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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:

Thank you for continuing to address attention to the SUC-1593 depleted uranium (DU) possession license as it pertains to the Pohakuloa Training Area (PTA) in Hawaii.

I have learned that it does not matter what I present, the NRC is not likely to take heed. It makes no difference how factual my information is, how sound the scientific principles, or how logical the reasoning. I recognize that the NRC must issue a license to the Army for its depleted uranium possession and anything I say just gets in the way of the soft-ball conditions granted with that license.

My major issue is stated in the familiar adage: If you are going to do something, do it right. For those in positions of authority and trust, the highest ethical scientific standards are required to avoid any appearance of favoritism, bias, or abuse. Disinformation must be avoided when justifying procedure. What is so wrong with using the best-derived methodology to see if DU has really moved or is currently moving off PTA? The issue could be resolved but as it stands now, it will remain an unanswered question.

It is actually unfortunate that the NRC chooses to accept often ludicrous statements of the Army to establish its position and to trivialize the monitoring required. A frequent rationalization by the Army is that depleted uranium is nearly twice as heavy as lead and therefore cannot move very far in the air so there is no need to collect air samples as part of a monitoring project. I would concede that is generally true when considering chunks of pyrophoric DU. But consider the real-life scenario supported by factual information. The material of concern is DU oxide, the friable form attained almost instantaneously when DU is exposed to air and a health risk when inhaled; DU oxide actually has less mass than lead; and we are dealing with airborne transport of DU oxide aerosols that are known to travel tens to hundreds of kilometers depending on the height to which they are carried. Not all, by any means, as some can be precipitated by rain or downdrafts; but from PTA, aerosols can reach Hilo or Waikoloa Village in a few hours. Even modest heights are easily attained at PTA by the stack effect caused by

the active use of high explosives generating fine particulates in the radiation controlled areas (RCAs). Studies by the Department of Energy and even U.S. Military contractors confirm those transport facts. So it seems utilizing Army disinformation is the "go card" and factual scientific principles are being ignored.

The selection of a new sediment sample site at PTA remains an issue of concern. As far as I can tell from documentation available to me, the newer site was selected before it was properly vetted to determine if it had any connection to the RCAs where DU use was given the highest probability of occurrence; it was approved well after the fact. My pointing out that there are lava flows between the RCAs and the collection site that act adequately as berms preventing or deflecting the transport of sediment was rebuffed by an NRC comment that the lava flows have some putative breaches that might allow sediment flow across those berms. Did anyone ever look at the location of those breaches and the direction the flow may be diverted? From what I can only estimate the NRC is referencing from aerial photographs, those pathways, even if the channels were deep enough, would take any flow absolutely away from the sample site. Resolution of this conundrum is clearly a task requiring independent on-site inspection.

It is interesting here that a single sample site in any regard is completely inadequate. That fact is reiterated in an Oak Ridge sampling procedure report that the NRC provided in rebuttal to some of my concerns about the adequacy of the sampling program but then the guidance in that report was seemingly discarded by the NRC. Multiple sample sites are required for a viable program. I will admit my concern becomes rather isolated when the overall applied methodology is so appallingly ineffective that any attempt to apply proper standards to a few portions of the sampling and analytical plan is futile.

There is an easy test for the sediment transport probabilities at PTA. Take a semi-trailer standard capacity 8,000 gallon water truck to the most distant eastern RCA. Outline a 250 square foot area and shower all the tanker water over that area for one day. For the 250 square foot area, that would be an approximate constant rate of about 2 inches an hour for 24 hours, an amount I am sure could easily be considered by any measure as creating a flood condition, that being an equivalent total of about 50 inches of rainfall in a day, at least 3 times the annual rate at PTA. Now, how much of that water do you think will flow to the sampling area several miles to the west? How much will flow through the lava breaches the NRC says are there? How much sediment from the eastern-most or, for that matter, any RCA along the way do you think the water will carry to the sample collection site?

My answer is the same to all those questions: None. That's right, none. There is no sediment carried from the RCAs to the sample site. None from this experiment and none in the actual physical setting. Any sediment at the sample collection site would be

derived locally from limited adjacent drainage areas, not carried by water from the RCAs.

The other interesting issue is that the Army said it discovered that the original sample site was found to be outside the PTA boundary and so it was moved without initial review for appropriateness about 1900 feet eastward to be within the boundary. The radiation monitoring plan says the purpose of the monitoring is to determine if DU is carried outside PTA boundaries. Now it just seems to me if you want to know if DU is migrating off PTA, you might want to sample off PTA. Why move the sampling site? Again, it hardly matters because the inadequate sampling procedure is not going to detect DU from the RCAs at either the previous or current location. It is easy to say that no DU was found outside PTA but it would be more candid to include a summation that the NRC approved plan gives the greatest probability that no DU or DU oxide would be found.

An early contractor scoping report, when the probable sites used for Davy Crockett testing were being sought, stated that some DU fragments were removed to a place for safe keeping (does anyone know where?) and others were marked in place for future possible recovery. Although removal is against license conditions, it is likely the removal was before the license was in effect. This again is an item requiring on-site inspection. It is fortunate, however, that some samples were collected as it provides a good opportunity for an important test. I would appreciate it if you would ask the Army to analyze those fragments to see if they contain uranium-236 and transuranic isotopes as well as fission products such as technetium-99. It would be an advantage for any future monitoring effort, even if conducted by the private sector, to know if those isotopes could be used as tracers.

I conclude with another familiar aphorism: If I agreed with you, we would both be wrong.

Sincerely,



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