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OAK RIDGE NATIONAL LABORATORY
OPERATED BY
CARBIDE AND CARBON CHEMICALS COMPANY
A DIVISION OF UNION CARBIDE AND CARBON CORPORATION
UCC
POST OFFICE BOX P
OAK RIDGE, TENN.

718369

September 19, 1951

U. S. Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee

Attention: Dr. N. H. Woodruff

Gentlemen:

As per your request, enclosed please find an outline of the procedures which the Laboratory will follow in discharging its obligations to the Atomic Energy Commission in the Nevada Tests during October and November, 1951.

Very truly yours,

OAK RIDGE NATIONAL LABORATORY

C. E. Larson

C. E. Larson
Director

PWRueff:btm

Enclosure: Cy 1-A, ORNL CF No. 51-9-46
to File from K. Z. Morgan

cc: C. E. Center, w/encl., cy 2-A.
K. Z. Morgan, wo/encl.

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[redacted]

ORNL
CENTRAL FILES NUMBER
51-9-46

B-137

"This document consists of 4 pages.
No. 1 of 8 copies, Series A"

Date: September 12, 1951

Subject: HEALTH PHYSICS PARTICIPATION IN THE NEVADA TESTS DURING OCTOBER AND NOVEMBER OF 1951

By: Karl Z. Morgan

To: File

File ______

These Eligible To Read The Attached

Copy# 4A

Issued to: C. E. Larson

Before reading this document, sign and date below:

Name	Date	Name	Date

		Noted
1	Larson, C. E.	
2	Emlet, L. B.	
3	Rueff, P. T.	
4		
5		
		Sent

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INTER-COMPANY CORRESPONDENCE

(INSERT NAME) COMPANY OAK RIDGE NATIONAL LABORATORY, CARBIDE AND CARBON CHEMICALS CORP. LOCATION Post Office Box P, OAK RIDGE, TENN.

TO LOCATION File

ATTENTION

COPY TO

Classification Changed to UNCLASSIFIED
By Authority of CG-W-5
Classification Authority
T. F. Davis, Analysas Corp. 7-6-89
R B Marlett 9-7-89 Date

DATE September 12, 1951

ANSWERING LETTER DATE

SUBJECT

HEALTH PHYSICS PARTICIPATION IN THE NEVADA TESTS DURING OCTOBER AND NOVEMBER OF 1951

Tests of new type bombs are contemplated in northern Nevada beginning about the middle of October. The present plan is 1) to have two or three shots dropped from the air which will be air blasts and will be expected to produce very little radioactive contamination on the ground, 2) to set off one blast from a low tower or directly on the surface of the ground, and 3) another blast at about 20 feet under ground. The two latter explosions will produce a considerable amount of surface radioactive contamination, and past experiments will not enable us to predict accurately the extent and distribution of this contamination.

It has been requested that our Laboratory assist the Atomic Energy Commission in these tests in two ways: 1) Loan them two experienced survey monitors for a period of about two months, beginning October 7, 1951, and 2) Make certain measurements that will aid in estimating the distribution and concentration of surface contamination and aid in assessing the possible hazards to personnel and to the photographic industry.

The two men we would furnish are requested to spend full time in Nevada or the surrounding area within a 500 mile radius distance of the site, and are not expected to be replaced during the period of the test unless some personal emergency develops. We would like to place these two men on travel status for the two month period. The two men should be in reasonably good health and should be checked through Medical before leaving on this trip. They will report to Dr. Thomas N. White at Los Alamos, who will be in charge of the survey operations within a radius distance of 500 miles of the test site.

The two persons selected tentatively to be assigned by the Laboratory to Dr. White are Mr. O. D. Teague and Mr. L. C. Johnson. We pointed out repeatedly to the Atomic Energy Commission that in view of the importance of this test we were very glad to assist in any way possible. However, we are already short of manpower and will find it possible to comply with this request only after considerable inconvenience to our own program and by calling upon the remaining staff to work additional overtime for which, of course, there is no financial compensation. We were given only five hours' notice over the telephone to attempt to meet this request for the two above names, and it would have

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ORO 102285

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simplified matters considerably if we had been notified of these requirements a few weeks in advance.

The second request of the Laboratory is that we collect data which we believe will aid the AEC in appraising the radiation hazard and that we serve as one of five collecting stations for receiving and processing of samples furnished us by weather bureau stations. The five collecting stations are Rochester, Argonne, Hanford, University of Southern California, and Oak Ridge. Dr. Hanson Blatz of the New York Operations will send us a list of the ten weather bureau stations that will furnish us samples and the name of the person in charge at each station. Each weather station will collect rainwater on a metal frame, funneling it into a two-quart jar. If it does not rain, they will use spigot water to wash down and squeegee water into the jar each 24 hour period. The water will be pulled through a paper filter with the aid of a water aspirator, the filters partly dried, enclosed in a plastic envelope with a data sheet, and sent by airmail to our Laboratory. We will ash the filter papers and plastic bags, brushing the residue onto a plastic sample holder and count with a G-M tube.

The AEC - New York Operations will send us three halogen-filled G-M tubes with a specified window thickness so that all the collecting stations will use similar counting equipment. These G-M tubes fit into the standard lead pig, and we will calibrate the ones we receive with one of our Ra D + E sources, which is plated out on a palladium silver surface and standardized for us by the Bureau of Standards. All samples will be corrected for the background of the plastic sample holders and if the corrected readings are five or more times background levels (that are determined during the week or so preceding the blast), decay curves will be run on such samples. If any readings of twice background are received from our weather stations located in the neighborhood of film industries (Kingsport, Tenn. and St. Louis, Mo.), we will phone Dr. Blatz immediately. All information on data sheets will be forwarded to the New York office.

It was pointed out at the meeting that these fall-out measurements will give information regarding the distribution of activity from the atomic blasts but will be worthless from the standpoint of assessing the radiation hazard unless supplemented by other data. In particular one must know the microcuries of activity per cubic centimeter of air and the isotopic composition of this activity. The five collecting stations were requested to assit the AEC in obtaining any data that would enable them to assess the hazard to persons or the photographic industry and in particular any data that would help to establish a relationship between the fall-out and air activity. With this in mind, we are making arrangements to place Mr. Myron Fair, of the Health Physics Division, in charge of the local operations, with Mr. D. M. Davis as assistant and alternate. They will arrange with some of our students at Vanderbilt University to collect rainwater samples and fall-out samples on the frame we had in use there during the past tests, and perform a flocculation

separation, sending us the floc for gross count and fission product analysis if the gross count is sufficiently high. They will operate filtrons and constant air monitors at Vanderbilt to determine the level of air activity. This data from the air samples will be corrected for thoron daughter products. During the past tests of this year D. M. Davis and Francis J. Davis found interesting correlation between the air activity and the time of some of the blasts. I understand that the New York Operations, which has charge of collecting data in the forthcoming test, did not obtain significant data from their low velocity air collectors during the past tests. Therefore, if we can duplicate our past experiences, we may obtain some normalization data that is of considerable value. Mr. D. M. Davis will re-activate his station at his home in Corryton, Tenn. during the period of the tests. The sampling procedures at Corryton will be identical with those at Nashville. No stations will be operated in the local area due to the local contamination. As a final step in evaluating the radiation hazard, we plan to place all the collected samples (from water and air collections) on a sensitive X-ray film after we have finished counting them in order to record the number of particles collected that remain after the samples are prepared.

It is estimated that this effort will require seven man-months as follows: 1) Four man-months for the men assigned to Dr. White, and 2) one and one-half man-months for the local program.

Karl Z. Morgan

Karl Z. Morgan, Director
Health Physics Division

KZM;mof

cc: C. E. Larson (2)
A. M. Weinberg
E. E. Anderson
J. C. Hart
M. F. Fair
D. M. Davis
K. Z. Morgan (file)

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NO. 10 OF 13 SERIES A

In Reply Refer To:
[illegible]

Oak Ridge, Tennessee
January 15, 1951

Carbide and Carbon Chemicals Division
Union Carbide and Carbon Corporation
Post Office Box P
Oak Ridge, Tennessee

Attention: Dr. C. E. Larson, Director
Oak Ridge National Laboratory

Subject: SPECIAL HEALTH PHYSICS MEASUREMENTS

Gentlemen:

This will confirm our discussion of January 9, 1951, concerning the special measurements which the ORNL will make for the [illegible]. The present plan is to establish stations at Atlanta, Georgia; Nashville, Tennessee; Fort Worth, Texas; Topeka, Kansas; and Champaign, Illinois. Your staff will [illegible] with Dr. Walter Claus of the Division of Biology and Medicine.

The cost of this work should be charged to the appropriate activity in [illegible] subprogram 6500. Should this project cause you to exceed the present cost ceiling in subprogram 6500, appropriate revision will be made at the next quarterly review.

Classification Changed to UNCLASSIFIED
By Authority of CG-W-5
Classification Authority
T. F. Davis, Analysas Corp 7-6-89
RB Martin 9-7-89 Date

Sincerely yours,

John [illegible] Roberson
Director of Research and Medicine

MEDICINE, HEALTH & SAFETY

cc: Shields Warren, AEC, Washington
C. E. Center, C&CCD
R. W. Cook, AEC
F. R. Lanou, AEC
S. W. Crosby, AEC

Distribution:
1, 2, 3 - Dr. Larson
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2-2-89

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DATE	1-15-51	1-16-51			