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PUBLICLY RELEASABLE

LABORATORY PROGRAM REPORT

APRIL 20 TO MAY 2, 1951

107-8-52

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ADIODIVISION (Thomas E. Holzman, X. 21, Center

A. General Summary.

During the period covered by this report, it was observed that B-Division has been progressively affected by operations uncertainties. As a result, a number of the Division made the trip to the Forward Area and participated in one or another phase of the operation. This served as "realistic" Deputy of TD 3.2.5, the Radiologic Safety Group, while Flight E. Langham was Operations Officer for TD 3.2.2, the Biomedical Program. Every Group in the Division made its contribution. It would appear from this that little more than a skeleton crew was left in Los Alamos. It should be pointed out, however, that at no time was the Division unable to carry out all necessary responsibilities in the Laboratory. It cannot be denied, however, that it is probably easier to feel that B-Division should repeatedly become depopulated during test programs or that the Laboratory should maintain a fully manned organization to handle radiological safety programs in future tests. It would appear at the present time that there should be attached to B-Division one or preferably two thoroughly responsible and well-qualified men who would work in close conjunction with I-Division, and who would provide all necessary supervision for radiologic operations in future programs either in Nevada or Delaware. For their staff at the time of an operation they would draw heavily from the Laboratory, but also from other resources of support such as the Armed Forces, other AEC installations, or the Civil Defense organization.

Confirmed

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	
SINGLE REVIEW AUTHORIZED BY: <i>DOE/HQ 100 Memo 11/92</i>	DETERMINATION (CIRCLE NUMBER(S)) 1. CLASSIFICATION RETAINED 2. CLASSIFICATION CHANGED TO: 3. CONTAINS NO DOE CLASSIFIED INFO 4. COORDINATE WITH: 5. CLASSIFICATION CANCELLED 6. CLASSIFIED INFO BRACKETED 7. OTHER (SPECIFY):
REVIEWER (ADD): NAME: <i>Deanna W. Murphy</i>	
DATE: <i>11/18/96</i>	

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Even a superficial survey of the individual group reports indicates that local problems continued to receive careful attention. Shipments of source material to GSB-10 have been resumed and further Sage Canyon operations are anticipated within the coming month.

On April 28 a considerable part of the Argonne Laboratory became seriously contaminated from a leaking source container. Three men and their clothing were completely contaminated, as was an entire warehouse and its equipment. A careful survey indicated that there had been no absorption of active material. It was necessary, however, to devote approximately two weeks to decontaminating procedures. Careful recommendations have been made which are hoped will prevent any sort of repetition.

The industrial accident experience of the Laboratory continues to be favorable. During the period January 1 to May 1 there have been four disabling injuries with an average of 6.3 days lost per injury. It can be pointed out with pride that the record also shows the smallest number of motor vehicle accidents for any month in the Laboratory's history - a total of three accidents involving a total cost of \$69.00.

Members of the research group have continued steady progress. The Organic Section has completed the synthesis of Vitamin K labeled with C^{14} , and the Biochemistry Section has submitted for declassification and publication a paper on the absorption, retention, and excretion of tritium. In this paper tolerance levels are proposed and there is no reason to feel that these figures will not be accepted by the Division of Biology and Medicine. The proposed levels are as follows:

For tritium as HTO in inspired air: 6×10^{-5} mc/cc.

For tritium as HT in inspired air: 0.5 mc/cc.

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Recent events at Eniwetok, together with proposals for future test operations have clearly indicated that it will be very necessary to place far more emphasis on future industrial hygiene studies (dust collection and air sampling) at future tests. This will materially increase the burden of Group E-5.

Full reports on other routine activities may be obtained by referring to the individual Group reports.

3. Personnel:

1. New Hires:

5/1	VIGIL, Felix A.	E-1	Monitoring
5/12	WDS, Maxine T.	E-1	Monitoring

2. Transfers:

4/26	QUINNENBERY, Shirley J.	E-5	Laboratory
5/1	MARANAN, Katherine A.	E-3	Safety

3. Discharges:

		From:	TO:	
5/14	MARTINEZ, Elise S.	OGC-1	E-1	TA Monitoring

4. Total Personnel:

Staff Members.....	26
Military Assigned.....	3
Military Loaned.....	2
Research Assistants.....	7
SCP's.....	83
Military Assigned.....	2
Casual (on call).....	2
ASC's.....	<u>28</u>
TOTAL.....	156

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

A. General Remarks:

Several members of the Group have recently returned from Greenhouse as will be indicated in other sections of the report.

T. H. White is still away at Greenhouse.

B. Monitoring Section (Carl Eastland, Robert Barber):

1. General:

Maxine Hims joined the Film Sub-section on May 12. Felix Vigil joined the General Monitoring Sub-section on May 1.

George Littlejohn left for Greenhouse on May 18. R. L. Hoover returned from Greenhouse on May 21.

Charles Blackwell returned from Dahlgren on May 18, and Alex Gutierrez left for Dahlgren on May 13.

The Nevada plans were re-worked again. An alarm-type road monitor has been ordered for surveying the vehicles leaving the Control Point area.

The two radon breath samplers have been received and are being repaired by Calvin Linton. After repair and the receipt of some standard sources, Calvin will notify H-1 Monitoring for training in the use of the instruments. They will be permanently installed in Q-Building basement South side, if the radon background is found to be low.

2. Sub-Section I, General Monitoring:

A special T D reaction was surveyed for the H-1 Group. Urine counts have been negative to date. No gammas found; neutron tolerances were established with the assistance of the Biophysics Section.

On April 28, Fajardo received a leaking mesh-fission source that highly contaminated three H-2 personnel and their clothes and a complete warehouse and its equipment. High nose counts were found and urinalyses were negative. Two weeks were spent on decontamination. Recommendations were given on how this

could be prevented in the future. The emergency vehicle was put to good use in this particular episode.

Monitoring the Fajardo warehouse floor J-2 Building, and the Waste Treatment Laboratory has established the gross value of a floor type monitor. J-1 will be in possession of a monitor of this type on about June 6.

The second uranium air shipment arrived in Santa Fe in much better condition. The shipment personnel were very gracious over the recommendations that had been given concerning the previous shipment. After the paper roll-up and beam ends and protecting clothing removed, both places and men were cold.

A shipment of radioactive materials was surveyed for activity insofar as it was suspected of leakage after leaving its shipping point. No leakage or contamination was detected.

Recommendations were given to a member of the U-Building Van de Graaff Group that had over three times tolerance for R-10.

The Old Room Library was completely decontaminated and made ready for use by Group J-7.

The amount of salvage monitoring took another leap this period.

The monitoring at Aberdeen has been completed for the time being. Dahlgren will continue to require monitoring services through the middle of July.

A new system has been inaugurated for leak testing sodium sources. All sources will be set up on a definite schedule and will be tested at least every twelve months. The plans for the new leak tester were turned over to Dick Watts for action on May 19. It is hoped that the new tester will be portable so we will be able to check each source twice a year. The leak test and monitoring history of each source is being recorded on individual cards.

The Contaminated Bag will soon be packed with gauge systems by which a record can be kept by μ of the layer and lengths of what has been tested.

Three trunks were decontaminated along with several pieces of equipment in the new decontamination pit, the first since its completion.

Air samples were started at the West site on May 7 and will be continued through June 4. Negative results have been found so far.

3. Sub-Section III. Personnel Monitoring.

Considerable time was spent in coordination with the Biophysics Section in evaluating the merits of the sealed Cambridge, Kalotet, and Beckman dosimeters. By running in an evacuated indicator it was found that all the supposedly sealed Cambridge dosimeters leaked. The same was found for 45% of the Kalotet and Beckman.

The finger to wrist ratios have been completed for all areas and are now in effect.

Due to the continued non-straight line of the Beckman type K, it has been seriously considered changing to Dupont type D-1. There are some other reasons why this would be a good change.

Due to a shortage of personnel in C-400 it has become necessary for B-1 to load and trim all plastic film packets

4. Sub-Section III. Area Counters and Emergency Monitoring.

The End-Window counter has been moved from Ten-Site to A-Building where there was a more dire need.

All the members of the C-400-Section were given indoctrination on the instruments installed at Ten Site by C-400-7. C/m conversions to $\mu\text{r/hr}$ and c/m to $\text{R/cm}^2/\text{sec}$ were given. Instructions were posted on all instruments. The background meters were set to ring alarms at 6 $\mu\text{r/hr}$. A cadmium shield has been requested for use on the semi-portable neutron detectors. A cobalt source has been received for checking instruments

The first RaLa source was received at Ten Site on May 23.

5. Sub-Section N, Work Orders and Waste Treatment:

On three occasions the forward pump room in the Waste Treatment Lab produced above tolerance air counts for plutonium. By opening windows and creating more ventilation it was possible to bring the air counts below tolerance. The addition of the air crack in the roof also resulted in below tolerance readings.

The special laundry decontamination experiment was held up again due to necessary rebuilding of the agitator. Since that time several conclusive results have been obtained.

6. Sub-Section P, Waste Sites:

A high air count has been found on the east and west sides of the Water Boiler. It is not definitely known what the material is that is causing the trouble. The problem has been turned over to the Biophysics Section for analysis.

Some special neutron sources have been received by the P-5 Group and are being checked for neutron tolerances. One of the sources was found to be contaminated on the exterior and has therefore been packaged for return to the DP site.

Biophysics Section (Simon Shiner):

1. General Remarks:

Biophysics Section personnel returning from Operation Greenhouse are the following: Edwin Burdick, May 1; Lt. Col. Moly, May 17; Simon Shiner, May 19.

The radiation from americium in and from curium was investigated to determine whether there was any beta radiation present. None was found from either. However, there appear to be some conversion electrons from americium which are of such low energy that they will not penetrate the paper envelope on the film.

The gamma and beta surface doses from thorium were determined by standard film methods. The results give 25 mr/hr of 0.1 Mev gamma and 10 mrep/hr of about 2 Mev beta.

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A rough calibration of the converted Lee Lee to neutrons of energies ranging from 0.02 Mev to 5 Mev was completed. The data are being summarized.

Exposures for calibrations of Dupont 552 sensitive film to betas of different energies were completed. Films are now being interpreted.

The sensitivity of several types of film is being investigated to find a suitable set of films for the next Nevada tests.

Plans for film developing facilities at the Nevada Site were studied. Film processing equipment is now being made in the Sheet Metal Shop.

Five different designs of film badge holders for use at the Nevada Site have been tested in conjunction with 2 Site shots. Results will be given in a special report when the tests are completed.

Samples of Cambridge, Kalaheh, and Beckman dosimeters were tested for accuracy and adequate air sealing. On the basis of these tests certain specifications have been made to be fulfilled by any new dosimeters ordered.

D. Metecology Section (Maj. Robert E. Raft, OIC)

1. Personnel:

Maj. Clifford A. Spohn, will return from overseas in June, 1951, and will be assigned to Weather Detachment 2059-7L as the replacement for Maj. Robert E. Raft.

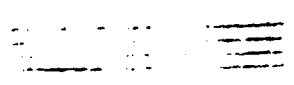
2. Operations:

The only operation engaged in by the weather section during this period was the preparation and dissemination of the daily weather forecast for Los Alamos.

3. Research:

A continuing analysis of weather records is being made with the hope of being able to establish correlations between the upper air pressure, temperature, and humidity data which elements were relatively slowly and continuously in time with the observed temperature, precipitation and wind conditions at Los Alamos.

Climatological records for Los Alamos are solicited as additional data become available.



211. GROUP B-3, FIVE-FILL MEMBERS (p. 1245

1. General Remarks:

The load of routine work of the Group is continuous at about the same level as in the previous month. The shift rate of turnover of personnel still persists. During most of this period we are not only our physician assistants but perform some of routine physical examinations as well as the care of the patients in the Q building dispensary.

On May 11 the new Clinic and station and clinical laboratory at 5 site were opened. Miss Middle Dean is the nurse in charge of the Clinic and station and Mrs. Rhoad Kertson and Mrs. Paul Cullerton are assigned to the clinical laboratory substitution.

Dr. Paul Alexander continued his employment with this Group as of May 1. Miss Kenneth Peterson, Nurse Supervisor, attended the convention of the American Association of Industrial Nurses in Atlantic City, New Jersey. While in the East she also visited the Medical Section of the Brotherhood National Laboratories and the AIC offices and Laboratories in New York City.

GROUP B-3, MEMBERS (Day Worker):

As of the change, a (date)

Accident Report (Summary) to the Hill	Members worked	Number of Missing Injuries
	2,820,000	4
		27
		2.2
		0.015

2. Industrial Accident Summary:

1. On April 6, [redacted] was carrying a four foot section of pipe in each hand and while going through a corridor the flange end of one of the pipes struck his leg. There was no visual injury apparent at that time but a few days later a bruise appeared. On April 12 [redacted] reported to [redacted] no returned on the 14th and again on the 16th, at which time

He was referred to the Los Alamos Medical Center. [redacted] injury is described as a tenderness of the lower right leg; the minor bruise was aggravated by a case of varicose veins. [redacted] was off from work on April 13 and also on the 14th and 17th of the month. Lost time charged, 3 days.

2. On April 18, [redacted] machinist in the Shop Department, hurt his finger while working in C Shop. [redacted] was holding one end of an adapter which fits into a milling machine while another employee knocked it out of the machine. [redacted] underestimated the weight of the adapter and when it was knocked loose it fell onto a table and cut his finger and tendon. He was treated at Los Alamos Medical Center. He did not return to work the day after the accident and was off until April 30. Lost time charged, 11 days.

C. Fire Loss Experiences

1. April 12, while performing some utility changes in a shop at 544 East Road, a Zia welder caused a small fire while using a cutting torch to cut a hole through a steel beam; damage was negligible.

2. On May 1, in Building #1, T-9 Site, a small fire was caused by a Zia man using a cutting torch; damage was negligible.

3. On May 3 there was a fire in the new Van de Graaff Building, Tech Area 3. The fire was caused when a static discharge ignited the fumes on the cotton belt, which was slightly frayed, inside the Van de Graaff tank. The tank was at that time pressurized with compressed air. The belt was a total loss although there was no damage done to the machine. Estimated loss, about \$500.

4. On May 7 there was a fire in the new D Building being constructed on South Mesa when a salamander was knocked over. The salamander ignited some oil; damage was negligible.

5. On May 8, about 2:00 a.m., there was a fire in Building 2-43 at C Site. This fire occurred in an experimenting setup when a heat control mechanism failed

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and excessive amounts of voltage overheated a resistive coil. This overheated an insulated box which ignited. The box was a complete loss as was a compressor which was attached to a sample being tested. Damage was about \$600.

D. Motor Vehicle Accidents (April 1 through April 30)

Miles driven	132,000
Number of accidents	3
Rate (Accidents per 100,000 miles)	2.3
Total Cost	\$69.00

The motor vehicle accident experience for the Laboratory during the month of April was the most favorable ever recorded. Of course, this one month experience is too small a sample to indicate as yet any real change in the motor vehicle accident record.

E. Personnel

1. The Group Leader, E-3, returned to Los Alamos from an overseas assignment in connection with Operation Greenhouse.

2. C. A. Burch, Safety Engineer, is currently overseas on an Operation Greenhouse assignment.

3. James Robert Penland, Safety Engineer, is expected to join our staff on May 28.

F. General Remarks

1. The final draft of the GE-1 safety manual was approved. It is expected to be published in the near future.

2. A preliminary draft of the GE-7 safety manual is currently being reviewed by this office.

3. The "Q" clearance arrived for the Laboratory's consulting optician and the program utilizing this individual's services will begin during the next report period.

4. The Group Leader, E-3, attended the Safety Information Meeting, May 14-16, in Washington, D. C., sponsored by the AEC Safety and Fire Protection Branch.

5. At the request of this Group a program has been set up for the periodic review of all emergency safety showers.

V. GROUP B-4. BIOLOGICAL RESEARCH (Wright H. Langham, Asst. E. Carter):

A. General Research:

1. Dr. F. Barton Hayes was in Chicago on April 27-28 to give talks on C^{14} Compounds in Biological Research, Nitrogen Mustards and Ethylenimines as Radioisotopic Drugs, and the Theory of Isotopic Organic Compounds.

3. Biochemistry Section:

1. Isenic and Ferric:

The chemical purification of desoxyribonucleoprotein from pneumococcus type VI has been accomplished at long last. This preparation is homogeneous on the centrifuge. As a by-product of the procedure, ribonucleoprotein is obtained in a fairly pure form. It is, however, contaminated with a small amount of the desoxyribonucleoprotein.

Mr. Furrings has made a rather complete ultracentrifugal study on the desoxyribonucleic acid, and is now completing a similar study on the desoxyribonucleoprotein. The partial specific volume has been determined on the desoxyribonucleic acid.

Mrs. Larkins is continuing the bioassay studies. All preparations of the so-called transforming substance thus far tested have shown actual biological transforming power. An effort is being made to quantitate this assay or at least to better understand the factors necessary to accomplish the transformation.

2. Carbon, Johnson, Mason, and Becker:

Having completion of fission product analysis on site for Operation Greenhouse.

3. Esqui:

A survey is being made of methods applicable to spleen fractionation (cf. April report).

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4. Acute Toxicity

As an extension of work performed elsewhere, it is believed a new cytotoxic compound has been prepared to be tested as a "mitotic poison", and with C. C. Lambough, it is to be tested on beta burns.

5. Research

The following compounds have been synthesized and submitted for testing as organic phosphorus in scintillation counters:

- 2-Phenyl-5-(2-naphthyl)-oxazole
- 2-tridecyl-5-(2-naphthyl)-oxazole
- 2-phenyl-5-(2-naphthyl)-thiazole
- 2-tridecyl-5-(2-naphthyl)-thiazole

C. Pathology Section

All experimental work has been temporarily discontinued pending completion of the programmatic work from Operation Greenhouse.

1. Malins, Smith, Ficks, Alvarez, Jahn, Brown, Lester, Korman, Sanders, Eise, Burrows, Fiers, Valente, and Stacey

Approximately 15,000 microscopic sections from material from Operation Greenhouse have been prepared.

2. Malins and Burrows

Microautographs of certain Greenhouse material have been made.

Pathology Section

1. Sabin and Nicholas

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 is in progress.

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.

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2. Human Blood Section

The study of peripheral blood of rabbits to determine the minimum dosage of gamma radiation necessary to bring about nuclear changes in the lymphocytes is continuing. Miscolored lymphocytes continue to occur on the blood slides. Radiation has been discontinued on 5 animals and the peripheral blood will be accounted as usual to determine the time it takes to return to normal. The remaining 5 are receiving 3 r per week (total body exposure).

Preparations are being made to run total nitrogens on spleens and thyroids on C57-B female mice to radiation.

The majority of our time for the past month has been taken up with assistance in the general histological program which is now in progress.

3. Human

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

I. Organic Chemistry Section

1. General Remarks

A. R. Roscio and A. Murray attended a meeting of the American Chemical Society at Socorro, New Mexico.

Dr. T. J. Raley, of the Radiation Laboratory at UCIA, spent a morning with this section.

Two conferences were held with Dr. J. L. McKibben, P-1, on the chemistry of organic films as related to such a film when present as a contamination on the Van de Graaff machine.

A quantity of nitromethane was purified and delivered to K. S. Jensen, P-1.

A small quantity of pyrene was purified for T. S. Keadels, W-3.

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2. Work in Progress:

- a. The synthesis of the dye, Alizarin-¹⁴C has been carried through the cold runs. A few steps in the synthesis are being investigated with the view of improving the yields.
- b. The synthesis of metrasole is at the cold run stage.
- c. An investigation of the quantitative analysis of formaldehyde and of glyoxalic acid is under investigation. This investigation has an important bearing on the chemistry of polenta and of dicoumarol.

3. Work Completed:

- a. Vitamin K (2-¹⁴C-methylnaphthquinone) labeled with ¹⁴C has been prepared. The yield of purified compound was 48%.

4. Articles Submitted for Declassification:

- a. Micro Syntheses with Tracer Elements. XXI. The Synthesis of Thiamin Labeled with ¹⁴C, by D. L. Williams and A. R. Roscoe.

5. Reports Written:

- a. Report #67: Micro Syntheses with Tracer Elements. XIVIII. The Synthesis of Methyl-Naphthoquinone (Vitamin K) Labeled with ¹⁴C, by Arthur Merry III, and A. R. Roscoe.

VI. GROUP R-5, INDUSTRIAL MILLING (H. F. Schulte):

General Remarks:

During this reporting period a considerable amount of time was necessarily devoted to developmental work, both with respect to instruments and methods of analysis. Work on uranium problems was severely hampered by the lack of a supply of uranium-free sodium fluoride. Despite tests made on numerous sources of supply, it was impossible to obtain sodium fluoride of the required purity. As a result, no samples for uranium were collected by the Field Section.

All of the chemical fume hoods in Sigma Building were checked for adequacy of air flow and recommendations were made to improve those found unsatisfactory. The welding operation presented a new ventilation problem and plans were revised and approved for a hood for this purpose in Room 21 of Sigma Building.

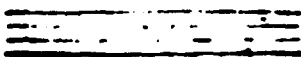
A study was made at IA 13 to determine the air concentrations of beryllium produced by the operation of the new method X machine. This machine, which is used to cut holes of a variety of shapes in beryllium and other metals, was found to produce concentrations of beryllium in excess of the recommended maximum permissible concentration. The machine was moved and located in a paint-spray booth which produced ventilation adequate to control the beryllium hazard. While this is a temporary expedient, the operation itself is not yet standardized and will probably be changed considerably. Following this, permanent ventilation equipment will be installed.

Periodic sampling for TNT and mercury was continued at S Site. In addition, considerable time has been devoted to studies on thorium exposures and ventilation at the new plastic line. The new analytical laboratory at 2-33 has been surveyed and special fume hoods were recommended for the solvent exposures there.

Much work has been devoted to the design and development of sampling instruments for future weapon tests. A high volume electrostatic precipitator has been designed and built and preliminary tests indicate that it will work at air volumes greatly in excess of existing units. A Venturi scrubber similar to those used in studying atmospheric pollution problems in Los Angeles has been designed and is under construction. It is hoped that this unit will permit sampling for particulate matter at high air flow rates. Various other units are being modified and tested for use on these operations. Air sampling and fall-out catchers are being used to determine whether particulate matter is reaching Los Alamos from the Pacific tests. To date, nothing has been obtained

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and data



that would indicate that such material has been present in this area.

The beta counting method for tritium has been used extensively on a large number of samples during the past month. While this method is in use, various modifications are being introduced in hopes of improving it still further.

An activated charcoal adsorbent unit has been installed in the Photo Lab on an experimental basis to determine its effectiveness in eliminating nuisance odors. This unit also offers some possibilities for air sampling for gases.

In cooperation with the Engineering Group of GSA-Division, a method has been developed for checking the efficiency of the new hoods to be installed in D-Building. Assistance with alpha monitoring problems at R Site and Pajarito was given in cooperation with Group 2-1.

Two members of the Group attended the annual meeting of the American Industrial Hygiene Association and other organizations in Atlantic City. A paper was presented there on "Exhaust Ventilation on Machine Tools Used on Materials of High Toxicity". The same persons also participated in a discussion of the control of beryllium hazards at a classified meeting of AEC and contractors' personnel working in the field of industrial health.

The Group Leader returned from Bratislava at the close of this reporting period.

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B. Statistical Summary

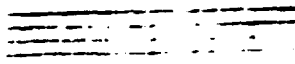
1. Field Section:

a. Air samples collected or field tests made for:

TST	20
Telluric	8
Beryllium	4
Beryllium Nitrate	6
Beta activity in air-borne dust	17

b. Calibration work:

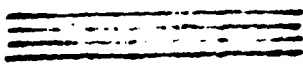
Mi-value electrostatic precipitator	1
3-inch orifice meter	1
Samuel indicator for telluric	1
3 liter gal method for telluric	1



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2. Laboratory Section:

a. Analyses Completed:

Air:

Mercurium	6
Thallium	2
Tellurium	4
TNT	20
Uranium	18

Urinalysis:

Americium	1
Cerium	9
Lead	6
Mercury	3
Plutonium	159
Polonium	48
Thallium	7
Tritium	116
Strontium 90	5

Miscellaneous:

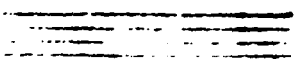
Alpha and beta activity of precipitated moisture	2
Beta activity of plastic sheets	5
Plutonium in teeth	.

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VII. GROUP E-6, SPECIAL MONITORING, Dean C. Meyer

A. Special Problems:

Water samples from various sources were collected and analyzed for various contaminants. Results were satisfactory from a health viewpoint. Uranium analyses were not run due to troubles with contaminated reagents. Considerable amounts of radioactivity were found in chemical waste catch basins at EP West. The tests were run in an effort to locate accountable amounts. Such amounts were not found. Filter paper analyses to determine a counting absorption factor were continued. Decontamination studies of rubber gloves were continued. An approximate recovery of 50% was obtained on the batches run this month. Approximately \$4,000.00 worth of other equipment was decontaminated and returned to use.



The balance of the decontaminated platinum salt (approximately 600 gms. Pt.) was returned to use.

B. Monitoring - Statistical Summary:

	Tech Area		RF Plant		RF East	
	En	I	En	Location	En	Ln
Rooms Monitored	991	237	218	2	870	30
No. Positions Over Tolerance	564	209	1823	14	99	30
% Decontamination	55	32	68	40	88	70
Air Samples Taken	611	285	462	98	210	29
No. Over M.A.C.	119	12	52	3	2	—
Moist Swipes Taken	1803	407	1419	537	222	13
No. Over Tolerance	0	1	2	0	0	—
Hand Counts	7388	684	4798	2056	719	0
No. Over Tolerance	3	1	2	2	0	—

Stack Monitoring

Average concentration from stacks (24 hrs)	0.0066 a/m ³ /l	0.416 a/m ³ /l
Maximum stack air concentration (day)	0.0976 a/m ³ /l	—————
Average concentration from buildings (24 hrs)	0.0260 a/m ³ /l	1.390 a/m ³ /l
Maximum building air concentration	0.7655 a/m ³ /l	—————

General Remarks:

1. 187 persons were sent to the Health Pass Ward during the month for collection of 24-hour urine specimens. Three persons submitted samples using the home collection method. These include 79 University of California personnel, 60 Lia Company personnel, 39 AEC personnel, and 4 others. Reports on all tests show concentrations below permissible levels in the urine.

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2. At the request of the Assistant Director for Production, a monitoring operation was supervised with the help of H-1 personnel in the contaminated trash dump. The operation was completed without mishap, and routine disposal of contaminated trash resumed on April 21.

3. GMB-3 continued work with actinium. 29 air samples were taken during the month. Average air-borne activity was 0.0011 $\mu\text{Ci}/\text{m}^3$ with a maximum of 0.005 $\mu\text{Ci}/\text{m}^3$. All samples decayed rapidly. No one working with actinium had a gamma exposure in excess of 0.3 r per week.

4. Two accidents occurred involving contamination:

a. A man was burned on the left forearm by the flash resulting from magnesium in a furnace, while cleaning out the furnace. Slight skin contamination was detected. Uranium only is worked with in this area.

b. A man lost consciousness and received a burn on the right upper arm while working in supplied air personnel protective equipment in a plutonium area. Cause of the accident has not been conclusively determined. The man was out of sight of any person when he lost consciousness. Tests of the equipment as used indicate no malfunction. There was no lost time resulting.

5. A physicist in F-3 received a large exposure to F-10 while working with an ion source. A maximum value of 471 $\mu\text{Ci}/\text{liter}$ of urine was found. He has been removed from exposure and asked to increase his fluid intake. Daily urine samples are being submitted. The analysis value has dropped to 269 $\mu\text{Ci}/\text{liter}$ in a six day period.

June 4, 1951

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

01A - T. H. White
02A - R. S. Grier
03A - Ray Reider
04A - W. H. Langham
05A - H. F. Schulte
06A - Dean D. Meyer
07A - H. Div. Files

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