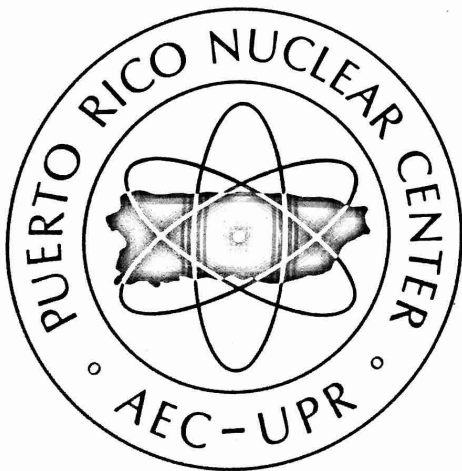


PRNC-208

# PUERTO RICO NUCLEAR CENTER

HISTORICAL DOCUMENTS

1956 - 1957



OPERATED BY UNIVERSITY OF PUERTO RICO UNDER CONTRACT  
NO. AT (40-1)-1833 FOR U S ATOMIC ENERGY COMMISSION

UNITED STATES  
ATOMIC ENERGY COMMISSION

WASHINGTON 25, D. C.

April 27, 1956

Honorable Luis Munoz Marin  
Governor of Commonwealth of Puerto Rico  
La Fortaleza, San Juan

Dear Governor Marin:

In response to your request of April 4, 1956, we are pleased to designate the University of Puerto Rico as an Atomic Energy Commission depository library to receive AEC-produced non-classified report and book materials. We believe such an arrangement will contribute to the Commission's program for dissemination of non-classified information on atomic energy.

Our depository program was established in the interest of securing the widest possible dissemination of AEC unclassified and declassified reports, consistent with the authors' interests in eventual publication. Each depository receives full-size or microcard copies of all available non-classified AEC reports. Arrangements are made for the loan to depositories of full-size versions of any reports which are needed for inter-library loan or for the preparation of photo-copies. Abstracts and bibliographic guides to the report collection are provided.

Each institution agreeing to be designated an AEC depository is required to agree to allow general access to the reports, to provide reference service with regard to them, and to provide photo-copies to users in accordance with its established prices for such services.

I am attaching for your information a copy of our "Guide to AEC Reports for the Depository Libraries" which we have prepared to describe the contents of the collection and to explain in detail services available from the Atomic Energy Commission. It is suggested that the University of Puerto Rico contact our Oak Ridge Office at the following address to make arrangements for shipment of the depository collection to Puerto Rico: Mr. Melvin S. Day, Chief, Technical Information Service Extension, U. S. Atomic Energy Commission, P. O. Box 62, Oak Ridge, Tennessee.

Please feel free to call on us for any further assistance that you may require in this connection.

Sincerely yours,

*M. R. W. Cook, Actg.*

K. E. Fields  
General Manager

Attachment

"Guide to AEC Reports for the  
Depository Libraries"

## Brief History of the Puerto Rico Nuclear Center

At the 1956 Panama meeting of the Organization of American States President Eisenhower urged action by the OAS to hasten the beneficial uses of nuclear energy. The needs and potentials of Latin American countries were studied by Admiral Paul Foster, then Deputy General Manager of the United States Atomic Energy Commission. This study found great need for technical training in a Latin American framework to make available the latest knowledge and technology in the field. As a result Admiral Foster recommended to the US AEC the creation of a Nuclear Center in Puerto Rico to be managed by the University of Puerto Rico. The recommendation was approved by the Commission and by the Department of State.

Joint planning studies were initiated by the University of Puerto Rico and the US AEC for the proposed Nuclear Center. The responsibility for implementing and administering the contract for the new Center was assigned to the Oak Ridge Operations Office whose Operations Manager, Mr. Sam Sapirie, negotiated with the University the contract which gave substance and direction to the original concept.

As part of the forward planning, the Tenth Oak Ridge Regional Symposium was held at the University of Puerto Rico in January 1957. In an address to the Symposium, Chairman Lewis L. Strauss of the Atomic Energy Commission said: "The broadened program will provide the University of Puerto Rico with unique training and research facilities. And because these facilities will be truly outstanding--the most up-to-date in concept and design--and because the instruction will be in Spanish, the University of Puerto Rico may well become a training center to many countries of the hemisphere. I can tell you that we will cooperate enthusiastically in the expansion."

In January 1957, Chancellor Jaime Benítez appointed an Ad Hoc Committee of the University faculty to explore the development of graduate work in the natural sciences at the University of Puerto Rico, with particular reference to possible developments in the field of nuclear energy. This Committee recommended to Chancellor Benítez the establishment of graduate studies and research at the University and that the proposed nuclear reactor be located in Mayaguez.

Representatives of the US AEC and the University of Puerto Rico signed contract AT-(40-1)-1833 to operate the Nuclear Center on October 2, 1957. The University agreed to operate the facilities and program on a cost-reimbursable basis but without fee.

Dr. Charles F. Bonilla from Columbia University served as Director of the Puerto Rico Nuclear Center for two years beginning October 1957, Dr. José L. García de Quevedo was appointed Head of Research and Head of

the Reactor Division; Dr. Amador Cobas was appointed Head of the Radioisotopes Division; and Dr. Fred Soltero was named Head of the Nuclear Science and Technology Division. From October 1959 until June 1960 Dr. José L. García de Quevedo served as Acting Director. On July 1, 1960, Dr. John C. Bugher, was appointed Director of PRNC. Dr. Bugher served on loan from the Rockefeller Foundation at the request of UPR Chancellor Benítez. In October 1961, Dr. Henry J. Gombert, who had served as Director of the Phoenix Memorial Project at the University of Michigan, was appointed Deputy Director.

On July 26, 1958, groundbreaking ceremonies for the Reactor Building of PRNC were held in Mayaguez with Dr. Milton Eisenhower acting as official representative of the U. S. Government. On August 23, 1960, the PRNC Research Reactor, a 1 megawatt AMF pool-type unit, was dedicated.

In April, 1959, an 8000 curie Cobalt-60 Therapy Unit was installed at the Cancer Hospital where it remained until transfer to the Bio-Medical Building in early 1963. In April 1961, the first section of the PRNC Bio-Medical Building located in the new Puerto Rico Medical Center at Río Piedras was occupied. In January 1963 the new Dr. I. González Martínez Oncologic Hospital was inaugurated. This hospital is adjacent to the PRNC Bio-Medical Building and the PRNC Radiotherapy Division serves also as the Radiotherapy Department of the Hospital. This enabled all PRNC medical divisions to be united for the first time.

In 1963, the Marine Biology Program acquired from the U. S. Army a 100 ton diesel vessel renamed "Shimada". This vessel has proved to be excellently adapted to the requirements of the ocean-going operations of PRNC. In 1966 a second vessel, "The Merry Ark", was acquired in anticipation of additional marine biological survey work. The PRNC Marine Biology group was selected to do estuarine and marine ecological studies in Panama during 1967 in conjunction with current trans-isthmus canal studies.

In 1963, a large tract of land in the Luquillo Experimental Forest was made available by the U. S. Forestry Service to PRNC as the site of a Terrestrial Ecology Program. In 1965, a 10,000 curie cesium-137 source was placed so that a portion of lower montane rain forest was exposed to gamma irradiation for 90 days. Extensive post-irradiation studies continue in this area.

In November 1966, Dr. John C. Bugher retired from the Rockefeller Foundation and as Director of PRNC. Under his direction the PRNC educational program was moved forward into the graduate and post-graduate levels, together with a continually expanding research program emphasizing many problems best approached in a tropical environment.

In November 1966, Dr. Henry J. Gomberg was appointed Director of PRNC by University of Puerto Rico President Benítez and the appointment was confirmed by the Council of Higher Education. At this time, Dr. Amador Cobas, who had served as Associate Director for the San Juan-Río Piedras operations of PRNC since September 1959, was appointed Deputy Director for all operations. Dr. Víctor A. Marcial, Head of the Radiotherapy and Cancer Division since its establishment in July 1958, was appointed Associate Director for Medical Programs. Dr. Owen H. Wheeler, Head of the Division of Nuclear Science and Technology since 1962, was appointed Associate Director for Mayaguez operations.

The total staff of the Nuclear Center at the end of its first year of operation (FY 1958) numbered 43. At present (FY 1967) there are approximately three hundred persons employed at PRNC. The Center's educational program is sponsored by the US AEC Division of Nuclear Education and Training. Research programs are sponsored by the US AEC Divisions of Biology and Medicine, Physical Research, and Isotopes Development. Additional research is sponsored by the Interoceanic Canal Commission.

SEP 18 9 09 AM 1956

September 14, 1956

UNIVERSIDAD DE  
PUERTO RICO

Dr. Hiram Cancio  
Acting Chancellor  
University of Puerto Rico  
San Juan, Puerto Rico

Dear Dr. Cancio:

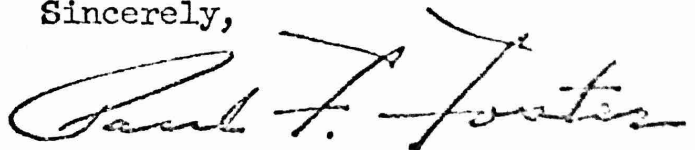
The attached copy of a letter which I have written is self-explanatory. I regret that my time today has not permitted me to write you a separate letter discussing in more detail our ideas concerning the Research and Training Center at the University of Puerto Rico.

We are awaiting receipt of the University's formal application for assistance which we are prepared to provide from funds now available to you and along the lines Dr. Edwards, Dr. Goodman and I discussed with you and your University associates during our visit to the University on August 201

However, we should like to discuss with you at your earliest convenience our plans for expansion of the facilities at the University for nuclear energy training and research beginning in the next fiscal year, i. e. after July 1, 1957. We now have formal Commission approval for such a program and we also have approval of our Bureau of the Budget, but, of necessity we cannot make a firm commitment to the University until first we agree upon a mutually acceptable plan for expansion and, secondly, until we have the necessary authority and funds by Congressional Action. Naturally, before presenting our plans in detail before Congressional Committees, we must first make sure that what we have in mind is entirely satisfactory to the University and it is for this purpose that I think we should hold further discussions at your convenience. I suggested to Dr. Arturo Morales Carrion earlier today that it would be advantageous if you or the Chancellor came to Washington, but we are prepared to send a group of our experts to San Juan again in October.

I would appreciate advice from you as to how, when and where you would like to exchange ideas with us.

Sincerely,



Paul F. Foster  
Assistant General Manager for  
International Activities

Attachment

OFFICE OF THE COMMONWEALTH OF PUERTO RICO  
903 Sixteenth Street, N.W.  
Washington 6, D.C.

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M E M O R A N D U M

TO: Rigau - Benitez - Descartes

FROM: Donald J. O'Connor

SUBJECT: A. E. C. Proposal

9/14/56

Admiral Foster, A.E.C. disclosed to Morales and me this afternoon that the Commission had approved, and this morning the Bureau of the Budget authorized, A.E.C. personnel to ask for Congressional funds greatly to expand A.E.C. work in Puerto Rico conjoined with Commonwealth funds for a reactor of a commercial type and a full fledged training program at the university for regional needs. Dr. Morales remarked that if the pattern followed Pt. 4 experience it would get beyond the regional scope.

Dr. Eisenhower is releasing at 5 P.M. Monday remarks to the representatives of 21 Latin American republics and will mention in a general way the outline of A.E.C. proposals for Puerto Rico.

The Admiral is writing the Governor, the Chancellor, and the P.R. Water Resources Administration revealing details of the proposals which the Commission yesterday (Thursday) approved.

The A.E.C. proposes to pick up where University fiscal capacity ends in order to undertake construction and operation of a swimming pool reactor, a laboratory and collateral equipment. The operation will run upwards of one million dollars per annum and will provide an energy training program for physicists, engineers and technicians comparable with the best provided by Penn State, Michigan and other schools. The A.E.C. believes that the language problem will be handled better in Puerto Rico than it can be in the States.

The A.E.C. also proposes to seek funds to facilitate and expedite a P.R. Water Resources reactor (20,000 kw. is the talking figure). Students would therefore have an unusual opportunity to observe constructive and operate of a commercial reactor. The Admiral feels that it would be helpful if Mr. Descartes could come up here this month for discussions and for the Chancellor to come not later than the end of October.

The A.E.C. will ask Congress for funds in January or February. The Admiral regrets any inconvenience caused by the late notice concerning Dr. Eisenhower's speech. (The exact wording has not yet been decided.)

UNITED STATES  
ATOMIC ENERGY COMMISSION  
WASHINGTON 25, D. C.

September 14, 1956

Governor Luis Munoz Marin  
La Fortaleza  
San Juan, Puerto Rico

Dear Governor Munoz:

You will recall that in my second meeting with you in San Juan on August 20 I informed you that I had had very satisfactory discussions earlier in the day with Mr. Sol L. Descartes, Executive Director, Water Resources Authority, and with Dr. Hiram Cancio, Acting Chancellor, University of Puerto Rico. As a result of these conversations, I offered on behalf of the Atomic Energy Commission to provide assistance to the University in establishing a course of instruction in nuclear energy subjects and to cooperate with the Water Resources Authority in working out a project for the construction and operation of a 20,000 kw nuclear power plant.

After my return to Washington, I held discussions with our staff and have now received formal approval by the Commission for going forward on these two programs. Accordingly, we have sent to Acting Chancellor Cancio certain instructions and forms to be filled out under which the University would make formal application for assistance in the same manner now required of other American universities. This assistance will be adequate to provide the University with a training research reactor, a laboratory, and other necessary equipment to enable it to begin its classes in nuclear subjects not later than the beginning of the next University year. The Commission has also approved a very substantial expansion of this program beginning in our 1958 fiscal year, which I will wish to discuss with you and University authorities at an early date. We do not plan to place any onerous financial obligations upon the University incident to this expansion program, and to that end we are planning to ask authorization and funds at the next session of Congress to enable us to work out an arrangement that would be satisfactory to the University.

The Commission will also seek authority and funds from the next Congress to enable it to include a contract with the Water Resources Authority of Puerto Rico along the lines of the arrangements we are making with privately owned utility companies and publicly owned cooperatives such as the Rural Cooperative Power Association in Elk River, Minnesota. Before we present the details of this project to



the several Congressional committees that would be involved in the necessary legislation for authority and funds, we will wish to discuss the details with Mr. Descartes to assure ourselves that the arrangement we have in mind is satisfactory to the Water Resources Authority.

I anticipate that Dr. Milton S. Eisenhower will mention the two above-described projects in the course of his discussions with the Personal Representatives of the Presidents of the 21 American Republics who are meeting in Washington next Monday, September 17. The exact text is not available to me and I will probably be unable to supply it to you before it is released. I am, however, attaching the draft material on which will be based his remarks concerning the projects of interest to Puerto Rico. I am doing this in order that you may be advised somewhat in advance of publication in the Puerto Rican newspapers of Dr. Eisenhower's speech.

For obvious reasons you will understand of course that I must ask you not to release this information in Puerto Rico prior to 5:00 p.m. EDT. I am sending a copy of this letter with a brief covering note to Mr. Descartes and one to Dr. Cancio. I should also mention that I have discussed this matter this afternoon with your Under Secretary of State, Dr. Arturo Morales Carrion.

I look forward to seeing you when you visit Washington in early October.

Sincerely,

Paul F. Foster  
Assistant General Manager for  
International Activities

Copies to:  
Mr. Descartes  
✓ Dr. Cancio

James C. Hagerty, Press Secretary to the President

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THE WHITE HOUSE

STATEMENT BY DR. MILTON S. EISENHOWER,  
REPRESENTATIVE OF THE PRESIDENT OF THE  
UNITED STATES, GIVEN BEFORE THE MEETING  
OF THE INTER-AMERICAN COMMITTEE OF PRESI-  
DENTIAL REPRESENTATIVES, SEPTEMBER 17,  
1956.

The President of the United States in his address at the signing of the Declaration of Principles at the Meeting of Panama last July laid stress upon the work that might be initiated to "...hasten the beneficial use of nuclear forces throughout the hemisphere both in industry and in combatting disease."

Much thought has been given by the United States Government to ways and means by which all of the American Republics jointly might accelerate the use of this new force to bring greater health and happiness and abundance into the lives of all our peoples.

There are numerous ways in which nuclear energy may be put to the service of human welfare. Our Governments were represented at the UN Conference on the Peaceful Uses of Atomic Energy in Geneva last year, and there a vision was caught of the boons which might be gained by mankind through utilization of this new force. The United States is interested in the attainment of these benign results as soon as feasible.

Many of the Governments of the other American Republics have negotiated Agreements for Cooperation with the United States which will bring aid to their programs of nuclear research, and new knowledge from this research to benefit their citizens. Such agreements have been negotiated with 11 of the American Republics; three more are under discussion. Under one agreement already completed, the President's offer of aid in financing the construction of a research reactor has been accepted and the United States commitment to pay a \$350,000 contribution has been given.

President Eisenhower announced in February of this year that the United States initially will make available for distribution abroad 20,000 kilograms of Uranium-235, the refined fissionable material that serves as the fuel for nuclear power reactors. Under United States laws, our Government can provide nuclear fuels for research and power reactors only to those friendly nations with which we have concluded Agreements for Cooperation.

Such Agreements for Cooperation, in the field of nuclear power, are under discussion with three of the other American Republics -- Argentina, Brazil and Cuba. Discussions have not yet been undertaken by other member nations of the Organization of American States. The United States hopes they soon will be, for it is the desire of this Government that the American Republics make use of their full share of the stocks of nuclear fuel which have been already allocated, and the additional supplies that shall hereafter be set aside, to aid in the development of atomic power in friendly nations.

However, there are some helpful things that can be done while waiting for research and power reactor Agreements of Cooperation to be concluded, and the United States is ready, willing and able to accelerate the application of nuclear energy to human welfare in the American Republics. In this spirit, the United States Atomic Energy Commission has recently taken two steps and soon will take a third.

The first of these steps was the inauguration last month of a special program of assistance to the University of Puerto Rico to enable it to establish programs of training and instruction in the Spanish language in the field of atomic energy. A second step was the formulation earlier this month of a program to cooperate with the Inter-American Institute of Agricultural Sciences at Turrialba, Costa Rica. A third project is the convening early next year of a Symposium in which scientists and atomic energy officials of the 21 American Republics would exchange information and ideas on the peaceful applications of atomic energy.

The increasing use of radioisotopes in biology, medicine, agriculture and industry, the development of nuclear propulsion for ships, and the inevitable large growth in electric power plants using nuclear energy instead of conventional sources of power are expected soon to put heavy demands on manpower resources for atomic energy research and development.

The United States attaches great importance to the solution of the problem of how best to develop enough competent atomic scientists, engineers and technicians in the immediate future. The world has not yet reached high noon in the atomic age -- but is only at the beginning of the dawn of a marvelous new era, the opportunities and responsibilities of which can hardly be imagined by any people now living.

The United States Atomic Energy Commission has progressively expanded its training programs and undertaken new ones to augment the supply of scientists and engineers in this country. It is also providing training assistance to friendly nations. There are now two schools, supported by the Commission in which foreign students are trained -- the International School of Nuclear Science and Engineering at Argonne, near Chicago, and the Oak Ridge Institute of Nuclear Studies in Tennessee. Only sixteen students from the other American Republics of this Hemisphere are now enrolled in these schools.

Second, the United States is prepared to make available to the Institute equipment for a radioisotope laboratory.

Third, if the Institute desires to set up a so-called "cobalt field" to study the effects of external radiation on a variety of plants, the United States would be willing to supply the radiation source and to give help in the technique of its use. Also the United States could provide radioisotopes for other research purposes.

Fourth, irradiation of plants and seed to obtain beneficial effects in new varieties and to acquire new knowledge of plant growth and development will be carried on for the Institute at the Brookhaven National Laboratory if the Institute so desires.

The United States Atomic Energy Commission is engaged in planning for an Inter-American Symposium on Nuclear Energy proposed to be held early next year at the Brookhaven National Laboratory on Long Island, New York. These plans anticipate that both the scientific and economic aspects of nuclear energy would be discussed at first hand by appropriate representatives of the 21 American Republics. Among the topics proposed to be considered are:

- (1) the uses of radioisotopes in industry, agriculture and medicine,
- (2) nuclear reactor types and uses, with collateral discussion on the prospects of economic nuclear energy as a source of commercial power, and
- (3) factors to be considered in the organization and development of an effective nuclear energy program.

Following this 4 or 5-day Symposium, several days of tours would be arranged to permit practical, close-at-hand inspections of our Atomic Energy Commission facilities, and of hospitals, universities, and industrial establishments where the peaceful atom can be observed at work.

Believing this Symposium to be a desirable forum to stimulate the use of nuclear energy throughout the American Republics, the United States Government, through its Embassies, will shortly extend personal invitations to individuals who are prominently identified with the nuclear energy programs in the Latin American countries. It is hoped that there will be derived from this Symposium an increased realization that this new servant of man -- the atom -- can improve the health and well-being of all the American peoples.

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*Please  
return*

UNITED STATES  
ATOMIC ENERGY COMMISSION  
WASHINGTON 25, D. C.

September 25, 1956

Dr. Jaime Benitez  
Cosmos Club  
2121 Massachusetts Avenue  
Washington, D. C.

Dear Dr. Benitez:

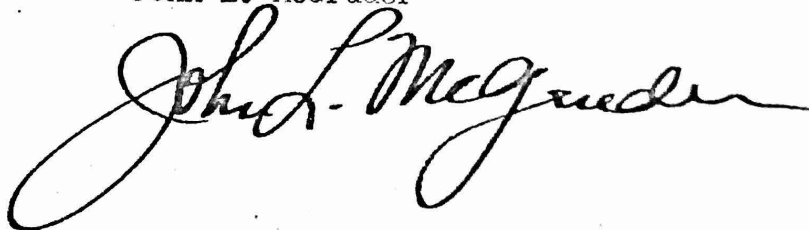
Admiral Foster has asked me to advise you of the names, titles, and telephone numbers of the people with whom you met in his office yesterday. Attached is a list containing this information.

If you are unable to get in touch with Dr. Edwards, Admiral Foster suggests that you next seek to make contact with Dr. Goodman who also will be able to provide the desired continuity to the negotiations regarding the Puerto Rican project. Mr. Kaufmann has a number of other assignments which may interfere with his maintaining such continuity.

Please be assured of our sincere desire to be of service to you in this important work.

Cordially,

John L. McGruder



Admiral Paul F. Foster  
Assistant General Manager for  
International Activities  
Office of the General Manager  
(STerling 3-8000, ext. 311)

Dr. Allen J. Vander Weyden  
Deputy Director  
Division of International Affairs  
(STerling 3-8000, ext. 677)

Dr. Raymond R. Edwards  
Assistant Director for Technical  
Programs  
Division of International Affairs  
(STerling 3-8000, ext. 8212)

Dr. Clark D. Goodman  
Assistant Director for Technical  
Operations  
Division of Reactor Development  
(STerling 3-8000, ext. 8202)

Mr. John F. Kaufmann  
Chief, Technical Assistance Section  
Division of Reactor Development  
(STerling 3-8000, ext. 8413)

Mr. John L. McGruder  
Liaison Officer  
Office of the General Manager  
(STerling 3-8000, ext. 597)

1956

## U.S. Atoms-for-Peace Team To Visit Latin America

The U.S. Atomic Energy Commission and the Department of State (press release 573) announced on November 7 that a 10-man atoms-for-peace mission, composed principally of nuclear scientists, will visit six Latin American nations beginning November 9. The mission will participate in discussions of the scientific potential of peaceful applications of atomic energy in the respective countries, especially in the areas of radioisotope applications and nuclear research and training.

The mission, sponsored jointly by the Department of State under its international educational exchange program, the U.S. Atomic Energy Commission, and the International Cooperation Administration, will visit Chile, Peru, Ecuador, Colombia, Panama, and Costa Rica. Last June a similar group made an orientation and survey tour that included Venezuela, Brazil, Argentina, and Uruguay.

Members of the team, in cooperation with local scientists, will hold unclassified discussions and give lectures on the application of radioisotopes to industry, medicine, and biology; nuclear educational and training programs, including research reactors; and organization and functions of atomic energy administrative organizations. Additionally, staffs of the respective U.S. Embassies will be briefed on all aspects of the atoms-for-peace program.

The mission is headed by Clark C. Vogel, Assistant Director, Division of International Affairs, U.S. Atomic Energy Commission. Other Atomic Energy Commission representatives are Louis H. Roddis, Deputy Director, Division of Reactor Development; John K. Rouleau, Chief, Western

Hemisphere Branch, Division of International Affairs; George G. Manov, atomic industrial specialist, presently a lecturer at the University of Chile under the Fulbright Act, on leave from his post as assistant to AEC Commissioner Willard F. Libby; and four special consultants to the AEC—Charles E. Bonilla of Columbia University, Joseph F. Ross of the University of California at Los Angeles, Warren E. Miller of Pennsylvania State University, and B. Connor Johnson of the University of Illinois. The State Department and the International Cooperation Administration will be represented, respectively, by Nestor Ortiz, Office of Inter-American Regional Economic Affairs, and Ralph J. Strom, consultant to ICA on nuclear training.

4 April 1957

Rusbyford

Dear Dr. Eisenhower:

I have read in the press that the Inter-American Committee of Presidential Representatives shall meet in Washington, on April 29, to take a final decision on the report of the Inter-American Subcommittee on Atomic Energy. I understand that there is a possibility that consideration be given, on that occasion, to the requests made by Argentina and Brazil, respectively, regarding the establishment of an inter-American center of nuclear studies in each of those countries.

As you know, arrangements are far advanced between the U. S. Atomic Energy Commission and our Commonwealth agencies to make the Commonwealth of Puerto Rico a center for such studies, following your formal proposal to the first meeting of the Inter-American Committee of Presidential Representatives. It is our hope that the United States will take a strong stand at the April meeting of the Committee, in favoring the establishment of the center in Puerto Rico. We feel that our unique geographic and cultural position, together with the prestige the Commonwealth has achieved as an international center of technical cooperation, make Puerto Rico the logical choice of the Inter-American Committee. We shall continue to give our most enthusiastic support and cooperation to the U. S. Government in this great initiative in the field of the peaceful use of atomic energy.

Sincerely yours,

LUIS MUÑOZ MARIN ✓

Dr. Milton S. Eisenhower  
United States Presidential Representative  
to the Inter-American Committee of  
Presidential Representatives  
Washington, D. C.



4 April 1957

Ruizford

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Sincerely yours,

LUIS MUÑOZ MARIN ✓

Dr. Milton S. Eisenhower  
United States Presidential Representative  
to the Inter-American Committee of  
Presidential Representatives  
Washington, D. C.

INFORME ANUAL DEL CENTRO NUCLEAR DE P. R. - 1957-58

OFICINA DEL RECTOR  
UNIVERSIDAD DE P.R.

ORGANIZACION

1958 APR 18 PM 3 44

El Centro Nuclear de Puerto Rico es un laboratorio oficial de la Comisión de Energía Atómica de los Estados Unidos, el funcionamiento del cual está a cargo de la Universidad de Puerto Rico.

El Colegio de Agricultura y Artes Mecánicas de la Universidad de P. R. ofrece un programa de estudios post-graduados conducente al grado de Maestro en Ciencias en Tecnología Nuclear. El fin principal de este programa es que los estudiantes adquieran buen dominio de la teoría y funcionamiento de reactores nucleares. El programa consta de tres sesiones: una sesión de verano de carácter esencialmente preparatorio seguida por dos sesiones semestrales durante el año académico regular. El total de los estudios es de 38 horas créditos. Durante la primera sesión semestral se da más importancia a las ciencias básicas relacionadas con el diseño y funcionamiento de reactores nucleares, mientras que en el segundo semestre se presta mayor consideración a la ciencia aplicada a la tecnología nuclear. Este programa se ofrece en el Centro Nuclear de Puerto Rico. El próximo curso comenzará el primero de julio de 1958 y terminará el 29 de mayo de 1959.

El Dr. Charles Bonilla fué nombrado Director del Centro Nuclear el día 16 de octubre de 1957.

El Dr. García de Quevedo fué nombrado para dirigir el programa de Investigaciones y el programa del Reactor.

El Dr. Fred Soitero fué nombrado para dirigir el programa de Ciencia y Tecnología Nuclear.

El Dr. Amador Cobas fué nombrado para dirigir el programa de Radioisótopos.

Para trabajar en el Proyecto de Investigaciones radiológicas fueron nombradas las siguientes personas, todos miembros de la Facultad del Colegio.

José Ferrer Monge - Investigador Asociado  
Richard Brown Campos - Investigador Asociado

Estos dos maestros están estudiando en los Estados Unidos.

Josefa M. Cambal - Auxiliar de Investigaciones  
Juan P. Rojas - Investigador Asociado  
Werner Umbreit - Investigador Asociado  
Lawrence Vázquez Rivera - Auxiliar de Investigaciones  
Fernando A. Villecillo fué nombrado Auxiliar de Investigaciones

Reuniones:

El día 17 de enero de 1958 se reunió por primera vez el grupo de todos los miembros del Centro Nuclear y se discutieron planes de organización.

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Y

El Profesor Warren Miller, Director del Programa de Tecnología Nuclear de la Universidad Estatal de Pensilvania, dió una conferencia y fué consultado por miembros del Centro Nuclear.

El Dr. Eduardo Schalscha, de la Universidad de Chile, visitó el Centro Nuclear de Puerto Rico y discutió las facilidades del Centro para estudiantes de Sur y Centro América.

El Dr. Harold Wakefield, presidente de "Radiation Counter Laboratories", de Chicago, Illinois, dió una conferencia sobre usos de instrumentos usados en laboratorios de energía nuclear. Todo el personal del Centro Nuclear asistió.

El Dr. García de Quevedo asistió al Congreso Nuclear en Chicago en representación del Centro Nuclear de Puerto Rico.

El lunes 10 de marzo el Dr. Fred Soltero y el Dr. García de Quevedo fueron a una reunión de la Legislatura para discutir y resolver el problema de la localización del Centro Nuclear en los terrenos hasta ahora usados por la Estación Experimental.

También estos miembros del Centro discutieron con el Sr. Julio Pérez las facilidades de establecer el Centro Nuclear en la Escuela de Medicina de la Universidad.

La Junta de Planificación convocó una vista sobre el establecimiento del Centro Nuclear de Puerto Rico en Mayaguez. Todo el personal del Centro asistió. El Rector de la Universidad, Sr. Benítez y el Dr. Bonilla, Director del Centro, explicaron las ventajas del proyecto y se orientó a los asistentes a cerca de lo que significa el Centro Nuclear para la ciudad de Mayaguez.

Los planes para la construcción de los edificios de Laboratorio y Reactor están bastante adelantados y se espera empezar este verano.

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El Profesor Warren Miller, Director del Programa de Tecnología Nuclear de la Universidad Estatal de Pensilvania, dió una conferencia y fué consultado por miembros del Centro Nuclear.

El Dr. Eduardo Schalscha, de la Universidad de Chile, visitó el Centro Nuclear de Puerto Rico y discutió las facilidades del Centro para estudiantes de Sur y Centro América.

El Dr. Harold Wakefield, presidente de "Radiation Counter Laboratories", de Chicago, Illinois, dió una conferencia sobre usos de instrumentos usados en laboratorios de energía nuclear. Todo el personal del Centro Nuclear asistió.

El Dr. García de Quevedo asistió al Congreso Nuclear en Chicago en representación del Centro Nuclear de Puerto Rico.

El lunes 10 de marzo el Dr. Fred Soltero y el Dr. García de Quevedo fueron a una reunión de la Legislatura para discutir y resolver el problema de la localización del Centro Nuclear en los terrenos hasta ahora usados por la Estación Experimental.

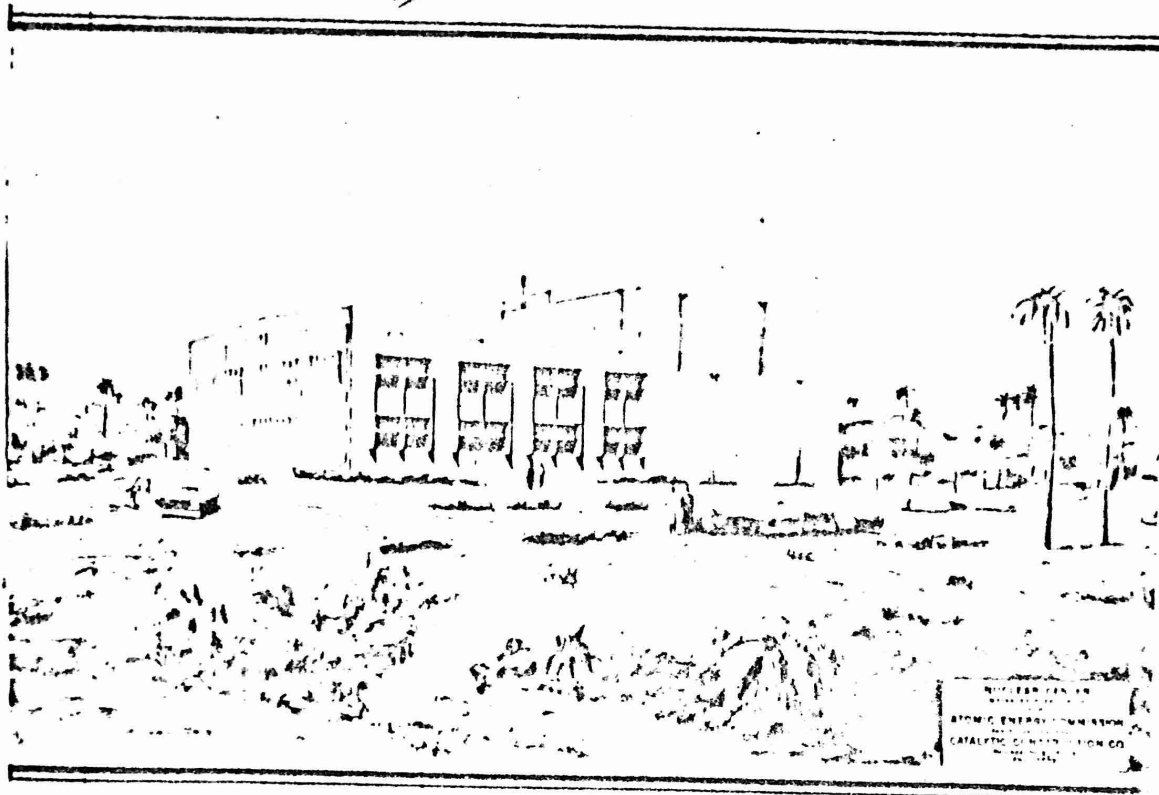
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# Groundbreaking

PUERTO RICO NUCLEAR CENTER  
MAYAGUEZ, PUERTO RICO



July 26, 1958

sponsored by

THE UNIVERSITY OF PUERTO RICO  
AND  
THE U. S. ATOMIC ENERGY COMMISSION

# The program

July 26, 1958

## CHAIRMAN

Dr. Jaime Benítez, Chancellor  
University of Puerto Rico

## REMARKS

S. R. Sapiro, Manager  
Oak Ridge Operations  
U. S. Atomic Energy Commission

John S. Graham, Commissioner  
U. S. Atomic Energy Commission

Dr. Milton Eisenhower, President  
Johns Hopkins University and  
Special Representative of the  
President of the United States

## GROUND BREAKING

Dr. Eisenhower

## APERTURA DE CIMIENTOS

La apertura de cimientos que celebramos marca el inicio de la construcción de edificaciones permanentes para el Centro Nuclear de Puerto Rico, que opera la Universidad de Puerto Rico mediante contrato con la Comisión de Energía Atómica de los Estados Unidos.

Los nuevos edificios estarán situados a media milla de distancia, al norte, del nuevo edificio de Ingeniería del Colegio de Agricultura y Artes Mecánicas, en Mayaguez. En este edificio tendrá lugar la ceremonia, debido a la estrecha relación que guarda la ingeniería general con la ingeniería nuclear y otros programas de energía nuclear. En la ceremonia habrá de usarse una pala especial preparada en Oak Ridge, Tennessee, donde la Comisión de Energía Atómica tiene muchas de sus facilidades de laboratorio y producción. La inscripción en la pala señala que ésta fue enviada por el Laboratorio Nacional de Oak Ridge, como símbolo de bienvenida a las nuevas facilidades de investigación y entrenamiento del programa de energía nuclear.

Esta pala especial tiene una pequeña fuente radiactiva de 2 millicuries de Cobalto 60, en la forma de una oblea de 2 centímetros. Cápsulas similares a ésta habrán de usarse con una mayor fuente de Cobalto 60 para la máquina de radioterapia a distancia, a instalarse en el Centro Médico de Puerto Rico.

La fuente radiactiva de la pala servirá en esta ocasión para transmitir una señal a media milla de distancia hasta los terrenos del Centro Nuclear donde la maquinaria de construcción dará comienzo a las obras. A través de altoparlantes instalados en el lugar de la ceremonia, los concurrentes podrán oír el ruido de la maquinaria.

Las nuevas facilidades del Centro incluirán el edificio del reactor, los laboratorios, un taller mecánico, servicios sanitarios y otras facilidades auxiliares.

El edificio del reactor consistirá de oficinas para el personal, una sala de mandos y otra de registro y cómputos, una estación radiológica de seguridad y un taller de instrumentos.

El edificio de laboratorio proveerá facilidades de equipo y laboratorio para entrenamiento y experimentación nuclear en una variedad de campos científicos. El taller mecánico habrá de ser usado en los trabajos de ciencia nuclear relacionados con la biología.

Los edificios, cuya construcción empieza hoy, fueron diseñados por la Catalytic Construction Company de Filadelfia. Las obras estarán a cargo de la Southern Construction Co., Inc., de Augusta, Georgia. La Comisión de Energía Atómica ha contratado con la AECF Atomic de Greenwich, Conn., la construcción del reactor, tipo ziberca, para investigaciones en el Centro Nuclear.

El Centro Nuclear de Puerto Rico fue establecido en el 1957 como parte del programa de Atoms-for-Peace. Aunque se da inicio hoy a la construcción de sus edificios permanentes, ya se graduó recientemente en Mayaguez la primera clase del programa de maestría en Química y Tecnología Nuclear y hay un segundo grupo en progreso. También en el campus de Río Piedras han sido diplomadas ya cinco clases del curso de radiólogos y hay también un sexto grupo en progreso.

United States  
Atomic Energy Commission  
Oak Ridge Operations

Information for the Press, Radio and Television

FOR RELEASE AT 7:00 P.M., EASTERN STANDARD TIME, OCTOBER 2, 1957

EDITORS:

The enclosed material is being made available as background information on the Nuclear Training Center to be constructed in Puerto Rico by the Commission and is being released in connection with the announcement of the signing of a contract with the University of Puerto Rico for the operation of the Nuclear Center.

The contract will be signed at 8:00 p.m., Atlantic Standard Time (7:00 p.m., Eastern Standard Time) on October 2, 1957, at the Rio Piedras Campus of the University of Puerto Rico.

The enclosed announcement and informational material are  
FOR RELEASE AT 7:00 P.M., EASTERN STANDARD TIME, OCTOBER 2, 1957

UNITED STATES  
ATOMIC ENERGY COMMISSION  
Oak Ridge, Tennessee

Information for Press, Radio and TV (No. 565)

For RELEASE at 7:00 p.m., EST, WEDNESDAY, OCTOBER 2, 1957

CONTRACT SIGNED IN PUERTO RICO  
FOR OPERATION OF NUCLEAR CENTER

The U. S. Atomic Energy Commission and the University of Puerto Rico today signed a contract for the operation of a new Nuclear Training Center to be constructed in Puerto Rico by the Commission.

The Nuclear Training Center was authorized by the last session of the U. S. Congress and \$2,800,000 was appropriated for the start of construction and initial operation of the Center.

At the same time the Commission announced the appointment of John I. Thomas, former Deputy Manager of its Hanford Operations Office, Richland, Washington, as resident manager of a new permanent Commission office to be established in Puerto Rico. Thomas has been in the atomic energy program for six years. The Puerto Rico Area Office will administer the contract between the University of Puerto Rico and the Commission.

The goal of the Center is to develop a comprehensive program for research and training -- in the Spanish language and available to students from the American Republics -- in nuclear science and engineering and the peaceful applications of nuclear energy in medicine, agriculture and industry. The University of Puerto Rico is a charter member of the Union of Latin American Universities and during the 1956-57 academic year had 313 students from 19 American Republics in its student body. The total enrollment is more than 16,000 with a full-time faculty



numbering 1,064. Under the contract the Commission will bear the expense of installation and operation of the Center and the University will operate and manage it without fee.

The contract will be similar to one the Commission has with the Oak Ridge Institute of Nuclear Studies for operation of educational and research facilities at Oak Ridge. The Institute is an organization composed of 35 American colleges and universities, one of which is the University of Puerto Rico.

In the first phase of the program, to be started in 1957 and completed in 1960, a 1,000-kilowatt pool-type reactor and a training facility will be built at the College of Agriculture and Mechanical Arts at Mayaguez. Preliminary plans provide for later construction of a training and research building for medical and biological applications of nuclear energy to be located near the new Medical Center in Rio Piedras and some additional training and laboratory facilities at Mayaguez.

The need for the Nuclear Center became apparent at a Symposium on the Peaceful Applications of Atomic Energy conducted at the University of Puerto Rico in January, 1957. More than 1,200 students, government officials and educators attended the sessions which were held both at the Rio Piedras and Mayaguez campuses.

Following this Symposium, the Mayaguez school initiated a training program in nuclear science and technology and the Rio Piedras school started instruction in radioisotope techniques. These activities will become a part of the program of the Nuclear Center.

The new Area Office of the Commission, which will open October 21, will be located initially at Mayaguez, and will report to the Oak Ridge Operations Office.

# # #

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(NOTE TO EDITORS: This announcement is being distributed simultaneously by the Atomic Energy Commission in Washington, D. C., and in Rio Piedras, Puerto Rico.)

U. S. ATOMIC ENERGY COMMISSION  
OAK RIDGE OPERATIONS

BACKGROUND INFORMATION ON PUERTO RICO NUCLEAR TRAINING CENTER

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The Puerto Rico Nuclear Training Center represents part of the Atomic Energy Commission's efforts to carry forward the proposal made by President Eisenhower on July 22, 1956, at the Panama Conference that work be initiated to "... hasten the beneficial use of nuclear forces throughout the hemisphere, both in industry and in combating disease."

Plans for the Training Center were announced by Dr. Milton Eisenhower in September 1956, at a meeting in Washington of the Inter-American Committee of Presidential Representatives in which the twenty-one American Republics participated. Dr. Eisenhower declared that because facilities proposed to be provided over the next few years would be outstanding and instruction would be in Spanish, "The University of Puerto Rico might well become a nuclear research and training center of interest to many countries of this hemisphere." He noted that about three-hundred students from Central and South America were attending the University.

A Regional Symposium on the Peaceful Uses of Atomic Energy was held at the University of Puerto Rico last January in cooperation with the Commission and the Oak Ridge Institute of Nuclear Studies. The Symposium was arranged to provide students and faculty members with a better picture of atomic energy developments and the potentialities of the University of Puerto Rico in nuclear science education.

In an address at the Symposium, Chairman Lewis L. Strauss of the Commission stated the "broadened program will provide the University of Puerto Rico with unique training and research facilities. And because these facilities will be truly outstanding -- the most up-to-date in concept and design -- and because the instruction

will be in Spanish, the University of Puerto Rico may well become a training center of interest to many countries of the hemisphere .... I can tell you that we will cooperate enthusiastically in that expansion."

Joint planning studies were initiated by the University and the Commission for the proposed Nuclear Training Center consisting of a research reactor and research and training facilities to be constructed by the Commission and operated by the University under contract with the Commission.

The Commission designated the Oak Ridge Operations Office, its largest field office, the responsibility for implementing and administering the new Center.

In March of 1957, the Commission made a grant of \$155,340 to the University for the purchase of equipment and materials to be used in the educational and training program of the College of Agriculture and Mechanical Arts on the Mayaguez campus. In addition, a grant of \$61,610 was made to the University for the purchase of equipment and materials for the initiation of radioisotope techniques training course at the Rio Piedras campus.

Meanwhile, the University prepared a detailed proposal to the Commission for the establishment of a nuclear center for training and research at the University. This proposal has led to the contract being signed with the University on October 3.

The United States Congress authorized the facility and appropriated funds for the construction and operation of the first phase of the Nuclear Training Center in the session recently concluded.

#### PURPOSE

The basic objective of the program is to develop a nuclear center which will be available to serve the needs of the hemisphere as a whole. The University is a charter member of the Union of Latin American Universities. Its teaching, research and organization are well accredited in intellectual and academic circles in the

American Republics. The University provided instruction for students from the various American Republics at both the graduate and undergraduate levels, as well as in specially organized programs. Instruction at the Center will be in the Spanish language which can greatly facilitate participation by students from American Republics since the activities will be undertaken in a familiar language and cultural environment.

While the primary objective of the Nuclear Center is training, it was recognized that a strong supporting research program also is necessary to assure its success. This supporting research program is provided for in the plans for the Center.

#### DESCRIPTION

The Nuclear Training Center will be a facility owned by the U. S. Atomic Energy Commission and will be operated by the University of Puerto Rico to perform work of mutual interest in developing applications of nuclear energy in the island Commonwealth and to the Commission.

The first phase of the program, to be started in 1957, includes the construction of a 1,000-kilowatt pool-type reactor and a research and training facility at the College of Agriculture and Mechanical Arts at Mayaguez. Preliminary plans also call for a training and research building for medical and biological applications of nuclear energy to be constructed near the new Medical Center in Rio Piedras and some additional training and laboratory facilities at Mayaguez.

The research reactor, based upon the pool-type developed by the Commission's Oak Ridge National Laboratory, will have a power level of 1,000-kilowatts and an average flux of  $1 \times 10^{13}$  neutrons/cm<sup>2</sup>/sec. Facilities will be designed into the reactor to provide for a maximum variety of research and training uses. A suitable building to house the reactor, with space for offices, control room, working areas

and other purposes will be provided. A number of colleges and universities in the United States have built, are building or are planning similar research reactors.

The training and research laboratory building at Mayaguez will comprise about 20,000 square feet of floor space and will include:

1. A high-level hot cell for handling highly radioactive materials;
2. One or more low-level cells;
3. Small instrument, machine and glass-blowing shops;
4. Counting room;
5. Laboratory rooms, each with a full complement of services, to provide maximum flexibility in use;
6. Offices;
7. Gamma irradiation room and irradiation facility.

The estimated cost of providing these facilities is \$2,500,000. Operating costs for the first year of operation are estimated at \$300,000.

The operating program for the Nuclear Center for this fiscal year visualizes continuation of training programs in nuclear science and technology started earlier at Mayaguez and the radioisotope techniques training course started at Rio Piedras. It also provides for a director and a small administrative and technical staff to set up and organize the Center. In addition, the operating program makes provision for visiting committees to come to the Center to advise on program aspects of the facility.

A small resident office of the Atomic Energy Commission will be established in Puerto Rico at Mayaguez on October 21 to administer the design and construction contracts and the operating contract with the University of Puerto Rico. This office will be under the Oak Ridge Operations Office of the Commission.

## DESIGN AND CONSTRUCTION

The Commission will select an architect-engineer to design the reactor building and the research and training facilities to be constructed initially at Mayaguez. A contractor will be selected by the Commission to construct these facilities.

The reactor will be designed and constructed under a separate contract also to be awarded by the AEC.

It is expected that the research and training facilities will be completed by the middle of 1959 with the reactor scheduled for completion in early 1960.

## THE PUERTO RICO AREA OFFICE

The Puerto Rico Area Office, which is being established on October 21, 1957, at Mayaguez for administration of contracts relating to design, construction and operation of the Puerto Rico Nuclear Training Center, will become the sixth area office of the Atomic Energy Commission's Oak Ridge Operations.

Oak Ridge Operations is the largest of the Commission's major operations offices. As part of this operations office, the Puerto Rico Area Office will take its place alongside Fernald, New Brunswick, Paducah, Portsmouth and St. Louis, as major field offices through which important nuclear energy programs are administered.

The contract with the University of Puerto Rico for operation of the Nuclear Center and the establishment of an Area Office in Puerto Rico represent the normal way in which AEC programs are carried out.

According to AEC policy, the major manufacturing, research and scientific training projects are not carried out directly by government employees. Instead the services of private industrial firms and educational and research institutions are used. The Commission contracts for these services in much the same way as one private concern enters into a contract with another private concern for the supply of needed services and materials. In this situation, the University has been selected as a contractor and has entered into a contract with the AEC to perform work necessary to offer training in nuclear sciences for the people of the Commonwealth of Puerto Rico and to make the same training available to people of the American Republics.

The AEC organization is based on a policy of decentralized administration. The Commission's headquarters in Washington determines the content of major programs to be carried out by AEC, whereas the responsibility for obtaining the necessary services for carrying out these programs and for administering the contracts is delegated to the major field offices -- the operations offices. The operations office

in turn establish additional field offices known as area offices, to administer segments of the field programs carried out in specific geographic areas. For example, the St. Louis Area Office is responsible for administering the uranium production programs carried out in two major plants in the St. Louis, Missouri, area.

In the case of the Puerto Rico Nuclear Center, the basic program responsibility has been assigned to the Oak Ridge Operations Office, and a further reassignment has been made to the Puerto Rico Area Office.

The Puerto Rico Area Office will be staffed by AEC employees, and similar to other area offices, will provide the necessary local supervision and coordination for the AEC in connection with Commission contract activities in Puerto Rico.

The functions of the Puerto Rico Area Office will be under the supervision of an Area Manager, who reports directly to the Manager of Oak Ridge Operations. The Area Manager will be responsible for the planning, directing, coordinating and reviewing of activities involving the development and operation of the Nuclear Center by the University. In carrying out these responsibilities, the Area Manager will act as the representative of the Manager of Oak Ridge Operations and of the Commission for the administration of contracts executed under his authority or assigned to him by Oak Ridge Operations.



# Summary Report

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## I. A Statement of History

Following the first spectacular use of atomic power in the closing days of World War II, scientists turned their attention to the peaceful applications of nuclear energy in search of the unlimited beneficial uses to be found for it.

Within a decade, man had expanded the uses of nuclear energy into all of the scientific disciplines and the impact had already been felt in the United States. The uses of radioisotopes in medical research, diagnosis, and therapy were revolutionizing the prospects for mankind's winning the battle against disease. In the engineering field the development of power reactors pointed to a new "inexhaustible" source of energy for man's future to replace the petroleum and coal resources that were rapidly being removed from the earth and which nature could not replace.

Since this rapid progress occurred basically in the United States, the next step was to expand this knowledge to other parts of the free world. In order to do this, additional manpower from other countries had to be trained to carry the benefits home.

At the United Nations General Assembly held on December 9, 1953 former President Dwight D. Eisenhower announced an "Atoms for Peace" plan. The full significance of the plan was not understood by members of the U. S. Atomic Energy Commission under the chairmanship of Lewis L. Strauss, nor by the members of the U. S. State Department under the direction of John Foster Dulles. In order to formulate a clear plan by which the American technological advances in nuclear energy could be distributed to the free world, members of these agencies conferred jointly at length. It is interesting to note that one of the participants in these conferences was Dr. John C. Bugher, then Chairman of the Biology and Medicine Division of the U. S. Atomic Energy Commission, who was later to become the Director of PRNC.

At the Geneva Conference in 1955 the United States made its first effort to help other countries develop power from nuclear energy. In order to do this it was necessary to declassify information acquired during the early development of nuclear reactors.

At the Panama Conference on July 22, 1956, former President Eisenhower urged action to hasten the beneficial uses of nuclear forces throughout the hemisphere. Following this Conference, Admiral Paul Foster, International Relations Division, US-AEC, toured South America and visited Puerto Rico before returning to Washington, D. C. While in Puerto Rico he conferred with University of Puerto Rico officials regarding the prospect of establishing a Nuclear Center there. In Washington, D.C., Admiral Foster recommended the establishment of a Nuclear Center for training Latin Americans in Puerto Rico.

In September 1956 at a meeting in Washington, D. C., of the Inter-American Committee of Presidential Representatives in which twenty-one American Republics participated, Dr. Milton Eisenhower announced that plans for a Nuclear Training Center were being formulated. Dr. Eisenhower declared that because facilities proposed to be provided over the next

few years would be outstanding and instruction would be in Spanish, "The University of Puerto Rico might well become a nuclear research and training center of interest to many countries of this hemisphere."

In January, 1957, the Tenth Oak Ridge Regional Symposium was held at the University of Puerto Rico. The Symposium was on "Atomic Energy and the University of Puerto Rico." At this time the need for a nuclear center to serve Latin America became apparent. In an address at the Symposium, Chairman Lewis L. Strauss of the US-AEC stated "the broadened program will provide the University of Puerto Rico with unique training and research facilities. And because these facilities will be truly outstanding--the most up-to-date concept and design--and because the instruction will be in Spanish, the University of Puerto Rico may well become a training center of interest to many countries of the hemisphere --I can tell you that we will cooperate enthusiastically in the expansion."

Joint planning studies were initiated by the University of Puerto Rico and the US-AEC for the proposed Nuclear Training Center consisting of a research reactor and research and training facilities to be constructed by the Commission and operated by the University under contract with the US-AEC. The Oak Ridge Operations Office of the AEC, was given the responsibility for implementing and administering the new Center.

On January 23, 1957, Chancellor Jaime Benitez appointed an ad hoc committee to explore the development of graduate work in the natural sciences at the University of Puerto Rico, with particular reference to possible developments in the field of nuclear energy.

The members of the Committee were:

Conrado Asenjo, Chairman of the Department of Biochemistry of the University of Puerto Rico's School of Medicine

Anador Cobas, Professor of Physics and Director of the Radioisotope Techniques Training Center of the University of Puerto Rico

Mariano Garcia, Chairman of the Department of Mathematics at the Mayaguez Campus of the University of Puerto Rico

Victor Rodriguez-Benitez, Director of the Rum Pilot Plant of the Agricultural Experiment Station

Dr. Marston Bates, Director of Research for the University of Puerto Rico, Chairman

Mrs. Marie Barton, Executive Secretary of the Committee

The Committee met periodically during the following months and invited members of the University to attend the sessions. From time to time consultants were also invited to meet with the Committee.

In March, 1957, the Atomic Energy Commission awarded a \$216,950 grant to the University of Puerto Rico, \$60,210 to purchase equipment for the

establishment of a Radioisotopes Techniques Training Center in Río Piedras and \$156,740 for equipment needed to establish a program in nuclear science and technology at the Mayaguez Campus of the University.

The decision to locate the proposed "Nuclear Center" in Puerto Rico was based primarily on two considerations:

- (1) The Commonwealth of Puerto Rico was considered to be a meeting ground of the cultures of the Americas.
- (2) It was felt that the "Nuclear Center" could function best under the auspices of a large, established university such as the University of Puerto Rico.

On June 3, 1957, the ad hoc Committee sent a report to Chancellor Benítez recommending the establishment of graduate studies and research at the University, as the Committee felt that graduate studies and research are completely interdependent, and in planning for graduate work, one is inevitably concurrently planning a research program.

On June 21, 1957, the ad hoc Committee submitted a memorandum to Chancellor Benítez recommending that the proposed Nuclear Reactor be located in Mayaguez. The Committee cited the fact that the closest analogue to the projected Nuclear Center at the University of Puerto Rico was the Phoenix Project at the University of Michigan. Dr. Henry Gomberg, who was at that time Executive Director of the Phoenix Project, was consulted on this matter and he recommended that the reactor be located in Mayaguez. It is again interesting to note that Dr. Henry Gomberg became Deputy Director of the Puerto Rico Nuclear Center in October, 1961.

A "Proposal for a Nuclear Center" was officially submitted to the United States Atomic Energy Commission in August, 1957.

The US-AEC and the University of Puerto Rico signed a contract to operate the Nuclear Center on October 2, 1957. The United States Government would own the property and the University would operate the Nuclear Center without fee. The US-AEC also announced on this date the appointment of Mr. John J. Thomas former Deputy Manager of its Hanford Operations Office in Richland, Washington, as resident manager of a new permanent AEC office to be established in Puerto Rico. The new office was established to administer the contract between the AEC and the UPR which involved an initial appropriations of \$2,800,000 by the Congress of the United States.

The goal of the Puerto Rico Nuclear Center is to develop a comprehensive program for research and training in nuclear science and engineering and in the peaceful applications of nuclear energy in medicine, agriculture, and industry. These programs are to be carried out using the Spanish language and are to be available to students from the American Republics.

The Puerto Rico Nuclear Center is an integral part of the University of Puerto Rico and is able to provide graduate level training in nuclear

energy which is integrated with one of the Colleges of the University so that the student may earn an advanced degree.

The University of Puerto Rico is itself a charter member of the Union of Latin American Universities and at the time of the establishment of the Puerto Rico Nuclear Center there were 313 students from 19 American Republics in its student body. The total enrollment of the UPR during the academic year 1956-57 was approximately 16,000 with a full time faculty of 1,064.

Under the conditions of the contract the US-AEC takes care of the expenses of installation and operation of the Nuclear Center and the University operates and manages it without fee.

Dr. Charles F. Bonilla from Columbia University, was chosen Director of the Puerto Rico Nuclear Center on October 16, 1957; Dr. José L. García de Quevedo was appointed Director of Research and Director of the Reactor Program; Dr. Amador Cobas was appointed Director of the Radioisotopes Program; and Dr. Fred Soltero was named Director of the Nuclear Science and Technology Program.

The following professors were also appointed to the PRNC staff to work in the Radiological Research:

José Ferrer Monge - Associate Scientist	} both of these men were studying in the U.S.
Richard Brown Campos - Associate Scientist	
Josefa E. Trebañ - Assistant Scientist	
Juan Puig Tomas - Associate Scientist	
Werner Umbreit - Associate Scientist	
Lawrence Vázquez Rivera - Assistant Scientist	
Fernando A. Vallecillo - Assistant Scientist	

On January 17, 1958, the first meeting of the complete PRNC staff was held and an organization plan was discussed. Professor Warren Miller, Director of the Nuclear Technology Program at Pennsylvania State University, gave a conference and acted as a consultant to the staff.

On July 26, 1958, groundbreaking ceremonies for the Reactor Building of PRNC were held in Mayaguez with Dr. Milton Eisenhower acting as official representative of his brother, the President of the United States.

In September, 1959, Dr. Charles Bonilla resigned as Director of PRNC and returned to Columbia University.

Dr. José L. García de Quevedo was named Acting Director of PRNC and held this position until July 1, 1960 when Dr. John C. Bugher assumed the Directorship of PRNC. Dr. Bugher is a member of the Rockefeller Foundation and was loaned to PRNC by Dean Rusk, then Director of the Rockefeller Foundation, at the request of Chancellor Benítez.

On August 23, 1960 the Puerto Rico Nuclear Center Research Reactor was dedicated with Chancellor Jaime Benítez acting as Master of Ceremonies. Among the distinguished guests at the Dedication were

Governor Luis Muñoz Marín, Senator Hickenlooper of the Joint Committee on Atomic Energy, Robert E. Wilson, Commissioner of the Atomic Energy Commission, and Sol Luis Descartes, Vice-President of the Banco Crédito y Ahorro Ponceño.

In April, 1961, the Bio-Medical Building was completed in the new Medical Center located at Río Piedras. With the completion of this building the Puerto Rico Nuclear Center was able to bring together its divisions that had been functioning separately in the San Juan and Río Piedras areas.

Box 1823- U.P.R. Station  
Río Piedras, Puerto Rico

August 2, 1961

Dr. William H. Preston  
Dean of Administration  
University of Puerto Rico  
Río Piedras, Puerto Rico

No

Dear Dr. Preston:

Reference is made to the letter to you of June 27, 1961 from George W. Courtney, Jr. U.S. AEC, Washington D. C. concerning an unaccounted balance in the AEC grant to U.P.R. prior to the establishment of the Nuclear Center.

To the best of my knowledge the two grants of \$216,950 and \$123,698 were entirely for equipment and special installation. Against these grants would be charged the billings from the equipment vendors plus any shipping and handling charges and insurance, etc. not included in the vendors billing. It appears from Mr. Courtney's letter that U.P.R. has reported expenditures of \$332,073.15 leaving an unexpended balance of \$8,574.85. According to the terms of the grant, the unexpended balance must be returned to AEC. ✓

This is purely an accounting problem and concerns only the University, title to the equipment being held by U.P.R. and not PRNC. The grant is no longer active and the account should be closed promptly to the satisfaction of AEC and to the credit of the University.

Sincerely yours,

John C. Bugher  
Director

UNIVERSIDAD DE PUERTO RICO  
RIO PIEDRAS, P. R.

OFICINA DEL  
DECANO DE ADMINISTRACION

ENDOSO

DE: Mr. George W. Courtney, Jr.

A: Dr. William H. Preston

RE: Equipo para el Centro Nuclear.

FECHA: 27 de junio de 1961

SE TRASLADA A: Dr. Bugher

PARA: su atención. Favor de comunicar al Dr. Preston la acción tomada. Gracias.

FECHA DE ENDOSO: 5 de julio de 1961

DECANO DE ADMINISTRACION

POR: adp

NO

Mr. [Name] [Address] [City] [State] [Zip]

Dear Mr. [Name]:

Enclosed are two reports on expenditures for the [Month] and [Month] [Year] totaling \$[Amount] and [Amount] respectively. These reports are being submitted to the [Agency] for their review and approval.

These reports cover a fair amount of correspondence and other work regarding the Center's responsibility to [Agency] for the expenditure of these funds.

In total, we have two reports on expenditures for the [Month] and [Month] [Year] totaling \$[Amount] and [Amount] respectively. An April 17, 1960 report details expenditures of \$[Amount] and a report dated August 11, 1960 details expenditures of \$[Amount]. At least, these reports account for funds totalling \$[Amount] leaving a balance of \$[Amount].

Mr. [Name] has written us on December 22, 1960, regarding the [Agency] to Mr. [Name] that these amounts are correct and that any unexpended funds be returned. As indicated we write to you, as [Agency] and [Agency], if no further action were taken, we would be obliged to complete the [Agency] for the grants.

Your cooperation in this long-term project is appreciated.

Sincerely yours,

[Signature] [Name] [Title] [Address]

Vertical stamp or text on the left margin, possibly a date or reference number.



Evidently additional \$1400 requested (to rectify error in Dec. 14 admission) not granted expenses absorbed in R.P. prog.

NO.

TO: Dr. John C. Bugher

The attached letter from George W. Courtney Jr., AEC, has been referred to you by the Dean of Administration. The grants referred to can be broken down as follows:

\$216,950 - - \$60,210 to establish the radioisotope techniques course (awarded March 1957)

\$156,740 to establish program in nuclear science and technology

\$123,698 - - request for additional funds for program in nuclear science (awarded Jan. 1958) and technology.

(attached)

I have files on the three proposals for the above grants and correspondence up to the point of grants being awarded, if you are interested in seeing them. The detailed expenditures of the grant money should be recorded in the Rio Piedras accounting office for radioisotopes and in the Mayaguez office for the nuclear science program.

If the University can only account for \$332,073.15 I assume the only thing to do is to return the balance. The other alternative is for us to get involved in checking the accounts, which may mean a lot of work.

Marie

PUERTO RICO BRIEFING PAPER

The Commission's program of assistance to the Commonwealth of Puerto Rico was publicly initiated with the remarks by Dr. Milton S. Eisenhower at the Organization of American States Conference on September 17, 1956. In the section on atomic energy projects (Appendix "F" of attached AEC Staff Paper 936), he stated in regard to methods of accelerating the application of nuclear energy to human welfare in the American Republics:

"The first of these steps was the inauguration last month of a special program of assistance to the University of Puerto Rico to enable it to establish programs of training and instruction in the Spanish language in the field of atomic energy.

"One of the most recent actions taken by the United States Atomic Energy Commission to alleviate the impending shortage of nuclear scientists and technicians was the inauguration of a special program of assistance to, and collaboration with the University of Puerto Rico. The Commission is providing a training research reactor and laboratory equipment and other forms of aid to the University to enable it to begin practical training, education and research in the field of atomic energy not later than the beginning of the next college year. This program of assistance to the University will include aid to its School of Medicine, School of Science, College of Agriculture and Mechanic Arts and Agricultural Experiment Station.

"The Commission and Puerto Rican officials are now planning the installation of a 20,000 kilowatt nuclear power plant, to supply more electric power for commercial purposes and to serve as an ancillary training facility for students attending the University.

"I am confident that the University of Puerto Rico will have unique nuclear training and research facilities within three or four years. Because the planned facilities I have just described would be truly outstanding and because instructions would be in Spanish, the University of Puerto Rico might well become a regional nuclear research and training center. In this connection, it is of interest to note that about 300 students from Central and South America are now attending the University, some of them

under the Technical Assistance program of the U. S. International Cooperation Administration. If there should be evidence of a desire on the part of other students in the American Republics to enter the nuclear training and research courses at the University of Puerto Rico, the U. S. Government would, of course, cooperate in a program to include such students."

The basis for these statements was obtained in meetings in mid-August when Paul F. Foster, Assistant General Manager for International Activities, Clark Goodman of the Division of Reactor Development, and R. R. Edwards of the Division of International Affairs met in San Juan with Governor Munoz, S. L. Descartes, Executive Director of the Puerto Rico Water Resources Authority, and Hiram Cancio, Acting Chancellor of the University of Puerto Rico. Plans were discussed for initiating an atomic energy program for the Commonwealth in the fields of nuclear power, research, training and education, especially designed to serve Spanish-speaking students from the twenty Republics of Latin America, as well as to meet the needs of Puerto Rico.

AEC Staff Paper 936 (copy attached), approved by the Commission on September 13, 1956, embodied the findings of this visit and recommended that the AEC:

- (1) Approve the establishment, at a cost not to exceed \$350,000, of a nuclear engineering training facility at the University of Puerto Rico, (Mayaguez Campus), during FY-57, under an approved program for AEC assistance to educational institutions.
- (2) Approve the establishment, at a capital and operating cost not to exceed \$3,900,000, in Puerto Rico (sites to be selected later), of a training center with appropriate research facilities for agricultural, medical, biological, and physical sciences during FY-58. (In budget hearings in December, the capital and operating cost of a training center in Puerto Rico was cut from \$3,900,000 to \$2,800,000. No reductions were made in any of the other financial items included in AEC 936).
- (3) Approve inclusion of an item of \$9,000,000 in the FY-58 budget for support of the construction of a power reactor (about 20,000 EKW) by the PRWRA, assuming that the authority would support the proposed budget to the extent of its normal costs for a plant of this size. (It was estimated that the reactor would cost about \$14,000,000, of which \$9,000,000 would be provided by the AEC. The PRWRA would contribute about \$5,000,000, roughly the cost of an equivalent conventional power plant).

- (4) Note that the organization and scope of the training facility would require an annual operating budget of approximately \$1,000,000.

In a memorandum from W. K. Davis to Paul F. Foster dated October 3, 1956, it was stated that in meetings just concluded with PRWRA, they felt that they could not contribute more than the anticipated cost of its least expensive conventional power, i. e., 4 mills/KWH for unsteady (dump) power or 7 mills/KWH for steady power.

The PRWRA contribution could take the form of power machinery, a share of the capital costs, or a share of the operating costs. Whatever the form, they would require that we underwrite the project for at least five years. It is estimated that the AEC expenses for this period would be between \$18-\$24,000,000 for a 20,000 EKW plant. It appears unlikely that we could recover much of the investment through ultimate sale of the plant.

For the above reasons, the Division of Reactor Development did not favor a 20,000 EKW reactor unless a larger contribution was forthcoming from the PRWRA.

During the period November 13-17, Harold Walker, Office of the General Manager, Delmar Morris, Division of Reactor Development, R. R. Edwards and Eric Rude, Division of International Affairs, met in Puerto Rico with officials of the University of Puerto Rico and the PRWRA in regard to implementation of the approved recommendations of AEC Staff Paper 936.

Advice was furnished to the University officials concerned in regard to training programs and to the method of submitting proposals for the purchase of equipment for the establishment of a nuclear engineering training facility. As a result of this, a proposal was received in December from the University of Puerto Rico, Rio Piedras Campus, (copy attached) for the purchase of equipment to establish a series of short-term radioisotope-technique courses. A proposal was also received in December from the Mayaguez campus (copy attached) for the purchase of laboratory equipment and materials required to establish a graduate program in nuclear science and technology to begin during the summer session of 1957. Both of these proposals have received approval from the Division of Reactor Development. It will be necessary to bolster the technical staff of the University, at least during the first several years. This situation will be alleviated to a certain extent by a loan to the University of PRWRA personnel presently completing graduate work in the United States in various fields of nuclear technology.

In discussions with officials of the PRWRA, it was agreed that at present a 20,000 EKW nuclear facility could not be justified due to the basic problem of the legal inability of the PRWRA to assume a larger portion of the financial responsibilities of construction and operation of such a plant. The Conferees agreed that at present we should think of a smaller reactor which would be used basically for training both University students and Authority personnel, and secondarily, could furnish dump power to the local power system.

In a memorandum dated December 31, 1956, from the General Manager to S. R. Sapirie, Manager of the Oak Ridge Operations Office, the Oak Ridge Operations Office was designated as the field installation responsible for implementing the Commission's action on AEC-936. A radioisotope course has been planned for the Rio Piedras Campus for the period March 18, 1957 through April 12, 1957. ORINS personnel will assist the University faculty in conducting this course.

#### BACKGROUND

The central agencies in carrying out a program by which the United States could gain experience in the operation of a training facility and nuclear power plants under conditions which closely approximate those of a foreign country are the University of Puerto Rico and the PRWRA. The latter is a branch of the government vested with the responsibility of producing and developing electric power on the Island.

Direct responsibility for the management and operation of the PRWRA is in the hands of the Executive Director, S. L. Descartes. The technical staff, facilities, power plants, distribution equipment, and general operation of this corporation are first-class. The top technical personnel are well-versed in the fundamentals of nuclear power and have a tremendous enthusiasm to get Puerto Rico into this field as soon as possible. Because most of the power in Puerto Rico is generated from low-cost, by-product fuel oil obtained from local refineries, the cost of current conventional power is only 7 mills/KWH.

The main campus of the University of Puerto Rico is on the outskirts of San Juan. The basic sciences and liberal arts courses are taught here. The Engineering and Agriculture School is located at Mayaguez on the western end of the Island. Dr. Jaime Benitez is Chancellor of the University with offices in the Rio Piedras Campus. Luis Stefani is the Vice-Chancellor and maintains his offices at the Mayaguez campus.

PUERTO RICAN OFFICIALS CONTACTED DURING VISITS BY AEC PERSONNEL

Commonwealth Officials

Mr. Luis Munoz-Marin, Governor  
Mr. Marco A. Rigau, Executive Assistant to the Governor  
Arturo Morales Carrion, Commonwealth Under-Secretary of State

Puerto Rico Water Resources Authority

Sol L. Descartes, Executive Director  
Miguel A. Quinones, Chief Engineer  
Walton Seymour, Power Economics (Consultant)  
Rafael R. Ramirez, Head of Power Division  
Victor Cataldo, Head of Commercial Division  
Jacinto Sugranes, Scientific and Technical Information Specialist

University of Puerto Rico

Jaime Benitez, Chancellor  
Hiram Cancio, Acting Chancellor (Dean of Administration)  
Marston Bates, Director of Research, Rio Piedras  
B. G. Capo, Associate Director of Research (Agriculture Extension  
Station, Rio Piedras)  
E. Harold Hinman, Dean, School of Medicine, Rio Piedras  
Facundo Bueso, Dean, College of Natural Sciences, Rio Piedras  
Luis Stefani, Vice-Chancellor, Mayaguez  
Fernando Gonzalez-Mandry, Dean of Engineering, Mayaguez  
Miguel Wiewall Jr., Dean, School of Science, Mayaguez

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UNITED STATES  
ATOMIC ENERGY COMMISSION

WASHINGTON 25, D. C.

April 27, 1956

Honorable Luis Muñoz Marín  
Governor of Commonwealth of Puerto Rico  
La Fortaleza, San Juan

Dear Governor Marín:

In response to your request of April 4, 1956, we are pleased to designate the University of Puerto Rico as an Atomic Energy Commission depository library to receive AEC-produced non-classified report and book materials. We believe such an arrangement will contribute to the Commission's program for dissemination of non-classified information on atomic energy.

Our depository program was established in the interest of securing the widest possible dissemination of AEC unclassified and declassified reports, consistent with the authors' interests in eventual publication. Each depository receives full-size or microcard copies of all available non-classified AEC reports. Arrangements are made for the loan to depositories of full-size versions of any reports which are needed for inter-library loan or for the preparation of photo-copies. Abstracts and bibliographic guides to the report collection are provided.

Each institution agreeing to be designated an AEC depository is required to agree to allow general access to the reports, to provide reference service with regard to them, and to provide photo-copies to users in accordance with its established prices for such services.

I am attaching for your information a copy of our "Guide to AEC Reports for the Depository Libraries" which we have prepared to describe the contents of the collection and to explain in detail services available from the Atomic Energy Commission. It is suggested that the University of Puerto Rico contact our Oak Ridge Office at the following address to make arrangements for shipment of the depository collection to Puerto Rico: Mr. Melvin S. Day, Chief, Technical Information Service Extension, U. S. Atomic Energy Commission, P. O. Box 62, Oak Ridge, Tennessee.

Please feel free to call on us for any further assistance that you may require in this connection.

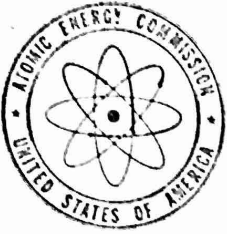
Sincerely yours,

*K. E. Fields*

K. E. Fields  
General Manager

Attachment

"Guide to AEC Reports for the  
Depository Libraries"



UNITED STATES  
ATOMIC ENERGY COMMISSION

RECORD OF NEGOTIATION OF A CONTRACT  
FOR THE OPERATION OF A NUCLEAR TRAINING  
AND RESEARCH CENTER WITH THE UNIVERSITY OF PUERTO RICO

BACKGROUND

The United States Atomic Energy Commission (hereinafter called the "Commission") in carrying out the purposes and intent of the Atomic Energy Act of 1954 expressed a desire to establish in the Commonwealth of Puerto Rico a training, research and experimental facility designed to serve not only the needs of the Commonwealth but also to serve students from the republics of Latin America. The University of Puerto Rico (hereinafter called the "University") expressed a willingness to operate such a Commission-owned Nuclear Training Center for the Commission.

Following preliminary discussion with Commission representatives the University submitted a draft of a proposal dated April 2, 1957, outlining the conditions under which the University would be willing to operate the proposed Nuclear Training Center.

The Commission prepared an initial draft of a contract dated April 18, 1957, in general harmony with the draft proposal from the University and on April 19, 1957, copies of this initial draft contract were mailed to the University for review in preparation for the negotiation meeting reported herein. At the same time copies of the initial draft were distributed for Commission staff review both in Washington and in Oak Ridge.

Meetings with the University representatives were scheduled in Oak Ridge for May 15 and 16, 1957, for a discussion of the draft contract and other related matters. This record will cover only the discussions on the draft contract.

RECORD OF CONTRACT NEGOTIATIONS DURING MEETINGS IN  
OAK RIDGE, TENNESSEE, ON MAY 15 AND 16, 1957

Those in attendance at the initial May 15 meeting (most of whom were also present during the short meeting on May 16, 1957) are as follows:

For the University of Puerto Rico:

Jaime Benitez, Chancellor  
Marston Bates, Director of Research  
Roberto Busó, Member of the Superior Educational Council  
Burton Friedman, Director of Finance



For the U. S. Atomic Energy Commission:

S. R. Sapirie, Manager, Oak Ridge Operations  
N. H. Woodruff, Assistant Manager for Operations, Oak Ridge Operations  
C. Vanden Bulck, Assistant Manager for Administration, Oak Ridge Operations  
John R. Moore, Director, Contract Division, Oak Ridge Operations  
H. M. Roth, Director, Research & Development Division, Oak Ridge Operations  
C. W. Hill, Attorney, Office of Assistant General Counsel, ORO  
H. A. Larsen, Attorney, Office of Assistant General Counsel, ORO  
L. D. MacKay, Director, Division of Finance, Oak Ridge Operations  
L. M. Groeniger, Director, Organization & Personnel Division, ORO  
D. F. Cope, Deputy Director, Research & Development Division, ORO  
R. G. Humphries, Deputy Director, Contract Division, Oak Ridge Operations  
John Thomas

As the meeting opened Mr. Sapirie reiterated the statement he had made in previous discussions with the University of Puerto Rico representatives that the final agreement on a contract for operation of an AEC Nuclear Center in Puerto Rico is dependent on approval by Congress of authorizing legislation and appropriation of funds.

Chancellor Benitez said that after the University review they have no fundamental differences with the draft contract as prepared by the Commission. He indicated there were a few of the contract provisions that they would want to discuss to be sure they understood the full intent and implications of the provisions.

At this point Mr. Moore distributed a three-page listing of suggested changes in the April 18, 1957, draft contract representing changes which had been suggested as a result of the Washington and Oak Ridge staff review. It was suggested that these specific changes be taken up first after which the provisions referred to by Chancellor Benitez would be considered. A copy of the list of suggested changes is attached as a part of this record. As will be noted from a review of this list a number of the changes are editorial in nature and did not occasion any discussion. All of the changes proposed by the Commission as set forth in the list were accepted by the University.

There was some discussion of the change proposed by the Commission on page 15 of the draft concerning the new paragraph 4 under Article IV covering Fellowships. After reviewing the language at the table the University representatives stated they understood the provision would not prohibit the granting of fellowships by the University under the contract but only that any such fellowships would be conditioned upon receipt from the Commission of a findings based upon a report by the United States Government investigating agency that the recipient of the fellowship was not considered disloyal to the Government of the United States. The Commission representatives stated that the University's

understanding of the provision was correct but that the Commission did not contemplate, at least at this time, that the University would have occasion to grant such fellowships as a part of the contract work and under these conditions the provision was somewhat academic. The Commission representatives made it clear that this statement of initial intent would not necessarily rule out the possibility at some time during the contract term of the University's carrying out a fellowship program with the approval of the Commission and that under such a circumstance the fellowship provision would be for full application.

Mr. Moore then referred to Article I, paragraph 2. c. and suggested the deletion of the words "through fellowships or otherwise" in order to remove from the contract document an undue emphasis on fellowships as a part of the program work. Mr. Moore explained that the suggested deletion would not prevent the University from carrying out a fellowship program if requested to do so by the Commission in future years, but would have the effect of de-emphasizing fellowships as a part of the program work. In this connection, Dr. Roth explained that the fellowship provision which had been discussed was the same provision which is included in all of the Commission's contracts for research with educational institutions and stems from a limitation imposed on the Commission by a rider to its appropriation bill. Dr. Roth further explained that under such contracts the educational institution permitted graduate students to perform thesis work but that payment by the institution was limited to compensation for work actually performed by the graduate student on the research program and such students were considered as research assistants rather than fellows. It was explained that the Commission did have limited fellowship programs such as those presently administered for the Commission by the Oak Ridge Institute of Nuclear Studies where payments were made fellows without requiring actual performance of work on the Commission-supported project.

At this point Chancellor Benitez tentatively agreed to the deletion in Article I 2.c. as suggested by Mr. Moore but stated he would want to have some further discussion with Dr. Roth during the afternoon in order to secure a more complete understanding of the distinction made by the Commission between work performed under the contract by graduate students and fellowships per se.

The University accepted the changes proposed by the Commission in paragraph 3 Discounts and paragraph 4 Revenues under Article V as they appear on page 17 of the draft but there was a request for clarification of paragraph 4 Revenues with reference to inclusion of the term "tuition" therein. Mr. Sapirie explained that under the philosophy regarding the Nuclear Training Center as being a Commission-owned facility operated for the Commission by the University it was considered quite appropriate to provide that in the event the University charged a tuition in connection with the operation under the contract such tuition should be deposited to

the Government's account and not diverted to the general funds of the University under its private operation. Mr. Sapirie stated that he recognized there might be some problem of allocating a portion of an over-all tuition charge to the Nuclear Training Center in the event the University saw fit to make such an over-all tuition charge to a student for a combination of normal University training and special training in the Nuclear Training Center but he did not feel there would be any problem in reaching agreement with the University on an appropriate allocation method. Mr. Sapirie made it clear that he did not feel this would become a problem unless the University identified the tuition in whole or in part with training at the Nuclear Training Center and stated another way the provision is intended to prevent the University from gaining any monetary advantage because of special tuition charges associated with the Government-owned Nuclear Training Center. Chancellor Benitez said with this explanation he had no further question and felt there would be no problem in affording the Commission proper credit in the event they saw fit to make any such special tuition charges.

Mr. Friedman suggested the elimination of paragraph 4 Revenues on the premise that proper coverage had already been made under paragraph 3 Discounts where the University would take and afford the Government the advantage of all available discounts, etc. It was pointed out that paragraph 4 Revenues had as its purpose the disposition of such revenues by providing for deposit in the Government special funds account as distinguished from paragraph 3 which is an agreement on the part of the University to afford the Government the advantage of all available discounts, etc.

After some further discussion on the point, Chancellor Benitez stated the University would accept the language of both paragraphs revised as suggested by the Commission.

Chancellor Benitez stated that the University would accept the proposed new Article XXXI - Copyright but he would like to have some discussion for clarification purposes of both this new article and Article XXIV - Patents as to the manner in which the articles would be administered by the Commission.

Mr. Hill explained that the intent of the Copyright article was to place the Commission in a position whereby it could make full and free unlimited use of any material first produced or composed in the course of, in connection with or under the terms of the contract developed by anyone employed or assigned by the University in the performance of the contract and that such right in the Commission would flow from a royalty free non-exclusive and irrevocable license to reproduce, translate, publish, use and dispose of and to authorize others so to do all copyrightable material. Mr. Hill emphasized that this provision was not intended to prevent any

individual from copyrighting such material but under the license arrangement granted the Commission such copyright obviously would not be exclusive with the individual.

Mr. Vanden Bulck explained that under the Patents article, as well as under the Copyright article the University would be expected to use its best efforts to keep the Commission properly informed of any copyrightable or patentable items but that the University would receive some benefit of the work of the Oak Ridge Patent Advisor's group through their routine examination of reports, notebooks, etc., from time to time throughout the performance of work under the contract.

With these explanations Chancellor Benitez indicated the language of both articles was fully acceptable to the University. He asked if it would be possible to secure a copy of the form of agreement between the employer and the employee as used by Oak Ridge National Laboratory in connection with the patents and copyright provisions. (Note: A copy of the ORNL form of patent agreement was secured and later furnished to Chancellor Benitez. In addition, the ORO Patent Advisor prepared a draft of an employee agreement form which would be appropriate for use by the University and this was furnished to Mr. Friedman.)

This completed the discussion of the changes as proposed by the Commission.

Chancellor Benitez at this point stated that although they did not have any specific language changes to suggest there were a few points on which they would like to have some clarification of the language used in the draft to be certain that they fully understood what is intended.

In this connection Dr. Bates raised a question under Article I paragraph 2 as to the intent of the language "subject to the over-all supervision and control of the Commission". Mr. Sapirie stated that since the Nuclear Training Center was to be Commission-owned and the operations conducted at the expense of the Commission it was necessary for the Commission to retain general supervision and control of the work. Mr. Sapirie explained the Commission's operating procedure under which a financial plan and program letter is issued for each fiscal year defining completely the scope of the program and the amount of funds available for each year's operation. He also explained the manner in which the preliminary estimates are prepared for each year's appropriation request. He further explained the manner in which the Commission encourages the contractor to develop operating procedures which are then approved by the Commission and established as the basis for all routine operations. It was pointed out that non-routine matters are normally subject to prior approval by the Commission as are personnel actions for key positions. Mr. Sapirie emphasized that the exercise of general control by the Commission in the way it was actually carried out does not contemplate giving directions to individual employees of the

University. On the contrary, it was pointed out that it will be the Commission's policy in administering the contract with the University to take up with top University officials any matter which the Commission representatives feel should be brought to the attention of the University. Mr. Sapirie went on to explain that this is exactly the manner in which the Commission administers all of its principal contracts and to date this method has proven quite successful in maintaining harmonious and effective relationships with the contractor.

Chancellor Benitez raised a question under Article II Term and Termination as to why there was such a difference between the respective rights of the parties to terminate the contract, calling attention to paragraph 1. c. wherein the University is required to give not less than one year's prior written notice to the Commission and the provisions of paragraph 1. b. where the Commission may terminate the work in whole or in part with the timing of termination to be determined by the Commission in its notice of termination. Mr. Sapirie explained that since the Commission is dependent on appropriated funds to carry out its operations the Commission must remain in a position to immediately terminate any of its programs in the event it fails to secure the necessary amount of appropriated funds. Further the Commission is always subject to having its programs changed by statute or directive and again it must have the necessary flexibility to withdraw from its commitment.

Mr. Sapirie then discussed the financing practice of the Commission wherein contracts of this type are now funded in advance at a minimum of three months and under such circumstances if it became necessary to terminate the work consideration would be given to this fact in establishing the effective date of termination. Mr. Sapirie went on to point out that after the Commission had made an investment in the Nuclear Training Center it was fairly unlikely that the work to be carried out in such facility would be terminated abruptly, but there was always some likelihood that the scope or financial limitations on such program might be cut back but it was not very likely that the facility would be completely shut down during the contemplated contract term.

Mr. Friedman raised a question as to what was meant by the term "incremental overhead" as it appears in paragraph 2. e. of Article IV on page 10. Mr. Sapirie stated that this term was intended to express the intent of the Commission to compensate the University for any extra cost the University might incur in administering or serving the Nuclear Training Center with the regular University force over and above what the University would have incurred in carrying out its own program had the Nuclear Training Center not been furnished the service. Mr. Sapirie stated that it might be possible to develop a more definitive statement of this intent to be included either in the contract instrument or in the record of negotiation. Mr. Sapirie stated services by the University should be on a direct reimbursement basis insofar as practicable. Also

that it was likely some part of the University's service cost would lend itself to direct charging to the Commission contract such as for example, if the University facilities for the production of blueprints were utilized it would very likely be possible that an agreed upon charging system for such blueprint service could be worked out. Similar treatment would be given any other item of cost which would lend itself to ready direct charging, however, in recognition of the fact that certain types of cost normally classified as overhead would be difficult to allocate on a direct charge basis Mr. Sapirie suggested that it would probably be better if the parties could reach agreement on an annual lump sum amount prior to the beginning of each fiscal year being guided in the negotiations of the lump sum amount by the expression of intent mentioned above with this amount fixed and not subject to adjustments for the applicable year regardless of whether actual cost might be more or less than the agreed sum. Mr. Sapirie stressed the fact that the lump sum overhead will not include any items that would otherwise be unallowable under the contract. The University representatives agreed to this understanding. It was left that the attorneys for the Commission would attempt to develop a subparagraph to be included in the contract to cover in as clear a manner as possible the intent regarding the Commission's desire to pay only extra or out-of-pocket costs as occasioned by the service to the Nuclear Training Center, this language to be discussed at a further meeting the following day.

In subparagraph k. on page 11 Dr. Bates suggested the deletion of the word "is" in the third line and substitution of the words "may be" in view of the fact that the University is now exempt from taxation in the Commonwealth. This change was agreed to by the Commission.

Dr. Bates then discussed the provision in subparagraph n. on page 12 and similar provisions under paragraph 2 of Article XXVI on page 42. This has to do with the Government's lack of liability in any case where the University fails to place insurance and a loss is suffered by the University which would have been compensated for by insurance either as required by law or by written direction of the Contracting Officer. Dr. Bates stated they did not have any suggested changes to make in this language and his purpose in discussing it at this time was simply to make all of the University people aware of the dangers to the University in failing to properly place insurance as required. He stated this did raise a question as to the types of insurance the Commission would require and whether in fact such items would be insurable. Mr. Moore stated that as a general rule the Commission would only require that Workmen's Compensation and Public Liability insurance be carried.

Mr. Friedman raised a question as to the scope of coverage of paragraph 3. g. Entertainment Expense on page 13. Chancellor Benitez broke in to say he understood what the term meant. Mr. Sapirie said he would like to make it clear that the Commission does not intend to allow in the overhead any

items of cost that would otherwise be unallowable for reimbursement. Chancellor Benitez said he fully understood the reason why such costs would not be considered.

In connection with Article XI Property on page 26 Chancellor Benitez stated that he saw no indication in the article of what the fate of the building placed on the University land would be at the end of the contract term or in the event of earlier termination. Mr. Moore pointed out that this would be an appropriate item to be covered in the land lease. Mr. Sapirie added that it is the Commission's intent to construct the Nuclear Training Center either on Commission-owned land or as has been more lately discussed with the University on land held by the University but placed under a long-term lease with the Commission with the term of the lease being long enough to effectively represent ownership of the land so far as the Center is concerned. During this discussion Mr. Vanden Bulck called attention to the fact that under paragraph 4 on page 27 the contract itself contained certain provisions regarding disposition of the property at the end of the term, which appear to be applicable.

While this matter of leasing of the land was under consideration, Mr. Hill suggested to Chancellor Benitez that it would be a good idea if he would ask his attorneys to start their consideration of the form of an appropriate lease arrangement they would ask the Commission to execute. Chancellor Benitez agreed to look into this matter upon his return to Puerto Rico. (NOTE: Later Mr. Sapirie stated the Commission would work through the Corps of Engineers in working out the land lease with the University).

The University representatives raised a question as to the role of the Commission in the control of the University employees under the provisions of paragraph 3. on page 32. Mr. Sapirie said that from a strictly legal viewpoint the Commission must retain the right to require the removal from the contract work of any employee of the University whose continued employment on the work is deemed by the Commission to be contrary to the public interest. A few examples of the type of employees who might fall in this category were mentioned. Mr. Sapirie then explained how the Commission as a matter of policy handles such matters. He stated that in every instance the matter would be discussed with the top University officials having to do with the contract operation. He stated this was the manner in which such items were handled with the other Commission contractors and it had been his experience that no serious difficulty had arisen under this approach.

A question was raised by the University officials as to the need for Article XIX Security since as they understood the program it was not intended that any classified work be handled at the Nuclear Training Center. The Commission representatives stated that the article was included in the contract solely to afford the necessary protection

in the remote event it became necessary for employees of the University to have access to classified matter in carrying out the unclassified work. Dr. Bates suggested that in view of this explanation the word "is" appearing in the fourth line of paragraph 1. be deleted and the words "may be" inserted in lieu thereof. This was agreed to by the Commission.

Mr. Friedman raised a question under paragraph 7 of Article XIX Security where it stated that "except as otherwise authorized in writing by the Contracting Officer the University shall insert provisions similar to the foregoing in all subcontracts and purchase orders under this contract". Mr. Moore stated that when the contract is executed the University would be given a letter by the Contracting Officer which would authorize them to leave the security provisions out of all purchase orders and subcontracts except those where security interests would be involved.

At this point the meeting broke up to be assembled later in the day into working groups on particular subjects such as the Appendix "A", accounting, purchasing and budget procedures, the discussions of which will be covered separately.

In a meeting on the following day, May 16, wherein most of the group attending the first meeting were present, consideration was given to a draft of a new subparagraph 2. r. of Article IV (copy attached as a part of this record) as a substitute for the term "incremental overhead" which had been included under subparagraph 2. e. on page 10 of the draft contract and which had been the subject of discussion in the meeting on May 15. After studying the proposed language it was the consensus of the group that this would represent a considerable improvement over the term "incremental overhead". Accordingly, it was agreed to delete the words "including incremental overhead" under subparagraph 2. e. on page 10, insert the new subparagraph 2. r. after q. on page 12 and redesignate the present r. on page 13 as s.

Mr. Sapirie summed up the method of operation under the new subparagraph 2. r. as follows: Shortly after the execution of the contract, and based on the best available information at that time as to the extent of service to the Nuclear Training Center to be afforded by the regular staff of the University and which could not appropriately be charged on a direct basis, the parties would agree on a provisional lump sum amount to be paid for the first year of the contract period. At the end of the first year and based upon a review of actual experience the parties would negotiate in good faith to agree upon a firm amount to replace the previous provisional lump sum amount with appropriate adjustments in provisional payments to follow. At the same time and based upon the same review of actual experience, the parties would agree upon a further lump sum amount for the then current fiscal year. This amount as well as similar amounts for subsequent fiscal years would be firm and not subject to further adjustment because of cost actually experienced in such years. In each



such case the amounts agreed upon are to be included in the contract by supplemental agreement.

One last change was agreed to in the draft contract. This change appears under paragraph 1. of Article VII on page 21. Mr. Sapirie suggested that in view of the fact that the estimated cost of the work would vary from year to year it would not be too meaningful to include an estimate of the per annum cost under the contract. Accordingly, it was agreed that the first sentence of this paragraph would be deleted.

There ensued some discussion as to the amount of the Commission's initial obligation of funds under the contract. It was left that the Commission would run off clean copies of the contract incorporating all of the agreements set forth in this record but leaving the space blank under paragraph 1. of Article VII wherein is to be stated the amount of funds the Commission has obligated for the performance of the work. Copies of the contract will be sent to the University and, if after review the document is found to be in accord with the agreements reported herein, the contract will simply be held pending notice from the Commission, probably by cablegram, that the project has been authorized and that it would be appropriate for the University officials to sign the contract. At that time the amount of funds to be inserted in the blank space under paragraph 1. of Article VII will be stated and it would be expected that the University would type in the amount in the blank space and the Contracting Officer for the University would initial opposite the typed in amount after which the signed documents would be returned to the Commission for signature and initialling by the Commission's Contracting Officer.

Dr. Bates requested that 20 copies of the clean draft be furnished for their review purposes. He stated this would provide ample copies for review with three copies to be held for signature.

Enclosures:

1. Suggested changes to 4-18-57 draft
2. New IV. 2. r. subparagraph