

From: [Mike Reimer](#)
To: [Snyder, Amy](#)
Subject: [External_Sender] followup to conference call
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Michael Reimer

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RE: SUC 1593

Ms Amy Snyder, Senior Project Manager
Materials Decommissioning Branch (MDB)
Division of Decommissioning, Uranium
Recovery, and Waste Programs (DUWP)
Office of Nuclear Material
Safety and Safeguards (NMSS)
U.S. Nuclear Regulatory Commission (NRC)
Washington, D.C. 20555

Dear Ms Snyder,

I appreciated the opportunity yesterday to address the PRB. It was a bit sad and unsettling to have had the Recorder frequently break in announcing problems with the recording, as it certainly changed the focus and disrupted the chain of thought.

Members of the Board asked some questions that I said I would provide some support documentation or resending some information that some said they did not recall.

My July 24, 2017 letter to you (ML17249A091) regarding why sediment sampling should not be considered the sampling medium for monitoring to see if DU has migrated off site is actually available from Adams. That letter also addresses the issue of the new information discovery about more spotting rounds and the use of the main warhead (the dummy M-390)

with depleted uranium. This posting at Adams was apparently from a resend of ML16265A231.

The Army claimed and NRC agreed that there was no sediment at PTA.

I asked that the Board's preliminary rejection be reconsidered and (2)(b) be waived to consider the sampling media issue and the new information, and not be bound by inflexibility to the rule. As I mentioned, there appears to be legal precedence for that request. I asked that the Board consider waiving the rule. Their reliance on "settled" rules should not be so insensitive to new developments that it risks creating unreasonable interpretations of NRC's statutory and regulatory requirements. This is especially important when there is such high public interest involving the health and safety of not only the general public but also the troops and employees at PTA.

If the MD 8.11 guideline of using previous discussion and decision is applied for justifying the reason to reject the argument of air sampling for the 2.206 petition, it should, on the grounds of equality and fairness, be used to reject sediment sampling, as the Army and NRC concurred previously that there was no sediment from the RCAs to sample.

The new information is the use of the M-390 Dummy Davy Crockett warhead. This information is revealed in a scoping report on locating DU remnants at PTA by the U.S. Army Contractor Cabrera. Photographs show additional fragments not associated with the spotting rounds (ML092950352) but rather with the main warhead. These fragments are from the main warhead and show heavy oxidation of uranium, a friable and insoluble form. Additional spotting round use was presented previously but somehow ignored or overlooked in the licensing process. Pistons were found that were used to fire the main warhead. A minimum of 400 may have been used as this is the number of pistons located at PTA (This is a report to which I do not have access as it may be in the garrison Hawaii U.S. Army on-line site that is blocked by my server as being improperly configured, but it was reported in a newspaper article of the Hawai'i Tribune-Herald, 8-26-08). On-line search shows the W-48 fissionable charge used in the M-388 warhead to contain at least 16 kg of enriched uranium; presuming the M-390 contained the same amount of DU for trajectory simulation as the fissionable warhead, as were the spotting rounds similarly configured with DU for trajectory mimicking, then perhaps 8 to 10 metric tons of DU could be present, not just the 140 kg or so allowed in the license. At a minimum, the license must be amended because it was fashioned on incomplete information or information that lacked full disclosure. Why and how this obvious additional presence of DU was overlooked will probably remain a mystery and will have to be conjectured by historians to explain.

On the issue of confirmation of former PTA commandant Col. Killian stating before the Hawaii County Council members that up to 2,000 spotting rounds were used, I am attempting

to get from the County Council archives a CD of that testimony. In the interim, I can refer you to ML15084A192, information submission of Cory Harden. In her submission she quotes a Q and A exchange between Col. Killian and a Council member Pete Hoffmann, and also includes information, with reference, from the U.S. Army Corps of Engineers that suggests many additional DU spotting rounds were supplied. Remember, the 714 rounds quantity was gleaned from a single invoice from only one supply depot, and that was probably replacement inventory for the Davy Crockett section stationed in Hawaii.

Ms Harden's quotation from the transcript of a County meeting is as follows:

“U.S. Army Colonel Killian...said the types of exercises conducted at PTA (Pohakuloa Training Area) would require the firing of at least 2,050...spotting rounds.” [Depleted Uranium at Pohakuloa, West Hawai'i Today, 2-4-09]

“Killian if you go through the training manuals of the era...it would require more than 714 rounds over an 8 year period of time to qualify the requisite amount of crews...

Councilmember Hoffmann Is there any possible support for a figure of 2,000 spotting rounds at PTA?

Killian If you, if you do the math, if you extrapolate the math with the, the contemporary training manuals I think you'd come up with number of 2,050.” [from my transcript of the official DVD of Hawai'i County Council Public Works & Intergovernmental Relations Committee meeting, 2-3-09]”

Archive Search Report “Total rounds verified shipped from Oahu from Lake City Ordnance Plant were 714 rounds... It is highly probable that additional stocks of the Cartridge, 20 mm Spotting M101 were order [sic] from one of the Ordnance Depots (Letterkenny or Pueblo) during the six active years of the Davy Crockett Weapon System in Hawaii.” [Archive Search Report On the Use of Cartridge, 20mm Spotting M101 for Davy Crockett Light Weapon M28, Schofield Barracks and Associated Training Areas, Islands of Oahu and Hawai'i, Army Corps of Engineers, May 2007, p. 41].

The Hawaii County Council on July 2, 2008 passed resolution 639-08 requesting a halt to all live firing activities at PTA that creates dust until there is an assessment and clean-up of the DU present. Apparently, the Army ignored that resolution.

I have high confidence that this information from MS Harden is accurate and the CD will confirm its veracity and source at the Council hearing. It may take some time to obtain the CD recording of the hearing but, if available, I will get it to you for completeness of the records.

On the question of air sampling being superior to sediment sampling, air transport is real; it happens and is documented (I mentioned Colonie, NY: see, Lloyd, N.S., Chenery, S.R.N., Parrish, R.S., 2009, The distribution of uranium contamination in Colonie, NY, USA: *Science of the Total Environment*, v. 408, pp. 397-407). The use of high explosives will cause particle formation suspension and resuspension as will just the natural force of the wind moving soil particles striking oxidized DU fragments. Sequestering PTA from public use except for occasional hunting permits means the public is at low risk on PTA property while the soldiers would be at higher risk because of their presence on the site of PTA. Air transport would increase exposure risk for off site residents. Air transport would be a mechanism to transport DU particulates that could reside in distant sediments at PTA. Any ingestion exposure included in the RESRAD model by a resident or off-site farmer would most likely be from air-transported dust to his/her mouth and digestive tract from farming activities, such a plowing.

The issue of 1 mrem/y exposure is not my number but is the value contained in the ERMP Final Site Specific Environmental Radiation Monitoring Plan Pohakuloa Training Area, Hawaii, Annex 17 for Materials License SUC-1593, Docket No. 04009083. It is in Section 4.0, RESRAD calculations and is the value to meet license requirements for SUC-1593 (ML16265A231).

The DU in excess of spotting rounds should be used in the dose calculation as well as the more accurate spotting round DU quantity and this could lead to DU concentration at PTA in the range of 50-100 times the amount considered in spotting rounds alone. This could take the calculated dose to be in excess of the NRC/Army accepted 1-mrem/y action level. Remember that although the Army contracted air monitoring, they never analyzed air samples for DU; the proportion of DU in the total U is unknown. Air sampling with DU analysis would be the preferred method for monitoring to see if DU is migrating away from PTA.

These were the items for which I had noted that the Board raised issues and I had stated I would provide as soon as possible. If you noted additional information the Board would like to have, please let me know and I will try to obtain it.

Sincerely,

/s/

Michael Reimer, Ph.D.

Retired Geologist

10/12/2017