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July 21, 1954

T. H. Johnson, Director
Division of Research, Washington

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S. R. Sapirie, Manager
Oak Ridge Operations, Oak Ridge

718361

SUBSTITUTION OF E. L. NICHOLSON FOR F. R. BRUCE IN TCP DISCUSSIONS
WITH C. M. NICHOLLS ON JULY 2, 1954

SYMBOL: ORR:RES

BEST COPY AVAILABLE

We are enclosing three copies of a memorandum, dated as above, symbol ORR:RES, subject, TCP Visit of Cyril M. Nicholls to the Oak Ridge National Laboratory on July 1 and 2, 1954 (as authorized under AEC Staff Paper 43/792). It is noted that Edward L. Nicholson, Jr., ORNL, acted as substitute for F. R. Bruce in classified discussions with C. M. Nicholls, AERE, Harwell, on the chemical processing of enriched reactor fuels. We realize, of course, that approval should be obtained prior to an individual's participation in classified discussions under the Technical Cooperation Program, but circumstances, particularly the time available, did not so permit in this case. The substitution was required on short notice, in Mr. Bruce's absence, and was necessary to provide competent technical discussion on the authorized topic.

Mr. Nicholson has an active "Q" clearance, #95115-OR, and is familiar with the limitations applying to classified discussions under the Technical Cooperation program. It is therefore requested that Mr. Nicholson's name be added to the list of ORNL personnel who participated in discussions authorized under the Staff Paper AEC 43/792.

To avoid the possibility of a recurrence of a similar incident in the future, we should review our present administrative control procedures with a view to making a stronger effort to assure the presence of listed individuals, or to anticipating the needs for such substitutions sufficiently far in advance to obtain prior approval for their participation.

ORIGINAL SIGNED BY
E. A. WENDE

for S. R. Sapirie

Enclosure:
Memo to TSW fm SRS dtd 7/21/54
(Cys 1A thru 3A)

CC: H. H. Woodruff
F. P. Callaghan
H. M. Roth

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SECURITY

W-2184 *inclair:dro*

OFFICE	ORR ORR ORR	Security	ORR	Dep. Dir.
SURNAME	Sinclair, Alford, Cope	Nicholson	Roth	<i>[Signature]</i>
DATE	7-19-54 7-19	7-19-54	7/20/54	7/20

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No. 13 of 25 copies, Series B

ASSUMPTIONS FOR PREPARATION OF FY 1955 MIDYEAR REVIEW
AND FY 1956 BUDGET REVIEW
PROGRAM 6000: BIOLOGY AND MEDICINE

OCT 3 1954

General

Operating levels for the Biology and Medicine program will essentially be stabilized in FY 1956 with no substantial expansion over the 1955 level. Program increases are to be incorporated only on the basis of newly created requirements of particular and urgent interest to the Commission's program.

Oak Ridge National Laboratory

Biological Research

It is assumed that the program of ORNL will be concerned with the following major studies: (1) cytogenetic effects of radiation on chromosomes in plant cells, (2) the mechanisms of gene mutation and gene action shown by radiation of virus, yeast cells, and fungi, (3) radiation effects on growth and metabolism, (4) protection from radiation injury by reduced oxygen and chemicals, (5) genetic effects shown in the offspring of mice subjected to acute, to chronic and to fractionated doses of radiation, (6) developmental injuries occurring in mice from radiation during pregnancy, (7) physiological and pathological effects of ionizing radiation in mammals including the incidence of cataract, (8) RBE of neutron irradiation, LD/50 for neutrons, leukemias induction, and effects on the eye and blood-forming tissues by neutrons with special reference to information basic to general Commission interest and the ANP program, (9) biochemical studies of nucleic acids, enzymes and energy transfer systems, (10) special problems in plant biochemistry pertaining to photosynthesis and the biosynthesis and utilization of organic acids and sugars, (11) biophysical problems such as permeability and ion exchange.

The level of activity in man-years is expected to continue at approximately the present level.

Biophysics Research

This program is expected to continue at the 1955 level with emphasis on the following:

1. Theoretical and nuclear radiation physics as it relates to the behavior of radiation in absorbing media, leading to improved understanding of shielding phenomena and of radiation effects in biological materials.

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Biophysics Research (Cont'd)

2. Studies on levels of radioactivity in nature, with emphasis on trace elements in human organs, as a contribution to the problem of permissible dose, including the development of suitable techniques.
3. Experimental methods for radiation measurements, including bioassay procedures and special requirements for bomb test studies.
4. Studies of airborne radioparticulate contamination, particularly those resulting from new reactor operations on the site.
5. Radioactive waste disposal research, as related to water decontamination, build-up of radioactivity in streams with attendant ecological effects on organisms in the area, and behavior of high-level wastes disposed of to the ground.
6. Health physics training program in cooperation with ORINS.

Special Training

The assumption is that the Laboratory will continue to meet the needs of the Commission, Military, and others for special training in the biomedical research and health fields through the establishment of courses as required.

Oak Ridge Institute of Nuclear StudiesCancer Research

The teletherapy development program will be in full swing in 1956 with, it is hoped, a 5,000 to 6,000 curie radiocesium source available to replace the 1,500 curie one received in the spring of 1954. Insofar as is consistent with the personnel and facilities available, work on the development of small sources and devices for therapeutic applications of radiation will be undertaken.

It is also expected that this program will continue to give strong support in the field of applications of atomic energy in cancer research to the various affiliated southern medical schools, through the ORINS residency program, and by other means. No significant change in the personnel nor funds available to this program is anticipated over and above that currently planned for 1955.

Vocational Training Program

The industrial hygiene fellowship program is expected to continue with the award of approximately eight fellowships each fiscal year.

Vocational Training Program (Cont'd)

It is anticipated that the radiological physics fellowship program will continue with an estimated 75 new awards and not in excess of one-third for renewal awards, or at approximately 100 fellow man-years.

Special Training

The assumption is that the ORINS graduate program, research participation program, and special training programs will continue at approximately present levels.

University of Tennessee

Biological Research

The assumption for the UT-AEC project is that work will continue at about the same level of activity as for FY 1955. Particular attention will be given to distribution and retention in domestic animal tissues, the effects on health and the implications of contaminated food and water supplies in connection with those radioisotopes in radioactive fallout material which may be of particular hazard. Nutritional studies, primarily with Ca^{45} , in regard to problems of skeletal formation and milk secretion will be continued and directed along lines aimed at providing the basic data needed for the fission product work. Observations will be continued on grazing animals carrying known body burdens of Ca^{45} , Sr^{90} and perhaps radium, for evaluation of maximum permissible tolerances. External irradiation studies with domestic animals will be continued along lines of effects of single and fractionated doses on pathological response, fertility and growth.

Oak Ridge Area

Biophysics Research

The meteorological program will be continued at the FY 1955 level and the telemetering network will be in operation.

Radioisotope Distribution

Cancer Research

Distribution of radioisotopes for cancer research with Commission support of 80% of the catalogue price will be continued at the level necessary to meet all requests.

Special Training

The program of providing radioisotopes on a loan basis to municipalities and states for civil defense training will be continued.