

NATIONAL CENTER FOR ATMOSPHERIC RESEARCH

BOULDER, COLORADO

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19 April 1963

AW - Faloutsos

Dr. Johnson has seen

Mr. Joshua Z. Holland
Chief, Fallout Studies Branch
Division of Biology and Medicine
U. S. Atomic Energy Commission
Washington 25, D.C.

Dear Mr. Holland:

This is in reply to your letter of March 12 in which you commented on my paper with Samuel Penn, entitled "An Analysis of the Radioactive Fallout Situation over North America in Late September 1961". I am deeply disturbed by the position you have taken and by the implications of some of your remarks such as "the evidence, as (you) see it, still weighs more heavily on the other side". There are indeed two sides to the question of the origin of the heavy September 1961 fallout in southeastern United States: the side of those who attempt to explain the September fallout only in terms of the distant Soviet atmospheric tests and the side of those who consider the possible consequences of our own as well as Soviet nuclear test activities. Mr. Penn and I seem to be the exclusive members of the latter club. Our conclusions are based on careful consideration of all of the available evidence and detailed trajectory analyses. You owe it to us and the other addressees of your letter to support your contrary speculations by a careful study and report and not just by quibbling about details of our analysis taken out of context. In addition, since the role of the vented September 15 Nevada underground shot is at issue, I believe that an explanation of the confusing misinformation about this event (see below) is overdue from you or others of the AEC staff.

Let us first consider the weight of evidence on the origin of the heavy fallout over southeastern and central United States in late September 1961. This was the area of high iodine-131 fallout and thus the area of main interest with respect to fallout origin. Machta presents no trajectory analysis pertinent to the origin of the fallout in this region. The isotope ratio dating for New Jersey and Washington, D.C., regardless of its reliability, is clearly inapplicable here. My analysis with S. Penn shows that the timing and development of the fallout pattern in this region fits the trajectories for radioactive debris above 8 km over Nevada on September 15. Where is your weight of evidence for the other side? Are you suggesting that it was Soviet debris over Nevada on September 15? Under the circumstances one of the best proofs of a Soviet origin for the fallout in this region would be clear evidence that it could not have come from the vented Nevada underground shot of September 15. You and your associates have access to the available classified information on that event so what is holding you back? The lack of forthrightness and the confusing misinformation in unclassified statements about that event seems to speak for itself.

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So that there will be no doubt about my meaning, I will quote the several sources of information that I have seen which bear on the nature of extent of venting for the September 15 Nevada underground shot, as follows:

- (a) "The low yield explosions conducted during September were contained underground. However, a short time after the detonation of September 15, 1961 there was a brief release of steam from the tunnel mouth, following which low levels of radioactivity were detected in the vicinity of the Test Site. - - - - It has been estimated that the amount of radioactive material that will ultimately be deposited off-site from this low yield underground test is less than one hundred-thousandth (0.00001) of that from an equivalent, low-level atmospheric test." (U. S. Department of Health, Education, and Welfare, "Radiological Health Data", Vol. II, No. 11, November 1961).
- (b) G. M. Dunning, by letter dated September 24, 1962, describes the September 15 Nevada Test Site event as a low yield, underground shot which involved "release of small quantities of steam and/or a gaseous cloud containing small quantities of radioactivity", and for which there was "some radioactivity detected off-site".
- (c) L. Machta, by letter dated June 13, 1962, reports: "My advice on the nature of the venting from the Antler shot of September 15, 1961 is given to me by Dr. van der Hoven, a Weather Bureau scientist who was present and observed the actual events first hand. He describes the venting as a slow leakage through cracks - - - -. There was only a few seconds delay - or perhaps a few tens of seconds delay - - -. Most of the fission products escaped during the first ten minutes or so but instruments held near the fissures at later times suggested that small amounts were continuing to escape for hours afterwards".
- (d) The log of the cloud-tracking aircraft, marked "Office Use Only" which I received from Philip W. Allen of the U. S. Weather Bureau by letter dated June 19, 1962, indicates that during the several traverses of the cloud, the observed cloud widths ranged up to 5½ miles and at times the radiation detection instrument was off scale in its highest range. The tracking airplane did not penetrate the cloud but measured the "shine" at a distance.

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How do you or your associates explain the serious contradictions in these statements? What is the basis of the estimate that only 10^{-5} of the bomb products got out? Is the extensive and "hot" radioactive cloud described in the cloud-tracking airplane log a source which can be ignored in the evaluation of the unusually heavy fallout in the United States during the following week? It may have been good propaganda to blame all fallout on Soviet atmospheric tests during the fall of 1961 but need we confuse the published record and deceive ourselves, the fallout prediction panel, others concerned with iodine-131 fallout, and the general public?

During the June 1962 Fallout Hearings it was pointed out that the Nevada tests may be the important source of iodine-131 fallout. Since that time what steps have been taken by the AEC to limit the venting of underground test debris, to evaluate the nature and extent of subsequent ventings, and to re-evaluate the possible contribution of our underground tests in each instance of high iodine-131 fallout since September 15, 1961? Need I remind you that the control and objective evaluation of fallout from our own nuclear test activities is an AEC responsibility? I hope that AEC staff efforts in this area have done something constructive during the past year.

Two months ago Dr. George A. Cowan of Los Alamos advised me that if a sample with as much as 10^{13} fission products were available, it should be relatively simple to make a positive identification of origin by heavy element analysis and reference to classified records. Immediately thereafter I communicated with representatives of USPHS, ANL and NRL in search of adequate sample material. Dr. L. R. Setter of the Public Health Service has promised to furnish several samples collected from New Orleans, Little Rock and St. Louis between September 10 and 21, 1961, which I hope will be ample for heavy element analysis. Unfortunately most of the samples for the area and period of interest seem no longer available. Why were such possibilities for identification overlooked by you and others on the AEC staff? Am I the only one interested in getting at the facts?

My questions in this letter are, of course, not all directed to you alone but to Gordon Dunning and other members of the AEC staff who share the responsibility for monitoring and controlling our own nuclear test activities and for the evaluation of fallout. If your loyalties to the AEC compromise your responsibilities to the scientific community and to the general public in these important areas, then it is overdue that these responsibilities be assigned to another agency.

Very truly yours,



E. A. Martell

Copies of the attached letter were sent to the following:

Donald Chadwick, U. S. Public Health Service

Cyril Comar, Cornell University

Charles L. Dunham, U. S. Atomic Energy Commission

Gordon M. Dunning, U. S. Atomic Energy Commission

James B. Hartgering, Office of Science and Technology

Gerald W. Johnson, Department of Defense ✓

Wright Langham, Los Alamos Scientific Laboratory

S. A. Lough, U. S. Atomic Energy Commission

Lester Machta, U. S. Weather Bureau

William Neumann, University of Rochester

William Otting, Jr., Defense Atomic Support Agency

Walter Selove, University of Pennsylvania

James Terrill, U. S. Public Health Service

Paul C. Tompkins, U. S. Atomic Energy Commission

Forrest Western, U. S. Atomic Energy Commission