NAVAL RADIOLOGICAL DEFENSE LABORATORY

Monthly Reports

March – November
1947

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A9-4(39616)
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APR 8 1947

RADIATION LABORATORY
SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

From: Commander, San Francisco Naval Shipyard
To: Chief of the Bureau of Ships (Code 400-689)
Chief of the Bureau of Medicine and Surgery
(Atomic Energy Group)
Attn: Rear Admiral C. J. Brown, (MC) USN

Subj: Monthly Progress Report of Radiation Laboratory for Period Ending 31 March 1947; transmittal of

Ref: (a) BuShips-BuMed SECRET ltr file S(99) Serial 005800 to Commander, San Francisco Naval Shipyard dtd 18 Feb 1947.

Encls: (A) Progress Report, Radiation Laboratory, for Period Ending
(H.W.) 31 March 1947, ADMINISTRATIVE.
(B) Progress Report, Radiation Laboratory, for Period Ending 31 March 1947, TECHNICAL.

1. Enclosures (A) and (B) comprising the first of the subject reports, are forwarded in compliance with reference (a).

PHILIP LENLER

R. G. PRESTON
By direction

CC: 100
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MAIL TO

4/8/47

"Our Sole Mission is to Serve the Fleet"

ADDRESS REPLY:
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Enc. (A)

MEDICAL SECTION
RADIATION LABORATORY
SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

~~CONFIDENTIAL~~

31 March, 1947.

PROGRESS REPORT

The first Radiological equipment available to the Radiation Laboratory consisted of laboratory type scalers, rate meters and graphic recorders. These instruments had been used at Bikini and were for the most part in poor condition after use and transportation damage in returning to San Francisco.

While little of this equipment was accurate enough for precise laboratory work even when new, it provided valuable training experience to those who were later to become professional, technical and maintenance personnel for the laboratory.

A. Prior to the establishment of present laboratory facilities, the following projects were accomplished:

1. Repair and adjustment of Scalers.
All scalers were carefully checked, repaired and restored to as good a physical and electronic operating condition as possible. It was found that the one University of Chicago Metalurgical Laboratory Beta scaler could be used for precise counting while none of the Victoreen X 327 Beta scalers ever became entirely reliable.

2. G-M Tube Threshold and Plateau Curves.
Plateau curves were run on eight Victoreen V-G Series mica window G-M tubes. This detail provided valuable experience in counting techniques to all personnel. All good tubes had average threshold of 1200 Volts, a plateau length of approximately 200 volts and a plateau slope of 0.2%-0.4% per volt. When enclosed in a two inch lead shield the background count averaged 20 Per minute for most tubes. These tubes seem to be excellent for Beta counting.

3. New Quenching Circuit for Victoreen X 327 Scalers.
The quenching circuits associated with the Victoreen X 327 scalers employed two tubes, one of which was a VX-33. The other tube was a 3-A-5 dual tube, only half being functional. The function of the VX-33 was transferred to the unused half of the 3-A-5 with the elimination of the erratic behavior caused by the VX-33. All quenching units were so modified and continue to work entirely satisfactorily.

4. Elimination of Photo-electric effect in the 263 and the X 263 portable survey meters.

Early glass wall Geiger tubes supplied for 263 and the X263 survey meters were supplied without a black laquer coating as a light shield. These tubes most generally showed a high reading when exposed to light. This photo-electric effect did not occur as frequently with the later series black coated tubes. However, too frequently, pin holes occured in the new black coated tubes and when the black covering pigment was accidently chipped or scratched in handling.

Since this condition gave considerable trouble to monitors, a laboratory study was conducted to find a suitable light shield that did not absorb beta energies detectable by the 263 and X 263 instruments. This resulted in finding a black light opaque paper which absorbed no beta energies that could be detected by the X 263. This paper is now used on all Geiger tubes whether previously black coated or not.

5. Test Circuit for Microphonics in VX-33 Tubes.

The problem of determining and standardizing the degree of microphonics tolerable in the VX-33 tubes used in the V-1 position of an X-263 has always been laboriously determined by soldering the tube in place in the instrument and checking for proper operation in normal conditions of use. A circuit was designed in such a manner that any microphonic pulse exceeding the predetermined tolerable microphonic pulse voltage would be indicated on an oscillograph or by neon flash. This makes it possible to pretest tubes prior to actual installation in the instrument.

6. Survey Instrument Developement and Improvement.

(a) The sensativity of X263 survey meters has always been unsatisfactory for reading of 0.001 and 0.002 R per 24 hours which were important in clearing non-target ships. By the use of three VX 33 tubes in parallel in the V-3 position the sensitivity was increased 10 times. The instrument construction and VX-33 tubes did not turn out to be rugged enough to maintain this order of sensativity over any considerable period of time so this developement was discarded.

(b) To avoid frequent troubles attributed to VX-33 tubes in the X-263 a circuit was designed and tested to use the two triode sections in one 3A5 tube. The grid bias cut off was normally too high in the 3A5 but by selections some lower cut offs were found and a satisfactory modified X-263 tested. With the filaments in series the "A" battery current drain was only 3 times as great as the three VX-33 tubes. Since in this circuit one dual standard tube takes the place of three special tubes, we feel this project deserves continuence.

(c) The installation of a variable trimmer condenser in the C-3 range of the X-263 greatly increases the ease and speed of calibration by avoiding the use of twisted wire pairs. The latter do not seem to remain as constant in capacity as the variable trimmer.

B. Current Activities:

1. Status of gas mask experiments.

(a) Preliminary tests have been completed on the effectiveness of several types of gas mask canisters and industrial filters in removing air born fission products found on Bikini target ships. While the number of experiments was limited the results of the analysis which were made at the Crocker Radiation Laboratory indicated that all canisters of the types tested and the industrial metal fume filter could be substituted for the R.B.A. if used under conditions of normal dust in target ship compartments. Under extremely dusty conditions the canisters and industrial filter were likewise safely protective because of the small number of tests it was apparent that a greater number of experiments should be performed.

(b) A second series of experiments were conducted using a larger number of canisters with conditions rigidly controlled as follows:

1. Better filter paper of known characteristics.
2. Tandum tests to prove efficiency of filter paper.
3. The use of positive action piston type suction pumps of known air displacement.
4. All air lines, filter holders and hose connections were positively checked against leaks.
5. Mask and mask valves were tested for valve leaks under simulated inhalation conditions.

Analysis of this series of experiments is now under way at the Radiation Laboratory at Hunter's Point and is about 25% complete. All indications are that the results of the preliminary experiments on gas masks will be confirmed.

2. Monitoring of Target Ships:

(a) A complete and detailed monitoring survey covering all decks and platform areas of the U.S.S. CRITTENDEN, APA 77 and the U.S.S. GASCONADE, APA 85 has been completed.

(b) A special survey of open deck areas and compartments of special interest is now in progress. This survey will include contures of "hot" spots of special experimental interest as well as compartment bulkhead, overhead and deck area readings. All readings are being recorded on sketches made of the above areas. Along with the sketch appropriate notes are recorded of any special conditions of the compartment. This special survey is about 10% complete.

(c) In November, 1946, special areas were encircled in green .nt on the weather decks of the U.S.S. GASCONADE and U.S.S. CRIT-DEN at every ten frames and the positions identified by number. se areas were surveyed for Gamma and Beta plus Gamma at that time. ıce these areas are well marked and can be easily found, monthly veys are being continued in order to obtain data on general weather k decay.

(d) The submarines PARCHE (SS-384) and DENTUDA (SS-335) will ergo experimental decontamination proceedures when made available. a preliminary to decontamination both ships are being completely itored on all above water structures. This survey is now 95% complete.

Conditions regarding monitor's survey Instruments.

(a) All monitoring is now being conducted with the high voltage survey meter. While it cannot be denied that these instruments heavy and awkward in comparison to the X 263, the accuracy of mon-ring data has greatly improved.

Two of these instruments are now being tested with a 10 ft. dial cable extending the range of the probe which allows an extend-range reading before the instrument has to be moved. This modificat-requires additional field use before it can be recommended for gen-use. We are in need of five (5) more 263 instruments so that op-ions are not held up for instrument repair and calibration.

b) All our instruments are now being recalibrated with a prim-radium standard borrowed from the Radiological and Decontamination ol at Treasure Island, San Francisco. We are still waiting for um standards for the Radiation Laboratory that were ordered three our months ago.

c) The 1,000 Volt glass geiger tubes have much better charact-tics than the 300 Volt type used in the X-263 survey meter. In r to make posible the use of the 1,000 volt tube without a heavy Volt battery in an instrument of the size and approximate weight X-263, an electronic high voltage generator circuit was designed tested. The electronic high voltage generator was powered by a 67.5 "B" battery. The entire instrument was housed in a X-263 case and ree (3) foot probe and 1,000 Volt geiger tube holder added. This ument was given a two week test by several monitors working on t vessels and proved to be extremely satisfactory. This project be continued. One further improvement anticipated will be a simple effective voltage regulator for high voltage section.

[redacted]

oratory Instruments

(a) Alpha Scaler

An Argonne National Laboratory type 16-4-14 parallel chamber together with a Metallurgical Laboratory Type A e been with extreme difficulty placed in first class oper- ition and used for all alpha counting so far conducted in atory.

This instrument has a low background count of 0.022 second and is extremely constant. Standard plutonium alpha e been consistently checked to about 0.5%

) Automatic Monitoring of Alpha and Beta scaling instruments.

In counting low activity samples long counts of several requently overnight are necessary. By proper connection of toreen rate meter and an Esterline-Aungus recorder to alpha lers, every pulse or multiples of 2,4,8,16,32 and 64 can be individual spikes. By examination of the record, spurious teruption of counting can be detected.

Royce K. Skow.

Royce K. SKOW,
Lt.Comdr. (HS) U.S.N.R.

[redacted]

ENCLOSURE (A)

Progress Report, Radiation Laboratory, for Period Ending 31 March 1947

ADMINISTRATIVE

A. LABORATORY BUILDING SECURITY

1. Controls for admission to the laboratory building have recently been considerably tightened resulting in exclusion from the laboratory of all casual visitors. Personnel visiting the laboratory are excluded from all areas except the front offices unless their duties require access to restricted areas. This change was accomplished by padlocking all exits except the main exit and the assignment of an armed guard for 24 hours of the day to enforce the regulations.

B. SECURITY OF CLASSIFIED INFORMATION

1. Within a few days it is planned to visit the Crocker Laboratory at the University of California to inspect security measures practiced there. Suggestions obtained at the Berkeley Laboratory will be incorporated here; and the measures taken will be outlined in the 1 May progress report.

C. SECURING OF CLASSIFIABLE SAMPLES

1. All the samples from Bikini and from the non-target ships, which previously were stored in Bldg. 113, were transferred to a small shack located on the lawn in front of the building, where they may be under close surveillance of the laboratory.

D. NEED FOR ADMINISTRATIVE ASSISTANT

1. It has become increasingly evident that the Officer-in-Charge and technical director are burdened too much with routine administrative details. To correct this, steps have been taken to obtain a CAF-7 to take over the following jobs; follow-up on equipment and supply orders and on work orders, routing and follow-up on incoming and outgoing mail, preparation of routine outgoing correspondence, etc.

R. G. PRESTON
Officer-in-Charge

[redacted] ENCLOSURE (B)

Progress Report, Radiation Laboratory, for Period Ending 31 March 1947

TECHNICAL

A. FACILITIES

1. The equipment and physical facilities situation is generally satisfactory. Certain items of equipment are still critical and some basic equipment and supplies on order have not yet been received. Anticipated delivery dates are satisfactory, however, except for the following items; (1) Tracer Laboratory Company autoscalers; (2) Simpson proportional alpha counters; and (3) standard radium sources. Firm delivery dates have not been obtained for these and all are urgently needed.

2. Chemical facilities are now adequate to accomplish plutonium separations as well as normal chemical routine. The bulk of general equipment is on hand and for the most part installed. Some physical alterations in the laboratory spaces are in progress, but largely incompleted. This included such work as installation of additional hood facilities, power outlets and equipment mounting. The greater part of this work concerns preparation of spaces to handle biological and clinical preparations. Progress is satisfactory.

3. Laboratory instruments on hand for determination of activity permit good estimation of alpha radiation and approximate estimation of beta and gamma radiation. One Argonne National Laboratory parallel plate air chamber in conjunction with a Metallurgical Laboratory scaler, is utilized for alpha counts with good results. Consistent checks of 0.5 percent accuracy with a background of 0.022 cps are obtained. Considering normal errors in chemical preparations, overall accuracy of plutonium assay with this instrument should be within 5 percent. The laboratory has a number of scalers for beta and gamma counting which cannot be depended upon for precise work. One serious difficulty is high voltage regulation. G-M tubes used for these determinations have a plateau slope of 0.2 to 0.4 percent per volt so that very little fluctuation can be permitted. Some corrective measures are being undertaken but it is not anticipated that many of these instruments can ever be made wholly adequate.

4. Preparations preliminary to estimation of radiation intensity, energies, et cetera, necessary for assay of fission products and decay determinations are in progress. Involved are determinations of tube characteristics, i.e., voltage plateau, background, correction factors for back and self scattering, and self and mass absorption. Absolute beta standards for the energy range encountered in the study of fission products are being prepared.

5. Survey instruments continue to be unreliable, and have caused frequent delay in monitoring operations. Minor alterations which have been accomplished with X263 and 263 survey meters have improved these instruments but by no means have corrected all defects. Light shielding of G-M tubes effectively eliminates photo-electronic effects; extension of the probe length of the 263 meters does not interfer, it appears, with the operation but greatly facilitates the use of these instruments on detailed monitoring. Use of X263 meters is greatly diminished in favor of the more accurate 263 meters. Need has recently developed for additional meters of the latter type and procurement of five is being requested. Calibration of survey meters must be done frequently and with

[redacted]

accurate standards. Satisfactory radium sources have been obtained on a loan basis recently, and the situation is temporarily satisfactory. It is expected that these standards can be retained until the standards referred to above are received, if there is no further delay.

7. Establishment of a laboratory library is in progress. A number of basic reference works have been received and more are on order, including back copies of periodicals. Procurement of current periodicals has been initiated. One of the larger remaining rooms in the laboratory has been set aside for a library, and furnishings will be obtained in the near future.

8. Supplies and equipment are on order and some have already been received for setting up a small research clinico-pathological laboratory. Preparations have been initiated for housing of experimental animals to be used in initial biological studies. A small rat house is proposed outside but adjoining the laboratory proper and a dog house in a remote and isolated location. Since these facilities are temporary existing structures will be adapted with a minimum of expense. It is expected that approximately 150 rats will be furnished the laboratory by NNRI as soon as necessary requirements can be met. It is planned that the dog house will be ready by 1 May, and the rat house within two weeks.

B. PERSONNEL

1. Civilian Technical Personnel now at the laboratory on full time basis are: W. R. Hawes, and J. P. Dyson. R. I. Condit reported for work on a part time basis on 31 March, as a Research Associate in Physics. Dr. Condit will spend a minimum of one day per week at the laboratory until the end of the academic year in June, after which he will be on a full time basis. R. E. Hooper is to report as a Research Assistant in Chemistry on 7 April. E. J. Polanta will report as a Research Assistant in Biology on 16 April.

2. A total of 18 candidates for positions in the chemistry section are under consideration. The majority of these candidates are in the probable professional range of P-3 to P-5. Seven of this number appear both qualified and interested and may be classed as likely employees. Negotiations with the remaining are in the preliminary stages. There are two candidates in physics, both at probable P-2 level. Candidates of which prospects are good are D. D. Cubicciotti; K. J. Frederick; E. Gonick; J. E. Howell; W. W. Miller; C. A. Reynolds; J. Roth.

3. No vacant billets have been established for technical personnel in the P-3 and P-4 grades. Positions at these levels in chemistry and physics will be needed in the near future. Need has already arisen for an Electronic Engineer; establishment of a billet at the P-3 level is in progress.

C. EXPERIMENTAL WORK

1. An investigation of radioactive contamination of fuel oil from the USS GASCONADE was completed. The results of this investigation have been supplied by preliminary report giving principal data and conclusions. A complete report is being prepared.

[redacted]

2. Preliminary tests were conducted with the cooperation of Crocker Radiation Laboratory on mask protection against inhalation hazards on target vessels. This work was reported by Crocker Radiation Laboratory. An expansion and continuation of these experiments was instituted. Mask and canisters in current use by the Navy and the Army are being tested. These experiments are being conducted under more representative and controllable conditions. One complete series of tests has been carried out and the radiation assays for this series are now in progress. Assays are approximately 25 percent completed. Thi work is being continued with duplicate experiments for confirmation of results.

3. A complete monitoring covering all decks and platform areas of the USS CRITTENDEN and the USS GASCONADE has been completed. In order to exhaust this type of information available from target ships and to develop a standard for similar examinations of other target ships further detailed surveys are being made. This survey includes establishing areas of uniform radiation and contour mapping of non-uniform areas. Data is being obtained on all areas of special interest such as deck and bulkhead and overheads, in order to later analyze and reduce if possible survey readings to terms of actual contamination. This work is about 10 percent completed.

4. In November 1946 special areas at 10 frame intervals were designated on the USS GASCONADE and CRITTENDEN for decay measurements. Radiation intensity, gamma and gamma plus beta, are being recorded at monthly intervals for a practical estimation of decay and weathering.

5. Preparatory to experimental decontamination of the two submarines, USS PARCHE and USS DENTUDA, a complete survey of radiation intensities is being conducted. The survey is 50 percent completed.

6. The above detailed monitoring is being carried out with 263 survey meters, insofar as practical. Particular attention has been given to accurate calibration in order that results may be as precise as possible.

D. AUXILIARY MEDICAL WORK

1. The auxiliary medical work of the laboratory is proceeding satisfactorily. The Shipyard Safety program has been firmly set. Examinations, decontamination procedures, and other established safety measures for personnel working aboard target vessels are being carried out. Medical history sheets and laboratory data are being transcribed to specified forms and will be forwarded to the Bureau of Medicine and Surgery.

2. A two weeks course in Photographic Dosimetry was held for four CPhM and two PhM1. This course was completed 21 March. Instructions and indoctrination of medical officers ordered to the laboratory for temporary duty has and is being given.

W. W. HAWES
Acting Technical Director

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C-A9-4(39622)
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SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

21 ~~April~~ May 1947

CONFIDENTIAL

From: Commander, San Francisco Naval Shipyard
To: Chief of the Bureau of Ships (Code 400-689)
Chief of the Bureau of Medicine and Surgery
(Atomic Energy Group)
Attn: Rear Admiral C. J. Brown, (MC) USN

Subj: Monthly Progress Report of Radiation Laboratory for Period Ending 30 April 1947; transmittal of

Ref: (a) BuShips-Dated SECRET ltr file S(99) Serial 003600 to Commander, San Francisco Naval Shipyard dtd 18 Feb 1947.

Encls: (N.N.)
(A) Progress Report, Radiation Laboratory, for Period Ending 30 April 1947, ADMINISTRATIVE.
(B) Progress Report, Radiation Laboratory, for Period Ending 30 April 1947, TECHNICAL.

1. Enclosures (A) and (B) comprising the second of the subject reports are forwarded in compliance with reference (a).

PHILIP LEHLER

RESTRICTED

Progress Report, Radiation Laboratory, for Period Ending 30 April 1947

ADMINISTRATIVE

A. LABORATORY BUILDING SECURITY

1. After consultation with and a visit by representatives of the Berkeley Area office of the Atomic Energy Commission, certain additional measures for increasing the security of the laboratory building were instituted. The whole of the chemistry laboratory is to be designated a "limited area" as defined by AEC. In addition a nine-foot high fence will be constructed around the exterior of the building.

B. SECURITY OF CLASSIFIED INFORMATION

1. AEC representatives have suggested types of safes for securing of classified information considered as restricted data. One room in the building has been designated as a limited area to be locked at all times, protected by a burglar alarm and barred windows. This room will contain the approved safes. Upon completion of this project and upon obtaining formal AEC clearances of key laboratory personnel, valuable classified reports may then be obtained from the Atomic Energy Commission.

C. SECURING OF CLASSIFIABLE SAMPLES

1. The small storage shack mentioned in last month's progress report was moved to the back of the building. Another shack of the same size is now being altered for receipt of plate samples from various target ships. The problem of storage of samples, proper security of such samples, and sufficient separation of active samples from sensitive research instruments is a very serious problem. A preliminary plan for a permanent storage alongside Bldg. 351, the future quarters for the laboratory, is now under consideration. It is believed, however, that authorization for its construction will require so long a time that storage of active samples will continue to be a very serious problem.

D. PROCUREMENT OF ADMINISTRATIVE ASSISTANT

1. The procurement of an administrative assistant has been slow due to the necessity of justifying a CAF-7, a rating below which the laboratory is opposed to taking. It is expected that the position will be filled within two weeks if a suitable candidate can be found in the shipyard.

R. G. PRESTON
Officer-in-Charge

Enclosure (A)

[redacted]

Progress Report, Radiation Laboratory, for Period Ending 30 April 1947

TECHNICAL

A. FACILITIES

1. The equipment and facilities situation remains generally satisfactory except that instruments listed as critical in the last progress report have still not been received and the laboratory continues to be handicapped thereby. These items are (1) Tracer Laboratory Company autoscalers and (2) Simpson proportional counters. No firm information has been received by the laboratory on the status of procurement or possible delivery dates. The third item in this category, standard radium sources, has been received. Meanwhile, need for sources of greater mass has developed and these have been ordered; similar sources which the laboratory has on loan serve these requirements for the present.

2. Continued work with the single alpha counter and the single usable beta-gamma counter has resulted in improved reliability with both instrument assemblies. The background count of the alpha counter has been further reduced, from the 0.022 CPS last reported to 0.008 CPS, thereby increasing precision of low activity work. The beta-gamma counter shows substantially greater reproducibility and at present approximately meets expected performance of equipment of this type. Reproducibility of results is 5 to 8 percent, half the deviation obtained previously.

3. A test panel for electronics instruments in use in the laboratory is being constructed; it is nearly completed. Standardization, testing and servicing of both laboratory and field instruments will be facilitated.

4. Preparations for housing of test animals are near completion. Separate dog and rat houses have been provided and are presently usable. Some features which will be provided have not yet been installed.

5. Installation and alterations in the main laboratory building mentioned in the 1 April report have been largely completed. These include the equipment of a research clinico-pathological laboratory, and a laboratory for biological and clinical preparations. Some work remains to be done, notably the installation of an exhaust fan in the biological laboratory.

6. Planning and procurement of equipment for neutron studies has been initiated. To a considerable extent this equipment must be built in the laboratory because of its special character. Necessary supplies and equipment are being ordered.

B. PERSONNEL

1. During the month of April the following new civilian technical personnel were employed by the laboratory: R. E. Hooper, Assistant in Chemistry and E. J. Polenta, Assistant in Biology, J. E. Howell has accepted a position as Assistant

[redacted]

in Chemistry and is expected to report about 25 May. Mr. Howell has been associated with decontamination work at the Navy Yard in an officer status and is being released to inactive duty. D. D. Cubicciotti is being offered a position as Research Associate in Chemistry and has indicated that he will accept. He is expected at the laboratory about 15 June. Dr. Cubicciotti obtained his PhD Degree at the University of California in 1946 and is now an instructor at New York University.

2. As of 1 April eighteen candidates for positions were under consideration by the laboratory. Several of these were listed as good prospects, among these Mr. Howell and Dr. Cubicciotti. A third, Dr. E. Gomick, is no longer being considered. All others are still active candidates.

3. During the month of April several institutions outside this area were visited in connection with personnel recruitment. Included were the Spring Meeting of the American Chemical Society in Atlantic City, the University of Chicago, the California Institute of Technology and the University of California at Los Angeles. A number of candidates were interviewed, mostly new prospects. A gratifying number of these men are excellent material and are definitely interested in the possibility of employment at the laboratory. Several gave indiciation that they would accept offers of employment and a great many more wished to be considered. After further investigation, it is expected that the laboratory will make offers to several of those listed below. Qualifications range from P-2 to P-6 and cover several specialties.

M. Allen	F. A. Lucy
D. C. Atkins	H. E. Mahnke
N. E. Ballou	F. E. McKenna
A. F. Clifford	C. A. Reynolds
R. H. Davis	J. Roth
R. C. Feber	E. B. Sanigar
K. J. Frederick	H. A. Scherago
F. R. Holden	W. Shellberg
A. A. Jarrett	A. Whittiker
H. L. Laquer	W. S. Wooster
L. Leventhal	L. McClaine
L. N. Lits	

4. In addition to the above candidates for positions, the laboratory has under consideration fourteen men of more doubtful qualifications or interest. Some of this group are undoubtedly good material. The laboratory has also received a number of valuable leads on personnel not immediately available.

5. Steps have been initiated to establish two additional P-3 and two P-4 positions in Chemistry. A position of Electronics Engineer, P-3, is now under consideration by the Area Wage and Classification Board.

C. EXPERIMENTAL WORK

1. Detailed monitoring surveys have been continued on all ex-target ships available. This work has been completed on the two submarines, USS PARCHE

[redacted]

and USS PENTULA and on the battleship USS NEW YORK. The monitoring of the USS NEW YORK included the underwater hull; samples for further examination by the laboratory were obtained. The underwater hull of the USS GASCONADE has been completely monitored and approximately 20 percent of the area of the remainder of the ship; some samples have been removed. About 30 percent of the area of the USS CRITTENDEN has been monitored. In the case of the latter two vessels that remaining is mostly interior compartments of low and relatively uniform activity. The USS PENSACOLA is now at Puget Sound Naval Shipyard available for monitoring in the near future. Provisions have been made to accomplish this work. In all of the above monitoring, shortage of personnel has seriously handicapped the work.

2. Radioactively contaminated fuel oil from the USS GASCONADE is being burned in the Shipyard boilers. During the initial burning fly-ash, deposited carbon and flue gas were sampled for estimation of the ultimate distribution of the radioactive material. In line with expectations, only low order activities have been found.

3. Laboratory studies of dust samples collected in gas masks experiments have been continued. The more important samples have been analysed, but approximately 20 percent of this work yet remains to be completed. Duplications of the gas mask experiments are in progress.

D. AUXILIARY MEDICAL WORK

1. Examination of personnel and other established safety measures with which the Medical Section is charged is continuing. Installation of more elaborate hand counting equipment is in progress. Transposition of medical history sheets and laboratory data to NavMed Forms Y, HF-27 and HF-57 is continuing.

2. Lt. Holt (MC), USN and Lt. (jg) Chase (MC), USNR, were given two weeks indoctrination in radiological problems. Both officers have left for duty at Bremerton. A two weeks course in Photographic Dosimetry was held for three PhM1 and two HA1.

3. As a check of the gamma characteristic curve for the type "K" film, badges were exposed to a known radium source which is more representative of conditions on ex-target vessels. Agreement was good up to two times tolerance.

W. W. HAWES
Acting Technical Director

Enclosure (B)

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ADDRESS REPLY:
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(136)

Enc. (B)

MEDICAL SECTION
RADIATION LABORATORY
SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

30 April 1947

PROGRESS REPORT

The progress report submitted 31 March 1947 covered significant accomplishments of the laboratory for several months previous. The present report covers activities to which I have given assistance or supervised from the period 31 March to 30 April.

Radiochemical Laboratory:

1.- As of this date no new radiation measuring equipment has been received. The Cyclotron Specialties Co. Alpha Counter has been on order for four to five months and has still not arrived. Three Tracerlab beta counters are expected next month. This situation then remains the same with one useable beta scaler and one parallel plate alpha counter. The background count of the later has been further reduced from 0.022 CPS to 0.008 CPS which increases the precision for low activity work.

2. Three radium standards in the ranges of 10, 1.0 and 0.1 milligrams have been received together with Bureau of Standards Certified Calibrations.

3. A photographic technique is being developed for detecting alpha radiation. This procedure can not be expected to be much more than a qualitative indication of alpha emitters at present but may have useful applications.

4. Laboratory analysis of the flue gas collection and fire box carbon deposits for the Contaminated Oil Burning Tests has been completed and the analysis report in preparation. The procedure for sample collection

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and details of burning conditions is also in preparation. Burning of the oil tested is being continued and arrangements for periodic test samples have been made.

5. Analysis of the canister samples obtained for the Inhalation Hazard test has been extremely difficult. So far the ashing down of the activated charcoal has not been satisfactory and has slowed progress. Since the activity of the dust is separately determined and all test canisters have a control filter behind them, little is gained by canister ashing. However, the filter paper within the canister has been removed, ashed and analysed. Analysis for this project would be complete were it not for the activated charcoal analysis.

6. The repeat series of canister tests will be started 5 May. The sampling equipment has been reconditioned and recalibrated. Vacuum gauges have been installed on each suction pump to determine the magnitude of the dust collection as the experiment progresses.

A mechanical dust tumbler is under construction to take the place of broom sweeping previously used. This device will insure uniform and constant radioactive dust production when needed. This tumbler will also be used for dust production in long term biological experiments with animals.

7. Auxiliary facilities completed for the radiation laboratory include an adjoining building to house rats. This building is small but equipped with an electric thermostated heat control, sink and running water. A second small building has been added to the existing temporary sample storage building. This building is being used to store especially selected samples from target ships now undergoing experimental monitoring.

~~CONFIDENTIAL~~

Electronics Laboratory:

1. On the average only two electronic repairmen have been available for survey instrument maintenance and repair. With security watches and other duties they have not been able to keep up with the work load. Monitors have been called from their duties to assist in instrument calibration.

2. An elaborate radiological instrument test panel has been 95% completed. In addition to the standard electronic test equipment the following special features have been incorporated:

(a) A 3200 volt regulated power supply to enable characterizing and testing all types of counting tubes.

(b) A scale of ten counter and automatic relay to shut off the counter at a predetermined number of counts.

(c) An oscillographic syncroscope to determine counter tube pulse voltage, quenching time and shape.

This test equipment will be of extreme value in standardizing and testing Radiochemical Laboratory scalers and Geiger tubes as well as for more rapid servicing of monitoring instruments.

3. Frequent high background counts have resulted from contaminated material lodging in the Geiger tube housing of survey meters when used for contact leadings. This has been effectively overcome by covering the housing opening with a sheet of cellophane with a low density of 3.0 milligrams per cm^2. The density of the Geiger tube window is of the order of 30 milligrams per cm^2 so that beta adsorption of the shield does noteffect the reading of the survey meter.

~~CONFIDENTIAL~~

Monitoring of Target Ships:

1. The detailed experimental monitoring of the U.S.S. Crittenden APA 77 is now about 30% complete. The uncompleted portion represents mostly interior compartments of low and uniform activity. It is expected that deadline for completion will be met.

2. The detailed experimental monitoring of the U.S.S. Gasconade APA 85 is 20% complete except for the under water body. The hull (under water portion) has been completed with dry readings taken every five frames at three foot intervals. The under water body monitoring was greatly facilitated by use of a power finger lift in the dry dock. The monitors remained on the railed platform and were easily lowered and hoisted as required. This proved to be a more rapid and convenient method than the crane and skipbox.

A serious shortage of monitors exists which hampers progress on experimental target ship work and leaves unsupplied many other monitoring services requested by the ship yard.

3. Because of the shortage of monitors the monthly decay study on the U.S.S. Gasconade and U.S.S. Crittenden has had to be temporarily discontinued.

4. The top side special experimental monitoring of the submarines Parche (SS-384) and Dentuda (SS-335) has been completed. These vessels have not yet be n made available for experimental decontamination.

Royce K. Skow.

Royce K. Skow
Lt. Comdr. (HS) USNR
BuMed Representative
and Administrative Officer.

ADDRESS REPLY:
COMMANDER
CODE NO.
AND REFER TO FILE

C-A9-4(41115)
(390)

JUN 17 1947

SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

[redacted]

From: Commander, Naval Shipyard, San Francisco
To: Chief of the Bureau of Ships (Code 400-689)
Chief of the Bureau of Medicine and Surgery
(Atomic Energy Group)
Attn: Rear Admiral C. J. Brown, (MC) USN

Subj: Monthly Progress Report of Radiation Laboratory for Period Ending 31 May 1947; transmittal of

Ref: (a) BuShips-BuMed SECRET ltr file S(99) Serial 005800 to Commander, San Francisco Naval Shipyard dtd 18 Feb 1947.

Encls: (N.W.)
(A) Progress Report, Radiation Laboratory, for Period Ending 31 May 1947, ADMINISTRATIVE.
(B) Progress Report, Radiation Laboratory, for Period Ending 31 May 1947, TECHNICAL.

1. Enclosures (A) and (B) comprising the third of the subject reports are forwarded in compliance with reference (a).

PHILIP LEMLER

A 1-4

~~RESTRICTED~~

Progress Report, Radiation Laboratory, for Period Ending 31 May 1947

ADMINISTRATIVE

A. LABORATORY BUILDING SECURITY

1. The whole of the chemistry laboratory has now been fenced off by an electrically controlled locked door, access to which is limited to personnel whose normal duties require being within the area. Other personnel requiring access to this limited area are escorted by personnel normally permitted access to the area.

2. A contract for the construction of a fence around the laboratory building has been let; and construction is expected to start by 15 June.

B. SECURITY OF CLASSIFIED INFORMATION

1. The room in the building to be used for securing classified information described in last month's progress report has been equipped with bars on the windows; but installation of the burglar alarm system has been delayed by deliveries of special equipment ordered from outside suppliers.

2. Two large safes with two-hour fire protection equipped with eight legal-size file drawers and conforming to the general recommendations of AEC representatives from Berkeley have been placed on order. Upon arrival of these safes and now that the officer-in-charge, his executive, and the acting technical director have been cleared by the AEC, the laboratory should be prepared to received much-needed AEC classified reports.

C. SECURING OF CLASSIFIABLE SAMPLES

1. All samples from the target vessels have now been inventoried, and a Kardex record is being prepared for indexing the samples. These samples have been placed under the custody of the Senior Monitor except when under active study, when they will be transferred as needed to the custody of the Head Chemist.

D. PROCUREMENT OF ADDITIONAL NON-TECHNICAL PERSONNEL

1. A general utility man was obtained for the laboratory during the second week in May. He is being successfully used for many different odd jobs, formerly being done by enlisted personnel who were temporarily taken away from their normal duties.

2. Procurement of two CAF-3 clerks has been initiated. When these personnel are obtained, they will be used to ease the overload on the office force and on the supply division of the laboratory.

3. Procurement of one CAF-6 Property and Supply Clerk to head up the supply division has been initiated. He will be expected to coordinate ordering of all equipment and supplies, stock control, and follow-up of all orders.

4. Processing of the position description for the administrative assistant has been delayed by loss in the mails. The position description has now been rewritten and resubmitted. After some deliberation, it was decided that the responsibilities of the position were such that a higher rating than CAF-7 would be required to obtain the proper person. It has therefore been rewritten and submitted as a CAF-10.

E. INTERNAL ORGANIZATION OF THE LABORATORY

1. After some discussion with the Shipyard Commander and Captain Draeger of Naval Medical Research Institute, several detailed changes were effected in the proposed final organization of the laboratory.

2. A chart has been prepared which indicates the tentative final functional organization of the laboratory. All existing positions and those currently being established are shown. This chart will, of course, alter in numbers and types of positions as the laboratory grows, but functionally it should be firm. A copy of this chart will be sent to the Bureaus in the near future.

J. J. FEE
Officer-in-Charge

Progress Report, Radiation Laboratory, for Period Ending 31 May 1947

TECHNICAL

A. FACILITIES

1. The equipment and facilities situation is not entirely satisfactory at present. As the number of personnel in the laboratory increases and the details of the work required become more clearly defined, the need for specialized materials and facilities naturally becomes more acute. Some considerable delays have been experienced both in the processing of requests and in filling orders after placing with suppliers. The former are in large part due to the need for more thoroughly trained personnel and greater numbers of personnel assigned to the laboratory procurement functions. A complete study of the procurement problem is being conducted in an effort to eliminate all unnecessary delays. Additional laboratory personnel are being assigned to assist in procurement matters temporarily until a regular property and supply clerk can be obtained at which time it is felt the situation will be much relieved. Additional clerical personnel assistance is also being arranged for. In order to expedite material deliveries from manufacturers, it may be necessary at times to request Bureau of Ships assistance by assignment of priorities or other possible means in expediting deliveries of certain critical items. Examples of this type are the three Tracerlab Sealers originally scheduled for delivery on 15 May and finally shipped, after several dispatch inquiries, on 29 May with prospects of delivery to the laboratory about 15 June. Similarly, the Simpson proportional counter, originally promised by INSMAT Providence for 16 April, has not yet arrived. Both of these items are urgently required to proceed with current work.

2. The Cyclotron Specialties alpha counter was received this month. Tests with this instrument using it as a beta counter have not been very successful. A circuit diagram for the counter was recently received and it is believed that the instrument can be made to operate within the next few days.

3. Preliminary plans and estimates of alterations of facilities, and of instruments for the new laboratory building (Bldg 351) were completed by the laboratory; and it is expected that an advanced copy of the request will be in the Bureau of Ships by 15 June.

B. PERSONNEL

1. During the month of May Mr. A. F. Owings reported as an Assistant in Chemistry (P-2). Mr. J. E. Howell reported for duty as an Assistant in Chemistry (P-3) on 9 June. Mr. William Lee, a Spring graduate from the College of Chemistry, University of California, has indicated he will accept a position as Assistant in Chemistry (P-1), reporting for duty about 1 August. An offer will be made to Mr. Lee in the near future. Lt. H. C. Hine (MC) USN reported for duty and will assume charge of all the biological research. Unfortunately, Dr. Cubicciotti turned down an offer of a position at the laboratory. Bureau of Ships approval for the employment of Dr. Francis R. Holden as a Research Associate in Chemistry (P-5) is now being sought. He is very highly recommended by eminent men; and his training and experience in industrial hygiene and inorganic chemistry will fit very well in certain needs of the laboratory.

Enclosure (B)

2. Dr. Hawes is still hospitalized and present prospects are that he will be required to remain away for at least one more month.

3. Active contact is being maintained by correspondence with all of the promising candidates mentioned in the April progress report. Some additional candidates who show good possibilities have been interviewed. Also, it has been requested that R. H. Davis, who was on the April list, be offered a position as P-2 Physicist contingent on his receiving his M.S. degree in June.

4. Comdr. Fee and Lt. Morton will be on a trip during the first week in June. During that time they expect to interview two candidates (Drs. Davies and Brown) at the University of Chicago as prospects for the position of Technical Director, and any other personnel who may be possibilities for employment at the laboratory.

5. Dr. K. J. Frederick who was on the list of candidates last month is no longer being considered.

6. Two additional positions for P-3 and P-4 positions in chemistry have now been established. A P-3 position as electronics engineer has been established and two candidates are under consideration for this position. Steps are being initiated to establish one additional position each for P-3 and P-4 positions in physics in order to employ prospective candidates who can qualify for these positions which are required to round out the Physics Section.

G. EXPERIMENTAL WORK

1. Detailed monitoring surveys have been continued on all target vessels. The USS PARCHE is due during the first week in June, and the laboratory will assist in her decontamination. Some experimental decontamination was done on the exterior of the USS CRITTENDEN to devise a practical method for decontaminating the portions of the USS PARCHE unsuited for sandblasting. The laboratory made a preliminary recommendation of lye and starch solution for this purpose. It is planned to assign Mr. Howell to study of experimental decontamination of exterior surfaces. The monitoring survey of the USS CRITTENDEN is now 80% complete; that of the USS GASCONADE 10% complete. Fourteen hull samples, oval-shaped, 2 feet by 3 feet were taken from the USS GASCONADE while she was in drydock. An additional monitor has been assigned to the survey of the USS PENSACOLA and the USS HUGHES at Bremerton.

2. The burning in shore boilers of the contaminated fuel oil from the USS GASCONADE has been completed. So far no appreciable activities have been discovered in the soot or flue samples from the operation; the fireside of the boiler showed activities in some places only very slightly above background. A complete report on this problem is expected to be issued by 1 July.

3. Status of the dust samples collected in gas masks has progressed very little due to delays in completing construction of a dust tumbler, delivery of which is expected by 6 June. However, the analysis of the samples by the chemical laboratory will be the principal work remaining for this problem and a final report on the problem is expected about 15 July.

4. A procedure for determining the surface radiation gamma reading independent of the high background on the target vessels has been worked out and will be the subject of a report by 1 July. The method requires one additional reading with

[redacted]

a 263 instrument using an interposed lead plate. Also, a procedure for extending the range of a 263 instrument has been devised by insertion of an additional resistance in series with the sensitivity selector. The improvement in range is offset by a loss in sensitivity, but it is believed the additional range has more advantages than the loss in sensitivity. In cases where maximum sensitivity is desired the resistor may be removed.

5. All of the experimental work necessary to the establishment or modification of laboratory procedures incidental to radiochemical analyses is proceeding satisfactorily. However, as has been mentioned above, the delay in receipt of the scalers has seriously hampered both certain phases of this work and also the turning out of accurate analytical results.

D. AUXILIARY MEDICAL WORK

1. The work load on the Medical Section's Health Officer sharply increased in May. Ninety men (58 from the shipyard and 32 from the Treasure Island Class) were given initial physical examinations. About 30 film badges per day are now being processed, this number representing a two-fold increase over April. Lt. (jg) Evansen (MC) USN completed two months of duty under instruction and departed for Bremerton.

2. Facilities for caring for rats are complete, those for the dogs are expected to be ready by 20 June. Several wild rats from the USS PENSACOLA are now housed in the rat house. Upon arrival of rats from Bethesda experiments on inhalation of radioactive dust will be started. A recent visit by Captain Draeger (MC) USN resulted in a detailed program of biological research and a detailed outline of facilities required in the new laboratory building (Bldg 351). Research on hand monitoring is progressing slowly due to the shortage of personnel.

3. Six hospital corpsmen reported this month for duty as radiochemical technicians. Lt. G. W. Morrison (MC) USN has placed them in training. Bureau of Ships and Bureau of Medicine and Surgery approval for an outline of a two-months course for the technicians is now being sought. In order not to delay completion of the course, the technicians must be permitted to receive restricted data on the analysis of plutonium and fission products. This matter has been referred to the Bureau of Ships for decision.

R. G. PRESTON
Acting Technical Director

ADDRESS REPLY:
COMMANDER
CODE NO.
AND REFER TO FILE

C-19-4(45201)
(390)/Wm

SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

June 1947

[redacted]

From: Commander, Naval Shipyard, San Francisco, California
To: Chief of the Bureau of Ships (Code 400-609)
Chief of the Bureau of Medicine and Surgery
(Atomic Energy Group)
Attn: Rear Admiral G. J. Brown, (MC) USN

Subj: Monthly Progress Report of Radiation Laboratory for Month of June 1947; submission of

Ref: (a) BuShips-BuMed SECRET ltr S(99) Ser. 005800 of 18 Feb 1947.

Encls: (N.S.)
(A) Radiation Laboratory Administrative Progress Report for Month of June 1947.
(B) Radiation Laboratory Technical Progress Report for Month of June 1947.

1. Enclosures (A) and (B) reporting the progress of work at the Radiation Laboratory for the period 1-30 June 1947 are forwarded herewith in compliance with reference (a).

PHILIP LEMMER

A9-4
6-4-7

RESTRICTED

Administrative Progress Report for Month of June 1947

A. NON-SCIENTIFIC PERSONNEL

1. Lt(jg) R. E. Edgar, USN reported for duty in the laboratory on 24 June as Administrative Assistant. He is assuming all of the functions which will be assigned ultimately to the employee who fills the CAF-10 Administrative Assistant position being set up.

2. One additional clerk-typist, Mrs. Josephine Winkler, has been placed in a new CAF-3 position established. An additional CAF-3 clerk stenographer position has been requested and indications are that this position will be approved shortly. The administrative and correspondence functions of the laboratory are growing very rapidly, and it is envisioned that several additional clerks and stenographers will be required in the very near future. These will be necessary for such functions as preparation of reports, maintenance of the technical library, duplication services as well as the routine functions of handling dispatches, mail, telephone calls and miscellaneous administrative functions.

3. The position of Property and Supply Clerk has been approved as CAF-6. Two very good prospects with previous experience in CROSSROADS and post-CROSSROADS work are being processed to determine qualification for employment in this capacity.

B. SECURITY

1. The fence around the outside of the laboratory has been completed. As soon as the arrangements have been completed for signalling the guard inside the building from outside the fence, all gates will be locked other than at normal working hours and the marine guard outside the building will be secured.

2. The services of civilian guards inside the building on a 24-hour basis have been obtained. This has eliminated the necessity of taking badly needed enlisted personnel from their work during regular work hours for assignment to guard duty; and, also, it has eliminated the unsatisfactory situation whereby enlisted personnel were working during the day and standing guard duty at night.

3. Work has been commenced to convert a portion of Building 224, which was a multicell, concrete bomb shelter, to a storage space for radioactive samples until such time as space becomes available in Building 351.

4. The situation with respect to clearance of laboratory personnel is not yet satisfactorily settled. Representatives of AEC advise that since the naval clearance is restricted to certain specific items, their technical groups can show laboratory personnel who have naval clearance, indexes of material available only after careful study of the indexes and removal of items not strictly covered in the naval clearance specification. On the other hand, Navy personnel at the laboratory with "Q" clearance (Lt. Morton and Lt. Morrison) may see unexpurgated editions of indexes. Further study is being made of this situation.

[redacted]

C. LABORATORY PROCEDURES

1. Steps are underway to standardize laboratory procedures throughout the organization. Standard instructions are being promulgated as administrative orders, memoranda and notices. A standard form has been adopted for use in establishing laboratory research projects. All projects will be set up on this form in the very near future for submission to the bureaus.

CONFIDENTIAL

Technical Progress Report for Month of June 1947.

A. FACILITIES

1. The equipment situation improved somewhat during the month of June, but long periods between award of contract and delivery of material continue to hamper expeditious installation of necessary facilities. Studies are continuing and a determined effort is being made to eliminate every possible delay in the procurement system, to anticipate requirements as much as possible, and to utilize most readily available materials. In connection with the latter item, laboratory personnel visited the Electronics Reutilization Plant at Mare Island and requisitioned a considerable quantity of standard expendable materials needed for stock, also, a dispatch request for release of several test equipments held by "ERUPT" and required for the Physics Group was sent to the Bureau of Ships.

2. Five autosealers from Traserlab were received and have operated excellently thus far. All indications are that they are of excellent workmanship and will continue to perform well. Some significant items of equipment were received by the Physics Group, also. These included:

Ilford special proton - recoil plates.
Lauritsen electroscopes
Basic hand tools
Synchroscope, oscilloscopes and some electronic test equipment

3. Preliminary studies of final plans for the conversion of Bldg. 351 are being conducted in order to minimize delays after approval of the project is received. In view of the anticipated time interval between the present and the date of moving into the new building, however, tentative plans are being prepared for more efficient utilization of the space currently available in Building 506. It is considered that some additional facilities must be installed and existing rooms slightly revised in order to provide ample space for the program envisioned during the next twelve months.

4. Some equipment was shipped from the laboratory during the month of June. The principal items were as follows:

One Filter Queen to Philadelphia Naval Shipyard
One " " to Puget Sound Naval Shipyard
Two Esterline Angus Recorders to U.S.S. CHILTON
One cylinder of Methane with double reducing valve to U.S.S. CHILTON
One dosimeter (presumably Photovolt "500") to U.S.S. CHILTON

5. The animal colony received a good start with the arrival of rat cages from NMRI and shipment of 120 rats from the same source. The housing facilities for the animals are adequate and breeding of stock can commence shortly. It is considered that additional personnel trained in animal husbandry will be required in the near future. This will be the subject of separate correspondence. Two shipments of rats trapped on the PENSACOLA arrived during the month bringing the total colony to 20 pending arrival of the shipment from Bethesda. Five of the rats from the PENSACOLA have died, and their carcasses are being ashed for determination of radioactivity content.

[redacted]

B. SCIENTIFIC PERSONNEL

1. Mr. C. J. Camp reported for duty as Electronics Engineer (P-3). Mr. William Lee accepted a position as Assistant in Chemistry (P-1) to report about 1 August. Mr. R. H. Davis accepted a position as Assistant in Physics (P-2) to report about 9 July.

2. Lt. Comdr. R. A. Conard (MC) USN reported for duty as Bureau of Medicine and Surgery Projects Officer.

3. A considerable number of candidates from the University of California and the San Francisco area were interviewed during the month for positions in chemistry, physics and biological science. Several of these are promising candidates for positions ranging from P-5 to P-1, and the qualifications of all are being studied carefully with a view to making offers to the most desirable. In addition, active contact is being maintained with other scientists throughout the country, some of whom will be available for employment during the latter part of the year. Dr. Condit expects to attend the annual meeting of the American Physical Society at which additional prospects for the positions in physics are expected to be contacted.

4. Comdr. Fee and Lt(jg) Norton visited the University of Chicago and Los Alamos Scientific Laboratories during the early part of the month. Drs. T. H. Davies and R. H. Brown at the University of Chicago, and Dr. Wright Langham at Los Alamos were approached for consideration of the position of Technical Director (P-7). Dr. Brown definitely refused consideration, Dr. Langham was extremely doubtful, and Dr. Davies was a possibility desiring to consider the matter further before committing himself. Most of the young men qualified for this position are still interested in individual research unhampered by administrative responsibilities. It is most difficult to find the man desired at the P-7 level since those tending towards research coordination or consultation work are in industry at high salaries. It may be necessary ultimately to consider reclassification of the position to P-8 to find a man who can suitably fill the vacancy.

5. Additional positions of Research Associate in Physics (P-3 and P-4) have been approved and established. This action was well timed, as a Mr. William Brown, who shows great promise for the laboratory, has been interviewed and is in a position to accept employment as a Physicist (P-4) about 15 August.

C. LABORATORY RESEARCH AND DEVELOPMENT WORK

1. The following projects were completed during the month:

(a) Analysis of soot and flue gas from power station boilers burning radioactively contaminated oil from U.S.S. GASCONADE.

(b) Radiochemical analysis of fuel oil from U.S.S. CRITTENDEN.

(c) Testing and evaluation of possible means of decontaminating wood decks on U.S.S. PARCHE.

(d) Further studies of means of determination of background during monitoring of target vessels.

(e) Analyses of filter paper and canisters from initial tests of efficiency of gas masks in capturing fission products.

(f) Analysis of clothing and RBA from Kwajalein to determine extent of radioactive contamination.

(g) Preparation of several series of film badges exposed to standard radium sources for set periods of time at known distances. These produced a series of film densities up to 0.1R for general reference. One set of the series was sent to Naval Shipyard Puget Sound and one to the Eikini Re-Survey Unit.

(h) An Eastman Transmission densitometer was given a preliminary test to determine its suitability for replacing Ansco-Sweet densitometer.

2. The following projects were initiated or well underway during the month:

(a) Analyses of gas mask canisters worn by personnel on board target ships.

(b) Determination of particle size of dust encountered on ships contaminated with radioactive materials.

(c) Determination of solubility of radioactive contaminants.

(d) Elementary analysis of contaminated dust.

(e) Testing of a spray method of decontamination of the PARCHE.

(f) Sampling of remaining fuel oil on U.S.S. GASCONADE for radiochemical analysis.

(g) Sampling and analysis of eight different areas on PARCHE varying in type of surface, geometric configuration, and intensity of radiation.

(h) Testing of lye and other paint removers as methods of decontamination on exterior of conning tower of PARCHE.

(i) Design of special apparatus for production scale testing of decontamination methods under laboratory conditions.

(j) Preparation of samples for testing of decontaminating solutions in laboratory.

(k) Testing methods for routine analysis of fission elements.

(l) Measurement of rate of decay of fission product aggregate.

(m) Determination of maximum and average beta and gamma ray standards of various energies.

(n) Testing of end-window Geiger-Mueller tubes of special design for use as means of alpha particle counting.

(o) Modification of autoscalers for automatic counting of samples of very low intensity for long periods.

(p) Ashing of carcasses of five rats which had died subsequent to capture on PENSACOLA, and determination of radioactivity contained in ash.

(q) Construction of three chambers for exposure of rats to inhalation of fission products.

(r) Reorganization of change house facilities in order to convert to an ideal unit.

(s) Fabrication of a dust tumbler and fan for use in comparative efficiency tests on masks in filtering out radioactive dusts.

(t) Tests of Willson "750" mask for protection of personnel against radioactive dust and fume inhalation.

(u) Construction of three scalers by Electronics Section.

3. Radiological surveys were continued during the month on the GASCONADE, CRITTENDEN, PENSACOLA and HUGHES. The final report on the CRITTENDEN is now under preparation. Work on the GASCONADE is about thirty percent complete. The INDEPENDENCE arrived and safety monitoring was undertaken immediately. Decontamination of the structure of the PARCHE above the conning tower and those portions of the above water hull which can not be exposed to sandblasting was being accomplished using lye solution on the large exposed areas and a combination citric-hydrochloric acid solution on small parts and interior surfaces. Sandblasting is scheduled to commence on 14 July. The following special tasks were also accomplished by the laboratory monitors:

(a) Inspection parties on ex-target vessels at Mare Island.

(b) Check of radium shipment at Moffett Field.

(c) Inspection of drydock, keel blocks, hose and lines after undocking of GASCONADE.

(d) Monitoring of TCS transceivers used on INDEPENDENCE.

(e) Monitoring of ATF-103 and ATF-106 for contamination accumulated incident to towing INDEPENDENCE back to San Francisco.

D. <u>SERVICE WORK</u>

1. Twenty-two X-263 meters, ten 263 meters and five 247 instruments were repaired and calibrated during the month. Seventy low-voltage GM tubes were received from NSD Oakland.

2. Increase of the upper limit of the instrument was accomplished on about half the 263 meters by modification of circuit components within the instruments. Analysis of components in the 247 meters indicated that the cans were not secure in the sockets. Plans are underway to use foam rubber in the bottom of the cans to render them more secure.

3. The workload in Medical Health Section remained reasonably constant at about the same level as for May.

U. S. NAVAL DRYDOCKS, HUNTERS POINT

YARD ROUTE SLIP

Code of Originator 136 Initialed by RDP Date 4/7

Section Code	Initialed By	Initialed Date	Remarks
100	[illegible]	4/7	
300	[illegible]	4/8	100 denies to sign report hereafter. Desire inform 136 [illegible]
350	[illegible]	4/9	
			File

4159—M.I.N.Y. 5-3-45—500M

ADDRESS REPLY:
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A9-4(45213)
(390)/Wn

SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

[redacted]

18 July 1947

From: Commander, Naval Shipyard, San Francisco, California
To: Chief of the Bureau of Medicine and Surgery (Code 74)

Subj: Monthly dosimetry report for June 1947; forwarding of

Encl: (A)(H.W.) Monthly dosimetry report for month of June 1947.

1. Enclosure (A) is forwarded for information. Henceforth, monthly reports of this type will be submitted.

PHILIP LEHLER

"Our Sole Mission is to Serve the Fleet"

7-18-47
A9-4(2)

C-19-4(44429)
(990)/mm

AUG 19 1947

~~CONFIDENTIAL~~

From: Commander, Naval Shipyard, San Francisco, California
To: Chief of the Bureau of Ships (Code 400-4B)
Chief of the Bureau of Medicine and Surgery (Code 74)
Chief of the Bureau of Aeronautics (Code AE-4F)
Chief of the Bureau of Yards and Docks (Code D4)

Subj: Monthly Progress Report of Radiation Laboratory for Month of July 1947; submission of

Ref: (a) Buships-United SECRET Ltr S(99) Buships Ser. 00[illegible] Bureau Ser. 00[illegible] of 18 Feb 1947.

Encl: (N.N.)
(A) Radiation Laboratory Administrative Progress Report for Month of July 1947.
(B) Radiation Laboratory Technical Progress Report for Month of July 1947.

1. Enclosures (A) and (B) reporting progress of work at the Radiation Laboratory for the month of July 1947 are forwarded herewith in compliance with reference (a).

PHILIP LEHLER

#94
8-19-47

RESTRICTED

Administrative Progress Report of Month of July 1947

A. NON-SCIENTIFIC PERSONNEL

1. One additional clerk-stenographer (CAF-3), Mrs. Olive Hansen, was placed on the rolls of the laboratory during the month. Because of the increasingly heavy administrative and clerical workload, positive steps have been initiated to establish several additional clerical positions. The final administrative organization as deemed necessary at present is shown on the attached chart.

2. The situation in the Supply Unit has improved considerably as a result of the splendid work of Lt. Vicars in simplifying and standardizing laboratory procurement procedures. In the Supply Unit, also, the need for additional personnel was very strongly indicated. Consequently, additional positions have been established in this unit as shown in the attached administrative organization chart, and every effort is being made to fill them as soon as possible.

3. The position of Administrative Assistant has been approved as a CAF-9. The position will be filled as soon as a suitable candidate can be found.

B. SECURITY

1. In order to expedite clearance of personnel for employment in the laboratory, special arrangements have been made with the Twelfth Naval District Intelligence Office to make rapid station checks on all candidates. In addition, fingerprints are sent to the FBI in Washington for a central fingerprint check. Upon completion of these checks an individual can be employed in the laboratory without access to restricted data pending receipt of his CNO clearance. As soon as taken on the rolls, the necessary forms are prepared as appropriate to initiate final clearance through the Bureau of Ships.

2. After considerable discussion with Bureau of Ships representatives, it was finally agreed that requests for clearance for restricted data might be submitted to the Berkeley Area office of the Atomic Energy Commission in accordance with their procedures. Meanwhile, however, the local AEC personnel have advised that they have received instructions from Washington not to handle matters of clearance of Naval activities locally. Therefore any such requests will not be handled unless instructions to the contrary are received from the Washington AEC offices.

3. Requests have been submitted for Lt. Comdr. R. K. Show and Lt. C. P. Carlson to have access through the local AEC office to all restricted data pertinent to their assigned positions in the laboratory. Both officers have regular CNO clearance and this should serve as a test case for local action.

(ENCLOSURE A)

C. INTERNAL ORGANIZATION

1. A complete restudy of the internal organization of the laboratory has been conducted. A revised organization chart has been prepared on the basis of this study. The new chart shows all the positions which are contemplated to carry out the laboratory program for the next year. Many of these positions will not be set up until the need for them is more definitely defined and suitable candidates become available. The organization chart as prepared will be submitted for approval in the near future.

2. With the gradual increase in the number of civilian employees of the proper type it will soon be possible to have the officer personnel working more fully in the type of work for which they were primarily assigned. Up to the present, it has been necessary as a matter of expediency and for the best interests of the laboratory to assign personnel as necessary to accomplish the work of highest priority and to fill key positions which were vacant.

D. CONTACTS WITH OTHER ORGANIZATIONS

1. A large number of representatives from other organizations both within and without the Navy visited the laboratory during the month. Among the principal visitors were the following:

Rear Admiral Jerould Wright, USN, ACNO for Operational Readiness
Rear Admiral C. J. Brown (MC), USN, Asst. Chief of the Bureau of Medicine and Surgery for Research
Captain W. S. Maxwell, USN, Chief of the Radiological Safety Section, Bureau of Ships
Captain H. G. Rickover, USN, and party of four Naval officers assigned to AEC, Oak Ridge
Comdr. D. L. Kauffman, USN, from CNO (OP36E)
Lt. Comdr. E. R. King (MC), USN, Radiological Safety Section, Bureau of Medicine and Surgery
Lt. V. F. Saitta, USNR, Code 336, Bureau of Ships
Dr. Raymond E. Zirkle of the University of Chicago
Mr. Boucher, Berkeley Area, AEC
Mr. A. B. Cutts, Bureau of Aeronautics
Mr. Sherwood Smith, Army Engineer Corps.
Mr. Lawrence of ONR, San Francisco.

2. Personnel of the Radiation Laboratory make frequent visits to members of the faculty of the University of California in order to gain advice and discuss the laboratory's program with recognized authorities in the field. This practice is being encouraged strongly as it is the only apparent means of obtaining necessary basic information immediately for the formulation of a properly organized program. It is planned to extend these contacts both at the University of California and at other similar institutions as soon as additional clearances are forthcoming and as the workload permits.

E. CONSULTANTS

1. Additional efforts were made during the month to consummate arrangements which

have been pending for several months to obtain the part time services of qualified scientists of the University of California to act as consultants for the laboratory. A final conference was held with Dean Stewart who is acting director of research at Berkeley. The University refuses under any circumstances to consider a blanket contract for the purpose, however, on the basis that the work of the laboratory is applied research, whereas, the University must involve itself only with basic research except in time of national emergency. Dean Stewart did state, however, that the University would not attempt to block efforts to negotiate personal service contracts with individuals for the same purpose. Several of the required persons have been approached on this basis and have expressed willingness to assist in this manner. Therefore, steps will be initiated to obtain authority to negotiate personal service contracts with consultants.

2. Efforts were made to obtain the services of Dr. Wright Langham of Los Alamos Scientific Laboratories on a temporary basis to aid in organization and establishment of the laboratory. A letter was prepared to Dr. N. E. Bradbury, Director, on this basis. Although no reply has been received as yet, it is understood that Dr. Langham will be assigned to the Radiation Laboratory for a period of about two weeks commencing 20 August. During this period Dr. Langham will remain on the rolls and in the pay of Los Alamos Laboratories.

3. It is increasingly evident that the laboratory must have frequent and free access to scientists who have been trained in the Manhattan Project and have a broad understanding of the general nature of the problems and are intimately familiar with those men who have developed data currently in existence and with the nature and extent of their work in the field. This can best be done by securing the services of some of these individuals on the staff of the laboratory to guide and train others. Barring this possibility, the next best solution is to form an advisory board of such men who will be interested in the Navy's problems in this field and will mentor and assist the laboratory's efforts.

F. LABORATORY PROCEDURES

1. The first group of laboratory research projects has been reduced to written form and is now being prepared for submission to the Bureaus. These written projects will serve to provide an immediate general picture of the research program, will provide a ready means for referring to a particular investigation, will be used for setting priorities and will keep all interested agencies advised of the nature and scope of the work in hand.

2. The format of laboratory reports and the procedures for submission to date have been very ragged and not in accordance with established standards. This has been the result of an effort to forward the information as soon as possible rather than accept the undue delays which would have resulted in attempting to place this additional load on already inadequate personnel. This situation will be remedied as soon as the scientific and administrative staffs are sufficiently rounded out.

Technical Progress Report for Month of July 1947

A. FACILITIES

1. The processes of procurement of necessary equipment for the laboratory have been improved and expedited tremendously as a result of the special studies conducted. Special authority has been granted by the Twelfth Naval District to effect direct purchase by the Shipyard Supply Officer of all items for the laboratory up to $500.00 in value without processing through the Navy Purchasing Office. This procedure saves as much as seven weeks in some cases in the letting of contracts. Further, by arrangement with Navy Purchasing Office, requisitions for urgently required laboratory items in excess of $500.00 in value receive special handling to expedite procurement.

2. A thorough survey of all activities in the area holding surplus supplies is being made. This has resulted in immediate procurement without cost of many needed items such as office furniture and equipment, safes, duplicating machines and the like.

3. With the realization that funds would not become immediately available for the modification of Bldg. 351, it was essential that prompt action be taken to increase the facilities of Bldg. 506 to accommodate the contemplated laboratory program for the next 12-18 months. Plans have therefore been prepared and submitted for increase in facilities in this building, conversion of all possible space to working areas and movement of all activities which can be physically separated without detriment, to space available in other buildings. The Radiological Health and Safety Section has been shifted to the Dental Clinic, the Laboratory Monitors will be moved to the Decontamination Center (Bldg. 507), and the animal breeding colony will be located in Bldg. 507.

4. In accordance with the suggestion of the Bureau of Ships, a study has been conducted to determine whether a portion of Bldg. 351 can be converted with present funds and occupied immediately by some of the laboratory activities, as soon as the present occupants vacate, with the balance of the move to be completed when the entire project is approved. This study has indicated that the most desirable solution of this problem is movement of the Physics, Electronics and part of the Biological groups to the fourth floor and mezzanine of Bldg. 351. Plans and estimates are currently being prepared on this basis and a formal request for approval will be submitted upon completion of the study. This solution is the optimum one for the following reasons:

(a) The activities selected can be moved with the least disruption of work and with the minimum of alterations required.

(b) The activities mentioned are located in the selected areas in the tentative final plans.

(ENCLOSURE B)

(c) Occupancy of the fourth floor can be accomplished with the least interference later from alterations to the balance of the building.

(d) Since the activities to be moved will be engaged for some time in a greater proportion of unclassified work, the security problem is simplified.

(e) Personnel outside the laboratory working on the building's remaining alterations will not have to pass through the fourth deck and mezzanine.

5. Planning for space allocation in all of Bldg. 351 is proceeding for purposes of completing architectural surveys. However, it is desired that further observations of other similar laboratories and discussions with experienced personnel be conducted prior to preparation of final detailed plans and specification for the new facilities and equipment. In this connection, visits were made to six University laboratories in this area to obtain the latest information regarding the design of animal breeding colonies and housing facilities. A great deal of practical information was gathered which will be of help in designing the proposed new animal quarters. In addition, one of the biologists was sent to a University animal colony for three days to gain added experience.

6. Animal cages and material necessary for animal maintenance and care have been ordered. The breeding colony when completed will provide about one thousand mice, five hundred rats, one hundred guinea pigs, one hundred rabbits and ten dogs per month. Breeding has already commenced on the rats sent from Bethesda in order to provide a suitable strain for toxicological studies. A card filing system has been established to keep a complete life history of all rats in the colony.

7. The first small neutron source has been received. Preliminary conversations have been made with regard to obtaining a cloud chamber on loan from the University of California. Arrangements have also been made to obtain an alpha proportional counter on the same basis.

B. SCIENTIFIC PERSONNEL

1. During the month scientific personnel reported for duty in the laboratory as follows:

Mr. Richard H. Davis	P-2 Physicist	11 July
Mr. Masato Tanabe	P-1 Chemist	29 July
Dr. Francis R. Holden	P-5 Chemist	21 July
Miss Elinor Shapiro	P-2 Chemist	30 July

Mr. Davis, upon reporting for duty was found to have the initial stages of tuberculosis. He was granted a leave of absence for six months. Mr. William Lee, listed last month for reporting for duty this month, decided not to accept employment. Dr. Holden has been assigned to the Physiological and Health Physics Section to work on the radioactive dust health hazard problem.

2. Other scientific personnel are expected to report for duty as follows:

Mr. Donald F. Mastick	P-4 Chemist	15 August

Mr. Jacob D. Graves	P-4 Physicist	10 Sept
Mr. Frank W. Brown	P-4 Physicist	5 August

Mr. Mastick is an experienced radiochemist formerly employed at Los Alamos. He will be placed in charge of all the radiochemical analysis work at the laboratory to relieve Lt.(jg) Morton for Clinical Research. Mr. Graves, now at Oak Ridge, has been working on isotope identification after the manner of Bloch at Stanford University. Mr. Brown, now at Radiation Laboratory, University of California, has been engaged in development of improved Geiger Counters.

3. Scientific personnel to whom offers of employment have been made are as follows:

Dr. Julius Roth	P-3 Chemist
Mr. Gonzalo Segura	P-3 Chemist
Dr. Eugene Huffman	P-6 Chemist

Dr. Roth has recently completed requirements for a doctor of philosophy at Stanford University. Mr. Segura has been employed at SAM Laboratories and Oak Ridge. Dr. Huffman has been associated for a number of years with MED and AEC as a radiochemist. He is now at the Radiation Laboratory, University of California and serving on a national board for declassification of AEC documents.

4. Scientific personnel under active consideration for positions at the laboratory are as follows:

Mr. V. Lawrence Parsegian	P-5 Physicist
Dr. Joseph W. Hickman	P-5 Chemist
Dr. Ted R. Norton	P-5 Chemist
Dr. Wesley E. Shelberg	P-4 Chemist
Mr. Justin J. Shapiro	P-3 Biologist
Dr. Jerome J. Howland	P-5 Chemist
Mr. Donald C. Moore	P-4 Physicist
Dr. Alfred Marshak	P-6 Biologist
Miss Dorothy Axelrod	P-4 Biologist
Mr. Eugene Tochilin	P-3 Physicist
Dr. Edward B. Sanigar	P-5 Chemist

5. Recruiting of physicists is proceeding satisfactorily. Except for the difficulty of obtaining qualified radiochemists, recruiting of chemists is considered satisfactory. The recruiting of personnel for the biological sciences has been taken in hand by Lt. Comdr. R. A. Conard and Lt. C. H. Hine, and it is expected that by the end of August the situation in this respect will have improved significantly. It is hoped that the temporary association of Dr. Wright Langham with the laboratory will lead to improvement in the recruiting of radiochemists and personnel in the biological sciences.

C. LABORATORY RESEARCH AND DEVELOPMENT WORK

1. The following projects were completed during the month:

(a) Radiochemical analysis of fuel oil from U.S.S. CRITTENDEN.

(b) Radiochemical analysis of soot deposited by burning oil from U.S.S. GASCONADE.

(c) Analysis of filter papers and canisters from gas mask tests initiated by Comdr. Phifer of Edgewood Arsenal.

(d) Radiological survey of U.S.S. CRITTENDEN.

2. Progress was made during the month on the following projects:

(a) Analyses of canisters worn by personnel aboard ex-target vessels for varying lengths of time.

(b) Determination of particle size of dust encountered aboard ships contaminated with radioactive materials.

(c) Determination of solubility of radioactive materials.

(d) Elementary analysis of radioactively contaminated dust.

(e) Sampling and analysis of different areas on U.S.S. PARCHE varying in type of surface, geometric configuration, and intensity of radiation.

(f) Testing of lye and other paint removers as methods of decontamination of exterior of conning tower of U.S.S. PARCHE.

(g) Preparation of samples for laboratory testing of decontamination solutions.

(h) Testing methods of routine analysis for fission elements.

(i) Measure of rate of decay of fission product aggregate.

(j) Determination of maximum and average beta and gamma ray energy of fission product aggregate.

(k) Preparation of beta ray standards of various energies.

(l) Testing end-window of Geiger-Mueller tubes of special design for use as means of alpha particle counting.

(m) Modification of autoscalers for automatic counting of samples of very low intensity for long periods.

(n) Statistical evaluation of ratio of alpha to beta radiation and beta to gamma radiation on target vessels.

(o) Analysis of aviation gasoline from U.S.S. INDEPENDENCE to determine presence and amount of radioactivity.

(p) Radiochemical analysis of sample of fuel oil from U.S.S. INDEPENDENCE.

(q) Analysis of sand from sandlbasting of U.S.S. PARCHE following sandblasting of hull.

(r) Production scale decontamination of U.S.S. PARCHE.

(s) Radiological surveys of CRITTENDEN, GASCONADE, NEVADA, PENSACOLA, and HUGHES.

(t) Modification of 263 survey meter to provide for tropicalization, cabinet humidity indication and other operational characteristics to make suitable for tropical conditions.

(u) Adaptation of mechanical counters to provide greater flexibility in counting, by addition of a micro-switch mechanism under development.

(v) Design and prototype fabrication of a sound-proof, non-microphonic amplifier container for a scaler instrument.

(w) Design and manufacture of a dust contamination collection instrument.

(x) Modification of L-325 counter for use as a hand monitoring device.

(y) Special monitoring, boxing and loading for shipment to NAMC Philadelphia of one TBM-3E from INDEPENDENCE.

D. SERVICE WORK

1. Maintenance requirements on 263 survey meters increased markedly during the month and were far in excess of anticipated needs. The short life of GM tubes, as well as chambers, has been a major contributing factor to 263 meter maintenance. Electronic maintenance of scalers, linear amplifiers, cathode ray oscilloscopes and other instruments has required moderate specialized attention. Procurement of component parts and other necessary materials for twenty-two specialized electronic instruments for the laboratory has been initiated.

2. Safety monitoring for the Shipyard crews on the INDEPENDENCE was conducted during the month. This consisted of monitoring for personnel opening up and inspecting compartments, instituting necessary fire prevention measures, and arranging for removal of gasoline. Radiological surveys will not commence until monitors can be made available from other assignments of higher priority. Monitoring of the CRITTENDEN has been completed and the final report is in preparation. The GASCONADE monitoring is about 85% complete. Samples of representative materials from the ship will be cut out as soon as removal of fuel oil has been completed. Sandblasting on the first third of the PARCHE is about completed. This work was temporarily halted during the last week of the month because of the large number of sandblasters on leave. Safety monitoring was conducted for a large number of official visitors on target vessels at this Shipyard and at Mare Island. This included three days with the Life Magazine photographer.

3. All samples received to date from target vessels have been inventoried and properly marked for identification. In addition, a system has been established whereby an index of all samples in card form is maintained. These cards contain all identifying data and permit a running inventory of samples.

4. Preliminary plans have been prepared for modifying the Decontamination Center to eliminate deficiencies and to afford closer control of spread of contamination.

5. The Radiological Safety Section has been functioning satisfactorily. Certain violations of safety precautions have been noted and are being corrected. The Decontamination Center is being redesigned and weekly inspections by Lt. Carlson of the center and of the ships are being instituted so that these violations will not occur. Initial physical examinations of fifty-nine (59) personnel for work on ex-target vessels were completed during the month. Monthly recheck examinations were given all personnel working on ex-target vessels.

6. During the month, Lt. Carlson and Lt. Morrison satisfactorily completed a course "Medical Aspects of Nuclear Physics" at the Medical Center, University of California. The training of pharmacist mates as radiochemistry technicians is proceeding satisfactorily.

7. Investigations in the field of medical-physics during the month included the following problems:

(a) Tests of sensitivities of Dupont Type A and Type B Dental Film compared to Eastman Type K film badge.

(b) Comparisons of high-sensitivity film for weak beta-gamma radiation.

(c) Comparison of dosages from personnel film badges worn for intervals of one day and one week.

(d) Test of the Eastman Type B Densitometer for use in Photographic Dosimetry.

(e) Search for a densitometer of high sensitivity for low density film badges.

(f) Establishment of reproducible simulations of actual shipboard conditions in the study of radioactive dust hazards. Dr. Holden, who has been assigned to the dust problem, has made many valuable suggestions and improvements.

(g) Test of Weston Model 877 Densitometer for use in Photographic Dosimetry.

ADDRESS REPLY:
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SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

~~AUG~~ 17 1947

Supt.

~~CONFIDENTIAL~~

From: Commander, Naval Shipyard, San Francisco
To: The Chief of the Bureau of Medicine and Surgery (Code 74)

Subj: Radiological Safety Reports, Forwarding of

Ref: (a) Dated dispatch 251730Z of August

Encl: (A) Weekly Radiological Safety Inspection Report
(B) Monthly Roster of Personnel (Radiological Health Section)
(C) Monthly Dosimetry Report

1. Reference (a) directed that routine Radiological Safety Reports be forwarded via official channels to the Bureau of Medicine and Surgery.

2. Enclosures (A), (B), and (C) are forwarded herewith in compliance with reference (a).

PHILIP LEHLER

cc: Cmdr. J. J. FEE

AT-4/T-14

"Our Sole Mission is to Serve the Fleet" P-1747

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RADIATION LABORATORY
SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

August 2, 1947.

From: The Bureau of Medicine and Surgery Projects Officer.
To : The Chief of the Bureau of Medicine and Surgery,
Att.: Captain C. F. Behrens, MC, USN.

Via : (1) Officer in Charge, Radiation Laboratory.

(2) Commander, U.S. Naval Shipyard, San Francisco, Calif.

Subject: Report of BuMed Projects Officer, Radiation Laboratory, U.S. Naval Shipyard San Francisco, Calif.

1. In response to requests of Captain C. F. Behrens, Captain R. H. Draeger and Captain O. Schneider, MC, USN. of the Atomic Defense group of BuMed this first of a series of monthly reports from the BuMed Projects Officer here is forwarded to the Surgeon General to keep the Bureau of Medicine and Surgery informed on all matters at the Radiation Laboratory of interest to the Bureau. It is intended that these reports will cover progress of research projects of interest to the Bureau of Medicine and Surgery, research problems, personnel and administrative problems and a general account of the activities of the medical personnel attached to the laboratory.

2. ADMINISTRATION.

(1) Organization - Much of the work here during the past month was concerned with administrative matters. The organization set-up has been worked out with the Officer in Charge according to verbal instructions from the Bureau. This set-up is outlined as follows:

BuMed.Projects Officer - Lt.Cdr. R.A. Conard,(MC)USN.
Ass't. BuMed.Projects Officer - Lt. G.F. Morrison(MC)USN.
Adm.Ass't. Lt.(jg) L.J. Smith,(MC),USN.
Clerical - A.H. MacNeil, CPhM.
P&S - H.O. Parrish, CPhM.

RADIOLOGICAL SAFETY SECTION
Radiological Health Officer
Lt. C.H. Carlson (MC) USN.
Dosimetry - S.R. Johns, CPhM.
" - W. Bistline,PhM.1c
Clinical Lab.- R.L. Ferkel,PhM.1c
Clinical Radio Chemist
Lt.(jg) M.E. Morton (MC) USN.
Laboratory - F.B. Folsom, CPhM.
" - J.M. Caldwell,CPhM.
" - F.L. Falgiano,CPhM.
" - Fred Little, PhM.2c
" - F.M. Ashler, PhM.3c

RESEARCH SECTION
Physiology & Health Physics
Lt.Cdr. R.K. Skow,(HS) USNR.
Ens. H. Von Radesky,(MC)USN.
Pharmacology & Toxicology
Lt. C. H. Hines, (MC) USN.
Hematology - Billet Unfilled
Pathology - Billet Unfilled
Bio Chemistry - Billet Unfilled

PERSONNEL ON DETACHED DUTY
D.F. Kinney, CPhM. - Bikini Survey
C.H. Thompson, CPhM. - " "
T. A. Gonzalez, PhM.1c- " "

8/2/47 A9-4(2)

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RADIATION LABORATORY
SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

Subject: Report of BuMed Projects Officer, Radiation Laboratory, U.S. Naval Shipyard San Francisco, Calif.

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2. ADMINISTRATION. (Continued).

(2) Personnel - The acquiring of scientific civilian personnel remains a major problem. Many prospective candidates have been contacted and personally interviewed. However, progress has been slow. In fact only two civilians are so far employed who are trained in the biological field, a bio-chemist (P-2) and a biologist (P-2). Personnel who have training in the field of biological radiation are urgently needed. Several such prospective candidates have been contacted. Should the laboratory contemplate hiring any biologists of a P-5 or higher classification their names will be submitted to the Bureau for approval.

It will be noted in the organization set-up that there are several vacancies in key positions of naval personnel in the medical section. If the Bureau intends filling these vacancies expedience in this matter would be appreciated due to the extreme shortage of personnel. Ordering of material and setting up the biological research sections is a tremendous job and could be better accomplished by each officer who is to head up his section. The Officer in Charge has agreed that after arrival of a radio chemist (this month) Dr. Morton and Lt. Morrison will be available for work more directly concerned with the biological and medical aspects.

Dr. Morton recommends that attempts be made to get Lt. H. Schochner, O-935140 MC AUS, M.D.F.R.L., Fort Knox, Ky., transferred here for duty. He has an M.D. and PhD. degree and has done considerable work in radiochemistry and has several publications to his credit.in this field. Col. James Coomey, MC USA. of Special Weapons Project was approached while here by Dr. Morton about Schochner's transfer and he intimated that he thought it a good idea.

3. PLANNING. Plans for the new building are well under way after many conferences and much revision. The laboratory and animal space on the mezzanine of the new building has reached the final stage of design. It has been decided to abolish the animal quarters on the roof due to the cost of construction and inaccessibility. It has also been decided that breeding colonies should be separated from the space used for animals. Modification of the second deck of the Decontamination building (across from the present Radiation Laboratory) will provide suitable space. It is anticipated that the breeding colony will provide adequate mice, rats, guinea pigs, rabbits and dogs for the anticipated expansion in activity of this laboratory.

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RADIATION LABORATORY
SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

Subject: Report of Bulked Projects Officer, Radiation Laboratory, U.S. Naval Shipyard San Francisco, Calif.

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4. RADIOLOGICAL SAFETY AND CLINICAL EXAMINATIONS: The Radiological Safety Section has been functioning satisfactorily. Certain violations of safety precautions have been noted and are being corrected. The decontamination station is being redesigned so that these violations will not occur. Initial physical examinations of fifty-nine (59) personnel for work on ex-target vessels were completed during the month. Monthly recheck examinations were given all personnel working on ex-target vessels.

5. TRAINING: During the month of July, Dr. Carlson and Lt. Morrison satisfactorily completed a course "Medical aspects of Nuclear Physics" at the University of California, Medical School. Training of radiochemistry technicians is proceeding. Frequent visits to the University of California are made by medical personnel for technical advise. Dr. Hines has made visits to six university laboratories in this area to obtain latest information regarding the design of animal breeding colonies and housing facilities. A good deal of practical information was gathered which was of help in designing the new animal quarters.

6. Visits were made to Admiral J. P. Owens, (MC) USN., the District Medical Officer and Captain A. G. Churchill, (MC) USN. the Senior Medical Officer, Naval Shipyard San Francisco. Both officers expressed keen interest in the laboratory and anxious to help in any way possible.

7. PROJECTS WORKED ON BY PERSONNEL OF THE MEDICAL SECTION:
The following personnel worked on the below listed projects - Lt. G.W. Morrison(MC)USN; Lt.(jg) M.E. Morton (MCR)USNR; F.B. Folsom,CPhM.; J.W. Caldwell, CPhM.; F.L. Falgiano, CPhM.

(1) Radiochemical analysis of soot deposited by burning oil from USS GASCONADE.
(2) Radiochemical analysis of fuel oil from USS CRITTENDEN.
(3) Analysis of filter paper and canisters from experiment initiated by Commander Phiffer.
(4) Analysis of certain canisters worn by personnel aboard ex-target vessels for varying periods of time.
(5) Determination of particle size of dust encountered aboard ships contaminated with radioactive materials.
(6) Determination of solubility of radioactive contamination.
(7) Elementary analysis of contaminated dust.
(8) Sampling and analysis of eight different areas varying in type of surface, geometric configuration; and intensity of radiation from USS PARCHE.
(9) Testing lye and other paint removers as methods of decontamination of exterior of conning tower of USS PARCHE.
(10) Preparation of samples for testing of decontamination solutions in laboratory.
(11) Testing methods of routine analysis for fission elements.

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SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

[redacted]NTIAL

AUG 18 1947

From: Commander, Naval Shipyard, San Francisco, California
To: Chief of the Bureau of Medicine and Surgery (Code 74)

Subj: Monthly Dosimetry Report for July 1947

Encl: (H.W.)
(A) Monthly Dosimetry Report for Month of July 1947.

1. Enclosure (A) is forwarded for information.

PHILIP LEMLER

8-18-47
(A9-4(2))

"Our Sole Mission is to Serve the Fleet"

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C-A9-4(00006)
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SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

SEP 24 1947

[redacted]

From: Commander, Naval Shipyard, San Francisco
To: Chief of the Bureau of Ships (Code 400-489)
Chief of the Bureau of Medicine and Surgery (Code 74)
Chief of the Bureau of Aeronautics (Code AE-45)
Chief of the Bureau of Yards and Docks (Code D4)

Subj: Monthly Progress Report of Radiation Laboratory for Month of August 1947; Submission of

Ref: (a) BuShips-Dated SECRET 1tr S(99) BuShips Serial 00[illegible], Dated Serial 00[illegible] of 18 Feb 1947.

Encls: (A) Radiation Laboratory Administrative Progress Report for Month of August 1947.
(B) Radiation Laboratory Technical Progress Report for Month of August 1947.
(C) Radiation Laboratory Radiological Health Progress Report for Month of August 1947.

1. Enclosures (A), (B) and (C), reporting progress of the Radiation Laboratory for the month of August 1947, are submitted herewith in compliance with reference (a).

PHILIP [illegible]

9-24-47
(A9-4(b))

"Our Sole Mission is to Serve the Fleet"

[redacted]

Administrative Progress Report for Month of August 1947

A. NON-SCIENTIFIC PERSONNEL

1. Additional clerical positions as indicated in the proposed organization chart submitted with the progress report for the month of July have been established. Candidates for one clerk-stenographer CAF-4, and one clerk-typist CAF-3 positions have been interviewed and employment requested. They are expected to be put on the Laboratory rolls in the immediate future.

2. In the Supply Unit, F. J. Pinkert was employed as Property and Supply Clerk CAF-6 and R. E. Kohr as clerk-typist CAF-2 during the month. Positions still vacant in this unit are one Storekeeper CAF-3 and one File Clerk CAF-2.

3. Two additional monitors, Mrs. C. Goffin and Mrs. R. P. Richardson reported to the Laboratory for duty. This brought the total of monitors assigned to the Laboratory to eight in addition to the Senior Monitor. Lt(jg) Bratton and Mrs. Scott are in Pearl Harbor surveying the NEVADA. Mrs. Taylor and Mrs. Smith are at Puget Sound conducting radiological surveys of the targets there. It is intended to send Mrs. Richardson and Mrs. Goffin to Puget Sound to assist with the work there.

4. A messenger, Fred Allen CPC-3, has been added to the rolls.

B. SECURITY

1. In accordance with verbal instructions received from the Bureau of Ships, AEC Personnel Security Questionnaires are being prepared for all Laboratory personnel who will require AEC "Q" clearance for access to or possession of "restricted data" documents in the proper performance of their duties. The forms will be submitted to the Bureau of Ships for processing and forwarding via official channels to the Atomic Energy Commission. It is hoped that this action will eliminate the difficulties which have been experienced to date in attempting to obtain necessary information and materials for carrying out the assigned mission.

2. The Berkeley Area Manager of AEC has advised that previous requests for access to "restricted data" by personnel of the Laboratory holding AEC clearances published by ONR have been forwarded to Washington, D.C. for action. The Area Manager also stated that he would advise immediately upon receipt of instructions from Washington. No notification of action has been received as yet.

3. Several requests for possession of "restricted data" documents considered essential for and pertinent to the Laboratory's program have been forwarded to the Bureau of Ships. As rapidly as information becomes available as to report numbers and/or titles appropriate requests for possession are being submitted.

(ENCLOSURE (A))

[redacted]

C. [illegible]

1. During a visit to Washington, D.C., in the early part of the month, Comdr. Fee, the Officer-in-Charge, discussed the organization of the Laboratory with representatives of the Bureau of Ships and the Bureau of Medicine and Surgery. The most important factors established during these discussions were:

(a) The number and designation of proposed officer and enlisted personnel billets.

(b) The establishment of a Planning and Review Board to include the Technical Director and all Bureau Projects Officers.

(c) The placing of all military personnel engaged in Laboratory research work in the groups directly under the Technical Director.

2. Submission of the final proposed organization chart of the Laboratory has been delayed to incorporate the changes discussed above. The chart has also been modified to indicate additional professional positions for which authorization to establish is being requested.

3. Assignment of personnel to specific billets and modifications in organization decided in conference at Washington have been effected.

D. [illegible]

1. Dr. Fisk, Director of Research of the Atomic Energy Commission, and Brig. Gen. McCormick, USA, of the Armed Forces Special Weapons Project visited the Laboratory during the month. The matter of obtaining materials, information and personnel assistance from the Atomic Energy Commission was discussed with Dr. Fisk. He promised to make every attempt to insure that AEC cooperated in every possible manner to assist the Laboratory in accomplishing its mission. General McCormick promised to exert every effort on his part to clear up some of the obvious misunderstandings which have arisen with respect to dealings between the Radiation Laboratory and the Berkeley Area of AEC.

2. Dr. Wright Langham from Los Alamos Scientific Laboratories spent the period from 20-31 August at the Laboratory in a consultant capacity. During his visit Dr. Langham studied and advised regarding Laboratory matters involving personnel, research and development program, procurement of information, equipment and facilities, and organization. The visit was most profitable. Dr. Langham indicated that visits for periods of a few days at a time can be arranged in similar manner at intervals of about six weeks to two months. It is considered that this is a most desirable procedure. In the course of Dr. Langham's visit, he advised that the bibliography of "restricted data" documents considered necessary for the Laboratory has been prepared and submitted to the Director of Security at Los Alamos.

3. In compliance with a request transmitted for the Laboratory by Dr. Fisk, Dr. William H. Sullivan, Scientific Liaison Officer from AEC to Chalk River,

[redacted]

Canada, visited the Laboratory on 23 and 25 August. The mission, program, and facilities of the Laboratory current and proposed were discussed with Dr. Sullivan with a view towards the possibility of obtaining his services as Technical Director. He was favorably impressed with the Laboratory and its program and will give serious consideration to becoming a candidate for the position. Before deciding to become an applicant, however, he desires to investigate what relations he might maintain with AEC in this capacity. As far as position goes, Dr. Sullivan advises that other conditions being satisfactory, he would accept a P-8 appointment. Dr. Sullivan promised to attempt to contact Admiral Solberg and the appropriate sections of Bureau of Ships and Bureau of Medicine and Surgery when he is in Washington. He expects to revisit the Laboratory in November, and, if desirous of applying for the Technical Directorship, expects to be available in January. Dr. Fisk indicated in his conversation, however, that AEC would probably agree to release Dr. Sullivan from his commitments to them in advance to help out the Laboratory. One further complication is caused by the fact that Dr. Sullivan is also directing certain research work at Oak Ridge which will not be completed before the year's end.

E. MISCELLANEOUS

1. Building 224, which was designed and built for use as an air raid shelter, has been turned over to the Radiation Laboratory for use as a radioactive sample storeroom. This building is eminently suited for the purpose as it is a separate unit, of heavy concrete construction and well removed from locations where delicate counters are in use. Plans are being prepared for modification of the building to fit it for its intended use. Conversion work is expected to commence in the immediate future.

2. Information has been received that plans and estimates should proceed and the justification letter submitted for the proposed move of the Physics, Electronics and Pathology Groups to the fourth floor of Building 351. The total cost of this move must not exceed $60,000 with building alterations not in excess of $20,000. Plans and estimates for this move are in progress.

3. Information has also been received that the $10,000 appropriated for the Laboratory made available under BuNAD Project 10/47 and later recalled, will be reinstated in the same amount either under the same project or under a 1948 project. The nature of the purpose for which these funds are expended will not be restricted except that they be used in connection with the Radiation Laboratory research program.

4. A request for establishment of a Dular allowance for photographic equipment in the Laboratory has been submitted. The scientific nature of the Laboratory studies requires that precise control be effected in photographic work in order to obtain results capable of reliable evaluation and comparison. For this reason, the use of the photographic facilities available in the Shipyard is not considered a satisfactory solution for the Laboratory requirements.

5. Steps have been instituted to establish in the Laboratory a stock of commonly used items. Usage data are being compiled concurrently with a view towards establishment of high and low levels and a stock control procedure.

[redacted]

Technical Progress Report for Month of August 1947

A. FACILITIES

1. Expanding activities of the Laboratory made possible by receipt of equipment and addition of scientific personnel have made necessary provision of further Laboratory working spaces and more intensive utilization of spaces already assigned to the Laboratory. This need was evident earlier and initial steps in accomplishment were reported in July. It has been accentuated by unavoidable delay in occupying any space in Bldg. 351 and by further additions to the scientific staff which will be made in the coming two months. Bldg. 510, the former Warrant Officer's Mess will be taken over immediately to house Laboratory activities of the Physics Group, main electronics shop facilities and a part of supplies. No extensive remodeling is required in order to occupy Bldg. 510 and such alterations and installations as are needed will be made while the space is being used.

2. Plans have been completed for alterations to Bldg. 307 to accommodate Laboratory Monitors and part of the requirements of the Biological-Medical Research Group; work will be started in September. Final plans have been prepared for alteration of Bldg. 306, and alterations have been partly accomplished; completion is expected in October. In Bldg. 306, provision for such expanded chemical work has been taken into account and also immediately anticipated biological and radiological safety Laboratory requirements. Some work of a highly classified nature will be equipped in a well guarded area.

3. Architectural plans for conversion of Bldg. 351 are well progressed. Space allocations have been tentatively decided and structural requirements studied. Proposed visits to confer with personnel of similar existing and planned laboratories and inspection of their facilities has been delayed by necessary clearance required. It is expected that delaying obstacles will be removed by requests for clearance now submitted.

4. Procurement of equipment and supplies is in the main, satisfactory. Some items, notably books and periodicals, ordered prior to establishment of current purchasing procedure should have been delivered. Such orders are being surveyed with a view to direct purchase or other means of expediting delivery. Full time services of yard trade personnel are being provided when the workload justifies to expedite fabrication of equipment within the yard. Further measures of this nature are being instituted including own shop and design facilities.

5. Major items of equipment received by the Laboratory within the month are a cloud chamber obtained on indefinite loan from the University of California and calibrated radiation standards from the Bureau of Standards. Steps to obtain a 2MEV electrostatic generator have been initiated.

B. SCIENTIFIC PERSONNEL

1. During the month additional scientific personnel reported as follows:

(ENCLOSURE (2))

Mr. Frank S. Brown, P-4 Physicist
Mr. Donald F. Mastick, P-4 Chemist
Mr. Eugene Tochilin, P-3 Physicist

Mr. Brown has been assigned to work connected with the Laboratory Geiger tube requirements and to photographic plate detection investigation. Mr. Mastick has assumed duties covering all radiochemical separation and assay concerned with research and service projects of the Laboratory. He will, in addition, be engaged in the program of surface decontamination studies. Mr. Morton who formerly was occupied to a large extent with radiochemical assay of general interest is immediately shifting his efforts to clinical assay and to research in radiochemistry of interest in biology. Lt. Morrison has also been reassigned from general chemical assay to Assistant Rated Projects Officer and to aid in clinical assay.

2. Personnel who have accepted offers of employment together with expected dates on which they will begin work are as follows:

Dr. Edward B. Sanigar, P-5 Chemist	15 Oct.
Mr. Jacob B. Graves, P-4 Physicist	15 Sept.
Mr. Gonzalo Segura, P-3 Chemist	1 Oct.
Mr. Leon Leventhal, P-3 Chemist	15 Oct.
Mr. Justin J. Shapiro, P-3 Biologist	25 Sept.
Mr. William Lamb, P-1 Physicist	3 Sept.
Mr. Alfred B. Billoughby, P-1 Physicist	3 Sept.

Messrs. Graves' and Segura's qualifications were outlined in the July progress report. Mr. Sanigar is a physical chemist who for the past two years has been working on biological problems, employing physico-chemical methods in their study. Mr. Leventhal is completing B.S. work at U.C.L.A. in radiochemistry and has had production experience at Los Alamos. Mr. Shapiro is a biologist with experience in electronic applications in the biological field.

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

Dr. Paul F. Hahn, P-6 Biologist
Dr. Joseph W. Hickman, P-5 Chemist
Dr. Wesley E. Shelberg, P-4 Chemist
Dr. Leslie McClaine, P-3 Chemist
Mr. Neil A. Marshall, P-3 Physicist
Miss E. Fusselle, P-1 Chemist

Negotiations are in progress with all of the above and, if successful, it is expected that all will be available in the near future. Under consideration also, but at possible later dates, are:

Dr. William H. Sullivan, P-8 Scientific Research Administrator
Dr. Jerome J. Rowland, P-5 Chemist
Dr. Ted R. Norton, P-5 Chemist
Miss Dorothy Amalrod, P-4 Biologist

Inquiries or applications have been received from several other persons relative to technical employment.

4. Offers of employment tendered during the month of July to Dr. Eugene Kuffman and Dr. Julius Roth were declined.

5. Negotiations are progressing toward contracting for the consultant services of a number of outstanding technical personnel. Dr. Wright Langham of the Los Alamos Laboratories visited the Laboratory in a consultant capacity during the last week of August.

C. LABORATORY RESEARCH AND DEVELOPMENT WORK

1. The following projects were completed during the month:

(a) Radiochemical analysis of dust from the U.S.S. NEW YORK, collected by filter queen and by canisters of gas masks worn aboard, and from U.S.S. CRITTENDEN collected by gas mask canisters. Results show relatively low hazards from dust on the U.S.S. NEW YORK according to criteria in use and similarly, adequate protection of personnel working aboard by M-11 canisters in Army assault masks.

(b) Radiochemical analysis of aviation gasoline from U.S.S. [illegible]. - Contamination was negligible and the gasoline will be disposed of by normal use.

(c) Radiochemical analysis of fish and edible marine life taken in vicinity of ex-Tarvos at Pearl Harbor. No significant hazard for human consumption was detected.

(d) Preparation of absolute beta standards from the decay products of radon and uranium-X giving standards of bismuth 210 and protactinium 234. - It is expected that these standards will permit estimation of fission products in their aggregates.

(e) Mathematical analysis of beta to gamma radiation on ex-Tarvos. - Results are negative; no consistent ratio is found.

(f) Densitometer of high sensitivity for low density film badges. - Modification of Photovolt Corp. Model 500, gives increased sensitivity.

(g) Radiological examination of contaminated work clothing and RBA face mask from Kwajalein. - In the main, contamination does not exceed AEC standards.

(h) Radiochemical analysis of fuel oil from U.S.S. [illegible]. - Contamination was within safe limits for disposal as with other oil examined.

(i) Comparison of weekly and daily developed film badges. - Weekly development is preferred and is found satisfactory.

(j) Test of Eastman Type B densitometer. - Not recommended for film badge work.

(k) Experimental monitoring survey of U.S.S. CRITTENDEN, U.S.S. NEVADA and U.S.S. PENSACOLA.

2. Work was conducted in the month on the following projects:

(a) Determination of radioactivity of ex-Tarvec dust as a function of particle size. - Standard screened samples from U.S.S. INDEPENDENCE ranging from + 10 mesh to through 325 mesh increase in activity with decreasing size. The activity is approximately proportional to 20 r^{-1} where r is the average particle radius.

(b) Sampling and analysis of different areas on U.S.S. PARCHE varying in type of surface, geometric configuration and intensity of radiation.

(c) Testing methods of routine analysis for fission elements.

(d) Radiochemical analysis of sand from sandblasting operations on U.S.S. PARCHE.

(e) Standardization of alpha and beta counters.

(f) Radiological survey of TEN-JE from U.S.S. INDEPENDENCE. - Special monitoring, boxing and shipment to NARC Philadelphia accomplished. Radiochemical analysis of paint sample has shown necessity of development of procedure and this is under way.

(g) Radiochemical analysis of wild rats trapped aboard U.S.S. PENSACOLA. - Significant quantities of radioactive materials are present.

(h) Study of conditions of stability of thiophene trifluoro acetone-plutonium complex in presence of elements found in biological materials.

(i) The effect of radiation on thyroid gland regulation of body metabolism.

(j) Alterations in physical-chemical properties of gamma globulins and specific immune bodies as produced by radiation.

(k) Study of intensifiers for film for low intensity beta and gamma radiation.

(l) Study of gross hazard of dust on U.S.S. CRITTENDEN from Health Physics standpoint.

(m) Preparations for animal exposure to dust.

(n) Experimental monitoring survey of U.S.S. GARG MAN, U.S.S. HUGHES and U.S.S. SALT LAKE CITY. - Work has been completed on U.S.S. GARG MAN except for test runs of ventilating systems.

(o) Production scale decontamination of U.S.S. PARCHE.

B. SERVICE WORK

1. The situation relative to maintenance of 263 survey meters remains essentially as noted in July, requirements being at a high level. Service needs have been met. Maintenance requirements of laboratory electronics instruments has increased in line with accelerated workload. Modification or construction of special equipment has progressed in line with facilities and personnel.

2. Safety monitoring was carried out on the U.S.S. CURRENT after return from work in vicinity of ex-Tarawa at Kwajalein. Other safety monitoring consisted of surveys of the U.S.S. SHARKEY and U.S.S. TUNA in connection with work in progress, miscellaneous equipment removed from submarines, yard equipment used about ex-Tarawa and the power plant boiler in which contaminated fuel oil was burned.

[redacted]

[redacted] Radiological Health Progress Report for Month of August 1947.

1. The Radiological Health Section has now been organized as outlined in the Monthly Roster of Medical Personnel on duty with the Radiological Health Section. Lieutenant Berrian has been released from his duties with the Chemistry Section of the Laboratory and is now acting as the Assistant Bomed Projects Officer and in this capacity will help with the supervision of the Radiological Health program.

2. Lieutenant Norton has been relieved of his duties as Chief Chemist and is now established as the Clinical Radiochemist. In this capacity, he is now in the process of organizing this group and will have at least two Pharmacist's Mates to assist him. He is getting set up to run radiological urine and fecal examinations and possibly other clinical radiochemistry procedures. He will attempt to standardize these procedures for use in this Laboratory.

3. The Health-Physics program is now being organized and responsibility for this function will fall directly under the Health-Safety Section. Mr. Garrison with the assistance of Mr. Norton has been given the duty of organizing this program. The need of developing and standardizing procedures for the safety of laboratory personnel is a matter of utmost importance.

4. A Radiological Safety Advisory Committee has been established for the Laboratory. The following personnel have been assigned to the committee:

Lt. Cdr. R.A. Conard, (MC), USN	Senior Member
Lt. Cdr. R.K. Shaw, (MC), USNR	
Lt. C.F. Carlson, (MC), USN	
Lt(jg) R.S. Norton, (MCN), USNR	
Mr. B. Nestick, Chemist, P-4	

The purpose of this committee is to make decisions on all matters of Radiological Safety at the Laboratory and Shipyard, to collect all practical information on permissible limits of exposure of personnel and standards established by recognized organizations. From outside sources of information and research conducted in the Radiation Laboratory the committee will also prepare for the submission to the Bureau of Medicine and Surgery recommended radiological standards for the Navy.

5. It has been found at this activity that the Navmed form "Y" is not completely adaptable to Radiological Examinations. A suggested form for the Radiological Physical Examination has been prepared and will be made the subject of separate correspondence. This form contains all the pertinent features of the form "Y" with additional information required in examining personnel subject to radiation exposure. The following specific features have been added:

(a) The History has been enlarged to stress important associated diseases and to cover previous exposures to radiation.

(b) Examination of skin, hair, fingernails, and glands in detail.

(c) X-Ray report. (14" x 17" plate).

(d) In blood report "abnormal cells" added.

(e) Radiological urine analysis, radiological fecal analysis (if indicated).

(f) Summary of intervening monthly examinations including HGB, RBC, WBC, Differential, and R & H. Radiological urine analysis and abnormalities.

(g) Total radiological exposure to date. (Hours, Beta, and Gamma)

(h) Fingerprints (both hands).

6. A civilian worker recently reported to Doctor Carlson complaining of alopecia and numbness of the face. This man had worked six or eight months ago on acid decontamination of the salt water systems of operational Bikini ships. After complete examination it was decided that the symptomatology was in no way connected to any possible radiation exposure. However to be on the safe side this man was admitted to the Marine Hospital for a thorough checkup since it was deemed advisable to try to find a definite diagnosis for his symptoms. A diagnosis of alopecia, neurogenic was made there. In spite of attempts to check any connection of this case with radioactivity, rumor spread around among the yard workers that the man had radiation sickness. As a result of this case, further reassuring lectures to yard workers are being instituted. These lectures will be given once weekly and at the same time these men may ask questions which will help forestall any unfounded fears.

7. Forty Willson 790 L masks are now available here for use. Five hundred MSA Comfo masks are now on order which should complete the needs for this activity, plus the needs for Pearl, Bremerton, and Kwajalein. The use of these masks will be started this date. These masks have the advantage of being light and much more comfortable than the previous masks to wear. However, they are rather fragile and in checking the mask for snug fitting of the face piece, the procedure of reversing the valves is somewhat complicated and not easily performed by the average yard workman without damage to the valves. It may be necessary to assign one man the duty of reversing these valves. A sponge rubber disc backed by a wooden holder which fits over the filter diaphragm has been made. By using this device, changing of valves is unnecessary for checking the masks. Both methods will be tried to find which is the most practicable.

8. The precautions and procedures for personnel boarding Bikini target vessels were modified to conform with the latest directive regarding safety regulations.

A9-4/P16-2
(390)RAC:ahm

MONTHLY ROSTER OF BUMED PERSONNEL AT RADIATION LABORATORY

FOR MONTH OF SEPTEMBER 1947

Name and Rank	File or Service No.	Billet
Lt.Cdr. R.A. Conard, (MC), U.S.N.	110000	BuMed Projects Officer
Lt.Cdr. R.K. Skow, (HS), U.S.N.R.	241455	Health-Physics Research Officer
Lt. C.P. Carlson, (MC), U.S.N.	167608	Radiological Health-Safety Officer
Lt. G.W. Morrison, (MC), U.S.N.	273217	Asst. to BuMed Projects Officer
Lt. C.H. Hine, (MC), U.S.N.	154369	Pharmacology & Toxicology Officer
Lt. M.E. Morton, (MCR), U.S.N.R.	254462	Clinical Radiochemist
Lt.(jg) L.J. Smith, (MC), U.S.N.	201637	Administrative Asst.to Officer in Cl
Lt.(jg) J.A. Aimone, (MC), U.S.N.R.	151376	Physiology Assistant

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Johns, S.R., CPhM, USN	341-95-53	Dosimetry
MacNeil, A.H. CPhM, USN	207-17-22	BuMed Projects Office
Parrish, H.O. CPhM, USN	372-26-92	Property and Accounting
Falgiano, F.L. CPhM, USN	234-27-05	Clinical Radiochemistry
Caldwell, J.W. CPhM, USN	380-94-15	Clinical Radiochemistry
Folsom, F.B. CPhM, USN	268-63-68	Pharmacology and Toxicology
Kinney, O.F. CPhM, USN	283-05-53	Health Physics
Thompson, C.H. CPhM, USN	243-46-77	Pharmacology and Toxicology
Bistline, W. PhM1, USN	865-68-14	Dosimetry
Gonsales, T.A. PhMlc, USN	660-11-36	Dosimetry
Perkle, R.L. PhM1, USN	874-76-61	Radiological Health & Safety
Little, F. (n), PhM2, USN	225-38-12	Radiological Health & Safety
Ashler, F.W. PhM3, USN	329-77-32	Pharmacology and Toxicology

R.A. CONARD

Enc: (B)

A9-4

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SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

C-19-1/72-4(00003)
(390)/km

SECRET

[redacted]

From: Commander, Naval Shipyard, San Francisco
To: Chief of the Bureau of Ships (Code 489)

Subj: Industrial Requirements, Radiological Safety; Progress Report for August

Ref: (a) BuShips Conf ltr C-8(99)-(0)(489) of 29 April 1947.

1. Studies of Naval Shipyard Industrial Requirements for Radiological Safety were continued in compliance with reference (a) during the month of August. The first drafts of Chapters II and III have been completed in accordance with the tentative schedule established. Several minor revisions of the outline enclosed with reference (a) have been indicated for better organization of the material. These have been effected in the drafts prepared.

2. It is intended to hold the individual chapters until the entire draft is submitted in order to permit incorporation of new developments which may result from further studies. It is considered that this policy is advisable also from the standpoint of insuring proper correlation between chapters, elimination of duplications and provision of all the necessary data.

3. Letters have been sent to other Shipyards handling Nikini ex-target vessels requesting them to submit information and recommendations on the subject matter from their experience. These data will be incorporated into the complete draft submitted.

PHILIP LEHNER

CC: BuNav
BuDocks
NavShipYd Pearl
NavShipYd Pug
NavShipYd Mare

"Our Sole Mission is to Serve the Fleet"

A-4
9-11-47

COPY

Monthly Progress Report
Electronics Division-Design Branch

Code 945 | Date: 15 September | [redacted]

9-15-1945

Title and Index Number	Status and Remarks
214-5.1 Detection and Measurement of X-ray and Nuclear Radiation	NEAB 214-5.1 has been subdivided into the following six distinct projects: 1. BUSHIPS Problem S-1396 (NRL Problem N03-08) for general radiological instrument research. An alpha scintillation counter has been made and is now under study. A pulse circuit has been designed and built for use on a high intensity instrument. Test and auxillary equipment has been received and is in use and under evaluation. Arrangements have been made for a private contractor to furnish Geiger tube shells to NRL for filling and subsequent use as GFE on Navy contract NObsr-39318. Reports have been prepared on the low voltage Geiger tube and the corona regulator tube. Evaluation tests on commercial types of scalers are in progress as work preliminary to the design of the Navy type scaler. 2. Contract NObs-39318 with Sylvania for production of 50 radiological survey instruments AN/PDR-1 (XN-1). A second trip by a BUSHIPS representative was made to the contractor's plant on Sept. 11. Preliminary work on the pre-production model has been completed. Component parts and necessary drawings are ready for the fabrication of the first instrument. The pre-production model is scheduled for delivery in October. 3. Contract NObs-39236 with Westinghouse for research and development in radiological instrument systems. Actual Laboratory work has commenced. AEC clearance for certain contractor personnel has been requested. 4. Contract NObs-39235 with Sylvania for research and development in radiological counter tubes. Sample tubes have been supplied to contractor by NRL. AEC clearance for certain contractor personnel has been requested.

Will arrange for you to get these as a matter of routine

A9-4

Title and Index Number	Status and Remarks
214-5.1	(Continued) 5. Contract NObs-69234 with General Electric for research and development in radiological instruments. Actual laboratory work has begun. AEC clearance for certain contractor personnel has been requested. 6. Project D26 with Navy Electronics Laboratory for underwater radiological instrumentation research. Status of project has been requested by TWX. Three problems under Project D26 have been accepted by NEL: (a) Development of an underwater probe. (b) Development of water samplers (high sensitivity). (c) Develop high concentration water samplers (low sensitivity).

INCOMING ROUTE SHEET

San Francisco Naval Shipyard
San Francisco, California

Date Received 24 Sept. 1947

File No. Code 945 Serial № 149772

From Electronics Division, BuShips

To Radiation Laboratory, SFNS Sender's Date 15 Sept.

Subject Monthly Progress Report Encl: HW-SC

Section	Initialed By	Date	Remarks

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A9-4 9-15-1947

RADIATION LABORATORY ROUTE SLIP

Date Routed: 24 Sept.

Sender's Date: 15 Sept.

Date Received: 24 Sept.

Classification:

File No.: Code 945

Originator: BuShips, Electronics Division

To: RadLab

Subj: Monthly Progress Report

Code	Symbol	Date	Initial	Remarks
66	I	9/24	[illegible]	
01		9/25	PDP	
10		9/25	H	
12		9/26	RIC	
14		9/26	[illegible]	
37				
38		9/29	RKS	
20		9/29	[illegible]	
30		9/29	[illegible]	

Symbols: A - Action
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C-19-4(00026)
(390)/ky

SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

OCT 16 1947

[redacted]

From: Commander, Naval Shipyard, San Francisco
To: The Chief of the Bureau of Ships (Code 609)

Subj: Industrial Requirements, Radiological Safety; Progress Report for September

Ref: (a) BuShips Conf. ltr. C-S(99)-(0)(609) of 29 April 1947

1. Studies of Naval Shipyard Industrial Requirements for Radiological Safety were continued in accordance with reference (a) during the month of September. The first draft of Chapter IV has been completed in accordance with the schedule established. It is planned to handle Chapter V as the next problem. The personnel of the Radiation Laboratory are expected to provide much valuable assistance in the preparation of this chapter.

2. In response to request from this Shipyard, the Commander Naval Shipyard Puget Sound stated on 11 September that all pertinent information and recommendations developed by that Shipyard were in preparation and would be mailed on 30 September if an officer from the panel studying the matter at San Francisco Shipyard was unable to visit Puget Sound prior to that date to discuss details. Also, the Commander Pearl Harbor Naval Shipyard forwarded comments and recommendations applying to the subject problem from experience in Pearl Harbor. Much valuable information is being obtained from this report, and similar experience is anticipated in the case of the Puget Sound Shipyard comments.

PHILIP LEMLER

CC: BuMed
BuEAD
NavShipYd Pearl
NavShipYd Pug
NavShipYd Mare

A7-4
11-11-41

NAVGEN-49 (Rev. 6-46)

NAVAL SPEEDLETTER

B7

'AL SPEEDLETTER Form NAVGEN-49

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P14-2(46518)
(990)/Kn

OCT 13 1947

TO:

Chief of the Bureau of Ships (Code 400-689)

Ref: (a) BuShips Dispatch 251845, March

Encls: (A) List of Officer Personnel attached to Radiation Laboratory.
(B) List of Enlisted Personnel attached to Radiation Laboratory.
(C) List of Civilian Personnel attached to Radiation Laboratory.

Enclosure (A), (B) and (C) are forwarded herewith in accordance with reference (a). Prospective candidates under consideration will be included in the monthly progress report from the Radiation Laboratory.

C. J. CATER
Acting

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100
800

SIGNATURE AND TITLE

J. J. FEE
By direction

SENDER'S MAILING ADDRESS (INCLUDE OFFICE SYMBOL, IF DESIRED)

Commander
San Francisco Naval Shipyard
San Francisco 24, California

A9-4(b)

ATTENTION ADDRESSEE: Speedletter reply should be addressed as here shown, to insure prompt routing of reply.

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C-19-4(00012)
(Code 390)/47

SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

CONFIDENTIAL OCT 29 1947

[redacted]

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 AE-45)
Chief of the Bureau of Yards and Docks (Code B4)

Subj: Monthly Progress Report of Radiation Laboratory for Month of September 1947; Submission of

Ref: (a) BuShips - BuMed SECRET ltr S(99) BuShips Serial 00[illegible], BuMed Serial 00[illegible] of 18 February 1947.

Encls: (A) Radiation Laboratory Administrative Progress Report for Month of September 1947.
(B) Radiation Laboratory Technical Progress Report for Month of September 1947.
(C) Radiation Laboratory Radiological Safety Progress Report for Month of September 1947.

1. Enclosures (A), (B), and (C), reporting progress of the Radiation Laboratory for the month of September 1947 are submitted herewith in compliance with reference (a).

PHILIP LESLIE

10-29-47
(19-4(1...)

"Our Sole Mission is to Serve the Fleet"

[illegible]ministrative Progress Report for Month of September 1947

A. Personnel

1. The following non-professional personnel were added to the Laborat[illegible] rolls during the month:

Donovan, D.	Administrative Ass't. CAF-[illegible]
Andrews, [illegible] L.	Clerk-Typist - CAF-3
Hughes, J. [illegible]	Clerk-Typist - CAF-3
Montgomery, C. L.	Clerk-Stenographer - CAF-[illegible]

The following additional non-professional positions were [illegible] the month:

[illegible]

[illegible]

[illegible] rewritten and submitted to the Bureau of Ships with [illegible] location at the P-8 level. The position as rewritten requires a [illegible] of recognized ability and broad experience in nuclear sciences, pre[illegible] one who has been employed by or closely associated with the Manhattan [illegible] District Project and the Atomic Energy Commission or their contractors.

4. Correspondence has been prepared and submitted requesting establish[illegible]ment on a permanent basis of thirteen officer billets and twenty-four enlisted personnel billets in the Laboratory.

5. In spite of the fact that the Laboratory is almost at full planned strength in the Supply Unit, it is obvious that further increases in this

(ENCLOSURE A)

unit and [illegible] Clerical Unit will be necessary in the immediate future to [illegible] the workload. Steps have already been taken preliminary to increasing the supply unit. Requests for increase in the Clerical Unit will be deferred until the Chief Clerk and Administrative Assistant report for duty in the latter part of October.

5. A study is being made in conjunction with the Shipyard [illegible] to establish the qualifications and duties of safety inspectors [illegible] the officer positions that are expected to be detached in the near future. It is desired that the replacements be qualified safety inspectors [illegible] logical safety officers.

6. Schools

[illegible]

7. Medical Consultation

a. A Radiological Safety Advisory Board was established [illegible] to take primary action on all questions concerned [illegible] safety, establish detailed radiological safety procedures for the [illegible] and the Shipyard, to be applied at all times as fully as possible [illegible] information concerning radiation hazards and permissible limits of [illegible] and to prepare recommended permissible limits of exposure of personnel [illegible] submission to the Bureau of Medicine and Surgery. The Board is composed [illegible] of appropriate personnel from various divisions of the Laboratory and has as chairman the Bureau of Medicine and Surgery Projects Officer.

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Capt. R. C. Vieers, U.S.N., assumed the duties of Acting Technical Director for Dr. F. V. Hunt on 29 September.

[illegible]

[illegible] The Board of [illegible] met at the [illegible] Laboratory on 7 September.

[illegible] Dr. [illegible] Sternberg, Author physicist, [illegible] the [illegible] Laboratory [illegible] [illegible]

[illegible]

[illegible] operation was started and will be [illegible] [illegible]

[illegible]

[illegible]

1. Arrangements were completed with the University of California for [illegible] education of Laboratory personnel in subjects closely related to their [illegible] duties. Five civilians have been enrolled in part time courses in [illegible] science subjects at the University. Also, a contract has been negotiated for Dr. Indore Perlman to conduct a University extension course, Chemistry [illegible] (Nuclear Chemistry), in the Shipyard for the hours each Thursday evening. Thirty-three personnel, military and civilian, are enrolled in this course.

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At the present time, the efforts of the Laboratory to arrange for travel of civilian personnel are being seriously hampered by complete lack of funds in the Shipyard for this purpose. Travel of civilian scientists is essential for the purpose of acquiring scientific information, obtaining new techniques required in connection with the research program of the Lab[illegible] [illegible] and observing the operation of integration and [illegible] [illegible] problems of the type of similar work. [illegible] [illegible] the Bureau of Ships has requested [illegible] [illegible] for travel of Radiation Laboratory personnel or if [illegible] [illegible] funds for this purpose.

[illegible] the [illegible] Radiation Laboratory personnel [illegible] [illegible] for the purpose [illegible]

[illegible]

[redacted]

Technical Progress Report for Month of September 1947.

A. FACILITIES

1. Preliminary architectural drawings for building 351 were completed during the past month to include all recent modifications. The emphasis for establishing detail requirements for certain spaces of the fourth and mezzanine floor is particularly urgent in order that utilization of current funds may be effected. To this end, the Physics, Electronics and Biological layout for the proposed animal colony requirements are being expedited. Funds in the amount of $20,000 are currently available and can be used for necessary alterations to these areas on the fourth and the mezzanine floors.

2. Detailed plans have been completed for required alterations to Bldg. 506. As a result of these alterations, accompanied by a reassignment of laboratory spaces, increased facilities will become available for the Radiochemical Section and the Biological Research Section. It is anticipated that the alterations will commence about the second week of October and be completed by early December. In view of the extensiveness of alterations being undertaken on Bldg., 506, it is considered that it may be desireable to retain this building subsequent to the final move to Bldg. 351.
Much basic supply table equipment is on hand to outfit these laboratories but must be supplemented by special equipment obtained through open purchase.

3. Alterations to Bldg. 307, Decontamination Center, progressed favorably. This building is being modified to meet the need for improved personnel change house facilities, offices for officer monitors and adequate facilities for animal quarters for the Biological program. Completion dates for these alterations have been given as 15 November.

4. Building 510 is serving quite well as the temporary Electronics and Physics facilities. Supply stores and a machine shop are also being set up in this building to handle immediate requirements of the laboratory for these services.

5. In general, the facility considerations for the laboratory are being met by means of expansion to other yard buildings and through extensive alterations to existing buildings. The progress of this work is dependent however upon the availability of shipyard workmen and the relative priority on the basis of other yard work.

B. SCIENTIFIC PERSONNEL

1. During the month scientific personnel reported as follows:

Mr. Harold Brownstein	P-2 Biologist
Miss Ethelyn Fusselle	P-1 Chemist
Mr. John D. Graves	P-4 Physicist
Mr. William Lamb	P-1 Physicist
Mr. Alfred D. Willoughby	P-1 Physicist
Mr. Harold Hershenson	P-1 Chemist

([illegible])

Mr. Graves has been assigned primarily to the development of an alpha scintillation counter for study of plutonium distribution on radioactively contaminated surfaces.

2. Personnel who have accepted offers of employment together with expected dates on which they will report are as follows:

Dr. Edward H. Sanigar,	P-5 Chemist	15 October
Mr. Consalo Segura	P-3 Chemist	5 October
Mr. Leon Leventhal	P-3 Chemist	15 October
Mr. Justin J. Shapiro	P-3 Biologist	6 October
Dr. Wesley E. Shelberg	P-4 Chemist	27 October

Except for Dr. Shelberg, who is an organic chemist, the special qualifications of the personnel in this list were outlined in last month's progress report. Dr. Shelberg will be of great assistance to the biological section as well as considerable assistance on the plastic coatings problems for the disk program.

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

Dr. Paul F. Hahn	P-4 Biologist
Dr. Joseph W. Hickman	P-6 Chemist
Mr. Neil A. Marshall	P-4 Physicist
Dr. William H. Sullivan	P-8 Technical Director
Dr. James D. Hauschild	P-4 Biologist

An offer made to Dr. Hickman as a P-5 Chemist was turned down, principally on the basis of insufficient monetary inducement. The problem as to whether Dr. Hickman should be offered a P-6 Chemist will be one of the topics for discussion with Dr. William H. Sullivan on the occasion of his visit to the laboratory during the week of 6 October. With regard to other personnel in this list, negotiations are in progress, and, if successful, it is expected that all will be available within the next few weeks.

No other persons, at present, are under active consideration. Some forty or more letters of inquiries were received in the last week of September in response to two advertisements, one for radiochemists and one for radiobiologists, placed in the 15 September issue of the Chemical and Engineering News. As yet there has not been sufficient time to sift out promising candidates. At least a dozen persons now connected or formerly connected with AEC activities were among those responding.

Dr. Ted R. Norton, listed last month as under consideration, was passed over in favor of Dr. Shelberg since the laboratory had need for only one organic chemist.

4. An offer of employment tendered to Mr. V. Lawrence Parsegian was declined. Several other personnel not listed as under consideration in any previous progress reports declined formal offers of employment.

[redacted]

The following projects were completed during the month.

(a) Radiochemical analysis of aviation gasoline from the aft tanks of the U.S.S. Independence. In view of the low amounts of activity found, normal use of gasoline was recommended.

(b) Radiochemical analysis of fuel oil from the U.S.S. Independence. Degree of contamination and hazard involved for disposal as previously affected is considered to be within safe limits as set by AEC.

(c) Radiochemical analysis of water from tanks of U.S.S. Independence. Negligible contamination was found to be present and therefore permissable to dispose of the water without radiological safety hazard.

(d) Final report of experimental monitors findings for the U.S.S. Crittenden has been completed.

(e) Final report of experimental monitors findings for U.S.S. Nevada has been completed.

(f) A prototype 263 survey instrument has been designed for service under tropical conditions. A report has been written describing the manner of construction and scheme of dehumidification. The instrument will be shipped to Eniwetok Kwajalein in order to evaluate its characteristics when subjected to field operational use.

(g) A report of beta-gamma activity encountered during the dust solving operation with high-activity dust samples was prepared.

(h) A sound proof amplifier chamber to be used in conjunction with an alpha counter has been designed and constructed. Operational performance has proved highly satisfactory in that the response of the high gain chamber amplifier is not affected by external sounds.

(i) Operational evaluation of the modified Photovolt Model 500 densitometer for film badge reading was completed. It was necessary to modify this instrument somewhat in order to increase sensitivity in the low density range required for film badge work.

(j) The laboratory evaluation of the Eastman Type "S" densitometer was completed. Based upon laboratory findings, it was not recommended for film badge reading due to the inability to make reproducible readings.

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

(a) Research concerned with greater sensitivity in photographic films for low Beta-gamma radiation by means of higher sensitivity film or the use of intensifying materials is progressing. To date, the Eastman Type K film exhibits greatest sensitivity to the low levels of radiation.

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(b) The possibility of electrostatic precipitation methods for dust collection in lieu of filter cartridge methods is promising. Results are very promising for achieving levels of dust contamination without reliance on cartridge methods.

(c) Direct reading methods for determining levels of [illegible] are being pursued in conjunction with (b) above. [illegible] special breathing chambers are in [illegible] and [illegible] and other [illegible] a number of [illegible]

(d) Additional evaluation tests of the [illegible] [illegible]

(e) [illegible]

(f) Experimental monitoring of the [illegible] delayed because of the shortage of high voltage [illegible] monitors. This vessel is scheduled for dry-docking about [illegible]

(h) Radiochemical assay of a paint sample from the [illegible] located at Philadelphia Naval Air Material Center in [illegible] difficulty has been experienced with this experiment because of the [illegible] interference of certain elements contained in the paint, notably [illegible] Strontium.

(i) Detail plans have been received from Los Alamos for the construction of several parallel plate air-filled alpha chambers. Materials necessary for local manufacture of several monitors are now being procured.

[redacted] Physics group has initiated research on several specific problems. Included in their basic program will be the establishment and operation of laboratory facilities for construction and maintenance, including filling of tubes, for geiger counter circuits.

(n) The field of radiation detection by means of photographic processes is being investigated to determine ranges of sensitivity with available film or plate emulsions. Study of the fading of latent images when necessary to expose films for long periods required by low activity radiation is being studied as one aspect of the problem.

(o) Nuclear physics data will be compiled from existing physical information on absorption and scattering to provide data in the form of engineering tables for naval design use.

(p) Cloud chamber experiments are also contemplated upon the completion of the present task of setting up the machine in an operating condition.

(q) The establishment of fundamental procedures and techniques incident to fission element chemistry is continuing.

D. [redacted]

1. Maintenance of 263 survey instruments is being continued at a high level to meet requirements of monitoring crews. It is desired that additional NTM enlisted men be assigned to the laboratory for training in this phase of the radiological safety program.

[redacted]Radiological Health Section Progress Report for Month of September 1947

1. The organization of the Radiological Health Section has been firmed up during the past month and is now operating smoothly according to the set-up as outlined in last month's report.

2. Summary of Activities of the Radiological Health Section

(A) Radiological Safety

(1) Physical Examinations:

(a) Sixteen initial physical examinations and seventy-three recheck examinations were carried out by the Radiological Safety Health Officer at this activity.

(b) Fifty men from the USS CURRENT, ARS-22, were given full radiological physical examinations at Treasure Island by the Radiological Safety Officer.

(2) Inspections:

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

(3) Facilities:

(a) Plans for the revision of the Decontamination Center (Bldg. 507) have been completed and work will commence probably this week. Work on this building will start on the 1st. deck, and the 2nd. deck will be used for decontamination until completion of the remodeling of the 1st. deck. During the past two weeks the 2nd. deck has been repainted and more definite delineation between "clean" and "contaminated" areas has been established. This stop-gap arrangement for the 2nd. deck will be entirely adequate until the 1st. deck is ready for use (approximately 3 to 4 weeks hence.)

(4) Lectures:

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

(B) Dosimetry:

(1) Three hundred and seventy-one film badges have been developed. No overdoses were noted.

(2) Calibration of the DuPont films to be sent to other activities as requested has been carried out according to BuMed Dispatch 162015Z. These activities have been advised to use the film on a weekly basis due to the relatively low sensitivity of the DuPont film as compared to the Kastman type "K" film.

(C) Clinical Radiochemistry:

(1) Facilities:

(a) The Clinical Radiochemistry Laboratory has been established and equipped by Doctor Norton. The Laboratory contains a hood and one beta scaler has been provided for use in that

(ENCLOSURE C)

laboratory, another Beta Scaler and two alpha counters are needed when the acute shortage of counters in the laboratory has been relieved.

(2) Activities:

(a) Fifty urine samples for personnel on the USS CURRENT are in the process of being examined for plutonium and fission products.

(b) One milligram of plutonium was isolated from a sample of Bikini lagoon bottom for use in the Chemistry Section. Another milligram is being isolated for use in other sections of the laboratory.

(c) Samples of Y,Cb,Ce,Pr, and Dy, are being separated for the BuMed Projects Officer for use in biological research.

(d) A polonium sample was isolated for the Physics Group.

(e) Samples of carcasses, feces, and urine of wild rats were analyzed for fission products.

(D) Training:

(1) Lieutenant Harrison has established a definite program for training the BuMed personnel in Radio-biological techniques. There are scientists in the laboratory who will be called on to assist in lecturing.

3. The Radiological Safety Advisory Committee met for the first time in the past week and organization of the Health Physics program for the laboratory was begun as well as discussion of other responsibilities of this committee. A copy of the memorandum to the Officer-in-Charge concerning this meeting is enclosed.

4. The BuMed Projects Officer visited Washington during the past month and held conferences with BuMed and BuShips personnel. Many points of policy as well as other matters were discussed. It is understood that a letter of clarification is being formulated by the Bureaus.

5. The new Radiological Physical Examination form is now being printed. About five hundred copies will be printed and several hundred will be sent to the Bureau.

COPY

RADIATION LABORATORY, CODE 30

30 September 1947

From: Code 30
To: Officer-in-Charge

Subject: Meeting of Radiological Advisory Committee.

I. The Radiological Advisory Committee met this date and the following program and responsibilities were agreed upon:

(a) Health Physics Program for the Laboratory.
The health physics program will be headed by Dr. Carlson with Mr. Skoe and Dr. Morton as his assistants. A skeleton organization was organized to carry out the health physics program as follows:

(1) Medical. Dr. Carlson in charge. Function to carry out the necessary physical examinations, X-rays, etc. Establish first aid facilities and disseminate safety precautions.

(2) Clinical Laboratory examinations.
Dr. Morton in charge. Setting up standard procedures for and carrying out radiochemistry examinations of urine and feces; blood counts; blood smears, etc.

(3) Monitoring. Mr. Skoe in charge.
To include all aspects of laboratory monitoring as follows:

(a) Personnel, film badges, pocket electroscopes, monitoring of clothing, shoes, etc., special laundry facilities.

(b) Laboratory spaces.

(c) Special, such as spillages; handling of highly active material.

(d) Instruments-Supervise all health physics instrumentation.

(4) It was agreed that the heads of these three divisions with the duties outlined above would work out details; such as personnel requirements, equipment, etc. for their division and make recommendations to the committee at the next meeting. It is considered the responsibility of the committee to carry out the overall supervision of the health physics program. This program was considered to be of prime importance to the laboratory and should be given high priority.

II. <u>Tolerance standards for the laboratory.</u>
The committee will formulate tolerance standards for all phases of radiological hazards. It was decided to follow the ABC standards as a preliminary working basis. Those committee members in the health physics group were asked to prepare tolerance standards for their divisions and present them to the committee to be reviewed at the next meeting.

III. <u>Decisions of the radiological advisory committee</u>
This committee would hold meetings as required to make decisions and recommendations to the Officer in Charge on any matters regarding radiological hazards. At least three members would constitute a quorum on any decision.

Subject: Meeting of The Radiological Advisory Committee

IV. Recommendation to the Navy Department

It is anticipated that a long range function of this committee will be making recommendations to the Navy Department of far reaching importance in the field of radiological hazards such as suggested tolerances, standard procedures, and evaluation of various instruments and procedures for establishing their tolerances.

/s/ R. A. COMARD
Lieut. Comdr. (MC) USN
Senior Member

Copy to: Lt. Cdr. Shaw
Dr. Carlson
Dr. Norton
Dr. Mastick
File

ADDRESS REPLY:
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A9-4(48439)
(390)/Kh

NOV 15 1947

SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

RESTRICTED

From: Commander, Naval Shipyard, San Francisco
To: The Chief of the Bureau of Medicine and Surgery (Code 74)

Subj: Radiological Safety Reports, Forwarding of

Ref: (a) BuMed dispatch 251730Z of August 1947

Encl: (A) Radiological Health and Safety Section Inspection Report for October 1947
(B) Monthly Dosimetry Report

1. Reference (a) directed that routine Radiological Safety Reports be forwarded via official channels to the Bureau of Medicine and Surgery.

2. Enclosure (A), and (B) are forwarded herewith in compliance with reference (a).

PHILIP LEKLER

J. J. FEE
By direction

1/15 ml A9-4(4)

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(390)(30)

MONTHLY PROGRESS REPORT
RADIOLOGICAL HEALTH SECTION
MONTH OF OCTOBER,1947

I. SUMMARY OF ACTIVITIES OF THE RADIOLOGICAL HEALTH SECTION

(A) Radiological Safety

(1) Physical Examinations

(a) 134 initial physical examinations and 90 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 remodelling of the Decontamination Center (Bldg. 306). The temporary arrangement of using the second deck for decontamination while the first deck is undergoing revision seems to be entirely adequate.

(4) Lectures

(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 Officer 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 K 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.

(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.

RADIATION LABORATORY, CODE 30

22 October, 1947.

From: Code 30
To: Officer in Charge.

Subject: Meeting of Radiological Advisory Committee.

I. The organization of the Radiological Advisory Committee and a rearrangement proposed whereby there would be a closer tie-in with the technical director in view of his vast knowledge and experience in the field of Health-Physics. It was decided that by appointing Doctor Sullivan a member of the committee, he would have direct cognizance and affiliation in the activities of the committee, and in this capacity as technical director, could review all decisions in so far they affect the laboratory.

II. The proposed employment of a health physicist was discussed and considered advantageous. It was decided that he should occupy the position formerly occupied by Mr. Skow, in charge of all laboratory monitoring procedures. Mr. Skow will remain in charge of health-physics research.

III. A discussion followed as to the number of monitors that would be necessary to assist the health-physicist and the quality of such men. It was decided that three monitors would be sufficient for the immediate future. A background in electronics was considered desirable for these men. S.P. or CAF ratings would be considered sufficient. Mr. Donavon, the Administrative Officer, was present and agreed to attempt to get these men as soon as possible. Also, an attempt would be made to obtain one or two of these men on a loan basis.

IV. The subject of final clearance for target vessels was discussed and the following conclusions reached:

(1) The use of the 263 is no longer considered to be valid in estimating final clearance due to the extremely low Beta-Gamma readings present, the limitation of the instrument in the lower range readings, and the unpredictability of the Beta-Gamma to Alpha ratio present. It is considered that alpha contamination should be the criterion for clearance for target ships.

(2) Eliminate radio-chemical analysis in the laboratory as a criteria of determining the degree of contamination present. In order to establish with any degree of accuracy, decontamination in respect to Plutonium, it would be necessary to assay thousands of surface samples both before and after ship decontamination takes place. This would necessitate a great deal of laboratory space, equipment, and many personnel to effect such an analysis in a reasonable length of time. In order to circumvent such a laborious undertaking, the following procedure for decontamination is presented:

(a) First, clean very thoroughly all dust, rust loose paint and debris from the ship by mechanical means (scrubbing, soap and water etc.).
(b) Survey entire ship with a Beta-Gamma insensitive alpha survey meter such as the "walking poppy".
(c) Any spots showing alpha contaminated would then be scraped or sandblasted down to a bare metal or wood surface and then re-checked for alpha. Any firm paint surface with no history of painting since the bomb tests, showing no contamination would be considered to be uncontaminated beneath the paint. Broken paint surfaces should be scraped before being declared uncontaminated.
(d) All compartments and spaces which were open to contamination should be cleaned out by steam under pressure. Clean all ventilation systems aboard ship with steam under pressure. This procedure would clean crevices and areas unaccessible by other means. These should also be checked for final clearance with the alpha survey meter.
(e) If the target ships had at any time while in Bikini Lagoon used its evaporators or salt water systems, these systems should be decontaminated with the usual acid mixtures.
(f) The tolerance level of alpha radiation for final clearance was decided to be background count with the use of the alpha survey meter. Any finite tolerances cannot be set until further research is done to establish a logical basis. Hence, it would seem that the practical solution and unequivocal results would be obtained through physical decontamination until no further alpha emitter was found to be present using the most sensitive type of alpha survey instrument.

V. The board would like to have information on the cost of decontamination procedures on ships such as sandblasting, scraping, acid decontamination of salt water systems etc. so that it can better formulate its decisions on costs of these operations relative to laboratory analysis.

/s/ R.A. CONARD,
LT.CDR.(MC),U.S.N.
Senior Member

Copy to: Lt.Cdr. Skow
Dr. Carlson
Dr. Morton
Dr. Mastick
File

ADDRESS REPLY:
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C-A9-4(00030)
(390)/Kh

SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

DEC 3 1947

[redacted]

From: Commander, Naval Shipyard, San Francisco
To: The Chief of the Bureau of Ships (Code 689)

Subj: Industrial Requirements, Radiological Safety; Progress Report for October.

Ref: (a) BuShips Conf. Ltr. C-3(99)-(0)(689) of 29 April 1947

1. Studies of Naval Shipyard Industrial Requirements for Radiological Safety were continued in accordance with reference (a) during the month of October. The first draft of Chapter I was completed in the course of the month. Also, some discussion of Chapter V was undertaken.

2. Comdr. E. J. Hoffman of the Bureau of Ships, Code 689, met briefly with the panel of officers designated to conduct the subject study at this Shipyard. Comdr. Hoffman advised that the general method of approach being followed and the subject material being handled are in accordance with the general intent of the Bureau. Comdr. Hoffman did state, however, that the Bureau would like to see some of the rough drafts as prepared for general comment prior to final submission about 1 February 1948. The rough drafts already prepared will be forwarded accordingly in the near future, and drafts of additional Chapters will similarly be forwarded as completed.

PHILIP LEMLEN

CC: BuMed
BuY&D
NavShipYd Pearl
NavShipYd Puget
NavShipYd Mare

A9-4
12-3-47

ADDRESS REPLY:
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SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, 24, CALIFORNIA

A9-4(00029)
(390)/Kh

NOV 25 1947

[redacted]

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 October 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 October 1947.
(B) Radiation Laboratory Technical Progress Report for Month of October 1947.
(C) Radiation Laboratory Radiological Safety Progress Report for Month of October 1947.

1. Enclosures (A), (B) and (C), reporting progress of the Radiation Laboratory for the Month of October 1947 are submitted herewith in compliance with Reference (a).

PHILIP LEHLER

(19-4(2))

[redacted] 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 E.	Phys. Sci. Aide	SP-4
Welters, H. E.	Eng. Drftsman	SP-8
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.	Engr.	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-8	Scientific Research Admin.	4875
P-3	Electronics Engineer	4867
P-4	Biologist	4898
P-3	Biologist	4880
P-3	Biologist	4879
P-2	Biologist	4899
P-4	Chemist	4863
P-3	Chemist	4882
P-3	Chemist	4861

(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. <u>Security</u>.

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. Viscara, USN, and Dr. E. W. 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 300 which is the B.O.Q. 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. F. A. Hopkins, USN, and Dr. 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. Olsen of Camp Detrick, Frederick, Md., visited the Laboratory on 20 October for discussion of mutual problems with Dr. Holden, Dr. Gomard and Dr. Hime 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, overall 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.

[redacted]chnical Progress Report for Month of October 1947.

[redacted]

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 6)

(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 PARCHE 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. Dust 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 apparent 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.

[redacted]

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 K 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)

[redacted]

(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 analyzed 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 mylar 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 C. 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.

SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO 24, CALIFORNIA

A9-4(00031)
(390)/Kh

29 December 1947

[redacted]ENTIAL

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 Laboratory for the Month of November 1947 are submitted herewith in compliance with reference (a).

Philip Lemler
PHILIP LEMLER

DECLASSIFIED BY CHIEF, ISCM, DNA
John L. Bilby Jr.

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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:

Rate	Title	P.D. No.
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:

Rate	Title	P.D. No.
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.

(ENCLOSURE A)

B. SECURITY

1. In accordance with BuShips letter, S99-(0)(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 allocat 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

(ENCLOSURE B)

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.

(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 minometers 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.

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.

(ENCLOSURE C)

[redacted]

(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.

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