Houston, Tex., dated May 26, 1961; from National Potash Co., Carlsbad, N. Mex., dated May 8, 1961; from Potash Co. of America, Carlsbad, N. Mex., dated May 9, 1961; from Southwest Potash Corp., New York City, dated May 18, 1961.

I would like at this time to deliver these letters to you and to ask permission to have them included in the record.

Senator PASTORE. Without objection, it is so ordered.

(The letters referred to follow:)

DUVAL SULPHUR & POTASH CO.,
Houston, Tex., May 26, 1961.

JOINT COMMITTEE ON ATOMIC ENERGY,
*Congress of the United States,
Washington, D.C.*

GENTLEMEN: In connection with operations of the Atomic Energy Commission on Project Gnome, located about 25 miles southeast of Carlsbad, N. Mex., we respectfully advise you that it is our feeling that our company, as a producer of potash in this area, should be given reasonable assurance that restitution will be made by the Government for any damages suffered by our company resulting from such operations of the Atomic Energy Commission. In order for such assurance to be given legislation should be enacted by the Congress providing that the United States shall be liable for damages resulting from any underground nuclear detonation or explosion produced by the Commission and authorizing any person having a claim for damages to file suit thereon against the United States.

Yours very truly,

W. P. MORRIS, *President.*

NATIONAL POTASH CO.,
Carlsbad, N. Mex., May 8, 1961.

JOINT COMMITTEE ON ATOMIC ENERGY,
Congress of the United States, Washington, D.C.

GENTLEMEN: You are currently considering proposed legislation which intends to give reasonable assurance that restitution will be made by the Government for any damages that result to the potash mines and facilities in the Carlsbad, N. Mex., area from Project Gnome.

National Potash Co. concurs with the position taken by International Minerals & Chemical Corp. as to the necessity of the proposed legislation and requests your support in the matter.

Very truly yours,

T. G. FERGUSON.

POTASH CO. OF AMERICA,
Carlsbad, N. Mex., May 9, 1961.

JOINT COMMITTEE ON ATOMIC ENERGY,
Congress of the United States, Washington, D.C.

GENTLEMEN: This is to advise that Potash Co. of America wholeheartedly concurs with, and supports International Minerals & Chemical Corp. in its plea for legislation which will give reasonable assurance of restitution by the Government for any damage sustained by the potash companies as the result of Project Gnome nuclear explosions.

In our opinion, existing data does not support a reasonable conclusion that no damage will result from such explosion. It is our further opinion that existing legislation does not afford protection in the event damage is sustained in the course of this endeavor. Therefore, the need for the proposed legislation seems obvious.

Respectfully,

H. N. CLARK,
Vice President in Charge of Production.

SOUTHWEST POTASH CORP.,
A DIVISION OF AMERICAN METAL CLIMAX, INC.,
New York, N.Y., May 18, 1961.

JOINT COMMITTEE ON ATOMIC ENERGY,
Congress of the United States,
Washington, D.C.

GENTLEMEN: I take this opportunity to advise you of this company's intense interest in the proposed legislation to protect mining property owners from damage during the conduct of the Project Gnome operations by the Government.

We have been in close contact with other mining companies operating in the vicinity of Carlsbad, N. Mex., and are in agreement with their efforts as presented by Messrs. Neal, Neumann, Neal, and Fort, attorneys at Carlsbad. We concur in the position taken by International Minerals & Chemical Corp. as to the necessity for the legislation.

We would appreciate your keeping us concurrently advised of any developments in the course of consideration of this legislation.

Yours very truly,

F. H. STEWART, Vice President.

Mr. WHITE. I understand that United States Borax & Chemical Corp., which also has properties in this vicinity, joins in supporting this legislation, and that Mr. Paul Speer, representing that company, is here and will testify later this afternoon.

Thank you.

Representative VAN ZANDT. Mr. White, on what do you base your calculations? Is it from a scientific standpoint, or is it actual experience?

Mr. WHITE. It is a combination, but I think the real basis will be shown in the testimony of Mr. Browder, who is to follow me on the stand.

Representative VAN ZANDT. Have you had any earthquakes in New Mexico?

Mr. WHITE. None.

Representative VAN ZANDT. How far are the Carlsbad Caverns from this location?

Mr. BESSINGER. I would say about 25 or 30 miles.

Representative VAN ZANDT. Would you assume they would suffer from the same damage effects that you and the mines of other corporations would?

Mr. WHITE. I think that is a question which might better be referred to the technical experts.

Representative VAN ZANDT. Your technical experts are seismographic people?

Mr. WHITE. Yes.

Senator ANDERSON. I just wondered about your statement about the Carlsbad Caverns, 25 miles. The caverns are on El Paso Highway. This is on the highway to Hobbs. Are you sure about that 25 miles?

Mr. BESSINGER. I would say about as the crow flies, it is in that range, 25 to 30 miles.

Senator ANDERSON. I realize that the crow flies differently than I drive an automobile.

Representative MORRIS. Are you sure that is correct? It just seems to me it is quite a bit farther than that. I would think it would be in the range of 40 or 50 miles.

Mr. BESSINGER. It is back in this direction.

Mr. NEAL. I would say 30 or 32.

Mr. BESSINGER. He would say 30 or 32.

Representative VAN ZANDT. Mr. White, in your dealings with the AEC, did they discount the great concern that you and your associates have shown concerning possible damage to your operations?

Mr. WHITE. No. I would not say so. I would say merely, instead, that they have felt sure, based on opinions from their expert authorities, that no damage would result.

Representative VAN ZANDT. No damage would result?

Mr. WHITE. Yes.

Representative VAN ZANDT. So you are in conflict as far as your positions are concerned. You take the position that damage will result.

Mr. WHITE. We take the position that the data are insufficient to prove no damage will result.

Senator PASTORE. If no damage results, you do not have a claim. If it does, you do. This is an indemnity bill. All you are saying here is that, "If you want to explode this nuclear weapon, go ahead and do it; but if you do, and it causes damage, you ought to pay us for it."

That is about the sum and substance of it. Nobody is going to know until it is all over.

Senator ANDERSON. That is the basis on which I consented to introduce the bill. The Atomic Energy Commission is absolutely sure that no damage can result. And my statement to them was: Then if you are absolutely sure, you will not be hurt by the bill.

Senator PASTORE. This is all going to be resolved as a matter of proof should a claim be filed.

Representative VAN ZANDT. Mr. Chairman, this bill does not alone apply to New Mexico.

Senator PASTORE. Oh, no.

Representative VAN ZANDT. It applies nationwide.

Senator PASTORE. Correct.

Senator ANDERSON. Well, presumably there would be additional tests. We know there have been many tests in Nevada. I attended the first one in 1951. We did have some areas where there was fallout over a school building, over a small town. If that had resulted in damage to the lives of people, or permanent injury to people, then it ought to be recognized, because it was a deliberate shot.

Senator PASTORE. Well, I had an experience in my own State. One of the planes flying there broke the sound barrier and damaged the

plaster in three or four schools. There was no damage to the plaster before the sound barrier was broken, but there was damage right after it happened, and the school authorities said it was the breaking of the sound barrier that caused the damage. The Defense people said that is not so. And up to this date nothing has been done about it.

If you are going to use these dangerous instruments, there ought to be some chance for the public to have indemnification. That is about the sum and substance of it.

On page 12 of your prepared statement, you say:

Every effort has been made by the potash companies to obtain insurance to protect us from possible damages from the blast.

Now, for the purposes of the record, will you please spell out the efforts you have made, with whom you have talked?

Mr. WHITE. Each of the individual companies worked through their own insurance brokers to determine if it was possible to find any company within the United States or any combination of companies within the United States which would take on the insurance of the properties in the area; and failing in that, we went to what appears appears to be the obvious court of last resort, Lloyd's of London, and although they looked into the matter quite thoroughly, they still refused to insure.

Senator PASTORE. These are efforts you personally made, Mr. White?

Mr. WHITE. No; but our insurance manager worked very diligently on this.

Senator PASTORE. To what extent are you seeking insurance?

Mr. WHITE. I am not sure that I understand.

Senator PASTORE. The amount of money you sought to be insured.

Mr. WHITE. We talked, of course, of the total investment in the area, and the possible losses. I think the best equivalent would be use and occupancy insurance.

Senator ANDERSON. How much did you apply for? Ten million dollars? Or \$100 million?

Mr. WHITE. The complete coverage of all of the property in the basin. It took \$200 million.

Senator PASTORE. And that is only one company? Or does it mean all of them?

Mr. WHITE. These are all of the companies.

Senator PASTORE. All of the companies involved?

Mr. WHITE. Yes.

Representative VAN ZANDT. And Lloyd's turned you down?

Mr. WHITE. Yes.

Representative VAN ZANDT. Did they give you a reason?

Mr. WHITE. Yes; they gave the same reasoning which we have attempted to put across here, that it was impossible to predict. They were dealing with something they did not know. They could not assess the risk.

Senator PASTORE. Mr. Hickenlooper?

Senator HICKENLOOPER. Mr. White, what is the method of mining you use there now? Is it a machine that breaks down the potash, or do you use explosives in mines now?

Mr. WHITE. Both. There is some conventional mining in which the ore is undercut and drilled and blasted, and there is also a gradual trend in the basin as to mining equipment which rips it out.

Senator HICKENLOOPER. In connection with explosives which you use in the mine now, or which you have used from time to time, do you notice cracking or breaking of the ceilings of other tunnels as a result of use of those explosives?

Mr. WHITE. No. I would say not. The amount exploded at any given time, of course, is relatively small.

Senator HICKENLOOPER. What would you call relatively small? The equivalent of a ton or a half ton?

Mr. BESSINGER. More on the magnitude of a half ton.

Senator HICKENLOOPER. And at the present time, with the use of explosives of that magnitude, you have not noticed any cracking or falling of the roofs of other tunnels adjacent to it or near there?

Mr. WHITE. Not as a direct result of any explosion.

Senator HICKENLOOPER. And have you noticed any seams opening up in the walls of your shafts or your tunnels as a result of these explosions which have heretofore let water in? I know you said in one instance water broke through a shaft. Was that caused by explosion, do you think?

Mr. WHITE. No, sir. We are sure it did not.

Senator HICKENLOOPER. But in one instance, anyway, I believe you said, there was a serious break-in of water through a shaft, I think in 1949.

Mr. WHITE. Right.

Senator HICKENLOOPER. Was that caused from a natural weakening of the walls, or deterioration of the lining?

Mr. WHITE. We assume it was a combination of those factors.

Senator HICKENLOOPER. In other words, it just happened?

Mr. WHITE. It just happened.

Senator HICKENLOOPER. You do not attribute that to a blast in the mining operations?

Mr. WHITE. No.

Senator HICKENLOOPER. And I believe you said there were no earthquakes down there.

Mr. WHITE. Right.

Mr. BESSINGER. This break in the shaft was considerably higher than the level at which any operations are conducted.

Senator HICKENLOOPER. At the moment, do you envision any means by which you could tell whether or not a blast 10 or 15 miles away underground would be the cause of any possible damage that might occur? Or might it be coincidental? I mean, how would you measure the alleged damage? I do not mean measure the damage, but I mean, how would you assess the cause of the damage, aside from coincidence, that is, that it might have happened anyway, if they did not have any blast?

Mr. BESSINGER. That could be a difficult point; although I think we would assume that if the damage occurred immediately after a blast of this nature, it was cause and effect.

Senator HICKENLOOPER. Have you had any experience in connection with your operations there during the years that you have operated, of ceiling slabs falling in, or sidewalls deteriorating, or water seepage?

Mr. BESSINGER. All of those have happened in varying degrees.

Senator HICKENLOOPER. That has happened from time to time. Is it a problem that is with you right along?

Mr. BESSINGER. Yes. To a minor degree. And knowing the degree to which we are exposed to these hazards, we can protect ourselves quite readily against them.

Senator HICKENLOOPER. The only thing that occurs to me would be the difficulty, again, as I say, of assessing the cause of something that might occur after an explosion, as to whether or not the explosion caused it, or whether it was something that would happen anyway.

Mr. BESSINGER. We have had a record, of course, in the basin, over a long period of years, of no major problems involving damage that were not readily recognized.

Senator HICKENLOOPER. I can readily understand your apprehensions that something might happen as a result of a blast, and I am sympathetic with your problems. But in writing legislation, I think we would have to be rather careful. If we could write some kind of a formula for determining or assessing the probability of cause—

It is like a fellow going to a doctor with a pain in his back. Maybe if he did not go to the doctor, the pain would disappear, anyway.

Mr. BESSINGER. The AEC proposes to instrument for some period prior to the test, to see what the regular vibrations and movements are in the mine, and in the pillars, and they will also record the movement, the magnitude, the acceleration, and these other items, at the time of the blast. So we will have something to judge by.

Senator HICKENLOOPER. That is what I was getting at. What kind of a method would you have of assessing the cause or lack of cause?

Mr. BESSINGER. We will have that. In addition, we have designated areas which we will call problem areas, which we will photograph. We will know what the condition was before and what the condition was after the blast.

Then, of course, we have 20 years of experience, and so we pretty well know what the ground is going to do for any short period of time.

Senator ANDERSON. I do think the statement you just made is very important. The Commission is planning to establish delicate instruments all through this area just prior to the tests, which may come in November, and also to be sure the instrumentation is extremely good at the time of the blast, and measure the shock waves inside the mines, if there are any, and know exactly how strong they were, and exactly what significance they will attribute to them.

Mr. BESSINGER. And these measurements will continue for some time after the shot. It will be done in the mines and on the surface.

Senator HICKENLOOPER. We had a problem somewhat similar to the problem Senator Pastore said they had in Rhode Island. In what used to be the old Burlington shell loading plant a few years ago, they began to set off a series of experimental explosions with some very high and sharp explosives. It was about 12 miles, I think, from the city of Burlington. When the explosions occurred, basements began to crack and plaster came off the walls, and they even claimed windows were broken from time to time, and every time they had explosions they had cracks in the walls, 12 miles away. The Government said that there was no connection between them, but when the explosions stopped, the cracks stopped coming in the basements around town, and they have had a little hassle about that ever since. It is a very difficult thing to determine.

Mr. BESSINGER. AEC has what they have told us is \$2 million worth of instruments, which they have planned to install to record this information. So we should have a pretty good record.

Senator HICKENLOOPER. Would that be accompanied by some type or kind of an independent arbitration or assessment by independent experts, reading the data?

Mr. BESSINGER. Oh, our people will have access to the records, yes.

Senator PASTORE. I would suppose that if this became a matter of contention, in the event of a claim, the accuracy of these instruments would be part of the evidence at the trial. But you are saying here that every effort has been made by your companies to cooperate with the AEC in permitting them to come onto the premises to install these instruments in order to determine what the tremors might be, in the event that if any claim is made, they will have been there to measure it on their own.

Senator HICKENLOOPER. The only purpose of my discussing this with you is not any hostility to the proposal. That is not the point. But in most insurance contracts there is a lot of fine print that means a lot, and has a lot of detail in it on potential happenings, and it is a question of the fine print, here, that might be very helpful in clarifying the hazard, the liability, the methods of assessing it, and all those things, which might eliminate a lot of controversy in the future in various areas.

I think that is all, unless you have a comment.

Representative VAN ZANDT. Mr. White, in your dealings with the AEC, and when they talked about instrumentation of your mines, did they give you any indications how they would compensate your companies for any damage done?

Mr. BESSINGER. No, sir. They have not made any comment on that.

Representative VAN ZANDT. Did they indicate they were in a position to compensate you?

Mr. BESSINGER. They said that in the past, when there had been damage—

Mr. NEAL. I am Mr. Caswell F. Neal.

May I answer that question, sir?

We have been endeavoring to work out a contract satisfactory both to the Commission and to the companies in that regard. However, the Commission has insisted that we arrive at a contract—at least, the local officers have, in New Mexico—which does not contain any provisions for loss of time or shutdown time, but only payment for the actual cost of using our men and workmen, and so forth, in the installation of these instruments.

They, however, assure us that after they receive authority, if they do, to put off the shot, they will negotiate with us then on the damages for shutdown time, and loss from operations and things of that type, sir.

Representative VAN ZANDT. Then the answer is that there is a possibility?

Mr. NEAL. Not of damage, no, sir.

Representative VAN ZANDT. Only for time lost?

Mr. NEAL. Time lost and evacuation time and time lost from shutdown or slowdown of the operation. We have had no indication from New Mexico or anybody in New Mexico that we would be in-

demnified. In fact, we have been advised that they cannot indemnify us, under the Price-Anderson Act.

Senator PASTORE. Any further questions of Mr. White?

You are accompanied here by Mr. Bessinger?

Mr. BESSINGER. Yes, sir.

Senator PASTORE. Have you anything to add to this?

Mr. BESSINGER. I would like to point out that these measurements may not tell the whole story. While they may show that the shock was very slight, we do not know just how much shock it will take to do us damage. Some of our workings are in a very delicate condition, where they have been robbed, and a slight shock beyond the normal which we encounter from day to day could do us damage.

Representative VAN ZANDT. May I ask a question at this point?

In Mr. White's testimony, he mentions the difference between timber and props, and this so-called room-and-pillar method. Did you intend to convey to the committee by that statement that the timber-and-prop arrangement of mining can take more punishment than the so-called room-and-pillar method can?

Mr. BESSINGER. Yes, sir. That is quite right.

Senator Pastore. All right. If there are no further questions, you men may step aside, and we will hear from Mr. Lewis B. Browder. I understand Mr. L. Don Leet is here with Mr. Browder.

**STATEMENTS OF LEWIS B. BROWDER, CONSULTING PHYSICIST
TO INTERNATIONAL MINERALS & CHEMICAL CORP.; AND
DR. L. DON LEET, SEISMOLOGIST, HARVARD UNIVERSITY**

Mr. BROWDER. Mr. Chairman and gentlemen of the committee: I am Lewis B. Browder of 1342 Highland Oaks Drive, Arcadia, Calif.

My formal training has been in the field of physics, obtained at the California Institute of Technology. I spent several years in seismic exploration with a California firm of consulting geologists. During the Korean conflict, I served on active duty with the U.S. Navy as technical officer attached to the Armed Forces special weapons projects in the Seismic Measurements Group 1.1 of Project Jangle. This was the first series of underground atomic devices tests conducted at the Nevada test site in the fall of 1951. For several years I was an employee of International Minerals & Chemical Corp., and I am now a consultant to that company. Since 1959 I have been concerned with the possible effects on the potash mines in the Carlsbad area of the proposed Project Gnome underground detonation, and have devoted considerable study to this problem.

Senator ANDERSON. Was the first test at Nevada in the fall of 1951?

Mr. BROWDER. I believe that is right, Senator. I was on active duty at the time.

Senator PASTORE. Do not act scared. Just say yes.

Mr. BROWDER. He has me worried.

The tests finally took place in November. As I recall, they were scheduled for spring, and they finally were executed in November. This was the Buster-Jangle series, sir.

Senator ANDERSON. Well, I will not dispute with you, but I flew out with Pete Quesada and all the rest of them at that time. Were you there then?

Mr. BROWDER. Yes, sir; I was.

With me is Dr. L. Don Leet, seismologist in charge of Harvard University Seismograph Station, Harvard, Mass.

Dr. Leet is a consultant on problems covering vibrations from dynamite blasts, seismic damage from local earthquakes, and refraction prospecting, and has contributed greatly to our knowledge of seismic surface waves.

His doctorate was obtained from Harvard in seismology. He has been engaged as consultant to: The Panama Canal Company, Washington, D.C., The Texas Co., the Tennessee Valley Authority, the Atomic Energy Commission, and the Office of Scientific Research and Development. As consultant to the AEC, he conducted the only experimental determination of true ground motion from the first atomic bomb tests in 1945 at the testing site near Alamogordo, N. Mex. Dr. Leet is also serving as a technical consultant to International Minerals & Chemical Corp., and has worked closely with me on this Project Gnome problem.

Senator ANDERSON. You say the first series of underground atomic test devices. Does that differ from the first series of tests at the Nevada test site?

Mr. BROWDER. Yes, sir; the first tests were air bursts.

Senator ANDERSON. And when were they?

Mr. BROWDER. June of 1945. And there was another series in 1948, which you may be thinking of, Senator.

Senator ANDERSON. I am going to have to look up a memory test device, but my impression is, and this you can check carefully later, that the first tests at the Nevada Proving Grounds were in the spring of 1951. I am just trying to square this first underground test with you. I know these were tower shots and drop shots in the first series.

When did you think it was?

Mr. BROWDER. I thought it was in November of 1951, sir.

Senator ANDERSON. It could be.

Mr. BROWDER. There were several intermixed in there, Buster and Jangle.

Representative VAN ZANDT. Was this a tunnel shot?

Mr. BROWDER. No, sir. It was a rather shallow underground shot. It was not a tunnel. It was merely a hole in the ground.

Now, the question of whether and to what extent the proposed Project Gnome underground detonation of a 5 kiloton nuclear device at a site near Carlsbad, N. Mex., is likely to damage potash mining properties in the vicinity depends primarily on the characteristics and extent of the seismic shock wave which will be experienced by these properties, and its effect on the relatively fragile structure of the potash mines.

Potash mines in this area are carved out of salt rock without much shoring, a procedure which is possible only because of the almost complete absence of seismic activity in the vicinity. The roof of the mined area is usually low grade salt, with no bonding to the overlying strata. Roof bolting is used extensively. There also exists a water-bearing stratum of high permeability above the mine levels, which has occasionally broken through to the vertical access shaft of the mine. Thus, potash mining in this area is a delicate operation, and a relatively small seismic shock may cause devastating damage.

Senator HICKENLOOPER. May I ask you about roof bolting? You mean supporting structures, and then a bolt into the strata above?

Mr. BROWDER. No, sir; not supporting structure. The intent of the roof bolting is to in effect bolt the remaining salt to the layers above that. They are plates I would say approximately 2 foot square or 1 foot square, with bolts going through perhaps 10 feet into the rock above.

Senator ANDERSON. I do not want to disqualify you as an expert witness, Doctor, but the first tests at the Nevada Proving Ground were in the spring of 1951. The first underground tests were not in 1951, but it was the Rainier test about 1957.

Can you explain this discrepancy? Do you know of an underground test in 1951? They were tower shots, including some drops. Is that not right? You say you were there?

Mr. BROWDER. They were tower shots; yes, sir. Jangle was an underground shot, sir. I did not bring proof with me.

Senator ANDERSON. All right.

Mr. RAMEY. There might be a difference between what you would term an underground test that would be instrumented for seismic purposes, and the test you are discussing, this Jangle shot. Is that not so?

Mr. BROWDER. No; this was deliberately an underground test. It was intended to test the resistance of structures, buildings, to a bomb which had been set off underground.

Senator ANDERSON. Well. That was in a little plowed device. They ran a little tunnel along there and put some buildings on it, and they had some 600 feet and 1,800 feet. I was at 6 miles, to clear up your curiosity as to where I was. But do you call that an underground shot?

Mr. BROWDER. I am not sure how much I can go into this. It is described in the book "The Effects of Nuclear Weapons." It was a test which I understand was to simulate a bomb which would sink into the ground. That is, it was not underground in the sense of the one we are contemplating now. It is underground in the sense that it was perhaps 50 to 100 feet underground.

Mr. RAMEY. On your whole seismic detection program they always say the Commission and the Government made a mistake by basing its Geneva test ban position on the one shot, which was the Rainier shot.

Mr. BROWDER. The difference was that in the shot we had we allowed the overburden to spray out into the air. So you might say we had no good coupling to the ground, whereas Rainier was completely contained by the overburden. So our shot would not be applicable to calculations.

Representative VAN ZANDT. Was it not the thinking at that time that this would be an aerial drop?

Mr. BROWDER. Yes, sir.

Representative VAN ZANDT. It would bury itself in the ground and then explode?

Mr. BROWDER. Yes, sir.

Representative VAN ZANDT. The purpose of the test was to establish the destructive effect on the nearby area, including buildings?

Mr. BROWDER. Yes, sir; in the effective destructive radius.

We know that the Atomic Energy Commission has received the device of a number of experts that the proposed detonation is not likely to result in any damage to the potash mines. While we cer-

tainly hope that this conclusion is correct, we are unable to agree with the Commission and its advisers that the presently available data are sufficient to constitute reasonable assurance that no significant damage will result. We have met on several occasions with the Commission's representatives and advisers without being able to reach agreement on this question. Without getting too deeply into technical details, I would like to outline briefly our reasons for believing that the available data are insufficient to establish that there is not a real risk of damage to our properties.

The experimental seismic evidence on which the extent of the risk of damage must be evaluated consists primarily of the data derived from experimental tests conducted in Nevada in the fall of 1958 and some further tests on the Gnome site itself, usually called the pre-Gnome tests, conducted in February of 1959.

The Nevada tests were in the kiloton range, and as such provide the only available experimental basis for charge-weight scaling extrapolation. Both the seismic coupling and the ground rock transmissibility at the Nevada site, however, are quite different from those of the underground structure at the proposed Project Gnome site, and in the area of the potash mines. This was demonstrated by the pre-Gnome chemical explosive tests, carried out at the Gnome site, which indicated that the ground structure in the Carlsbad area was some 50 times more efficient in transmitting seismic energy than was that at the Nevada site.

Senator ANDERSON. What did you mean when you said the Nevada tests were in the kiloton range?

Mr. BROWDER. As compared with a chemical explosion which would, I say, on this basis, be in the ton range. We are comparing 10,000 tons, or in this case 5,000 tons, against tests which were around 6,000 pounds, or 3 tons.

Senator ANDERSON. Maybe we can get straightened out a little better here, now. The first tests were in January and February of 1951. Jangle was in October and November of 1951.

Mr. BROWDER. Yes, sir.

Senator ANDERSON. They were just below the surface, 17 feet and so forth. So we are talking about two different things. That is why I asked you about the first test, because I did not believe I was dreaming that I was there. I was pretty sure I was there. I was the only member of the Joint Committee who was there. And they were held early in 1951.

Mr. BROWDER. Yes, sir.

Senator ANDERSON. That is why I asked you if you attached any significance to underground tests.

Mr. BROWDER. These were shallow underground.

When the published charge-weight scaling as developed from the Nevada tests is accordingly applied to the structural constants obtained by the Commission from the pre-Gnome conventional explosive experiments, the predicted values for acceleration and displacement at our mines for the proposed 5-kiloton Gnome blast fall within the "caution zone" as defined in the U.S. Bureau of Mines Bulletin No. 442, entitled "Seismic Effects of Quarry Blasting." Particularly when the sensitivity of these mines to seismic shock is considered, this is not consistent with a definitive conclusion that no damage will result.

It is, of course, recognized that the conventional explosions utilized in the pre-Gnome tests were much smaller than the nuclear detonations in Nevada, and were of the order of only one fifteen-hundredths of the proposed Gnome blast.

Obviously, small differences in the value of the scaling exponent used in applying the results of these tests to Gnome will result in very large differences in the magnitude of the predicted seismic effects. In the absence of any more complete experimentally checked criteria, however, there is no sound basis for using more optimistic scaling parameters than those based on the published Nevada test results.

Accordingly, we are firmly convinced that the data derived from the Nevada and pre-Gnome tests are much too meager to support the positive prediction that there will be no seismic damage to our mining properties. In addition, there may be a real possibility that our mines or some of the reserve potash deposits, which are much closer to the proposed site than the actual mine workings, may be contaminated by radioactivity.

In this connection, I request permission to include in the record a brief technical analysis of the data which develops in more detail the basis for our conclusion that the data are not sufficient to give reasonable assurance that our property will not be damaged.

Senator PASTORE. Without objection, it is so ordered.

(The technical analysis referred to follows:)

TECHNICAL ADDENDUM TO TESTIMONY OF LEWIS B. BROWDER AND L. DON LEET
IN SUPPORT OF S. 1144 AND H.R. 5215

The conclusions as to possible damage to the Potash mines from the proposed ten kiloton (or, revised, 5 kiloton) project Gnome were based upon a study of the following exhibits. Relevant passages from these reports are reproduced herein and an interpretation or commentary is made for each exhibit.

Exhibit I - Seismic Measurements by the U.S. Geological Survey During the Pre-Gnome High Explosive Tests: A Preliminary Summary, by J. C. Roller, S. W. Stewart, W. H. Jackson, R. E. Warrick and P. Edward Eyerly; Trace Elements Report 774, March 1959, p. 5 "the factor C in the formula for maximum acceleration

$$A = C \frac{W^{0.8}}{d^2}$$

has an average value of about 30 in which A is in units of gravity, W in kilotons of high explosive, and d in kilometers. This value of C is about 50 times larger than the value 0.6 found for nuclear explosions in tuff of the Oak Spring formation."

p. 15 "Assuming a scaling relation between acceleration and yield of the form

$$\frac{A_1}{A_2} = \left(\frac{W_1}{W_2} \right)^b$$



where A = maximum acceleration

W = weight of explosive

values of b for the inline, vertical, and transverse components are 0.97, 0.93, and 0.78 respectively for the station, shots, and instrumentation described above. The average of these values, 0.89 is in agreement with the value of 0.8 ± 0.2 derived by Stewart, Roller, and Diment (1959) for underground nuclear shots of the Plumbob and Hardtack II test series."

p. 16 "Preliminary summary of amplitudes in units of gravity and frequencies of maximum acceleration

(b) 6260 pound shot at 9.7 mile station (IMC shaft #4)

Inline $0.50 \cdot 10^{-3}$ at 50 cps

Vertical $1.0 \cdot 10^{-3}$ at 60 cps

Transverse $0.2 \cdot 10^{-3}$ at 50 cps"

p. 19 "The pre-Gnome series of tests produced ground motion quite different from that produced by nuclear explosions in the tuff of the Oak Spring formation. For the pre-Gnome series the range of frequencies is much higher, the duration of the seismic energy is much shorter and the ground accelerations are much larger. On the basis of the limited data available, a yield exponent of 0.8 and an inverse square attenuation with distance gives accelerations averaging 50 times those recorded from nuclear explosions in the tuff of the Oak Spring formation."

Comment on Exhibit I - If the values

$$W = 10 (5) \text{ kilotons}$$

$$d = 8 \frac{1}{2} \text{ miles (to nearest mine workings)}$$

$$= 13.7 \text{ kilometers}$$

are applied to the formula of p. 5,

$$\text{acceleration} = 30 \cdot \frac{10^{0.8}}{13.7^2} = 1.01 \text{ gravity units}$$

$$\text{or } 30 \cdot \frac{5^{0.8}}{13.7^2} = (.58) \text{ gravity units}$$

If the values

$$W_1 = 10(5) \text{ kilotons} = 10,000 (5,000) \text{ tons}$$

$$W_2 = 6260 \text{ lbs} \quad = 3.13 \text{ tons}$$

$$b = 0.89$$

are applied to the value of acceleration of p. 16 for the 6260 lb. shot at the IMC mine site i.e. $1.0 \cdot 10^{-3}$ g units,

$$\text{acceleration for 10 KT} = 1.0 \cdot 10^{-3} \left(\frac{10,000}{3.13} \right)^{0.89}$$

$$= 1.29 \text{ gravity units}$$

$$\text{for 5 KT} = 1.0 \cdot 10^{-3} \left(\frac{5000}{3.13} \right)^{0.89}$$

$$= 0.705 \text{ gravity units}$$

Exhibit II - Seismic Data from Natural Phenomena and High Explosive

Tests Near Carlsbad, New Mexico - Preliminary Special Report, July 1959,

by D. S. Gardner, W. K. Cloud, T. H. Pearce and L. M. Murphy.

p. 6 "At the zero, 1200 and 2400 foot stations, periods associated

with the recorded displacements were in the 25 to 50 cy/sec range. Assuming simple harmonic motion, computations indicate accelerations many times higher than would have been predicted by the formula. At the Potash mine stations, periods associated with the recorded displacements were in the 0.7 second range and predictions made by use of the above formula are compatible. Unfortunately, seismographs at the Potash mines were not designed to record high frequency waves."

Comment on Exhibit II - In light of the higher frequencies recorded by the seismographs at the close-in stations and the high frequencies noted in Exhibit I, the choice of the limited range instruments for the mine station must be looked upon as most unfortunate from the standpoint of value of the data. The mine instruments were continuous recording i.e. were left on continuously and so did not have the capability of recording higher frequency components. The close-in instruments were turned on just several seconds before the detonation and had sufficiently high paper speed to resolve the higher frequencies. As far as yielding useful data at the minesite, this program (Exhibit II) must be looked upon as without value because of the improper instrumentation.

Exhibit III - Seismic Measurements by the U.S. Geological Survey During the Pre-Gnome High Explosives Tests Near Carlsbad, New Mexico: Final Report, April 1960, by P. Edward Byerly, S. W. Stewart, and J. P. Roller. p. 7 (abstract) The instrumentation of the 9.7 mile station (minesite) consisted of a Stanley instrument for the 760 lb. and the 6260 lb. shots

and a three-component S-36 seismometer station. It is stated that measurements with the Stanley systems were unsuccessful because of the high frequencies from the shots. It is also stated that the calibrated response curves of the seismometers showed a resonance near the recorded frequency of 50 cps. Hence, they say that the amplitudes from these records are suspect. The 3.9 mile station was equipped with Stanley and S-36 instruments both of which would be unacceptable but, in addition, included some piezoelectric accelerometers.

p. 11 Chart showing velocity as a function of depth.

p. 33 In summary, it is believed that the motion at 9.7 miles from 9 KT of TNT will not exceed

displacement	0.1 - 0.2 cm.
velocity	1.5 - 3 cm/sec at 2 cps
	2.5 - 5 cm/sec at 4 cps
acceleration	0.02 - 0.04 g at 2 cps
	0.06 - 0.12 g at 4 cps

Comment on Exhibit III - Inasmuch as all data from the 3.9 and 9.7 mile stations had been written off on p. 7 as suspect or unacceptable except that from the piezoelectric accelerometer at 3.9, it is difficult to see how the above figures were arrived at. The data from the piezoelectric accelerator is not given nor is any scaling law for acceleration mentioned. The calculated accelerations of p. 33 may be compared with a similar tabulation on p. 33 of the preliminary report in which a figure of 0.6 g is given. The final report thus represents a revision

downward by a factor of 10:1 or 5:1 as a result of the deliberations between March of 1959 and April 1960. The chart on p. 11 reveals an interesting possibility for the trapping of energy in the rustler formation at 16,000 ft/sec bounded above and below by 8000 ft/sec materials. At the very least, tests should have been set up to look into this as a possible source of abnormal energy distribution patterns around the Gnome site.

Exhibit IV - Predictions of Long Range Earth Motions from Proposed Gnome Explosion, Report of September 1959 by the AEC Facilities Division of Holmes and Narver, Inc.

p. 6 "The pre-Gnome tests provide only three scattered maximum acceleration measurements . . . The three available acceleration measurements are:

- (a) 750 lb shot range 3.9 miles 0.0016 g
- (b) 6250 lb shot range 3.9 miles 0.012 g
- (c) 6250 lb shot range 9.7 miles 0.001 g"

p. 8 "Curves representing accelerations vs. range for the Mars, Tamalpais, Rainier, Logan, and Blanca shots have been plotted logarithmically on Chart A. These lines were constructed from the data and on a uniform slope as given by the equation:

$$g = k_1/R^2 \qquad \text{Equation 2}$$

The relationship between acceleration and yield at a given range can be expressed approximately as

$$\frac{g_1}{g_2} = \left(\frac{W_1}{W_2} \right)^{0.9}$$

Equation 3

where g_1 and g_2 are accelerations at a given range for two yields W_1 and W_2 .

Chart A - Acceleration vs. range NTS tuff

The acceleration curve for a scaled 6250 lb. shot is presented and for a range of 8 1/2 miles (13.7 kilometers) shows an acceleration of $2 \cdot 10^{-5}$ g units. The acceleration for the same distance for the scaled ten (5) KT charge is $1.8 \cdot 10^{-2}$ ($1.0 \cdot 10^{-2}$) g units

Chart D - Acceleration vs. range Halite

The curve for a 6250 lb. TNT charge shows $1.3 \cdot 10^{-3}$ g units for the range of 13.7 kilometers.

The curve shown as calculated for a 10 kiloton charge shows $2.02 \cdot 10^{-2}$ g units for the range of 13.7 kilometers.

Comments on Exhibit IV - The three acceptable acceleration data points

of p. 6 can be normalized to an 8.5 mile range as follows:

$$\begin{aligned} \text{(a)} \quad .0016 \left(\frac{3.9}{8.5} \right)^2 &= 0.000337 \text{ g equiv. at 8 1/2 miles} \\ \text{(b)} \quad .012 \left(\frac{3.9}{8.5} \right)^2 &= 0.00252 \text{ g equiv. at 8 1/2 miles} \\ \text{(c)} \quad .001 \left(\frac{9.7}{8.5} \right)^2 &= 0.0013 \text{ g} \end{aligned}$$

These figures may now be extrapolated to 10 (5) kiloton by means of equation 3

$$\text{(a)} \quad .000337 \left(\frac{2 \cdot 10^7}{750} \right)^{0.9} = 3.22 \text{ g units; } .00337 \left(\frac{10^7}{750} \right)^{0.9} = (1.72) \text{ g}$$

$$(b) \ .00252 \left(\frac{2 \cdot 10^7}{6260} \right)^{0.9} = 3.64 \text{ g units}; \ .00252 \left(\frac{10^7}{6260} \right)^{0.9} = (1.94)g$$

$$(c) \ .0013 \left(\frac{2 \cdot 10^7}{6260} \right)^{0.9} = 1.89 \text{ g units}; \ .0013 \left(\frac{10^7}{6260} \right)^{0.9} = (1.01)g$$

All of these extrapolated figures are of a magnitude to insure damage to the Potash mines from a 10 (5) kiloton shot.

The report's predicted value of the acceleration for the proposed 10 kiloton shot as experienced at the minesite was derived from the 10 kiloton curve of chart D. This, in turn, had been computed by them from the 10 kiloton displacement curve of chart C which, in turn, was computed by scaling up from the plotted pre-Gnome displacement data. This calculation procedure is fairly plausible but does not conform to the actual situation. Rather, the effect is to give a scaling exponent for acceleration of 0.33 instead of the exponent 0.9 of equation 3. For instance, the predicted acceleration at the minesite for a 10 kiloton charge as read from curve D is $2.02 \cdot 10^{-2}$ g while the corresponding acceleration from the 6260 pound curve is $1.3 \cdot 10^{-3}$. If we put these in a scaling relationship of the form

$$\frac{g_1}{g_2} = \frac{2.02 \cdot 10^{-2}}{1.3 \cdot 10^{-3}} = \left(\frac{W_1}{W_2} \right)^n = \left(\frac{10KT}{6260 \text{ lbs}} \right)^n$$

then $n = 0.34$.

On the other hand, if the same reasoning is applied to the acceleration data of Chart A and the values for the same distance are used for the 50 ton shot vs. the 23.3 kiloton Blanca, we get

$$\frac{g_1}{g_2} = \frac{2.02 \cdot 10^{-2}}{2.5 \cdot 10^{-4}} = \left(\frac{23.3KT}{50KT} \right)^n$$

from which $n = 0.73$. Obviously the quoted reasoning used in arriving at the ten kiloton curve of chart D is fallacious.

Again, from chart A, the 6260 lb. acceleration for the minesite range as scaled for NTS tuff is $2.0 \cdot 10^{-5}$ g and that for the scaled 10 KT charge is $1.8 \cdot 10^{-2}$ g. The corresponding figures for the same range and same charges as read from chart D are $1.3 \cdot 10^{-3}$ g and $2.02 \cdot 10^{-2}$ g respectively for the 6260 lb. and the 10 KT curves. Since chart A is for acceleration in NTS tuff and chart D is for acceleration in Halite, the calculated accelerations for identical charge and range should be in the same ratio. Instead, we get:

$$\frac{10 \text{ KT acceleration from D}}{10 \text{ KT acceleration from A}} = \frac{2.02 \cdot 10^{-2}}{1.8 \cdot 10^{-2}} = 1.12$$

$$\frac{6260 \text{ lb acceleration from D}}{6260 \text{ lb acceleration from A}} = \frac{1.3 \cdot 10^{-3}}{2 \cdot 10^{-5}} = 65.0$$

Thus, if we are to believe the calculated 10 KT curve of chart D as a basis of predicting the acceleration at the minesite, we must accept the very unlikely conclusion that a 10 KT shot in halite will produce an acceleration only 1.12 times as large as an identical shot in NTS tuff while a 6260 lb. shot in Halite will result in acceleration 65 times as large as in tuff. Actually, the latter figure is near that for the coefficient given in the preliminary USGS report (Exhibit I).

A fairly accurate estimate of the effect of a 10 (5) KT shot in Halite could be obtained by multiplying the $1.8 \cdot 10^{-2}$ g ($1.0 \cdot 10^{-2}$ g) figure for a 10 (5) KT charge in tuff by the factor 65 to give a predicted 1.16 (.65) g units at the minesite.

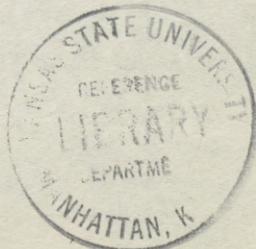


Exhibit V - Seismic Scaling Law for Underground Explosions, by A. L. Latter, E. A. Martinelli, and E. Teller published in *The Physics of Fluids* of May-June 1959.

Abstract "Observations indicate that the amplitudes of distant seismic signals from underground nuclear explosions are approximately proportional to the total energy release."

p. 282 "At large distances, therefore, the acceleration and the displacement depend in exactly the same way on the energy of the explosion."

Comment on Exhibit V - As was intimated in the commentary on Exhibit IV, it might be expected that since the energy stored in an elastic medium is proportional to the displacement, the displacement would scale with the energy. Since, however, the characteristic frequency scales inversely as the cube root of the energy, the acceleration would seem to scale with the cube root of the energy. This simple line of reasoning is, however, inconsistent with the data. The development in Exhibit V represents a more sophisticated consideration of the physics involved and substantiates the use of a larger exponent in the vicinity of unity for the weightwise scaling of the acceleration.

Exhibit VI - Seismic Effects of Quarry Blasting, Bulletin 442 of the Bureau of Mines

This bulletin presents the results of an extensive research program intended to provide a basis for predicting damage to buildings from the explosion of dynamite in nearby quarries or construction projects. The

test data is combined on p. 62 in a chart which indicates that acceleration is a reliable criterion of damage capability. Below 0.1 g units, damage is unlikely. Acceleration values between 0.1 g and 1.0 g must be looked upon as dangerous while accelerations above 1.0 g would be certain to produce damage. The index of damage here is related to the failure of plaster walls in buildings. The application to the Potash mines is considered valid because one of the great concerns of these mines is with roof falls. The persistent appearance in the above calculations of predicted accelerations at the mines of greater than 1.0 g is the basis for concern as to the absolute safety of the mines. Even predicted values of 0.1 g or higher as appeared in the later reports would indicate the necessity for precautionary measures.

Mr. BROWDER. As I mentioned, Mr. Chairman, I have with me Mr. L. Don Leet, and together we would be pleased to answer any questions.

Senator PASTORE. I was going to ask if there were any questions.

Senator ANDERSON. I could not begin to digest these tables in a few seconds.

Is it your opinion, then, that there is danger to these structures from a blast of 5 kilotons?

Mr. BROWDER. Our position, sir, is that we are not in a position to predict damage. Our position is that the present state of the science does not allow a positive prediction that there will not be damage. The science is undeveloped as yet. It is based upon just the few shots at Nevada.

Senator ANDERSON. I do not quarrel with that statement. I do not think there is any evidence that it will. There certainly is no evidence that it will not have some bearing on them. That is why I have said it may be well to protect against that possibility of damage. It is not your conviction that it is absolutely sure. It is just that you feel that there is a reasonable possibility that there could be, and therefore we should provide against it.

Mr. RAMEY. Have you or Dr. Leet studied at all our hearings held last year on the seismic detection program and the conclusions in our summary analysis?

Mr. BROWDER. Dr. Leet was involved in this.

Dr. LEET. I was not involved in it, but I have studied the proceedings carefully.

Mr. RAMEY. Of course, one of the conclusions of the committee was that we needed to conduct more underground tests in order to be able to calibrate and figure out the seismic effects of underground detonations.

Dr. LEET. That is exactly correct. In fact, that is the basis for my sitting here right now, in part. I went through this whole preparation of technical data of Mr. Browder and concur in it fully, and I feel very strongly that the instrumentation data available to us now are completely inadequate, as anything upon which to base a prediction, positive or negative, at this time; when, as you correctly pointed out, the hearings in connection with the test ban made this strikingly clear, I thought, in reading it, that the instrumentation and the data from instrumentation have been inadequate up to now.

I may say, Mr. Chairman, if I may add just one word: Sitting here, as a Harvard professor, you may suspect I sit up there and stroke my beard and read these books. But these opinions are based in some part upon such things as having taken this first record at Alamogordo of the true earth motion at the first A-bomb test. And sometime if you are at leisure and around Cambridge, or even now, I have the record here, that you can see. But I have based it on actual measurements and not computations or theory.

Representative MORRIS. In other words, Doctor, you are not only a Harvard professor, but you are a practical man who has had some experience?

Dr. LEET. Exactly. I am not in the law department, I may say.

Senator PASTORE. And is it your firm conviction, based upon your study, that there is a possibility that some damage could be done?

Dr. LEET. No, sir. You will have to be very careful to watch me. I am a practical man, but I am also a careful man, I hope.

Senator PASTORE. Well, why do you not state your opinion?

Dr. LEET. My opinion is this, precisely: that the data are completely inadequate to supply a basis for an opinion that there will not be damage. Conversely, of course, they are also inadequate to supply an opinion that there will. They are just plain inadequate.

Senator PASTORE. Any further questions?

Senator ANDERSON. I think that is a very good statement. That is the basis on which I tried to act with respect to this bill. I think the Atomic Energy Commission is right. I do not think there is a possibility in the world of damage. But the more certain they are right, the less the possibility of loss there is under my bill.

Dr. LEET. That is a very strong position, I would say.

Senator PASTORE. Are there further questions?

Thank you very much, sir.

Senator PASTORE. Mr. Neal?

STATEMENT OF CASWELL S. NEAL, ATTORNEY FOR INTERNATIONAL MINERALS & CHEMICAL CORP.

Mr. NEAL. Mr. Chairman and gentlemen of the committee, my name is Caswell S. Neal. I am senior member of the law firm of Neal, Neumann, Neal & Fort of Carlsbad, N. Mex. I have practiced law 41 years. I am a member of the bar of the Supreme Court of the United States and of the Supreme Courts of New Mexico, Arkansas, and Oklahoma. I have represented International Minerals & Chemical Corp. and other segments of the potash industry for over 25 years.

Legislation as proposed in pending bills S. 1144 and H.R. 5215 is definitely needed if reasonable assurance is to be provided that those who may be damaged by the proposed Project Gnome, or any other underground nuclear explosion deliberately set off by the Government in peacetime and not occurring as an act of war, will be compensated for such damage.

This legislation is proposed because a large nuclear explosion is to be detonated in close proximity to the valuable potash mines and national reserves near Carlsbad, N. Mex. The possibility of damage to these mines and their reserves from the proposed blast resulted in legal research from which it was concluded that legislation of the type proposed is vitally needed if full protection is to be afforded to those who may be injured by the proposed detonation.

The bills now under discussion are identical. In brief, they amend section 170 of the Atomic Energy Act by adding a provision to the effect that the United States shall be liable (with certain exceptions and limitations) for injury to persons or property arising out of an underground nuclear explosion deliberately—or intentionally, if you would like—detonated in time of peace by the Commission or its contractors, whether or not negligence on the part of the Government is involved.

Senator PASTORE. Well, now, why do you have to have any qualification there at all? That is the thing that I asked you about before.

Mr. NEAL. It would be desirable, perhaps, to amend the word "deliberate" to mean "accidental," or "intentional." I will get to the reasons when we get to a discussion of the Tort Act, and the indemnity provisions of the Price-Anderson Act.

Senator PASTORE. What you are trying to do here is to make the Government an insurer, really.

Mr. NEAL. No; I am trying to make the Government liable if they put off this explosion and damage our property, on the theory that if we can prove a causal connection between the detonation and the damage, we are entitled to recover from the Government. And I will show that that is the law in most of the States of the United States.

Senator PASTORE. Of course, you have given this some thought and study, Mr. Neal, but I am a lawyer, too. And I was wondering if your purposes would not be served if you just said "an underground nuclear explosion detonated in time of peace."

Mr. NEAL. That would be all right except for the remedies which we have under the law, which I will get to in just a minute, Senator.

In view of the fact that the commentary on these proposed bills, which was included by Senator Anderson in the Congressional Record for March 2, 1961, at pages 2811-2812, explains in some extensive detail the various provisions which they contain, I hesitate to take the time of the Joint Committee to go over this ground again. I will, however, be glad to explain any features of the proposed legislation which the committee may desire.

In my testimony I would like to emphasize the extent to which existing law with respect to recovery or indemnification for any damages which may result from Project Gnome is uncertain and therefore unsatisfactory.

In making these comments, I should emphasize that I am not taking the position that someone injured by this proposed blast is utterly without remedy under existing law; in fact, I am hopeful that through the device of indemnity contracts between the Atomic Energy Commission and its prime contractors or otherwise it would be possible for anyone injured by this proposed nuclear explosion to obtain adequate compensation for any damages which he suffers from it.

The difficulty, however, is that this right to recovery is by no means clear, and the legal difficulties and pitfalls which exist under present law are so great that, in all fairness, we think the proposed legislation should be enacted to clarify and make indubitably clear the right of an injured party to be made whole.

I start with the premise that it is inconceivable that if a citizen is damaged by a deliberate intentional governmental activity of the nature of an underground blast as part of a peacetime experiment, he should have no legal remedy against the Government to recover damages resulting from the blast, when, if the same use of an explosive is made by a private individual or a corporation, it would result in full liability.

Under the law as it now exists, two possible courses are open if damage from the blast results, one of which appears extremely difficult under existing decisions, and the other of which is filled with many uncertainties. I think it may safely be said, therefore, that there is now no certain method by which the potash companies or any other property owner (for the bills of course are general) could be made whole if their properties are damaged by the projected blast. These two courses are: (a) action against the Government under the Federal Tort Claims Act, or (b) action against the prime contractor of Project Plowshare, the University of California. I shall discuss these possibilities in their order.

Proceedings under the Federal Tort Claims Act: An action against the United States under the Federal Tort Claims Act by a person injured as a result of the proposed Project Gnome detonation might be based on either a claim of absolute liability under applicable State law, or a claim that the Government was negligent in conducting so hazardous an experiment at a location which might cause damage to the property of others. Under existing decisions interpreting the Tort Claims Act, recovery on the theory of absolute liability would seem to be clearly precluded, and recovery on the theory of negligence would at best be highly questionable.

The Supreme Court of the United States, in a construction of the Federal Tort Claims Act in the case of *Dalehite v. United States* (the Texas City explosion case), 346 U.S. 880, clearly held: (a) that the Federal Tort Claims Act does not embrace the absolute liability imposed upon private individuals who engage in an activity attendant with highly potential dangers to others, even though this rule of absolute liability is recognized by applicable State law; (b) that the Federal Tort Claims Act is not applicable by virtue of either the ownership of an extremely dangerous commodity or engaging in an extra hazardous activity in connection with the said commodity; (c) that the claim must be based upon negligent or other tortious conduct of a Federal employee, and with due regard to the statutory exceptions; and (d) that a claim against the United States for damages resulting from the explosion of ammonium nitrate fertilizer, manufactured for the United States and under its direction, falls within the exception clause of the Federal Tort Claims Act, giving immunity to the United States if recovery is based upon the exercise or performance, or failure to perform a discretionary duty or function of a Federal agency or employee.

The ruling in the Texas City case was followed and applied in an atomic blast in the recent case of *Bartholomae v. United States*, 253 Fed. 2d 716 (CCA 9). This case arose from atomic tests in Nevada's Frenchman's Flat, and it was claimed that air blasts from the explosions during the tests damaged the buildings and property of the plaintiffs some miles distant from the blasts. The Court, in refusing recovery, held (a) that the plaintiff could not recover against the United States under the Federal Tort Claims Act on the theory of liability without fault ordinarily applied to explosion cases; (b) that there is no Federal common law and no liability can be predicated upon the explosions themselves, whatever the circumstances and whatever the State law; and (c) that negligence alone can found an action under the Federal Tort Claims Act.

Although the doctrine of strict or absolute liability for damages from a blast or explosion is recognized in the laws of many States, including New Mexico, the Supreme Court has held that this doctrine of absolute liability cannot be asserted under the Federal Tort Claims Act.

Furthermore, even if it could be shown that the Atomic Energy Commission was negligent in going ahead with this project at this particular site because of the technical uncertainties as to the extent of the resulting shock waves, it is not clear that liability against the United States for this negligence could be enforced under the present provisions of the Tort Claims Act.

In this same Texas City case, the Supreme Court held that high level policy determinations, even if they would have constituted

negligence had they been made by private persons, fall within an exception of the Federal Tort Claims Act covering the exercise of discretionary governmental functions.

Liability on this ground was similarly rejected in the *Barthalomae* case above quoted where the Court pointed out that even if the Government was at fault for setting off a nuclear detonation at all, under the circumstances making it impossible to predict what the effect of the blast would be, this would not support a recovery.

Under the circumstances, it must be concluded that the Federal Tort Claims Act fails to provide a clear or adequate remedy for damages resulting from nuclear tests made under authority of the Atomic Energy Commission or its employees. The remedy is inadequate in the case of a project of such magnitude as is here contemplated, even if the Government is found at fault or in error in selecting the site and in going ahead with the project under existing circumstances.

I now proceed to a discussion of a possible remedy against the University of California.

Senator PASTORE. Before you get to that, are you actually saying in very simple terms that even if it could be shown that the Government was negligent in connection with this detonation so close to the potash mines, that in itself would not constitute negligence that would —

Mr. NEAL. That would fall within the exception to the Federal Tort Claims Act, which provides that a mistake of judgment by Federal employees or a mistaken judgment by an agent of the Federal Government in setting off the detonation would not constitute negligence.

Under Project "Plowshare," including "Gnome," the AEC has entered into a contract with the University of California as prime contractor. The Price-Anderson Act permits indemnification of contractors against public liability, which is defined in the act essentially as "legal liability arising out of or resulting from a nuclear incident" (sec. 11(u), Atomic Energy Act of 1954 as amended).

The Price-Anderson Act contemplates, I believe, that all defenses available under applicable law would be available to persons causing nuclear incidents. For this reason, no one has absolute assurance that he can be compensated in advance for a nuclear incident which may cause him to suffer damages. We are advised that the University of California, as prime contractor, has agreed with the Government to assume legal liability for its acts as though they were not carried on for the Government. We are also advised, however, that the Commission has not obtained similar commitments from other contractors or from subcontractors.

Recovery under the indemnification provisions of any contract between the Commission and the University of California, can only be had if liability is first successfully asserted and established against the University of California itself. This rule is elementary in the law of indemnity. Quite apart from special defenses that might be raised by the university as a State agency, which I will mention later, this liability might be defeated by the assertion or defense that the Atomic Energy Commission and not the University of California made all the basic decisions with respect to the location of the proposed detonation and the method by which it is to be carried out.

Even though the doctrine of absolute liability is applied under the law of New Mexico, it is quite uncertain whether this doctrine could be successfully applied to an agent or contractor, such as the University of California, against the claim that all relevant determinations leading to the damage were made not by the agent but by the principal.

As I have already pointed out, the principal here is the Atomic Energy Commission, which may well not be directly liable for such determinations under existing law. The restatement of torts, for example, expressly leaves open as an uncertainty in the law the question of the extent to which the doctrine of absolute liability may be asserted against an agent who assists in carrying out a dangerous activity such as setting of an intentional explosion (vol. 4, p. 441, Restatement, Law of Torts).

In cases where, as here, the principal is the Government, there is an additional argument that governmental immunity extends to the Government agent acting within the scope of its authority. At least one court has recently invoked this rationale to deny relief for damage to a private dwelling from blasting by a Government contractor necessary to the construction of a lock in the Mississippi River (*Pumphrey v. J. A. Jones Construction Company*, 94 N. W. 2d 737 (Iowa 1959)).

I think it may well be said here, aside from the printed text, that perhaps this point is the very point which it would be almost impossible for us to surmount in a defense in a suit against the University of California brought by us. If they should come in and assert that the Government did this, that the Government made the location, that it made all the relevant determinations leading up to the damage, there are many, many authorities which hold that under the circumstances they would not be liable.

Now, if they were not liable, the Government would not be liable under its indemnity contract, because we must first establish liability to obtain indemnity against the University of California.

Now, I have discussed this matter to some extent with the attorneys for the Commission, and I am sure that at least in this respect they feel that this would possibly be or probably be a good defense.

I am not speaking for them in that regard, but I know that they feel that at least there is merit to this statement.

Now, there are many other legal problems which would have to be surmounted in an attempt to recover damages by suing the prime contractor, the University of California, or its subcontractor, if damage should occur from the blast. Among these serious legal questions are the following:

1. The question of whether the Plowshare contract between the University of California and the Atomic Energy Commission is *ultra vires* so far as as the State of California is concerned.

It is the general law that a publicly owned university has only such power as is conferred upon it by the constitution of a State or by the laws or statutes of the State of its domicile, together with all implied or incidental powers to do what is reasonably necessary to effectuate its expressly granted powers and to accomplish the purposes for which it was formed. The boards which control them have only such powers as are conferred upon them by law.

A serious question can certainly be raised as to whether the Plowshare contract between the University of California and the Atomic Energy Commission so far exceeds the general purposes for which the

university was created as an educational institution as to be ultra vires and beyond its power. Should we be relegated to recovery against the University of California, we would certainly urge that the contract is within the university's statutory powers; as a lawyer, however, I would have to recognize that this necessarily presents a legal question.

The Senator might be interested, in that connection, if he has the time, to read the case of *In re Boyer's Estate*, 56 Pacific 461, which clearly defines the purposes for which the university was formed and clearly limits the powers of the board of regents to carry out those purposes.

2. The question of whether or not the regents of the University of California can waive the State of California's immunity for tort is also a serious question which has not been determined by the Courts of California.

I have been unable to find any California statute waiving immunity which would apply to the university's activities as a contractor with the United States for Operation Plowshare, nor do I believe there is any decision of the Supreme Court of California concerning the power of the university to waive its immunity or the State's immunity as an agency of the State.

We are advised by general counsel for the University of California, Judge Cunningham, and by Mark Owens of his staff, who is immediately in charge of the legal aspects of the university's activity in Operation Plowshare, that it is their position—recognizing the general rule that immunity can be waived only by an act of the legislature—that since the regents of the University of California are a body constitutionally given powers of organization and government, they may waive immunity for the State in respect to the acts of the university, with the same force and effect as a legislative waiver by the legislature of California. They advise me that it is upon this theory that the regents have approved the contract with the Atomic Energy Commission containing the waiver-of-immunity provision.

Senator PASTORE. But that question has never been decided?

Mr. NEAL. It has never been decided; no, sir.

Again, I hope very much that this turns out to be a correct interpretation of the law, because laws of this kind would be seriously construed. A serious question does exist, however, as to whether or not the University of California does have immunity from suit as a State institution, and as to whether or not the regents of the University of California, in fact, have the power to waive this immunity.

I may say there was a case decided in 1924, in which the Supreme Court of California held that the University of California could plead immunity as an agency of the State.

There was a recent case in California, decided in February of this year, which may cast some doubt on that decision, although it certainly does not overrule it. But it is an important question, and one which we certainly have to consider.

We hope that the board of regents are right. But if they are not, and if the board of regents do not have the power to waive immunity, then certainly the State of California through its attorney general could do it.

3. The question of whether or not the University of California, in fact, will be amenable to suit in New Mexico.

We are advised that it is the position of counsel for the University of California concerning the university's amenability to suits in the courts of New Mexico, that they have qualified the university to do business in New Mexico as a nonprofit organization for the deliberate purpose of making it subject to suit in the State and Federal courts of New Mexico.

The regents of the University of California, however, appear to have equal power at any time they desire to withdraw that qualification. While there is nothing which indicates an intent upon the part of the University of California to do this, they may have the power to do so, and in such event resort would have to be made by any person damaged in New Mexico to the courts of California.

4. The question of how a judgment obtained against the University of California could be enforced.

If damage should occur to the potash companies or to any individual as a result of the proposed blast, and if a judgment for damages against the University of California were not voluntarily paid, resort by suit upon this judgment would have to be made in the courts of California to enforce the judgment, and the problem of how to enforce such a judgment against the University of California, a State institution, presents innumerable obstacles.

Senator PASTORE. Of course, you would not have that problem at all, because if you could obtain a verdict against the University of California, then of course, under those circumstances, you could invoke indemnity provisions under the contract.

Mr. NEAL. I could not invoke them, because there is no authority in the act which gives anyone but the University of California the right to invoke them.

Perhaps the University of California could sue the Government to compel it under the indemnity contract to indemnify us.

Senator PASTORE. I get your point.

Mr. NEAL. But we are without remedy, because Congress has not authorized us to bring suit.

Senator PASTORE. If California sued, they could be indemnified by the Atomic Energy Commission.

Mr. NEAL. But we would have to enforce our right against them before the Government is liable under its indemnity contract.

Senator PASTORE. And they would have to pay you first, before there could be indemnity. They would have to have the assets with which to do that.

Mr. NEAL. That is right.

Gentlemen, I have not made an effort to list all of the legal difficulties which might be encountered in attempting to recover damages which might result from the conduct of this proposed project through a suit against the University of California as contractor. Other questions could conceivably be raised.

The point I desire to impress here is that there is no clear and adequate remedy available under existing law, and that there are substantial and perhaps insurmountable legal difficulties in the way of recovery in the event damages should occur. I accordingly urge that in all fairness if the United States is to go ahead with an intentional underground explosion as an experiment conducted in time of peace, which explosion might severely damage the potash mines and associated properties, section 170 of the Atomic Energy Act should be

amended to make clear the obligation of the United States to indemnify those who are thereby damaged. The proposed bills S. 1144 and H.R. 5215 effectively do this, and we hope that Congress will enact this proposed legislation.

Senator PASTORE. Any questions of Mr. Neal?

It has been a pleasure to listen to you.

It has been suggested that the bills before us be modified so as to make liability depend upon applicable State law. Do you believe that this would be an advisable amendment?

Mr. NEAL. I am familiar with the proposed amendment, or suggested amendment, which would amend the bill to make the Government liable for damages only to the same extent that an individual would be liable under applicable State laws where the blast occurs.

Now, while there is no objection to this from the standpoint of the potash industry because the rule of "strict liability" for all types of explosions is the rule of law in New Mexico, and it is only necessary in New Mexico to prove a causal connection between the explosion and the resulting damages to recover, and the question of negligence is not involved (*Thigpen v. Skoulsen-Hise* (N.M.) 237, p. 802).

There is, however, a serious conflict of decisions in the various States upon the question of liability from explosions, and I am happy to get this opportunity to discuss this briefly with the committee, because I have made a pretty thorough search in that connection.

First, there is one line of cases involving damage from open blasting by flying objects above the ground. Cases of this type are divided into three main categories, one, the States which hold, as in New Mexico, that in that case the doctrine of strict liability exists without proof of negligence, but only a causal connection between the explosion and resulting damage; (b) States which require proof of negligence as the proximate cause of the explosion resulting in damage; and (c) States which hold that negligence may be inferred from the blast if resulting damages occur under the legal doctrine of *res ipsa loquitur*.

Now, as applied to the legislation under consideration, we are here concerned with damages due to concussion or underground shock. And the rules of evidence in the various States are likewise in conflict with recovery of damages from concussion or shock from blasting.

Now, the following States—and this may be of interest to the Senator and members of the committee—the following States, including New Mexico, have adopted the strict liability rule, in cases involving damage from concussion or shock, permitting recovery regardless of negligence, if a causal connection is shown. Those States are: Vermont, Arkansas, Illinois, California, Iowa, Missouri, Montana, Nebraska, Ohio, Oklahoma, Rhode Island, South Dakota, Tennessee, Washington, Utah, West Virginia, Colorado, Connecticut, Louisiana, Mississippi, Oregon, Pennsylvania, Delaware, Hawaii, Georgia, Wisconsin, South Carolina, and North Carolina.

On the other hand, the following States have adopted a contrary rule, and positive proof of negligence must be shown to be the proximate cause of damages from underground shock or concussion: Alabama, Kansas, Kentucky, Massachusetts, New Jersey, New York, Maine, Arizona, Virginia, New Hampshire, and Texas.

Some of these States which adopted a strict rule with reference to underground shock and concussion have adopted the more liberal rule with reference to injury from flying objects from open blasting. These States include: Alabama, Massachusetts, and Kentucky.

A few of the States adopting the strict negligence rule on underground concussion damages permit the application of the doctrine of *res ipsa loquitur*. These include: Massachusetts, New Jersey, Maine, New York, and Texas.

Senator PASTORE. But is not the real objection that you might have a piece of property that extends into two different States, or an accident causing damage in two different States, and there might be a different rule involved?

Mr. NEAL. Of course, that could be true. Under our proposed bill the suit must be brought in the State where the detonation occurs.

Senator PASTORE. The bill that you are proposing?

Mr. NEAL. Yes, sir. And we have the obligation to prove to a Federal judge that the blast caused our damage.

Now, summarizing: There are 29 States which follow the strict liability rule. Eleven States require positive proof of negligence. Four States permit proof of negligence under the doctrine of *res ipsa loquitur*. And there three States which seem to have conflicting decisions.

This would seem to indicate to me a real need for legislation, uniform in character, nationwide, so that residents of any State damaged from an underground nuclear explosion would have the same remedy and be required to make the same type of proof.

But as I say, either provision is satisfactory to us from a purely personal standpoint.

Senator PASTORE. There is now pending before the committee a proposed amendment to section 167 of the Atomic Energy Act which would permit the settlement of claims up to \$5,000 by the Commission and also permit the Commission to recommend settlement of claims in excess of \$5,000 resulting from explosions in the Plowshare program.

Are you familiar with that legislation, Mr. Neal?

Mr. NEAL. Sir? Will you repeat that, please?

Senator PASTORE. There is now pending before the committee a proposed amendment to section 167 of the Atomic Energy Act which would permit the settlement of claims up to \$5,000 by the Commission, and also permit the Commission to recommend settlement of claims in excess of \$5,000 resulting from explosions in the Plowshare program.

Mr. NEAL. Yes. We suggest amendments to section 170 of the act, which permits settlement authority to include the words "or any other claim under this section." We try to make this clear, that subsection (h) authorizes the settlement of claims against the United States under the new proposed subsection (m), as well as otherwise.

Now, the Commission, of course, acting on behalf of the United States, is authorized to consider claims up to a certain amount, but there is no authority, in the event the damages exceed that, so far as I know, without following the provisions of section 167. And that would depend upon whether or not the Commission would assume and agree that they were liable in connection with this matter.

Senator PASTORE. I am still disturbed about the word "deliberately." Let me give you this example, and see what you have to say about it.

Let us assume that all preparations were made and everything was set, but through some natural phenomenon that no one can explain, without any deliberateness or intention on the part of either the University of California or the Government, through some phe-

nomenon this explosion took place. Would that not preclude you under the language that you have used? It would not be deliberate. It was a phenomenon that nobody seems to be able to explain. And yet you have no recourse.

Mr. NEAL. We used the word used in the drafting of this bill, Senator, because we felt that it was intentional, and we felt that we had been to the Atomic Energy Commission and tried to have them locate this detonation in any of the rest of the 70,000 square miles in the Permian Basin, where there is salt. We suggested places to them. We did everything that we could to get them to put it somewhere else.

Now, they have failed to put it somewhere else. They are going to put it off here. To that extent, it was deliberate.

Now, if, in the preparation of the shot, in the preparation of the blast, without any act on the part of anybody, and by some phenomenon unknown to anybody, that we could not prove, if it could be shown the blast was caused by that, the word "deliberate" should probably be changed to "accidental" or "intentional" or completely stricken.

Even if it were a known phenomenon, the words "accidental" or "intentional" would probably not apply.

Senator PASTORE. No, but if you did not put anything there at all, the mere fact they shot it off, the mere fact that it was detonated, would be conclusive.

I am trying to make it easier for you. You are qualifying it. I am dropping the word "deliberately" and dropping the word "intentionally." I am making it absolute liability.

Mr. NEAL. I certainly have no objection to that whatsoever, sir.

Senator ANDERSON. Could I ask another question, then?

Suppose you did not take the simple language that the chairman has suggested, which I think is fine, but if you said on line 2 of page 2: "any activity of the Commission involving a program based on the deliberate underground detonation."

Senator PASTORE. Well, I do not think you have to do that at all. I think that is redundant. I think, myself, if you just drop the word "deliberately," I think that would do it. You are looking for absolute liability. I just raise that question. I think I am making it easier for you.

Mr. NEAL. There is certainly no objection to that on our part, and that amendment would perhaps be a very good one, Senator.

Senator ANDERSON. I think Senator Pastore has performed a real service for us.

Mr. NEAL. I think he has, and I appreciate it very much.

Senator PASTORE. You are connected with this as your own personal case. You are saying you have asked these people not to do it there, but they are going to do it there. This is a deliberate act. But this is going to apply in every case.

Mr. NEAL. I think the Senator has made a very fine suggestion.

Senator PASTORE. Any further witnesses for or against the legislation?

Mr. NEAL. May I make this statement of the rule in the various States, which is not in my testimony, a part of the record for the review of the committee?

Senator PASTORE. Without objection, we will have it inserted.

(The statement referred to follows:)

LIABILITY UNDER STATE LAW

There has been some suggestion that the proposed bill be amended by making the Government liable for damages only to the same extent that an individual would be liable under applicable State laws where the blast occurs.

While there is no objection to this from the standpoint of the potash industry because the rule of "strict liability" for all types of explosions is the rule of law in New Mexico and it is only necessary in New Mexico to prove a causal connection between the explosion and the resulting damages to recover, and the question of negligence is not involved (*Thigpen v. Skoulsen-Hise* (N.M.) 237 p. 802).

There is, however, a serious conflict of decisions in the various States upon the question of liability from explosions and it might be of interest to the committee for me to point these out.

First, there is one line of cases which governs damages from open blasting above the ground resulting in injuries from flying objects. The cases in this type of explosion are divided into three main categories: (a) States which hold (as does New Mexico) that the doctrine of "strict liability" exists and proof of negligence is not necessary; (b) States which require proof of negligence as the proximate cause of the explosion, resulting in damage as a condition of recovery; and (c) States which hold that negligence may be inferred from the blast if resulting damages occur under the legal doctrine of *res ipsa loquitur*.

As applied to the legislation under consideration, however, we are concerned with damages caused by concussion or shock from underground blasts.

The rules of evidence in the various States are likewise conflicting in connection with recovery of damages from concussion or shock from blasting.

The following States (including New Mexico) have adopted the rule of "strict liability" in cases involving damage from concussion or shock, permitting recovery regardless of negligence if a causal connection is shown between the explosion and resulting damages: Vermont, Arkansas, Illinois, California, Iowa, Missouri, Montana, Nebraska, Ohio, Oklahoma, Rhode Island, South Dakota, Tennessee, Washington, Utah, West Virginia, Colorado, Connecticut, Louisiana, Mississippi, Oregon, Pennsylvania, Delaware, Hawaii, Georgia, Wisconsin, South Carolina, and North Carolina.

On the other hand, the following States have adopted a contrary rule, and positive proof of negligence must be shown to be the proximate cause of damages from underground shock or concussion: Alabama, Kansas, Kentucky, Massachusetts, New Jersey, New York, Maine, Arizona, Virginia, New Hampshire, and Texas.

Some of these States which adopted a strict rule with reference to underground shock and concussion have adopted the more liberal rule with reference to injury from flying objects from open blasting. These States include: Alabama, Massachusetts, and Kentucky.

A few of the States adopting the strict negligence rule on underground concussion damages permit the application of the doctrine of *res ipsa loquitur*. These include: Massachusetts, New Jersey, Maine, New York, and Texas.

In some States there seems to be a conflict in the decisions upon the question: Kansas, New York, and New Hampshire.

From the foregoing, it would appear as related to damage from shock and concussion, as near as my research has taken me, that—

Twenty-nine States follow the "strict liability" rule;

Eleven States require positive proof of negligence;

Four States permit proof of negligence under the doctrine of *res ipsa loquitur*; and

Three States seem to have conflicting decisions.

This would seem to indicate a real need for legislation uniform in character nationwide so that the residents of any State damaged from underground nuclear explosions would have the same remedy and be required to make the same type of proof.

Senator PASTORE. Our next witness is Mr. Paul Speer.

**STATEMENT OF PAUL SPEER, DIRECTOR, UNITED STATES
BORAX & CHEMICAL CORP., NEW YORK, N.Y.**

Mr. SPEER. Mr. Chairman and members of the committee, my name is Paul Speer. I live in New York City, and I am director and consultant of the United States Borax & Chemical Corp.

My statement is very brief. I am here simply to say that the management of my company concurs in the testimony which has been given by the various witnesses and supports the view that the legislation which was proposed should be adopted.

I may say with the addition of what the Senator has said about the word "deliberate."

Senator PASTORE. All right, sir. Is that all?

Mr. SPEER. That is all.

Senator PASTORE. Thank you very much, Mr. Speer.

STATEMENT OF HON. THOMAS G. MORRIS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW MEXICO

Representative MORRIS. Mr. Chairman, I have been most impressed with the extent to which the testimony we have heard indicates the desirability of enacting these bills, S. 1144 and H.R. 5215. I cannot see how anyone can dispute the simple proposition—that if the Government goes out and deliberately does something as part of a peacetime experiment that damages a neighbor's property, it should be required to make the neighbor whole. That is really the only question that is presented here.

I recognize that persons injured by the Gnome blast may well have a remedy against the Commission under existing law, including the provisions of the Price-Anderson amendment and the terms of indemnity contracts executed by the Commission with its contractors. In fact, the only valid ground on which this legislation could be rejected in my opinion would be a determination that presently available remedies are in fact adequate. I have been impressed with the testimony of Mr. Neal, however, which points out the many doubts and uncertainties which exist in the present law. I join with him in expressing the hope that in fact the courts would approve recovery under existing law, but I think our citizens with property in the vicinity of atomic explosions being set off by the Government are entitled at the minimum to positive assurance of fair compensation.

Representative MORRIS. May I ask unanimous consent that I may insert a statement.

Senator PASTORE. Without objection it is so ordered.

STATEMENT OF CONGRESSMAN THOMAS G. MORRIS OF NEW MEXICO

Mr. Chairman, I appreciate your giving me this opportunity to say a few words on behalf of my bill, H.R. 5215, which would amend the Atomic Energy Act of 1954. The principal purpose of the bill is to provide a judicial remedy to anyone who may sustain damage, through loss of property or personal injury or death, as a result of a nuclear incident occurring in the course of the Atomic Energy Commission's activities involving a deliberate underground detonation of a nuclear explosive device.

Although the United States permits itself to be sued, under the Federal Tort Claims Act (28 U.S.C., 1346(b), 2671-2680), for property damage or injury or death caused by the negligence of its employees while acting within the course of their duties, it is extremely doubtful whether damages arising out of a nuclear incident would be compensable under that act. In the first place, that applies only when the claimant can establish affirmatively that his damages were caused by the negligent or wrongful conduct of Federal employees. In most conceivable situations, it would be exceedingly difficult if not impossible for a claimant to meet the necessary burden of proof to establish negligence in connection with a nuclear incident; because, as we all know, not only is much of the Commission's activity in nuclear experimentation surrounded by classified procedures which may not be available for a litigant's examination and use in evidence, but it is

also accompanied by the most rigid safety measures that can feasibly be employed, measures which cannot be successfully attacked as inadequate.

Secondly, the doctrine of law which normally would be applicable and which would make private persons liable without reference to negligence in most jurisdictions under similar circumstances—that is, the doctrine of absolute liability without fault, based upon the conduct of an ultrahazardous activity—has been held inapplicable to the United States under the Federal Tort Claims Act (*Dalehite v. United States*, 346 U.S. 15).

And thirdly, quite apart from the doctrines of negligence and absolute liability, the Tort Claims Act excludes from its coverage claims arising out of the performances of a discretionary function (28 U.S.C. 2680(a)). The Supreme Court has held that this exclusion bars death and injury claims arising from a public project involving a deliberate policy decision by high governmental officials to proceed with experimental program despite its known hazards to the public. *Dalehite v. United States*, *supra*. Moreover, on the same theory, this exclusion has been held to bar a claim in which blast damage was said to have been caused by a nuclear detonation (*Bartholomae v. United States*, 135 F. Supp. 651, *aff'd*, 253 F. 2d 716).

Section 1 of H.R. 5215 would remove these impediments to a recovery of damages from the United States in the event someone sustains loss from a nuclear incident arising out of a deliberate underground nuclear blast. The bill only covers underground blasts because these are the only nuclear tests presently contemplated. Sections 2 and 3 of the bill provide some clarification of and conform the bill to, existing law. Under the Price-Anderson Act (see 42 U.S.C. 2210), the aggregate liability of the United States for damages arising from a single nuclear incident is limited to \$500 million, and the same limitation would be applicable here.

A moment ago I suggested that all of us know that the Atomic Energy Commission in all of its activities is most vitally concerned with safety—safety for those directly engaged in its operational functions and safety for the public in general. But all of us also are aware that experimentation in the nuclear field might possibly encounter the unknown, and that this involves some risks. This, of course, is the price we have to pay to press forward for the advancement of science and for our national security. Although the risk of a nuclear incident, when so many precautions are employed, is highly remote, nevertheless it should be taken into account. H.R. 5215 would provide the opportunity to anyone who sustains damages as a result of our underground nuclear experimentation to be compensated by the U.S. Government under appropriate judicial procedures. To deny this opportunity would hardly be equitable and certainly would not be in keeping with our national tradition. Mr. Chairman, I do hope that the committee will act favorably on this bill. Thank you.

Senator PASTORE. Is there anyone else?

We shall recess until further call of the Chair.

(Whereupon, at 5 p.m., Thursday, June 29, 1961, the subcommittee recessed, to reconvene subject to the call of the Chair.)

APPENDIXES

APPENDIX 1

U.S. ATOMIC ENERGY COMMISSION,
July 14, 1961.

HON. CHET HOLIFIELD,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. HOLIFIELD: In your letter of March 24, 1961, you requested our comments on H.R. 5215 and S. 1144, identical bills which would amend section 170 of the Atomic Energy Act of 1954, as amended.

S. 1144 and H.R. 5215 are identical bills the primary purpose of which is to make the United States liable without proof of negligence or a wrongful act for damage from a nuclear incident "which occurs in the course of the conduct of any activity of the Commission involving the deliberate underground detonation of a nuclear explosive device."

Possible activities of the Commission that would fall within the scope of the bill are underground nuclear detonations in the plowshare program, the seismic improvement program and in nuclear weapons testing programs if they should be resumed.

We understand that the bills were introduced to provide a basis for assuring residents and property owners in the vicinity of a proposed underground nuclear detonation that they would be compensated in the event of injury or damage from the detonation. The Commission cannot give such an assurance under existing laws since none of the courses of action available to a person damaged by an underground nuclear detonation provides a guaranteed remedy. For example:

1. Under the Federal Tort Claims Act an agency of the United States is not liable for damage arising from its activities in the absence of proof of a negligent or wrongful act or omission by a Government employee acting within the scope of his employment.

2. Under the Price-Anderson Act the Commission may enter into indemnity agreements with its contractors under contracts for the benefit of the United States involving activities under the risk of public liability for a substantial nuclear incident. Public liability is defined by the act as "legal" liability. In connection with any program involving the deliberate underground detonation of a nuclear explosive device the Commission would expect to enter into Price-Anderson indemnity agreements with the principal contractors engaged in the program. However, since the indemnification runs only to the "legal" liability of an indemnified person it may be possible for the indemnified contractor to prove a defense in an action for damages—a defense such as sovereign immunity to suit; the absence of negligence, if the applicable State law does not recognize strict liability; the fact that the contractor was merely performing a Government contract in accordance with its specifications; or that the Commission and not the contractor was liable for acts of the contractor's employees while they were under the control of the Commission's test manager.

3. Any administrative settlement by the Commission under the Federal Tort Claims Act of claims for damages in amounts not exceeding \$2,500 is limited to damage caused by a negligent or wrongful act of a Government employee.

4. The Commission's authority under section 167 of the Atomic Energy Act to settle claims not in excess of \$5,000 is limited to claims for damage produced in the conduct of the Commission's program for testing atomic weapons. This procedure is therefore not available in connection with plowshare or seismic improvement program detonations. However, it should be noted that the omnibus bill recommended by the Commission (S. 2117 and H.R. 7798) which is now before the committee, contains a proposed amendment to section 167 which would extend the Commission's authority under section 167 to settle claims not in excess of \$5,000 for damage resulting from detonations of explosive devices in

any Commission program. It would also authorize the Commission to recommend to the Congress meritorious claims in excess of \$5,000.

A person damaged by an underground nuclear detonation must therefore in order to recover either prove negligence or a wrongful act or omission or overcome any defenses that may be available to indemnified persons.

However, we believe the probability of serious damage from any underground nuclear detonation is remote. The Commission follows the practice of approving the detonation of nuclear devices only after it is satisfied that the detonation can be conducted safely. With respect to plowshare project Gnome in which it is planned to detonate a 5-kiloton nuclear device at a depth of 1,200 feet, independent expert consultants recommended by the National Academy of Sciences and retained by the Commission have reported that there is no serious danger of damage to any of the potash mines from a 10-kiloton detonation at the proposed location selected. That report of the Panel stated:

"In general, it is concluded that there is no serious danger of major damage to any of the mines that would result from a 10-kiloton detonation at the proposed location for Project Gnome. The added stresses that will be produced by such a shot are negligible in comparison with those which already occur in the mined areas as the pillars are robbed and the mining operation is completed. The effects that might be reasonably expected from the nuclear shock are probably less than those several hundred feet away from the normal blasting operations daily conducted in the mines. Since these only rarely produce any damage at distances more than a few feet away, it is not expected that the nuclear shock will produce any serious effects. The possibility of a crack or breakthrough from the mine to the surface, causing possible flooding of some of the mined areas, might be of more serious concern. However, it is not considered that this would be a major source of difficulty because of the small motions and accelerations that are involved, and the general large scale of the wavelength of the motions, which is considerably larger than the width of the mined areas, in general. It is therefore believed that the possibility of damage to be expected is slight enough that the project should be carried out as planned."

Since that report the yield of the device has been reduced from 10 kilotons to 5 kilotons.

Even though in our opinion the probability of serious damage from any underground detonation is slight and enactment of the Commission's omnibus bill will provide authority to settle claims in amounts up to \$5,000, enactment of S. 1144 or H.R. 5215 should allay the concern of residents and property owners in the vicinity of a proposed underground nuclear detonation over their possible inability to obtain compensation for serious damage from a detonation. Enactment of either bill should therefore make programs of the Commission involving deliberate underground nuclear detonations more acceptable to the public.

At the same time the proposed bills would have the undesirable effect (as identified in the views of the Department of Justice referred to below) of creating an avenue other than the Federal Tort Claims Act for suits against the Government, by making the United States absolutely liable in a suit in a Federal court for damage arising out of the activities covered by the bills. Generally speaking, statutes authorizing redress, outside the Federal Tort Claims Act, to persons injured or damaged by Government activities provide an administrative remedy, often limited in amount, to be exercised in the discretion of the interested agency, rather than a legal right to be asserted in the Federal courts. (Sec. 167 of the Atomic Energy Act is such a provision.) In addition, relief by private bill is available in such cases.

We have been furnished and are enclosing for your information a copy of a letter dated June 14, 1961, to the Director of the Bureau of the Budget from the Department of Justice expressing opposition to the proposed bills.

We are advised by the Bureau of the Budget that, while there is no objection to the submission of this report, the Bureau of the Budget strongly recommends against enactment of either bill for the reason set forth by the Department of Justice.

Sincerely yours,

DWIGHT A. INK,
Assistant General Manager.

U.S. DEPARTMENT OF JUSTICE,
July 14, 1961.

Hon. DAVID E. BELL,
Director, Bureau of the Budget,
Washington, D.C.

DEAR MR. BELL: This is in response to your request for the views of the Department of Justice concerning identical bills H.R. 5215 and S. 1144 to amend the Atomic Energy Act of 1954, as amended, and for other purposes, and the Atomic Energy Commission's proposed report thereon.

The Department of Justice opposes the enactment of these measures.

S. 1144 and H.R. 5215 would permit suit to be brought directly against the United States to establish its liability for bodily injury, sickness, disease, death, or loss of or damage to property, or for loss of use of property resulting from any nuclear incident (except one arising out of an act of war) caused by the Atomic Energy Commission, its agents, employees, contractors or subcontractors involving the deliberate underground detonation of a nuclear explosion device. Inasmuch as the United States is currently liable for the results of negligent or wrongful acts or omissions of its employees pursuant to the Federal Tort Claims Act (28 U.S.C. 1346(b)), it would appear that the principal thrust of the present legislation is to subject the United States to liability in the courts whether the plaintiffs can show negligence or fault on our part or not. The bills establish no criteria or standards for determining the liability provided by this legislative proposal. In addition, there is the incongruity of tacking a Federal consent statute on to a provision of the law which is primarily concerned with the indemnification of independent contractors with the Commission.

The Department of Justice is opposed to the enactment of legislation which would provide for "absolute liability" without the necessity of showing negligence or fault in the Federal courts. In other words if compensation is to be a matter of grace as distinguished from a provable right an administrative rather than a judicial remedy should be provided. If it is desired to compensate third parties on such a basis, it would appear that the machinery provided by 42 U.S.C. 2207 which currently authorizes the Commission to settle and adjust claims for any damage can be made available for that purpose.

With regard to the proviso beginning on line 3 of page 2 of the bills providing that the United States shall not be liable for claims under State or Federal Workmen's Compensation Acts to employees of persons indemnified, we do not see that the United States would be liable in any event but if some such provision should be included in the proposed legislation, it would be more appropriate to expressly limit such employees to their compensation benefits.

The sentence beginning on line 13 of page 2 of the bill states that the U.S. district courts shall have "original jurisdiction" of all civil actions against the United States under the subsection. We believe that the author probably intended to use the word "exclusive."

Nothing in the bills sets any limitation upon the time for filing suit. Absent such a provision, the widely varying statutory periods of limitation in several States would be applicable. We believe that it is preferable to establish a single standard of limitations for uniform application in all such litigation, if there is to be a grant of jurisdiction. The legislation is further deficient, as pointed out above, in that it establishes no standards by which the Government's liability is to be tested. It does not provide by what law the measure of damages shall be determined. A number of States have monetary limitations upon the amount of wrongful death awards but nothing is said in the proposed bill about the situation that would obtain if the nuclear incident occurred in one State but the consequent damages occurred in a number of other States. Thus, the courts would be completely at sea in determining what law would be applicable, assuming possible resort to State law.

In connection with the sentence beginning at line 16, page 2, of the bills it would be advisable to make it clear that a judgment against a plaintiff would preclude a further claim, as well as the fact that satisfaction of a judgment favorable to the plaintiff precludes a second satisfaction.

With regard to the sentence beginning at the bottom of page 2 and continuing at the top of page 3, we believe that it should be possible to obtain a complete release of all liability and thus avoid a multiplicity of suits by the same plaintiff; accordingly, we would recommend that the exception to this sentence be stricken.

The bill contains no provisions for the manner of payment of judgments or settlements, limitations upon attorneys' fees, venue, release of Government employees upon settlement of claims against the Government, or any of the other

of the provisions which are to be found in the Federal Tort Claims Act, for example. If a contractor carrying insurance protection as provided in 42 U.S.C. 221C is to avoid liability because a plaintiff chooses to sue the United States under the terms of the instant bill, it appears that there should be a provision in the legislation to give the United States the benefit of the insurance protection purchased to cover the damages resulting from nuclear incidents.

With regard to section 3 of the bills we are strongly opposed to the Atomic Energy Commission's having or exercising settlement authority on cases or claims within the jurisdiction of the Department of Justice for litigation purposes. Accordingly, if the Commission is to have any settlement authority, it should be made abundantly clear that this is not to impinge in any way upon the inherent authority of the Attorney General to settle cases or claims within his jurisdiction. It would further appear that if there are to be a great number of claims, some of which will be litigated and some of which will be submitted to the Commission for administrative settlement, that it would be wise to have one consistent policy to apply to the settlement of all such claims, in which case, criteria should be established to insure a consistent position with regard to such settlements.

For the reasons stated above, the Department of Justice recommends against enactment of S. 1144 and H.R. 5215. If some such legislation is to receive consideration, numerous adjustments will have to be made as indicated.

With regard to the draft report forwarded by the Atomic Energy Commission, we disagree with the assumption contained in the last sentence of point a, at the top of page 2 which implies that a contractor with the Government may advantage itself of the immunities inherent in the Government. We know of no authority for this principle in the sense it is cast here, i.e., in tort liability.

Sincerely yours,

BYRON R. WHITE,
Deputy Attorney General.

APPENDIX 2

ATOMIC ENERGY COMMISSION,
Washington, D.C., August 14, 1961.

HON. CHET HOLIFIELD,
*Chairman, Joint Committee on Atomic Energy,
Congress of the United States.*

DEAR MR. HOLIFIELD: At the hearing of the Joint Committee July 18, 1961, on indemnity activities, Commissioner Olson was asked to comment on proposed substitute language for S. 1144 and H.R. 5215. The substitute language proposed is contained in the attachment.

As we understand the substitute language it would have the effect of preventing a Commission contractor from avoiding liability, to the extent he is indemnified under an agreement executed pursuant to section 170, for injuries or damage sustained as the result of an underground nuclear detonation on the ground (1) that he was acting as an agent and therefore either not liable or entitled to defenses available to his principal, or (2) that he was immune from suit as a component or instrumentality of a Federal, State, or municipal government, or (3) that at the time of the incident he was performing, in accordance with its terms, a contract with the Commission. The substitute language would therefore place such a contractor in substantially the same posture as respects liability for injury or damage he may cause as a private person acting as principal.

The proposed substitute language would therefore promote the protection of the public where such protection might not otherwise be available under the unique circumstances that will prevail in the conduct of underground nuclear detonations.

Enactment of the proposed substitute language will not authorize actions against the United States and therefore the language does not establish any new theory of legal liability applicable in suits against the United States. In addition, as affected contractors would be placed in substantially the same position of liability for their acts as private persons, enactment of the substitute language should make programs of the Commission contemplating the underground detonation of nuclear explosive devices more acceptable to the public.

To avoid possible ambiguity it is suggested that the phrase "to the extent so indemnified" be set off by commas. Also, it is suggested that the words "under this section" be added to the quoted phrase to further clarify its meaning.

For the reasons mentioned above the Commission recommends enactment of the proposed substitute language amended as suggested above.

The Bureau of the Budget has advised that there is no objection to the presentation of this report from the standpoint of the administration's program.

Sincerely yours,

GLENN T. SEABORG, *Chairman.*

A BILL To amend the Atomic Energy Act of 1954, as amended, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That subsection d. of section 170 of the Atomic Energy Act of 1954, as amended, is amended by adding at the end thereof: "A contractor with whom an agreement of indemnification has been executed and who is engaged in activities connected with the underground detonation of a nuclear explosive device shall be liable to the extent so indemnified for injuries or damage sustained as a result of such detonation in the same manner and to the same extent as would a private person acting as principal, and no immunity or defense founded in the Federal, State, or municipal character of the contractor or of the work to be performed under the contract shall be effective to bar such liability."

APPENDIX 3

DUVAL SULPHUR & POTASH CO.,
Houston, Tex., July 24, 1961.

JOINT COMMITTEE ON ATOMIC ENERGY,
U.S. Capitol, Washington, D.C.

DEAR SIR: We have read the proposed amendment to subsection d of section 170 of the Atomic Energy Act of 1954, as amended, adding thereto a provision to the effect that a contractor with whom an indemnity agreement has been executed and who is engaged in activities connected with the underground detonation of a nuclear explosive device shall be liable to the extent indemnified for injuries or damage sustained as a result of such detonation in the same manner and to the same extent as would a private person acting as principal, and no immunity or defense founded solely in the Federal, State, or municipal character of the contractor or of the work to be performed under the contract shall be effective to balance such liability. We wholeheartedly support such amendment.

Yours very truly,

W. P. NORRIS, *President.*

POTASH CO. OF AMERICA,
Carlsbad, N. Mex., July 27, 1961.

JOINT COMMITTEE ON ATOMIC ENERGY,
Congress of the United States, Washington, D.C.

GENTLEMEN: This is to advise that Potash Co. of America wholeheartedly supports and recommends passage of the proposed amendment to subsection d of section 170 of the Atomic Energy Act of 1954.

In our opinion, existing data do not support a reasonable conclusion that no damage will result from Project Gnome nuclear explosions, and the aforementioned amendment is necessary to provide satisfactory indemnification.

Respectfully,

H. N. CLARK.

INTERNATIONAL MINERALS & CHEMICAL CORP.,
July 21, 1961.

JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D.C.

GENTLEMEN: We have been interested in seeking amendment of the Price-Anderson Act because of the effects of the Gnome project on the mining property of International Minerals & Chemical Corp. at Carlsbad, N. Mex.

I have seen a copy of an amendment to that act dated July 14, 1961, which amends subsection d of section 170. Speaking as resident operations manager

for International Minerals & Chemical Corp. at this location, I heartily approve the amendment and urge its adoption.

Very truly yours,

E. C. SKINNER,
Operations Manager.

UNITED STATES BORAX,
PRODUCTION DEPARTMENT,
July 19, 1961.

JOINT COMMITTEE ON ATOMIC ENERGY,
Congress of the United States, Washington, D.C.

DEAR SIR: This Letter is to advise you that United States Borax & Chemical Corp. approves the amendment to subsection d of section 170 of the Atomic Energy Act of 1954, as amended, which has been proposed by the Department of Justice, and urges that the proposed amendment to said subsection be adopted by Congress.

Very truly yours,

R. T. EDGAR,
Vice President, Production.

NATIONAL POTASH CO.,
Carlsbad, N. Mex., July 19, 1961.

JOINT COMMITTEE ON ATOMIC ENERGY,
U.S. Capitol, Washington, D.C.

GENTLEMEN: The amendment to the Price Anderson Act, section 170d, which I have read has the support of National Potash Co.

Very truly yours,

T. G. FERGUSON.

APPENDIX 4

[S. 1144 (H.R. 5215), 87th Cong., 1st sess.]

A BILL To amend the Atomic Energy Act of 1954, as amended, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 170 of the Atomic Energy Act of 1954, as amended, is amended by adding a new subsection to read as follows:

"m. The United States shall be liable for any bodily injury, sickness, disease or death, or loss of or damage to property, or for loss of use of property, arising out of or resulting from any nuclear incident (except for any nuclear incident arising out of an act of war) caused by the Commission, its agents, employees, contractors or subcontractors, which occurs in the course of the conduct of any activity of the Commission involving the deliberate underground detonation of a nuclear explosive device: *Provided,* That the United States shall not be liable for claims under State or Federal Workmen's Compensation Acts of employees of persons indemnified who are employed at the site of and in connection with the activity where the nuclear incident occurs. The United States shall be liable regardless of whether the nuclear incident involved an act or omission which was negligent or wrongful, or which was based upon the execution of a statute or regulation or upon the exercise or performance of, or failure to exercise or perform, a discretionary function or duty. The district court of the United States for the district in which the nuclear incident occurred shall have original jurisdiction of all civil actions against the United States under this subsection. No person shall institute an action against the United States under this subsection if he has been a party plaintiff in an action for damages on which a judgment has been rendered, or if he has settled a claim for damages, under any State or Federal law against the United States of any person indemnified for the same nuclear incident. Judgment on the merits of, or settlement of a claim against the United States under this subsection or under the Federal Tort Claims Act for damages arising out of or resulting from a nuclear incident shall constitute all claims against persons indemnified for damages arising out of or resulting from the same nuclear incident, except for claims based on damages which were latent and undiscovered at the time of such judgment or settlement. Any action

against the United States under this subsection shall be tried by the court without a jury.”

SEC. 2. Section 170e. of the Atomic Energy Act of 1954, as amended, is amended to read as follows:

“e. The aggregate of liability of persons indemnified and of any liability of the United States including liability under subsection 170m. for a single nuclear incident, including the reasonable costs of investigating and settling claims and defending suits for damage, shall not exceed the sum of \$500,000,000 together with the amount of financial protection required of the licensee or contractor. The Commission, the United States, or any person indemnified may apply to the district court of the United States for the district in which the nuclear incident occurred, except that in the case of nuclear incidents caused by ships of the United States outside of the United States, the Commission or any person indemnified may apply to the appropriate district court of the United States having venue in bankruptcy matters over the location of the principal place of business of the shipping company owning or operating the ship, and upon a showing that the aggregate of the public liability of persons indemnified and of the liability of the United States including liability under subsection 170m. from a single nuclear incident will probably exceed the limit of liability imposed by this section, shall be entitled to such orders as may be appropriate for enforcement of the provisions of this section, including an order limiting the liability of the persons indemnified and the United States, orders staying the payment of claims and the execution of court judgments, orders apportioning the payments to be made to claimants, orders permitting partial payments to be made before final determination of the total claims, and an order setting aside a part of the funds available for possible latent injuries not discovered until a later time.”

SEC. 3. The penultimate sentence of section 170h. of the Atomic Energy Act of 1954, as amended, is amended to read as follows: “The Commission shall have final authority on behalf of the United States to settle or approve the settlement of any such claim or any other claim under this section on a fair and reasonable basis with due regard for the purposes of this Act.”

DRAFT SUBSTITUTE BILL

A BILL TO amend the Atomic Energy Act of 1954, as amended, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That subsection d. of section 170 of the Atomic Energy Act of 1954, as amended, is amended by adding at the end thereof: “A contractor with whom an agreement of indemnification has been executed and who is engaged in activities connected with the underground detonation of a nuclear explosive device shall be liable, to the extent so indemnified under this section, for injuries or damage sustained as a result of such detonation in the same manner and to the same extent as would a private person acting as principal, and no immunity or defense founded in the Federal, State, or municipal character of the contractor or of the work to be performed under the contract shall be effective to bar such liability.”

○