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B-DIVISION PROGRESS REPORT
May 20 - June 20, 195[illegible]

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I. ADMINISTRATION (Thomas L. Shipman, K. L., Leader)

A. General Remarks:

A consideration of the work of B-Division during the past month indicates that it separates itself into two general categories. Firstly, contributions to the routine service work and research of the Division; and second, the problems created by weapons test programs both completed and proposed.

1. First, let me touch briefly on points of interest in the first category.

a. Group B-2 is now offering a new service to laboratory workers wherein a trained first aid worker makes daily visits to a number of the outlying sites. By bringing medical aid to these workers rather than having them come to O-Building for it, it is hoped that minor injuries which would otherwise be neglected can now receive the attention they deserve. The young man doing this work has also been given intensive training in monitoring, safety, and industrial hygiene so that he will be of far greater value not only to B-Division but also to the sites visited. The new system has been in effect for only a couple of weeks but favorable comments have already been received.

b. Group B-3 reports two minor lost time injuries for the period in question. The frequency and severity rates for the year to date, however, remain a source of considerable pride. Of even greater significance is the greatly improved record of motor vehicle accidents with Laboratory workers being responsible for only two minor accidents during the month of May. The records for the months of both April and May were the best in the Laboratory's history.

c. Practically all programs in Group B-4 which had been interrupted

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by Operation Greenhouse are again progressing. Particular emphasis is being placed on the studies pertaining to radiation burns, and beta ray burns in particular. An intensive study is also under way on the use of new organic compounds to be used as scintillators. It has already been discovered that certain heterocyclic compounds are 10 to 20% more efficient than the substances which have been used in the past.

d. The Laboratory Section of Group [illegible] has made very significant progress in developing a method for the measurement of tritium in urine. In the case of one individual who received a high accidental exposure to this material urine assay was followed for a period of more than a month with 22 samples having been run to date. The results of the urine concentration of tritium versus time give a very satisfactory curve with a deviation from the curve of less than 10% for any single sample, indicating that the method is at least of adequate precision. A biological half-time of 8½ days was found; this was shorter than the previously calculated period as a result of the individual's adhering to a high fluid intake.

At the request of the Biophysics Section of Group H-1, members of Group H-5 joined forces with them to develop a special continuous sampling, counting, and recording unit to be used at Omega Site. The work was done and the equipment is functioning properly, indicating the very happy results arising from the informal collaboration between members of different groups in the Division.

e. A study of the report of Group H-[illegible] indicates that a not inconsiderable number of higher than permissible air samples can still be found in various parts of CMR-Division but this should not be regarded as a matter for concern; the attempts to meet the more rigid tolerances established last

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year have resulted in continuous improvement in the various parts of CWB-Division, and there is no reason to feel that these tolerances cannot be met with further refinements and improvements.

2. Representatives of every Group in B-Division participated in Operation Greenhouse. Group B-1 was amply represented in the Radiologic Safety Group, while B-4 participated principally in the Biomedical Program. With the exception of two monitors who will continue to operate in the Forward Area for some weeks, all members of the Division have now returned to Los Alamos. Those who remained at home, however, were affected both directly and indirectly. A large portion of the staff of Group B-4 washed and dried over 25,000 microscope slides and cover slips and have since prepared and mounted over 25,000 sections of tissue from experimental material from this operation. It seems probable that this is the greatest effort of this type which has ever been undertaken anywhere and the workers participating in this admittedly tedious work deserve a tremendous amount of credit.

It has now been officially decided that B-Division will be responsible for rad-safety at Operation Buster-Jangle, and it seems probable that this responsibility will continue to future test operations. The highly significant fall-out which occurred following two of the Greenhouse shots has served as a reminder that this feature of an operation cannot be regarded casually. Considering this fact in relation to the tests proposed for Operation Jangle indicates clearly that an extended program of air sampling and dust analysis must, of necessity, be an integral part of the forthcoming operation. Intensive planning for this feature of the work, together with equally intensive planning for the rad-safe work itself, is currently progressing. Preliminary Operations plans have been submitted to J-Division. The scope of Operation

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Buster-Jangle indicates clearly that the over-all rad-safe group for this operation, including those concerned with the dust collection program, will be much larger than was the case for Operation Ranger and present indications call for a personnel roster of approximately 130 people. The majority of these workers will be drawn from outside the Laboratory.

B. Personnel:

1. New Hires:

5/25	ROOT, Elsie O. (Casual)	[illegible]	Health Pass Ward
5/29	FERLAND, James Robert	[illegible]	Safety
6/4	CARLTON, Lee C.	[illegible]	Alt. Group Leader
6/11	FOSTER, W. Wayne (Summer)	[illegible]	Laboratory
6/16	MERRITT, Robert (Summer)	[illegible]	Radiobiology
6/18	PETTENGILL, Gordon F. (Summer	[illegible]	Biophysics

2. Transfers:

		From:	To:	
5/28	GARN, Marjorie L.	[illegible]	[illegible]	
6/4	MERRON, Martha L.	[illegible]	[illegible]	Biochemistry

3. Terminations:

5/25	PERRY, Charles H.	[illegible]	Assoc. Grp. Leader
6/16	AXEL, Arthur E.	[illegible]	TA Monitoring

4. Total Personnel:

Staff Members	22
Military Assigned	5
Military Loaned	2
Research Assistants	8
SCP's	33
Military Assigned	2
Casual (On Call)	4
ASD's	28
TOTAL	140

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II. GROUP H-1, RADIOLOGICAL SAFETY (T. N. White):

A. General Remarks:

Mr. Lee G. Gholson joined the staff of the Group as Alternate Group Leader on June 4, 1951.

It has been officially decided that responsibility for rad-safety in future field test operations will lie in the Health Division. This means mainly H-1. Wright Langham has released Major Payne S. Harris to H-1 on a part time basis for the purpose of this work.

B. Monitoring Section (Carl Buckland, Robert Barker):

Non-routine activities and changes in the routine work of the Section are reported in the following paragraphs.

General:

Robert Elliott was hired May 28 and is momentarily expected. He will work in the General Monitoring Sub-Section.

Robert Barker returned from Greenhouse on June 1.

Instrumentation:

1. A tritium sniffer has been installed in the East Gate Vault.

2. A neutron tolerance chart listing the tolerance time in hours per week for various energies at different counting rates was prepared.

3. Special tests were made of Landsverk dosimeters in conjunction with the Biophysics Section.

4. Tests of the hermetic seal of the Model K-111 Halshut dosimeters were made. Of 65 tested, only 16 were acceptable.

5. All new Ace Wee alpha meters are being equipped with permanently attached calibrated sources.

6. The visitor's film badge issue at Omega Site was discontinued June 16.

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7. The occurrence of stars in the nuclear track plates was explained as the result of cosmic radiation. The number of these found is to be reported and checked with published figures as to probability. Previously these were added to the recorded exposure readings.

8. An experiment testing various laundering agents is being carried out.

Surveys, Contamination, and Exposures:

1. Immediate coverage of an accidental tritium exposure in U-32 on May 25 indicates the increasing excretion rate as follows:

Immediate sample		1 ma/liter
+ 2 hrs	Post Exposure	2 ma/liter
+ 7 hrs	" "	6 ma/liter
Over 48 hours	" "	1 ma/liter

Tolerance is 140 ma/liter.

2. All the equipment and the maintenance facilities taken from U-Bldg. during its renovation were monitored.

3. A preliminary survey was made of the Van de Graaff and reported on June 1.

4. Operations were carried out with a large source at Rays on May 28 and 29. The exposure was high. Although there was no apparent spill, many of the personnel became contaminated. Recommendations were made to recheck the tank after operators with protective clothing have driven it.

5. The decontamination of equipment at TA-33 was supervised.

6. The air has been sampled for contaminates at the West Gate, Post Master, and the Water Boiler.

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7. Sources:

1 gram Ra-calibrated and washed 7 times

8 Ra sources - leak tested

1 Ra source - shipped out

4 Co sources - received

All Polonium-Beryllium sources being checked.

C. Monitoring Section (Simon Shlaer):

1. General Remarks:

George Angleton has been on vacation since the 11th of June.

Leonard Eddy has been on vacation since the 11th of June.

2. Work in Progress:

a. An investigation of the origin of airborne contamination in the Water Boiler room is being carried out. With the aid of B-5 and J-2 this contaminant was found to be Cs^{138} at a level of about half permissible amount. The exact source of this material is still uncertain, but is suspected that it originates from spilled 25 still in the interstices of one of the parts.

b. A converted Pee Wee is being modified to extend its range in order to measure its sensitivity to 14 Mev neutrons.

c. The sensitivity of several different film types to gamma rays is being investigated to choose suitable ones for use in the Nevada tests.

d. The plans of the Rad-Safe Building for Nevada are being studied with the needs of the Monitoring Section in mind. Required changes are being drawn up.

e. Ionization chamber equipment is being readied for use in plane survey of fall-out.

3. Work Completed:

a. Film holders for use in measuring gamma-rays at the Nevada tests have been designed, tested, and ordered.

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b. Tests requested by Dr. Harold Rossi have been carried out upon a new design of neutron ion chamber. The new design successfully avoids trouble caused by activation of the walls by the neutrons. The results are being reported to Rossi.

c. Dupont Type 502, the sensitive film of the 552 film packet, has been calibrated to beta rays in the range of 0.26 to 3.5 Mev. Because of its linear characteristic this film is superior to Eastman Type K for this purpose and it lends itself to a determination of both energy and dose on a single film with a suitable filter. A final report is in progress.

d. The calibration of the converted Pee Wee to neutrons in the range .03 to 5 Mev has been completed and a report submitted.

D. Meteorology Section (Maj. Robt. E. Raft, OIC):

1. Personnel:

Major Spohn, who will be assigned to this Section upon his return from overseas assignment, is currently reported to be leaving his overseas station during the period 15 June to 15 July. It is not expected that he will be here before 15 August.

2. General:

Fred B. White of the U. S. Weather Bureau visited this Section 18 June. The purpose of the visit was twofold; first, to establish the adequacy of available meteorological service for AEC engineering purposes; and second, to coordinate information exchange between the meteorological sections at the various AEC installations.

III. GROUP H-2, INDUSTRIAL MEDICINE (Robt. S. Grier, M. D.):

A. General Remarks:

There has been no decrease in the work load of H-2 during the past month and the number of pre-employment and termination physical examinations still continues to be heavy.

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Dr. Grier returned to the Project on May 28 following several weeks absence, and since his return routine physician visits to 5 Site have been suspended.

Expansion of first aid services to outlying sites was started during the month, with Wilbur Jackson, first aid man, making regularly scheduled visits to the various sites. He is to follow up all minor injuries, distribute first aid supplies, and assist with minor first aid problems relating to safety, monitoring, etc. To date these visits have been well received, and valuable time is being saved the Laboratory because of the first aid services being readily available at the work site.

The Hematology Section has commenced the task of obtaining complete blood counts on all personnel returning from Operation Greenhouse to the Project.

Talks were presented by the Group Leader before Naval Reserve Groups and before a group of Air Force physicians during the month. The Group Leader also spoke before a group of new employees this month. Dr. Harry Whipple presented a talk to a group of Navy Reservists.

The Group Leader assisted in preparing a paper read by Dr. William Oakes before the New Mexico State Medical Society meeting during the month.

IV. GROUP H-3, SAFETY (Day Raider):

A. Accident Record:

January 1 to June 1

Man-hours worked	1,249,000
Number of Disabling Injuries	5
Days Lost	37
Frequency (Incidents per 1,000,000 man-hours)	2.2
Severity (Days lost per 1,000 man-hours)	0.02

B. Industrial Accident Experience:

1. [redacted] Department, was disabled from May 7 through May 16 because of a back strain. On March 28 he reported a low back pain, this was caused from installing dies in a press. On April 5 he reported a neck pain

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from the original incident; on April 20 he again reported to Q-Building and was referred to the Los Alamos Medical Center for treatment of a back pain. He received diathermy treatments and on May 7 was authorized to stay off from work. Lost time, 10 days.

2. [redacted] Shop Department machinist, lost one day from work due to a corneal abrasion of his right eye. [redacted] worked in a shop where the cutting coolant used contained an irritating substance. [redacted] believes he got some of the coolant, and possibly some metal chips, in his eye when he temporarily took off his safety glasses to rub his eyes. Date of injury: June 5; lost time, 1 day.

C. Fire Loss Experience:

1. On June 3 there was a small fire in Sigma Building, Technical Area #1, when a compressor stuck and the electric driving motor continued to run which caused three V-belts to overheat, setting them on fire. Damage was confined to the belts; loss about $25.

2. On June 12 there was a fire at TD Site, Building #5, when paper covering the wall insulation was ignited from the sparks of a welder's torch. Part of the wall had to be torn out, from inside the building, to get at the fire. Damage, $200.

D. Motor Vehicle Accidents:

May 1 through May 31

Miles Driven	142,736
Number of Accidents	2
Rate (accidents per 100,000 miles)	1.4
Total Cost	$ 43.50

The motor vehicle accident experience for the month of May was an improvement over April and April had been the most favorable automotive accident experience ever recorded at the Laboratory.

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E. Personnel:

1. C. Austin Burch, safety engineer, returned on May 31 from an overseas assignment with Operation Greenhouse.

2. J. Robert Penland joined the Laboratory staff as a safety engineer with Group H-3 on May 29.

F. General Remarks:

1. A preliminary draft of a safety manual written by the CMX-7 Safety Committee was reviewed by the Safety Office.

2. A series of safety "explosives burning demonstrations" was started for Group CMX-3; other interested employees also attended.

3. The program of using the services of a dispensing optician began during the report period. This consultant has been taken to several shops where he has checked the condition and proper use of safety glasses, prescription and plano. A preliminary evaluation of results indicates this is a worthwhile program.

4. During the report period H-3 published the first of the proposed series of monthly safety information newsletters. It is planned that this newsletter will be used as a means transmitting information to all groups on matters of accidents, accident prevention, safety equipment and the like.

5. A new yellow shoe has been placed in stock and will be used as a Laboratory issue for those places of employment where an individual might be expected to get his personal shoes contaminated with radioactive substances.

6. H-3 has joined with the rest of H-Division in its part of the new staff member orientation program being conducted by the Assistant Director for Scientific Personnel.

7. The Group Leader, H-3, has been assigned additional duties in connection with disaster and defense planning for the Laboratory.

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V. GROUP H-4, BIOMEDICAL RESEARCH (Wright H. Langham):

A. General Remarks:

1. Wright Langham attended the Radium Tolerance Conference in New York June 12 and 13.

2. Norton Hayes was in Denver June 11-16 attending a meeting of the Organic Symposium of the American Chemical Society.

B. Biochemistry Section:

1. Kennic and Fairbrook:

Practically all of the ultracentrifuge work on fibrinogen has been interpreted. A few additional runs will have to be made in order to get this material in form for publication.

The radiated samples of fibrinogen have also been interpreted. A sample of fibrinogen in solution is to be irradiated to serve as a comparison for those irradiated in the dry state.

Work is continuing on the transforming substance. Ultracentrifugal and partial specific volume work has been completed on the ribo, deoxyribonucleic acids from pneumococcus type VI. Some work has been done on the polysaccharide. Emphasis is being put now on the assay of the transforming substance and the factors necessary for the transformation reaction.

Several infra-red runs have been made for the Dumia Corporation on materials submitted by them.

2. Carson, Johnson, Hayes, Bennett:

Fission product analyses of mice from Operation Greenhouse have been completed.

3. Ross and Lotz:

Runs on spleen respiration inhibitor factor of Dubois were continued.

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4. [illegible]

Continued work on mitotic poisons.

5. [illegible]

An intensive program has been started to follow up on the favorable results mentioned in previous reports concerning new organic compounds which have been synthesized as scintillators. It is hoped that more sensitive methods for the monitoring and counting of neutron, gamma, and weak beta radiation will result.

The program will continue to concern itself with synthesis until time can be found to initiate the physical testing.

C. Radiopathology Section:

1. Stomer and Simpson:

The work on correlation of dose with the duration of depression of mitotic activity following radiation is nearly complete.

2. Stomer:

A study of the effect on survival of transplantation of spleens from infant mice to adult radiated mice is under way. Since transplantation of adult spleens does not modify mortality while transplantation of infant spleens has been reported to be beneficial, the project is so devised as to determine at what age this effect is lost in the hope of determining what morphologic differences may account for it. The effect of tissues other than the spleen is also being investigated.

3. Mallinis, Lester, Fricke, Dunnes, plus the Radiopathology, Radiobiology, and Biochemistry Section Personnel:

The remaining tissues from Operation Greenhouse have been sectioned, stained, and filed. A total of approximately 25,000 microscopic slides were prepared in about 5 weeks.

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4. Lushbaugh and Bale:

Metabolic studies of beta radiation burns have been resumed. The new radiostrontium applicator delivers 14,000 rep to the skin in six minutes. Burns from radiostrontium are now being studied in order to compare them with the burns from the radiophosphorus which has a much slower delivery rate. In a second study we are trying to determine how many rep must be delivered to the skin in order to stop all enzymatic activity such as occurs immediately with thermal burns. Up to this point 240,000 rep inhibit 55-56% of the activity. Preliminary studies are being made of various infra-red sources in order to obtain a standard thermal source for comparative purposes.

5. Hensley and Lushbaugh:

Exposure of rabbit capillary vessel chambers to X-radiation continues. These preparations are being studied in order to determine the role surface capillary damage in radiation burns plays.

6. Lushbaugh:

Writing up of previous studies for publication has been resumed. An exhaustive study of the history of radiation burns and radiodermatitis is under way.

D. Radiobiology Section:

1. Sabine and Hiskelai:

The effect of low dosage radiation on the cholinesterase of the red cells and the blood picture of rabbits, and the effect of hemorrhage during the post-radiation period are being investigated.

A survey of individuals who are known to have been exposed to radiation and also individuals who have been exposed to toxic agents such as benzene, is in progress.

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Cholinesterase determinations are being made on persons in this laboratory as a starting point for following those who handle radioactive materials, should such a program become desirable.

2. Warren, Strong, Sanders:

The study of peripheral blood of rabbits to determine the effect of low dosage radiation is continuing. The occurrence of binucleated lymphocytes continues. Five animals have now received a total of 60 r total body radiation over a period of 20 weeks. Five animals were taken off exposure at 30 r total and are being examined for return of blood to normal. Ten animals continue as general controls.

The majority of our time during the past month has been devoted to assistance in the general histological program from Operation Greenhouse.

3. Warren:

The hematological study of the incidence of abnormal lymphocytes in the peripheral blood of workers in the Bayo Group, due to gamma radiation, is continuing.

4. Strong, Sanders, Marvin:

Determinations of total nitrogen content are being made on spleens and thymuses of CR-1 female mice which have been exposed to radiation.

E. Organic Chemistry Section:

1. General Remarks:

A. R. Ramsie attended the Organic Chemistry Symposium in Denver June 13-15. He also represented the Laboratory at the conference on new developments in tracer chemistry held at the Radiation Laboratory at Berkeley, June 18-19.

The Section was consulted by E. Robinson, CR-4, on the synthesis of organic compounds containing tritium.

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2. Work in Progress:

a. The synthesis of C^{14} alinurin is still in the cold run stage. An equipment failure during a cold run has necessitated the designing and construction of new equipment.

b. The synthesis of C^{14} metrazole has been completed and the compound is undergoing isolation and purification.

c. A complete calibration of a scaler and counter for the assay of C^{14} labeled compounds has been made.

3. Work Completed:-

The investigation for the methods of assay of formaldehyde and glycolic acid has been completed.

4. Report #48. The Analysis of Glycolic Acid and Formaldehyde, by A. R. Rennie.

VI. GROUP H-7, INDUSTRIAL HYGIENE (H. F. Schulte)

1. General Remarks:

A great deal of time was spent during this period in preparation for the Nevada tests. Members of the Group participated in conferences with representatives of J-Division and other groups. Meanwhile, work is going ahead on the construction of the necessary sampling equipment for this test program. Two members of the Group participated as observers in a meeting of an AFC committee considering the feasibility of the project from a health standpoint.

Plans have been made for a meeting of consultants on these aspects of the program of immediate concern to Group H-7; namely, those dealing with the particle problem and its related aspects. Two members of the Group spent several days in the vicinity of the Las Vegas site exploring the terrain and

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mapping roads. Most valuable information was obtained as a result of this trip. It now appears feasible to sample in all locations desired providing men, equipment, and transportation are available. A high volume electrostatic precipitator designed and built here has been undergoing tests and indications are that it will prove satisfactory for sampling at rates at least ten times greater than the commercially available instruments. Tests have been made with uranium dust using the MSA electrostatic precipitator as a standard to check efficiency.

The fall-out pans, which had been set out periodically to detect any possible fall-out from the Eniwetok tests were brought in and the work terminated on June 5. Nothing above normal background was found.

Work is still continuing on the determination of uranium^{235} in urine. A comprehensive report summarizing the work done to date was prepared during the month.

Since the apparatus used for the measurement of tritium in urine is now working satisfactorily, it is expected that additional work will be carried out on variations of the method with the hope of achieving a higher degree of precision and greater convenience in the method. Practically all current samples are now being handled with little delay. One individual who had received a rather high exposure was followed by urinalysis for a period of more than one month. Twenty-eight samples have been run on this individual to date, and the results of urine concentration versus time plotted on semilog paper give a very satisfactory straight line with a deviation of less than ten per cent for any single sample. This indicates that the method is capable of good precision, particularly since any variations found would include variations in fluid intake as well as in variations of the method. A biological half-time of 8½ days was found which is considerably shorter than previously reported. This is probably a reflection of the individual's adherence to the recommended

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high fluid through-put. This work is continuing.

Satisfactory sodium fluoride for the uranium determination has been obtained by making material in the laboratory from sodium carbonate and hydrofluoric acid. As a result, uranium in urine analyses are being started again. Some studies will be made in an effort to determine the cause of interference with this test by small amounts of contaminants.

A possible method for the analysis of tetrachloroethylene in air samples is being investigated in the laboratory. The method involves treatment of the sample with metallic sodium in a higher alcohol with subsequent titration of the chloride ion. Some interesting results are being obtained in the course of this investigation.

The need for increased facilities in the beryllium shop has made it necessary to re-examine the problem of hoods and air cleaning equipment for this shop. A recommendation has been made by the Field Section to centralize the air cleaning system and move it outside the shop itself. This has considerable advantage from a health standpoint and will permit better utilization of space in this relatively crowded shop.

Work on thorium in Sigma Building has been resumed and is being carried out on a larger scale. Air samples have been collected at all of the new operations and indicate that they are now being conducted without known health hazards. Also, modifications in the technique now being used in the operation of the vacuum furnaces have been followed closely by air sampling. The operators doing this work are wearing adequate respiratory equipment wherever this is necessary.

At the request of the Biophysics Section of Group H-1, assistance was given in studying air contamination in the workroom housing the water boiler and the fast reactor at Omega Site. Three separate sampling units were devised for this

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work and several calibrations were made on this equipment. A special continuous sampling, counting, and recording unit was assembled and set up in the fast reactor room to assist in the calibration of other air sampling units already located in this room. As a result, a similar device is being installed as a continuous monitoring unit which will remain in the fast reactor room.

Results of studies made on the B-4 exhaust filters in Sigma Building have established the efficiency of these units. This phase of the work can be considered complete for the present and the sampling unit located on the intake side of the unit has been removed. Samples will continue to be collected on the outlet side of the filters as a check on the amount of contamination being released to the atmosphere outside Sigma Building.

As a result of a request received from S Site, a survey was made of the facilities and methods used in supplying food to workers within the work area at S Site. The findings indicated that no serious lapse of good sanitary food handling practices prevailed. Several minor defects were noted and recommendations made for the correction of these conditions. Routine air sampling at S Site was continued.

A representative of the operating agency for Project Apple spent some time with the Group during the month. Air Sampling problems and others related to it were discussed with this representative.

Dr. Charles R. Williams, of the Liberty Mutual Insurance Company arrived to spend a month with the Group as a consultant. He will do work on the dust problems in connection with weapons testing and will also conduct a class in the use of the microscope for industrial hygiene purposes.

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B. **Statistical Summary:**

1. **Field Section:**

a. Air samples collected or field tests made for:

TNT	16
Toluene	8
Beryllium	2
Beta activity in airborne dust	4
Natural uranium	41
Enriched uranium	14
Thorium	[illegible]
Mercury	2
Cerium	16

b. Alpha counts made (no. samples) 80
Beta counts made (no. samples) 16

c. Calibration work

Hi-volume sampler	2
Manual indicator for volume	2
Filter Queens	4
Sales flow meters	2
Mass-Air Pump	1
Filter paper sampler (15 cm)	1
Hi-volume electrostatic precipitator	1
Orifice meters (1/2 inch)	2

d. Ventilation plans reviewed [illegible]

2. **Laboratory Section:**

a. Analyses completed:

Air:

Beryllium	[illegible]
Toluene	11
TNT	19

Urinalysis:

Cerium	16
Lead	[illegible]
Plutonium	176
Polonium	16
Sulfate ratio	2
Tritium	209
Uranium	[illegible]

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Miscellaneous:

Alpha and beta activity of precipitated moisture	1
Beta activity of plastic sheets	4
Beryllium in fluorescent tube	1

VII. GROUP H-6, SPECIAL MONITORING (Dean D. Meyer)

A. Special Problems:

Iso kinetic sampling tubes were installed in the exhaust ducts for Room 213 at DP West. Approximately $3000.00 worth of laboratory equipment was decontaminated and returned to use. In addition, approximately 6 kilograms of platinum was cleaned and returned to stock. A special job of monitoring and digging was carried out in the contaminated burial area. The operation was completed without mishap.

B. Monitoring:

Routine monitoring was carried out in all CMR areas. Daily tests for air-borne alpha contamination were made in areas handling alpha emitters. A total of 512 tests were taken in areas processing plutonium. Of these 82 were above the maximum allowable concentration. The highest concentration recorded was 0.1264 c/m/l. One hundred sixty-two tests were taken in the area processing polonium. None of these were above the maximum allowable concentration. Three hundred sixty-seven tests were taken in the areas processing uranium; of these five were above the maximum allowable concentration. The highest concentration recorded was0.0830 c/m/l. The average concentration of plutonium in the exhaust air discharged from the stacks at DP West was 0.0173 c/m/l, with a maximum of 0.2437 c/m/l. The average concentration of polonium in the exhaust air discharged from the stacks at DP East was 0.106 c/m/l, with a maximum of 1.073 c/m/l.

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C. General Remarks:

1. One hundred forty persons were sent to the Health Pass Ward during the month for collection of 24 hour urine specimens. Seventeen persons submitted samples using the home collection method. These include 74 University of California personnel, 51 Zia Company personnel, and 32 AEC personnel. Reports on all tests show concentrations below permissible levels in the urine.

2. CMB-3 continued work with actinium. Twenty-two air samples were taken during the month. Average air-borne activity was 0.002 c/m/l, with a maximum of 0.015 c/m/l. With one exception, the test samples decayed rapidly. This one sample grew with an apparent 6 to 8 day half life indicating possible RaAc.

June 30, 1951

THOMAS L. SHIPMAN, M. D.
Health Division Leader

cc: T. N. White
R. S. Orier
Roy Raider
W. H. Langham
H. F. Schulte
D. D. Meyer
File

[illegible] Date

[illegible] and date

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