FROM W. B. Kieffer via Mail & Records GROUP DATE 3-[illegible]-57

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NAME	DIV. AND GROUP	SIGNATURE	DATE
[illegible]e Hall		[illegible]	3/25
T. L. Shipman		[illegible]	3/27/57
A. C. Graves		acg from	
MAIL AND RECORDS			
D Frances		[illegible]	3/25/57
Maj Gordon Jacks		G. T	
~~[illegible]~~			

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Folder 452.1 Sampling - 2/28/62

[illegible] AUTHORITY DOE-DOE BY R.H. BOGER DATE 2/19/86

J. Diaz 3/24/87

COMMENTS:

PROGRESS! Yes!

Gordon will you discuss this with Hal Plank and others interested and then send it on to Al Frances with whatever comment you may have. T L S

V.F.P. — These people ignore several factors that [illegible] for comment to decontaminate sample A/C (1) inevitable migration of contam. activity throughout work area, (2) build-up of long lived B.X contamination on surfaces, dusts etc of A/C (3) factors of 10 to 20 x greater contam. [illegible] surfaces [illegible] No. of such [illegible] with time (4) shots with high alpha conc in residues (5) the fact that spec. trucks already exist, that are [illegible] spec. maths required (6) that a 3 day [illegible] between shots cannot be counted on (7) that Karl Houghton + I started the requirement to run sampling [illegible] clean on the basis of reports by the people [illegible] the [illegible] A/C were in [illegible] and (8) why should [illegible] operation policy be required to correspond with [illegible]

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Cy to: Director, Los Alamos Scientific Lab, LAlamos, NM

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Location: LAMI

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Mr. L. F. Hartford
Manager
Albuquerque Operations Office, USAEC
Post Office Box 5400
Albuquerque, New Mexico

Dear Mr. Hartford:

Recent discussion within the Air Force Special Weapons Center brought forth several questions concerning the value of test aircraft decontamination. One of this Center's missions is to investigate the effects of radioactivity on personnel and equipment of the USAF. We are further charged with establishing procedures for crew safety, both in peacetime and under wartime situations. Our experience in nuclear tests and in developing knowledge of the physiological effects of radiation on humans, indicates that aircraft decontamination is not required for reasons of personnel safety except in unusual circumstances where radiation intensities are much greater than any we have encountered in our test and sampling aircraft to date. (See Inclosures 1 and 2.)

We are now engaged in a campaign to educate operational elements of the Air Force to this situation. It is noted that the elaborate procedures we have followed in the past during nuclear test series at the Eniwetok Proving Ground and the Nevada Test Site are not consistent with the point of view that we are trying to establish within the Air Force. In other words, we tend not to practice what we preach. We believe it is imperative that we take the lead in establishing a reasonable attitude toward decontamination requirements and therefore desire that our peacetime test requirements for decontamination and rad-safe crew protection be not more elaborate than actually required for personnel safety considerations. Furthermore, substantial economies may result from a reduction in the aircraft decontamination effort.

For the above reasons, during Operation PLUMBBOB, we are planning to minimize our aircraft decontamination effort. We [illegible] to establish operating procedures for contaminated aircraft along the following lines:

a. Perform service and maintenance under the supervision of a qualified monitor, insuring that ground personnel are equipped with dosimeters, protective clothing, and equipment as required.

b. Monitor all contaminated aircraft carefully from the time of their landing until the general background around the aircraft is less than 7 mr/hour.

Hq AFSWC, SWG, Letter to Mr Hartford (Acft Decontamination)

c. Decontaminate when it is necessary to perform extensive maintenance on an aircraft whose general level is greater than 25 mr/hour.

d. Decontaminate test aircraft when its mission would be jeopardized by residual contamination (i.e., photo, cloud tracker, or sampler aircraft whose radiation levels are determined to be excessive).

e. Decontaminate sampling equipment if required and as necessary to minimize cross contamination.

It is possible that as a result of the above procedures some ground crew personnel might exceed the established test limit of 300 mr/week or 3.0 r total. We will keep careful records, however, and insure that no individual receives dangerous dosages of radiation and feel confident that by using these new procedures during PLUMBBOB we will accomplish the dual purposes of sponsoring a more realistic attitude toward exposure to radiation within the Air Force and simplifying and economizing test operations.

FOR THE COMMANDER:

2 Incl
1. Rad-Safe Experience on Past Tests
2. Acft Decay and Decontamination

WM. B. KIEFFER
Colonel, USAF
Deputy Commander

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During past Nevada and Pacific tests our cloud sampling organization, the 4926th Test Squadron, has performed decontamination on all test aircraft contaminated above a certain radiation level (generally 25 mr/hr at 6 inches from the surface at N+24 hours) and on all sampler aircraft regardless of radiation levels. Studies conducted on Operations TEAPOT and KEDWING, however, indicate that the benefits obtained from decontamination are not worth the effort and material expended. Over 95 percent of the pilot dosage is accumulated while sampling and during the return flight. As far as total pilot exposure is concerned, the radiation intensity in the cockpit as a result of contamination accumulated on previous events is negligible. Moreover, 50 percent or more of the cockpit intensity is contributed from the contaminated engines in the F-84G and 25 percent or more from the engines on a B-57. Jet engines cannot be decontaminated in the field.

Near the engines, moreover, the radiation intensity is somewhat greater than cockpit background. Since a major portion of the maintenance is on or near the engines — which cannot be decontaminated — it would appear that the effectiveness of decontamination in reducing exposure to maintenance personnel is limited.

The greatest exposure to ground crews is experienced immediately after landing during towing and sample removal operations. After sample removal, the aircraft are allowed a decay period which will normally reduce the radiation intensity by a factor of between 10 and 20. Decontamination after this decay, is almost 100 percent effective in removing contamination from the smooth exterior surfaces of the aircraft and will normally reduce the average overall cockpit intensity by approximately 25 to 75 percent depending on aircraft type (i.e., F-84G or B-57).

At TEAPOT the average accumulated dose to maintenance personnel was less than 1r. The maximum individual dose was approximately 1500 mr. If a reduced decontamination effort doubled this average dosage, the 300 mr/week or 3.0 r test limit would still be met. The figures shown on the Aircraft Decay and Decontamination Chart indicate that aircrews would receive an incremental dose of less than 5 percent if decontamination were not performed.

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