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Radiation Laboratory Administrative Progress Report for Month of October 1947.

A. Personnel.

1. The following non-professional personnel were added to the Laboratory rolls during the month:

Sabransky, F. A.	Chief Clerk	CAF-6
Twist, Carolyn S.	Phys. Sci. Aide	SP-4
Wolters, M. E.	Eng. Drftsmn	SP-5
Ashler, Hilda	Phy. Sci. Aide	SP-6

The following non-professional personnel resigned from employment at the Radiation Laboratory during the month:

Mohr, R. E.	Clk-Typist	CAF-2
Allen, F.	Mngr.	CPC-3

2. The following additional non-professional positions were allocated to the Laboratory during the Month:

Rate	Title	P.D. No.
SP-8	Engineering Aide (Electronics)	4877
SP-8	Engineering Aide (Electronics)	4878
SP-6	Physical Science Aide (Physics)	4869
SP-5	Biological Aide	4895
SP-2	Biological Aide	4896
SP-4	Physical Science Aide (Chem)	4872
SP-4	Physical Science Aide (Chem)	4873
CAF-4	Procurement Clerk	4876
CAF-3	Procurement & Supply Clerk	4892
CAF-3	Procurement & Supply Clerk	4893
CAF-3	Procurement & Supply Clerk	4894

The following additional professional positions were allocated to the Laboratory during the month:

Rate	Title	P.D. No.
P-3	Scientific Research Admin.	4875
P-3	Electronics Engineer	4887
P-4	Biologist	4898
P-3	Biologist	4880
P-3	Biologist	4879
P-2		
P-4		
P-3		
P-3		

(ENCLOSURE A)

3. At the present time the Laboratory has reached a total of thirty professional personnel on the rolls. Letters to the Bureau of Ships requested approval for establishment of additional positions in the Laboratory, increase of the total civilian employment of the Laboratory to one hundred of which fifty-five would be professional, and establishment of a ceiling for the Laboratory separate from that of the Shipyard. In response, the Bureau advised that favorable action on the several requests was being withheld until Dr. Sullivan assumed his duties as technical director and consolidated the program. It is not clear whether the Bureau of Ships intended this letter to place a ban on further hiring or merely the establishment of additional key positions. Clarification has been requested.

4. As noted above, the Bureau of Ships has approved the position of Technical Director P-8 as conforming to the program requirements. Further, the Area Wage and Classification Board has allocated the position as described as P-8 to the Laboratory.

5. A favorable endorsement was placed by the Bureau of Ships on the request for establishment of thirteen officer billets in the Radiation Laboratory. The letter of request has been forwarded to the Chief of Naval Personnel via the other interested Bureaus. It was noted, however, that the Bureau of Ships indicated no permanent billets could be assigned for enlisted personnel in the Laboratory. The enlisted personnel assigned to the Laboratory have been performing an essential function as technicians in Biology and Electronics and were considered in specifying the overall personnel requirements. Since these men were considered as being available in the overall requirements for laboratory technicians, it will be necessary to set up positions for additional civilian technicians positions to replace the enlisted billets proposed.

6. In order to set up a proper health physics program for the Laboratory and to provide necessary monitors, three positions for health physics safety inspectors, one CAF-9 and two CAF-7 have been requested for allocation to the Laboratory.

B. Security.

1. The first "Q" clearances for personnel of the Laboratory staff have been received. Personnel cleared are Comdr. J. J. Fee, USN, Lt. E. C. Vicars, USN, and Dr. E. T. Hawes. This is a considerable step towards progress since it is now possible to receive AEC classified information and to discuss restricted data matters with representatives of AEC and their contractors at Berkeley. In fact, steps are currently in progress to obtain the first restricted data documents by local transaction.

2. In order to establish direct liaison with AEC representatives, the final remaining step is to prepare for joint approval by the Navy Department and AEC the proposed procedures for cooperating with and obtaining the assistance of the Berkeley Area representatives of AEC and its contractors. A rough draft of the proposed procedures for liaison has been prepared and is under discussion for conformance with established inter department policies prior to formal submission.

C. Facilities and Funds.

1. Necessary improvements were commenced this month to equip Buildings 506 and 507 to be utilized properly for prosecution of the assigned program. These improvements and installations are being accomplished under the authority of BuShips conf. ltr NY9-1 of 18 November 1946 from funds allocated from BuShips Project 595/46.

2. With the termination of expenditures against Project 595/46 as of 15 November as specified by the Bureau of Ships, the funds for the balance of the improvements indicated above must be provided from some other source if the work is to be completed unless an extension of the termination date of expenditures against BuShips Project 595/46 can be granted. This matter has been made the subject of a dispatch request to the Bureau of Ships.

3. The termination of further expenditures against 1946 Bureau of Ships Projects has also eliminated the immediate prospects of occupying the fourth floor of Building 351 prior to allocation of the funds for the complete building alteration. This fact renders even more important the completion of existing facilities, since it is now apparent that a period of approximately eighteen months will elapse before Building 351 can be made ready for the Radiation Laboratory. This latter statement is based upon an estimate of at least twelve months after funds are allocated to let contracts and complete necessary construction work prior to full occupancy of the spaces.

4. At the present time the press for space in Building 506 is so great that it is clearly necessary to move the administrative offices elsewhere in order to make the entire building available for chemistry and biology. The best current prospect for this move is the second floor of Building 500 which is the B.A.E. The second floor of this building is unoccupied and can accomodate the administrative spaces with a minimum of changes and delay. The rooms can be used for office spaces without alteration, and the building has a recreation room ideally suited for a library and conference room without alteration. Finally, the building is in close proximity to the other buildings occupied by Laboratory facilities (506, 507, 510).

5. Permission has been granted the Laboratory to utilize Building 701, a temporary Supply Department storehouse, designated for ultimate destruction, for a period of 120 days. Assignment of this building solves temporarily a very pressing problem of space for shop stores.

D. Consultants and Contacts.

1. Rear Admiral C. D. Wheelock, Deputy Chief of the Bureau of Ships, inspected the Laboratory facilities on 24 October.

2. Lt. Comdr. E. A. Hopkins, USN, and Mr. Harvey Hall of the Bureau of Aeronautics visited the Laboratory on 7-9 October. They inspected the future plans and programs of the Laboratory. Many valuable comments and suggestions with regard to the planned program were offered. In addition the matter of

expenditure of Bureau of Aeronautics funds in the Laboratory was clarified. Also, advance information was furnished regarding the new Bureau of Aeronautics project to be assigned the Laboratory for study of contamination and decontamination characteristics of aircraft components.

3. Captain Oscar Schneider (MC), USN, of the Bureau of Medicine and Surgery visited the Laboratory during the period 13-15 October and also from 21-24 October on his return from Hanford Engineer Works. During his stay Captain Schneider discussed in considerable detail the Radiological Health and Safety Program and furnished considerable information on film badges, health physics, personnel and Bureau of Medicine and Surgery matters.

4. Comdr. E. J. Hoffman, USN, of the Bureau of Ships visited the Laboratory during the period 27-29 October. Many of the detailed administrative and technical problems of the Laboratory were discussed with Comdr. Hoffman. Among these were personnel, funds, projects, facilities, organization and reports.

5. Dr. Riley D. Housewright and Dr. Frank R. Olson of Camp Detrick, Frederick, Md., visited the Laboratory on 20 October for discussion of mutual problems with Dr. Holden, Dr. Conard and Dr. Kline of the Laboratory staff.

6. Dr. William H. Sullivan, prospective Technical Director visited the Laboratory during the period 8-12 October. Discussions of the entire Laboratory program were undertaken in as much detail as time permitted during Dr. Sullivan's visit. Arrangements were made at that time also for close and continuing contact with Dr. Sullivan during his time away from the Laboratory. The items of especial importance on which Dr. Sullivan was consulted were technical program organization, over-all organization, personnel qualifications and hiring, design of facilities, procurement of equipment, establishment of technical library, supply and procurement system, relations with AEC, acquirement of restricted data documents and isotopes and details of projects. As a result of these conferences, much of the Laboratory program is being consolidated and reorganized.

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Radiation Laboratory Technical Progress Report for Month of October 1947.

A. Facilities.

1. The detailed layout for the fourth floor and certain spaces of the mezzanine floor of Building 351 to meet the anticipated requirements of the Physics and Electronics groups and the animal autopsy and laboratory facilities has been completed. Due to the curtailment of funds necessary to effect this work, however, these plans will be with-held until such time as the detailed layout for other spaces has been completed. At that time, allocation of funds for the entire building will be requested.

According to recent information promulgated by the Shop Superintendent, Building 351 will be available to the Laboratory according to the following schedule.

(a) First floor	1 December
(b) Second floor	8 December
(c) Third floor	16 December
(d) Fourth floor	29 December
(e) Mezzanine floor	29 December

Dates of availability as given by the above schedule are in advance of those previously anticipated and will make possible the commencement of building modifications somewhat earlier than expected. It is estimated that completion of the entire conversion project preparatory to final occupancy by the Laboratory will be approximately twelve months from the date of commencement of work.

A survey of machine tools now installed on the fourth floor of Building 351 has been conducted in order to determine the number of tools required to replace those which will be removed and others desired to meet specific needs envisioned by the Laboratory. These requirements are being met insofar as possible by request to Mare Island Naval Shipyard for machine tools declared surplus at that activity.

2. The alterations for Building 506 to create additional radiochemical and medical biological facilities was commenced during the second week of October and has since progressed very satisfactorily. The design scheme of the building interior has been to provide groups of two adjacent laboratories with one hood interposed between them to be utilized jointly. In so doing, considerable space, time and expense has been saved. According to the progress to date, it is anticipated that the first of the new spaces will be completed about 15 November with additional units and counting facilities to follow shortly thereafter. The entire program has been assigned highest priority by the Shipyard in order that the interruption to normal operations of the Laboratory would be held to a minimum.

3. Alterations to Bldg. 507, Decontamination Center, continues to progress satisfactorily. This work is approximately sixty percent completed with an expected completion date for the new change house facilities given as 27 Nov.

(ENCLOSURE 3)

The animal quarters in this building will be completed about 15 November, pending the arrival of air conditioning equipment in the meantime. The remaining available space in this building is being considered for use by dosimetry facilities and related radiological safety functions.

4. An additional yard supply structure, Building 317, was acquired during October by the Laboratory to provide temporary animal quarters prior to moving into Building 507, and is being used for animal breeding. This building is of a temporary type and will not be required subsequent to the move to Building 507.

5. In order to provide storage facilities for items of general laboratory nature and permit the ordering of larger quantities of consumables, Building 701, also a supply building, has been acquired and is being pressed into immediate use by the Supply Section of the Laboratory.

6. With a view toward additional administrative spaces outside of Building 506, a survey of yard buildings in the near vicinity of the laboratory is now being conducted. An optimum arrangement would be that of devoting all of Building 506 to research laboratory spaces with the administrative facilities now located in Building 506 removed to another location until such time as Building 351 can be made available for occupancy. In view of the increase in scientific personnel on hand as well as the security classification of their work, this arrangement is considered to be the most satisfactory during the interim period prior to completion of alterations to Building 351.

B. Personnel.

1. During the month scientific personnel reported as follows:

Dr. Edward B. Sanigar	P-5 Chemist
Dr. Wesley K. Shelberg	P-4 Chemist
Mr. Leon Leventhal	P-3 Chemist
Dr. James D. Hauschildt	P-4 Biologist
Mr. Neil A. Marshall	P-4 Physicist
Dr. Leontine Goldschmidt	P-2 Biologist
Mr. Justin J. Shapiro	P-3 Biologist
Mr. Robert H. Pullen	P-3 Physicist

Dr. Sanigar has been assigned to assist the biological section in setting up a laboratory for applications of physico-chemical techniques to biological problems. Dr. Sanigar has also been assigned to organize the library. Dr. Shelberg is engaged in planning and setting up an organic chemistry laboratory. Mr. Leventhal has been assigned to assist in the dise program. Dr. Hauschildt has been assigned to set up a biochemical laboratory for assisting in the health physics activities at the Laboratory. Mr. Pullen has been assigned to coordinate the portable survey instrument program.

2. Only two offers of employment are outstanding. Mr. Norman L. Mauroner is expected to report 5 November as a P-2 Biologist. Mr. Gonzalo Segura, who was expected to report last month, failed to report; and his status is unknown.

3. Under active consideration at the grades indicated are the following personnel:

Dr. Alexis A. de Yakimac	P-5 or P-6 Chemist or Biologist
Miss Sally Hesson	P-2 Librarian
Miss Inez O'Brien	P-3 Chemist
Dr. Edward M. Shapiro	P-6 Chemist
Mr. John A. Miller	P-4 Chemist
Miss Jeanne B. Cole	P-2 Chemist
Mr. Stanley R. Meyer	P-4 Chemist
Dr. Jerome J. Rowland	P-5 Chemist
Dr. William H. Sullivan	P-8 Technical Director
Dr. Eugene Roberts	P-5 Biologist
Mr. William L. Chandler	P-4 Biologist
Mr. L. R. Bennett	P-5 Biologist
Dr. Manual F. Morales	P-5 Biologist
Dr. Maurice C. Fishler	P-6 or P-7 Biologist
Mr. Raphael E. Maiers	P-3 Biologist
Dr. Robert Hall	P-5 Biologist
Dr. Alfred Marshak	P-7 Biologist

Dr.'s Hahn and Nickson, listed last month as active candidates, are no longer under consideration.

There are approximately twenty other candidates under consideration who are not listed because of insufficient time to develop more information on their qualifications. Dr. Sullivan is expected to present a new list of candidates and comment on the above list of candidates on the occasion of his visit to the Laboratory early in November.

C. Laboratory Research and Development Work.

1. The following projects were completed during the month.

(a) Radiochemical analysis of a paint sample from the Navy aircraft T2M-3E, Bureau No. 69169, has been completed. The findings will be submitted in report form outlining probable average contamination for alpha and beta activity per square foot of the airplane. Early difficulty in the handling of this sample due to the interference of other elements contained in the paint will be made the subject of further study in order to establish more direct techniques to meet future needs.
(b) A prototype 263 survey instrument incorporating necessary modifications for humidity proofing has been shipped to RadSafe Kwajalein for field operational evaluation.
(c) A filter paper sampler of the design advocated by the Bureau of Mines for sampling of air has been manufactured within the Laboratory for possible use in the rapid analysis of air for radioactive contaminants.

(d) The report of weekly versus daily use and development of film badges has been completed. It has been determined that under conditions whereby the gamma ray exposure is near the low limit of detection by film badge methods that weekly integration of exposure is the more accurate and reliable method.

(e) A preliminary report of the relationship between dust particle size and radioactivity has been completed and provides data relating the increase of activity with respect to decrease in particle size. This study will continue with ultra microscopic dust sizes upon receipt of necessary equipment.

(f) A simplified method for the laboratory calibration of counting-rate meters has been developed and will be made the subject of a forthcoming laboratory report.

(g) The preliminary planning for the surface contamination and decontamination study has been completed. Liaison between the Radiation Laboratory and the Bureau for the fabrication and shipment of samples is to be effected according to directives outlined by the Bureau. Plans for the "hot lab" have been completed and necessary equipment ordered.

(h) The study of beta-gamma hazard existing in contaminated clothing has been completed and a report will be submitted. The alpha hazard study of this clothing has been delayed pending the arrival of portable alpha survey meters.

(i) An interim report of the autoradiographic techniques to be employed at the laboratory by the biological medical groups has been completed.

2. Work proceeded during the month on the following projects.

(a) Radiochemical assay of plastic paint from the ballast tanks of the USS PARGUE is being conducted in order to determine the procedures to be adopted for production decontamination.

(b) Procedures for the handling of fission product analyses within the laboratory were continued looking toward simpler methods of analysis in accordance with existing requirements.

(c) Experimental monitoring of the USS INDEPENDENCE is being continued. All readings of the ships' interior have been completed with work on the hull above the water line being effected at the present time. Monitoring of the underwater body will be effected subsequent to drydocking on about 20 November.

(d) An experimental laboratory and field dynamic tube testing unit has been constructed for the testing of high voltage Geiger-Mueller tubes, VG series Geiger-Mueller thin-window tubes and the VX 41 and VX 33 tubes. A Laboratory report will be submitted upon completion of tests now being conducted.

(e) In an effort to extend the operational life of high-gain linear amplifiers used in conjunction with Laboratory alpha counters, the characteristics of the Raytheon type 6AK5--R tube in lieu of the Raytheon Type 6AK4 are being investigated, as a possible contribution towards longer service for the amplifier units.

(f) Laboratory tests of the ex-target ventilation systems are continuing. Duct velocities of the order of 100 feet per minute were obtained by connecting four blowers in series but were inadequate for the transport of dust. This condition was determined by placing a known amount of radioactive dust into a system other than the ones to be tested quantitatively and operating the blowers. This test failed to move the radioactive dust in any detectable amounts. It has been suggested that another possible method for positive recovery of dust from the ventilation systems would be that of increasing the filter paper area sufficiently to permit passage of high velocity air and dust. This approach involves few additional modifications to the present system and is under test at the present time.

(g) Fecal and urinary specimens of wild rats removed from the ex-target vessels have been collected and the determination of Pu and fission product excretions is continuing.

(h) The animal studies of gastro-intestinal absorption of radioactive dust taken from Bikini target vessels have cleared the planning stage and laboratory experiments have been initiated.

(i) Considerable success has been experienced from the attempts to construct an alpha scintillation counter for laboratory use. An assembly for routine use within the clinical section of the laboratory will be completed during the first week of November. It is apparant that this counter will offer many advantages including the detection of alpha in the presence of high background of beta and gamma, high counting efficiency for wide range of intensities and freedom from electromagnetic disturbances.

(j) Photographic investigations of the aging and fading of the latent images observed in the study of alpha tracks are progressing satisfactorily. Processing of unbacked emulsions utilized in this study has improved through the use of specially designed clamps to assist in the handling of the material with further studies continuing.

(k) Troubles met with cloud chamber operation have not been entirely eliminated. The chamber has recently been disassembled, cleaned and reassembled. Tracks have not been observed as yet but further operations will be conducted.

(l) Schematic drawings of proportional probes for air monitoring have been obtained from the University of California Radiation Laboratory and local fabrication is being initiated.

(m) Various lead-castle designs are being studied with respect to constant geometry, minimal or constant back scattering and sample and absorber holders. A standard design for the laboratory will be the result of this study.

Miscellaneous.

(a) Continued shortages of high voltage GM tubes for the 263 survey instruments has severely reduced the number of instruments available for the experimental monitoring groups. The procurement of several high voltage tubes from the USS CHILTON has relieved the situation momentarily.

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Radiological Health Section Progress Report for Month of October 1947

1. SUMMARY OF ACTIVITIES OF THE RADIOLOGICAL HEALTH SECTION

(A) Radiological Safety

(1) Physical Examinations

(a) 134 initial physical examinations and 50 recheck examinations were made by the Radiological Safety Health Officer at this activity. 32 physical examinations were given to students at the Damage Control School at Treasure Island.

(2) Inspections

(a) Weekly inspections of all radiological facilities were conducted from the standpoint of radiological safety. There were no major discrepancies noted.

(3) Facilities

(a) Work is proceeding satisfactorily on the remodeling of the Decontamination Center (Bldg. 507). The temporary arrangement of using the second deck for decontamination while the first deck is undergoing revision seems to be entirely adequate.

(4) (a) Lectures on Radiological Safety have been given once a week to shipyard personnel who are directly concerned with shipboard radiological hazards.

(b) The Radiological Safety Office is also under additional assignment to deliver lectures to personnel attending the Radiological Safety, Damage Control School at Treasure Island. Eight hours of these lectures are given per week.

(B) Dosimetry

(1) 330 film badges have been developed. No overdoses were noted.

(2) Type 1 film is now being delivered here directly from the manufacturer rather than being sent to the Naval Medical Center first. This film has been calibrated and is now being supplied to requesting activities.

(3) The photodosimetry division will move to a new location on the second deck of the Decontamination Building about the 15th of November 1947. It is expected that this new location will facilitate the dispensing of film badges to workers and aid in the procurement of needed data from them at the close of each working day.

(ENCLOSURE C)

(4) The manual on Photodosimetry has been rewritten and will soon be made available for use in the training of X-Ray students in photodosimetric methods at the X-Ray school of the National Naval Medical Center, Bethesda, Maryland.

(C) Clinical Radiochemistry

(1) The services facility of the Clinical Radiochemistry Section now offers the following analyses; Plutonium, fission products aggregate, Strontium, Yttrium, Ruthenium, Rhodium, Cerium, Praseodymium, and Zirconium.

(2) Analyses have been done for the biological section on carcasses of wild rats for Plutonium and fission products aggregate and excreta examined. Fifty-five urine samples are being analysed for Plutonium and fission products. A manual is under preparation for training personnel in clinical radiochemistry procedures. Alpha counting with a 0.3 milligram per square centimeter nylon end window tube counter used as a proportional counter is progressing.

(D) Training

(1) Training of the Bureau of Medicine and Surgery personnel in laboratory procedures is continuing. This training is in addition to the course given by Doctor Perlman of the University of California in Radiochemistry on Thursday evenings.

2. Captain O. Schneider (MC), USN, visited this laboratory during the past month and inspected facilities. He discussed Radiological Safety matters and much valuable information was imparted as a result of Captain Schneider's visit to Hanford and Los Alamos, particularly as to health-physics facilities.