

SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO 24, CALIFORNIA

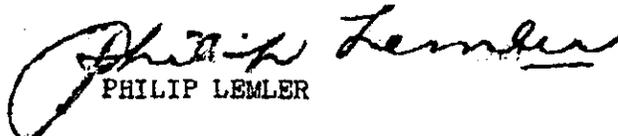
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29 December 1947

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From: Commander, Naval Shipyard, San Francisco
To: Chief of the Bureau of Ships (Code 400-689)
Chief of the Bureau of Medicine and Surgery (Code 74)
Chief of the Bureau of Aeronautics (Code AE45)
Chief of the Bureau of Yards and Docks (Code D4)
Subj: Monthly Progress Report of Radiation Laboratory for Month of
November 1947; Submission of.
Ref: (a) BuShips-BuMed SECRET ltr S(99) BuShips ser. 005800, BuMed
ser. 005001 of 18 Feb. 1947.
Encl: (A) Radiation Laboratory Administrative Progress Report for
Month of November 1947.
(B) Radiation Laboratory Technical Progress Report for Month
of November 1947.
(C) Radiation Laboratory Radiological Safety Progress Report
for Month of November 1947.

1. Enclosures (A), (B) and (C), reporting progress of the Radiation Labora-
tory for the Month of November 1947 are submitted herewith in compliance with
reference (a).


PHILIP LEMLER

Declassified
NND project # 22130
By HRM/RG/NARA date 7/31/02

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Radiation Laboratory Administrative Progress Report for Month of November 1947.

A. PERSONNEL

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

Miss Betty D. Bosler	Clerk-Typist	CAF-2
Mr. Walter S. Jones	File Clerk	CAF-2
Mr. B. F. Donovan	Admin. Ass't	CAF-9
Mr. Willie McCoy	Messenger	CPC-3
Mr. Duane O. Rubadeau	Ph. Sci. Aide (Chemistry)	SP-4

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

<u>Rate</u>	<u>Title</u>	<u>P.D. No.</u>
SP-8	Engineering Aide (Elect)	4901
SP-8	Engineering Aide (Elect)	4902
CAF-9	Safety Inspector	4908
CAF-7	Safety Inspector	4909
CAF-7	Safety Inspector	4907

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

<u>Rate</u>	<u>Title</u>	<u>P.D. No.</u>
P-1	Chemist	4904
P-1	Chemist	4905
P-2	Chemist	4906
P-2	Electronics Eng.	4903

3. The Bureau of Ships has indicated that there is no ceiling other than the normal Shipyard ceiling for Laboratory personnel, professional or non-professional. The Bureau also stated that positions at the Laboratory specifically authorized by Dr. Sullivan would be favorably considered for approval. The practice of obtaining Dr. Sullivan's approval on all new positions and on all candidates for employment has been established.

4. It is currently desirable for all new position descriptions to be written and some existing above the P-3 level to be rewritten with the view of making them more specific as to the duties and as to the skills and backgrounds required. Rewriting of position descriptions in this manner immediately suggests that new names for some of the professions may be necessary. This point will be discussed with the Bureau on the occasion of Comdr. Fee's December visit to Washington.

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B. SECURITY

1. In accordance with BuShips letter, S99-(O)(689) of 20 November 1947, the Local Area Manager of the Atomic Energy Commission has been contacted regarding special security measures to be incorporated by the Laboratory prior to the transfer of certain radioactive isotopes to the Laboratory. Based on the recommendations given by the Local Area Manager, the Laboratory has requested that the Shipyard install the additional safeguards necessary.
2. Additional requests for "Q" clearances for certain key laboratory personnel have been submitted to the Bureau of Ships.

C. FACILITIES AND FUNDS

1. Improvements on Bldg 506 and 507 are still proceeding. The spaces most urgently needed for carrying out the laboratory's program are scheduled for completion about 1 February.
2. Recent developments have indicated that all administrative offices and storerooms in Bldg 506 should be moved elsewhere in order to make available further space for laboratories and for a minimum of offices for the principal associates. On the basis of consultations with the Berkeley Area AEC security advisors, the conversion of the second deck of Bldg 500 for this purpose was considered undesirable because of inability to set up adequate security measures. The search for additional satisfactory space has centered attention on Bldg 520, the Dental Clinic, a portion of which could be incorporated into the security area surrounding Bldg 506 by proper extension of the barbed wire enclosure. The second deck of the north wing of Bldg 520 would be imminently satisfactory and, it is believed, could be made available.
3. Plans are proceeding on ultimate storage space required for the Laboratory. A preliminary estimate of the space required gave a figure at approximately 14,000 sq. ft. This space could be cut to approximately 8,000 sq. ft. by double tiering the storage spaces. This requirement is considered as permanent storage to be used after occupation of Bldg. 351, since it is believed desirable to allocate space in the main structure to laboratories and administrative offices only. In the meantime, Bldg. 701 has provided a much needed temporary storage facility and current needs are being met thereby.
4. Advance indication has been received from the Bureau of Ships that \$30,000 is to be made available under a new project to cover labor and materials incidental to radiological safety research and development. Allocation of this sum will considerably relieve the situation developed by the termination of expenditures against 1946 projects and will provide the funds which are necessary to cover expenses for alterations to Bldgs. 506 and 507 to fit them for service during the next 18 months.

D. CONSULTANTS AND CONTACTS

1. Captain R. H. Draeger, MC USN, of NMRI visited the Laboratory on 18 and 19 November and again on 24 and 25 November. He discussed with Dr. Conard and Comdr Fee a program of marine growth studies involving the effects of radiation

and radioactive substances. The program was proposed for assignment to a group at the University of Southern California under an ONR contract.

2. Lt. Comdr. Skow and Dr. Conard, between 18 and 24 November, attended a symposium at Argonne National Laboratories on the design of "hot" laboratories. Many suggestions valuable in preparing final plans for the hot laboratory in Bldg. 506 and laboratories in Bldg. 351 were obtained.

3. Lt. Col. W. S. Cowart, USAF, from AFSWP, visited the Laboratory on 19 and 20 November to discuss details of the Radiological Safety Program and to become familiarized with the Laboratory's organization and program.

4. Dr. William H. Sullivan, prospective Technical Director, visited the Laboratory between 11 and 16 November. His principal efforts were devoted to detailing, as far as time permitted, the 12-point program to implement the Laboratory's mission. He was brought up to date on the situation with respect to candidates for scientific positions, and arrangements were made for his approval of all such candidates prior to making offers. His suggestions on expansion of Laboratory facilities and plans for Bldg. 351 were obtained for use on the planning being done. While the 12-point program is still subject to further detailing, the programmatic research and development of the Laboratory is sufficiently well defined for informal presentation to the Bureaus and will be outlined in general by Comdr. Fee and Dr. Sullivan during their visit to Washington in early December.

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Radiation Laboratory Technical Progress Report for Month of November 1947.

A. FACILITIES

1. Planning for the maximum utilization and optimum space assignment for Bldg. 351 continues to be an extremely important phase of the Laboratory planning. Discussions at the present are concerned with the possible extension of the present mezzanine to include all but a thirty foot by thirty foot area under the present tower. By thus increasing the size of the fifth floor (or mezzanine), additional spaces can be made available for biological laboratories as well as to insure adequate quarters for animal colonies. Also under consideration for incorporation in the Laboratory plans are "model" chemical and biological-medical laboratories designed in conformance with the latest approved concepts of radiological laboratories. In this connection, it is considered that false ceilings with flush-fitting light fixtures and services introduced from above will contribute toward minimizing surface area and reduce the possibility of Laboratory contamination.

2. The alterations to Bldg. 506 for creating additional radiochemical and medical-biological facilities has now provided two laboratory spaces and two counting rooms with the remaining facilities entering the final stages of completion. Certain necessary equipment such as air compressors, a vacuum pump, and exhaust fans for the fume hoods have been placed on order and upon arrival will allow the completion of the building alterations and full use of the laboratories for carrying out necessary research. The laboratory facilities which are to become available upon completion of the present alterations will provide fourteen laboratory working spaces, two counting rooms and a balance room in Bldg. 506; this arrangement is considered sufficient for the present, but must be supplemented in the near future with laboratory facilities for the handling of relatively hot solutions encountered in certain of the decontamination experiments.

3. Alterations to Bldg. 507, Decontamination Center, are still in progress and approximately ninety percent complete. A revised completion date of 23 December has been given by the Shipyard for this project. The animal quarters in the same building are about eighty percent complete and can be finished upon arrival of the necessary air conditioning equipment. The order for air-conditioning equipment has been placed locally with a promised delivery date of 20 December.

B. PERSONNEL

1. During the month scientific personnel reported as follows:

Mr. Norman L. Mauroner	P-2 Biologist
Miss Sarah B. Wesson	P-2 Librarian

2. Only two offers of employment are outstanding. Mr. Charles P. Evans is expected to report 2 December as a P-3 Electronics Engineer. Mr. Gonzalo Segura has failed to report and his status is unknown, no communication having been received from him since early in September

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

Miss Inez O'Brien	P-4 Chemist
Mr. John Seiler	P-4 Chemist
Miss Jeanne D. Gile	P-2 Chemist
Mr. Stanley W. Mayar	P-4 Chemist
Dr. Jerome J. Howland	P-5 Chemist
Mr. Irving Bubes	P-4 Chemist
Dr. Norman E. Ballou	P-5 Chemist
Mr. Harvey E. Matthiesen	P-4 Chemist
Dr. Raymond W. Stoughton	P-6 Chemist
Dr. Donald J. Kimmeldorf	P-3 Biologist
Dr. Maurice C. Fischler	P-6 Biologist
Dr. Eugene Roberts	P-5 Biologist
Mr. John C. Pirsch	P-1 Biologist
Dr. Irving Abrams	P-4 Chemist
Mr. William L. Chandler	P-3 Biologist
Mr. Raphael E. Maiers	P-3 Biologist
Dr. Robert Hall	P-4 Biologist
Mr. Richard A. Obenland, Jr.	P-1 Biologist
Mr. Mitchell A. Melnick	P-2 or P-3 Biologist
Mr. Leonard Jay Cole	P-3 Biologist
Dr. Alfred Marshak	P-6 or P-7 Biologist
Mr. Ernest L. Dobson	P-6 or P-7 Biologist

C. LABORATORY RESEARCH AND DEVELOPMENT WORK

1. As a result of the building alterations underway during November, the chemistry and biology group worked in very limited facilities and retrenched somewhat during the month to allow ordering of replacement consumable supplies as well as the necessary equipment and supplies for the new laboratory spaces.

2. The following projects were completed during the month:

(a) The monitoring of all target vessels at Pearl Harbor, Puget Sound and San Francisco has been completed excepting the monitoring of the underwater body of the USS INDEPENDENCE. The drydocking of this vessel has been postponed until approximately 1 January 1948.

(b) A study of the failure of components of the Victoreen 263 survey meters over the period from July through October has been compiled and will be submitted in report form.

(c) Several parallel-plate air filled alpha chambers have been constructed by the laboratory utilizing detail plans received from Los Alamos. These instruments will contribute substantially toward fulfillment of the laboratory instrument requirements for the present time.

(d) The Geiger tube filling apparatus has been completed and is in operation. Results have been very satisfactory and have enabled the Laboratory to become more nearly self-sufficient in the important function.

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- (e) The preliminary alpha scintillation counter has been completed and is in daily use by the clinical radiochemistry group. Reproducibility checks are continuing by means of extended time counting rate tests.
- (f) The cloud chamber has been placed into successful operation and is now available for laboratory study of pertinent nuclear reactions.
- (g) A survey of portable instruments manufacturers' data has been assembled by the Laboratory preparatory to the evaluation of certain available new instruments. A full report of types and makes of instruments involved will be submitted in the near future.
- (h) Procurement information has been received for the electrophoresis apparatus and ultracentrifuge required for radiobiology research.

3. Work proceeded during the month on the following projects:

- (a) The radiochemical analysis of the plastic paint from ballast tank of the USS PARCHE was continued. A spectrographic analysis indicated that titanium was present and required additional procedures to be incorporated in the radiochemical assay. Instructions have been issued to sandblast this paint from the ballast tanks in view of monitor readings which indicated high levels of activity, but the assay will be continued and it is expected that the methods developed will be applicable to similar analysis of plastic paint on the USS DENTUDA.
- (b) Basic procedures for the assay of radioactively contaminated fuels are being developed to provide the laboratory with carefully developed analytical methods for future service and research requirements.
- (c) Evaluation of the characteristics of the Victoreen pocket minimeters is being investigated by the Health Physics Unit for use by the Laboratory and the Navy.
- (d) Preliminary operational tests of the experimental laboratory and field type dynamic tube test units have indicated very satisfactory performance in the testing of Mark 1 Model 10 high voltage GM tubes, Victoreen VX41 and VX33 tubes and Mark 15 low voltage GM tubes.
- (e) A library survey of all articles and data in the open literature on tracer work in organic and biochemistry, and organo-metallic complex compounds was initiated by the organic chemistry section. This information is of particular value with respect to planned medical studies as well as the overall decontamination program.
- (f) Collection of air samples in areas in and about the docks adjacent to the target vessels has been continued. Present sampling device in use is the electrostatic precipitation unit. It is contemplated that additional collections with filter queen equipment will be made also.
- (g) The study of weekly versus daily use and development of film badges is being extended to include data obtainable from controlled conditions incorporating known sources of activity and exposures of films to radiation intensities comparable to those now existing on the target vessels.
- (h) Several Coryell Castles are being fabricated by the Shipyard for Laboratory evaluation and possible standardization.

- (i) Constant geometry sample holders are being fabricated by the Laboratory in conformance with design specifications set by the adoption of standard contamination and decontamination samples.
- (j) Design data for local construction of health physics instruments such as four-fold hand counters, laundry probes, shoe probes, etc., have been obtained and several experimental instruments are being constructed.
- (k) Additional surveys of the usable equipment and material aboard target vessels are being conducted, including the removal of certain equipment for evaluation of experimental decontamination methods. A complete report of this work will be forthcoming.
- (l) The photographic investigations of the aging and fading of the latent images observed in the study of alpha tracks indicate that serious fading is encountered at room temperature in about twenty days. This conforms earlier studies conducted by Yagoda of Public Health.
- (m) Preliminary calculations necessary to provide neutron absorption tables for engineering use have been started. These data will be forthcoming in report form for usage in connection with Naval design.
- (n) Design of special equipment for the handling and disposal of radioactive materials to be utilized in connection with the decontamination research projects such as dry boxes, storage containers, shielding devices and disposal equipment is under study for incorporation in the "hot" lab.
- (o) Laboratory tests of ex-target ventilation systems are continuing. Through the incorporation of filter holders of approximately twelve square feet of filter surface area, transport velocities of about 1,000 feet per minute have been obtained. To date, a maximum of 67 percent of the activity introduced into test systems has been collected on the filters. These tests are being conducted on systems other than those previously selected for the final tests in order to evaluate the experimental methods employed. Final tests on the "hot" system will be carried out during December.
- (p) A large quantity of dust from the USS FALLON has been received for size separation and analysis preparatory to utilization in animal ingestion studies. The dust when received was in a wet condition and arrangements are being effected for drying it in ovens aboard the USS CRITTENDEN.
- (q) Preliminary tests pertaining to the dust inhalation series of experiments have been conducted. These tests have disclosed that several modifications are required such as injection of graded particle size dust from a Binks nozzle in lieu of mechanical shakers.
- (r) Preliminary work in connection with the gastro-intestinal absorption of radioactive dust is proceeding and necessary equipment has been placed on order. Upon completion of the animal quarters this study can be assigned high priority.

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Radiation Laboratory Medical Monthly Progress Report for November 1947.

1. SUMMARY OF ACTIVITIES OF THE RADIOLOGICAL HEALTH SECTION.

(A) Radiological Safety.

1. Physical Examinations.

37 initial physical examinations and 101 recheck examinations were made by the Radiological Safety Health Officer at this activity. 7 recheck physical examinations were given to students at the Damage Control School at Treasure Island.

2. Inspections.

Weekly radiological safety inspections of all radiological facilities were conducted. There were no major discrepancies noted.

3. Facilities.

Work is about 90% completed on the first deck of the Decontamination Center (Bldg. 507). It is expected that the new change house will be in use in a few weeks.

4. Lectures.

Lectures on Radiological Safety have been given once a week to Shipyard personnel who are directly concerned with shipboard radiation hazards. The Radiological Safety Health Officer remains on additional duty at the Radiological Safety Class of the Damage Control School at Treasure Island.

(B) Dosimetry.

1. Film Readings.

381 film badges have been developed. No overdoses were noted.

2. Film Procurement.

Type K film and calibration charts are being supplied to requesting activities. There is a delay of several weeks from the time the film leaves this activity until it is delivered to the requesting activity. For that reason, it has been requested that BuMed assign a blanket priority for all shipments to the end that avoidable delay be eliminated. Verbal authority was granted to the BuMed Projects Officer while in Washington, D.C., recently.

3. Photovolt Densitometers.

Sufficient quantities of these instruments are available for all activities requiring them at present. Reconditioning of photovolt densitometers is continuing as the work load permits.

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(C) Clinical Radiochemistry.

(1) Analysis.

Radiological analysis of 55 urine samples is being finished and report will be forthcoming as soon as alpha counting is finished. The project has been slowed considerably by the availability of only two alpha counters in the laboratory. Testing and application of methods for analysis for plutonium and fission elements in clinical biological material continues with favorable progress.

(2) Services.

A source of 0.2 microgram of plutonium has been prepared in a special mount for the physics department.

(D) Training.

1. Training of BuMed personnel continues. A course of ashing procedures and counting methods has been instituted under the direction of Lt. Morrison. Dr. Morton is giving practical instruction in clinical radiochemistry techniques to rotating classes.
2. The preliminary report on Radiological Safety Regulations was reviewed by the various members of the Radiological Safety section and a report forwarded to the Bureau.
3. LtCdr Conard and LtCdr Skow attended an AEC symposium on atomic energy laboratory design in Chicago. Much valuable information was obtained at this meeting which will be of great practicable use in the immediate future in construction of the new laboratory. A visit was also made to Washington, D.C. A conference was held with Captain Behrens and Captain Schneider of BuMed on radiological safety matters. BuShips and BuAer representatives were also visited briefly.