

From: [Yadav, Priya](#)
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Subject: FW: request for action regarding SUC-1593
Date: Friday, July 10, 2020 5:25:19 PM

From: Michael Reimer <geomike5@att.net>
Sent: Friday, July 10, 2020 1:01 PM
To: Koenick, Stephen <Stephen.Koenick@nrc.gov>
Subject: [External_Sender] request for action regarding SUC-1593

Michael Reimer, Ph.D.
P.O. Box 746432
Arvada, CO 80006
July 10, 2020

Mr. Stephen Koenick, Chief
Low-Level Waste and Projects Branch
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Mr. Koenick:

There are two issues of importance addressed in this letter.

The first is the 18 March 2020 request by the U.S. Army to amend sampling procedures for SUC-1593, especially the rate of sampling, particularly for Pohakuloa Training Area in Hawaii (PTA). Such modification should not be permitted as the current sampling procedures are already inadequate and to lessen them would be counterproductive to stated objectives and goals of the program.

The second is my review the May 2020 release RADIATION MONITORING REPORT INCLUDING APPENDICES SUMMARY OF RESULTS FOR 2019 SAMPLING EVENTS FOR MATERIALS LICENSE SUC-1593 (ML 120138S110) for which I provide the following extremely germane commentary.

I focus here on the results for depleted uranium (DU) at Pohakuloa Training Area (PTA) on the Big Island of Hawaii.

I reiterate as introduction what I had presented in the past.

1) A single soil sample collection site for a 133,000 acre training site contaminated with depleted uranium is absurd.

There is absolutely no evidence that there has been any water-borne sediment transport from the vicinity of the Radiation Controlled Areas (RCAs) in the last 70 years to this site and that expression is clearly amplified by the photograph of the site in the report that there is no clear gully; the site appears to be more an impound area, and any flow would be impacted by the presence of the adjacent road. Given that water-borne transport is unlikely, the reason for the presence of DU is likely airborne transport of aerosols. Note that Schofield Barracks, a much smaller area, has 3 sample sites, still inadequate but more than the larger PTA.

2) Any ratio number of U238/234 greater than 1 could indicate presence of DU.

The selection of the ratio 3.0 by the U.S. Army is irrational for real-world scenarios. Allowing for modest natural isotope separation, anything over 1.1 is a sure indicator of DU presence. The Army previously provided a graph indicating that DU would have to be present at a concentration of about 40 percent of the natural uranium indicated to achieve this ratio. Given the micro- and nano-particulate nature of

aerosolized DU, it would take many particulates to achieve this ratio in the nominal 200 gram sample collected, yet only a few particles with subsequent noted activity ratio increase are evidence of DU migration, as is the case at PTA represented by an isotope ratios greater than 1 but less than 3. It should also be noted that particulate contamination by airborne transport will not provide a homogeneous distribution of contamination. A claim that the measurements are within the standard error might be anticipated but this only reinforces the inadequacy of the chosen analytical technique.

3) The analytical methodology is inadequate.

Too many of the sample analyses results include a notation showing an error or noting "method blank contamination." This can easily be overcome but it would also reveal the inadequacy of the methodology and likely reinforce the evidence of DU transport from the RCAs, a result certainly not favorable to the government.

Specifically for PTA for the 2019 quarterly sampling, three of the four samples showed U238/234 activity ratios greater than one.

This indicates the presence of traces of DU. At PTA, there are two samples that show ratios of 1.2 and 1.3, clearly an indication of traces of DU based on the present methodology. In addressing the relevance, one only needs to make the simple comparison to Schofield Barracks analyses where the highest ratio is 1.1 with most soil samples indicating a ratio lower than 1.

The general activity as reported for the samples in pCi/g is consistent with what would be expected from a normal range of natural uranium background concentration in soils derived from the young oceanic basalts at PTA. That would be 0.1 to 1.0 ppmw uranium. A gram of sampled material could therefore contain approximately 0.0000005 g of uranium. To achieve an activity ratio of 3.0 an amount of depleted uranium of 40 percent of that background concentration would have to be added, or 0.0000002 g of DU.

In order not to pre-bias you, I ask that you make the calculation from the measured activity and stated proportion of DU of how many atoms of DU would be required to achieve the activity ratio of 3.0 for the PTA samples on a one gram basis. Then, keeping in mind that the DU is in the form of a low-soluble oxide, calculate how many particles of 2 and 5 micrometer diameter would be needed to contain that much DU. This would be a nominal size range after being elevated from the ground by the use of high explosives in the RCAs, by natural resuspension from weather related events or physical events such as traversing the area, even by helicopter. The transport distance of a 5 micrometer particle in air with even low wind speeds, would easily place it from the RCAs to the sample site.

The number of particles even with an activity ratio of 1.2 or 1.3 is not negligible. Despite previous claims, and as shown by even the inadequate sampling and analytical procedures now in place, DU is actively being transported from PTA into surrounding areas. This creates risk and that risk must be acknowledged. That risk can also be minimized. ALARA is possible.

It is time for NRC to immediately review the procedures it once accepted from the U.S. Army, revise them to address the situation found, and increase the requirements for DU monitoring at PTA including air sampling during training exercises, and elsewhere on the Island. It is also time for the NRC to acknowledge that DU is being transported from the RCAs and that proper actions, including decommissioning, must be taken to minimize that release. The NRC should not support a program that appears to have been purposefully designed to not find any transport of DU. It was easy to recognize that the monitoring program was a hoax and to predict the results of such a program and the continuing requests to minimize the testing, to assuredly be followed with a future request to cease all monitoring. The release of DU will continue to occur simply due to natural weather and other erosional conditions but mitigation coupled with decommission can be implemented to lessen this exposure. Delay adds to risk. It basically comes down to the issue of do you care.

Sincerely,

/s/

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