From:	Snyder, Amy
То:	Snyder, Amy
Subject:	FW: follow up question to your email dated September 21, 2018 (NRC License SUC-1593)
Date:	Tuesday, October 16, 2018 11:43:58 AM
Attachments:	June 1 2017 LAR from Army.pdf

From: Browder, Rachel
Sent: Wednesday, October 10, 2018 11:58 AM
To: Snyder, Amy <Amy.Snyder@nrc.gov>
Subject: FW: follow up question to your email dated September 21, 2018 (NRC License SUC-1593)

From: Browder, Rachel
Sent: Tuesday, October 09, 2018 1:31 PM
To: 'Michael Reimer' <geomike5@att.net
Subject: RE: follow up question to your email dated September 21, 2018 (NRC License SUC-1593)</pre>

Dr. Reimer,

I have been out of the office and just received your email today. I have one clarification question regarding your statement that the sample location at Pohakuloa Training Area (PTA) in Hawaii has been changed. Are you stating that the sample location is different from what the licensee submitted to the NRC in license amendment request dated June 1, 2017 (ML17158B356), attached?

Or, are you making the statement that the sample location submitted in the license amendment request dated June 1, 2017, <u>is different</u> from the original sample location at PTA, which the NRC approved on the license. If so, then the location is different and the NRC will review the suitability of the proposed change of the newly requested sample location at PTA as part of the license amendment request process.

Rachel S. Browder, CHP Sr. Health Physicist US NRC, Region IV

1600 East Lamar Blvd. Arlington, TX 76011-4511 Work: 817-200-1452 Cell: 817-946-4812 Main: 817.860.8100

From: Michael Reimer [mailto:geomike5@att.net]
Sent: Friday, September 21, 2018 1:12 PM
To: Browder, Rachel Rachel

Subject: [External_Sender] urgent need for site inspection in Hawaii for license SUC-1593

Ms Rachel Browder Rachel.Browder@nrc.gov

Mr. Stephen Koenick, Chief, Materials Decommissioning Branch, gave me your e-mail as a contact concerning the inspection program for the NRC license SUC-1593 issued to the U.S. Army, specifically for the Pohakuloa Training Area in Hawaii.

I include here a copy of the letter I sent to Mr. Koenick regarding the urgent need for immediate inspection of the monitoring program at PTA. In large part, this was brought about because the sample location was changed from that originally selected and it appears to have been done so without any comprehensive determination as to its suitability.

Mr. Koenick in his August 21, 2018 letter to me points out that License Condition No. 17 requires the licensee to notify the NRC when any sampling result indicates a U-238/U-234 activity ratio greater than 3. In the May 16, 2018 data summary of the ERMP provided by the Army to the NRC, there is an appendix A with a graph showing what the proportion of DU must be present with natural uranium to achieve this ratio of 3. The graph indicates that DU would have to be in excess of 40 percent. For all practical purposes, this is impossible to attain outside of the radiation controlled areas (RCA) and renders the entire sampling program fatally flawed for the objective of determining if DU in any form or concentration is transported outside the RCAs.

There are many shortcomings in the monitoring program from appropriateness of the sample site, the method of analysis, and the lack of analytical controls. However, relocation without proper vetting is a clear violation of any principled scientific method. An immediate inspection is warranted.

Thank you for your attention.

Michael Reimer, Ph.D. Retired Geologist <u>GeoMlke5@att.net</u> 9/21/2018

> Michael Reimer, Ph.D. [REDACTED ADDRESS] September 18, 2018

Mr. Stephen Koenick, Chief Materials Decommissioning Branch U.S. Nuclear Regulatory Commission Washington, DC 20555-0001

Dear Mr. Koenick,

Thank you so much for sending me (August 21, 2018 letter) the Adams Library location of the US Army report on uranium monitoring for DU at various Army bases. It is very important to have this document available publically and I hope that full data disclosure will be available on a continuing basis for future public review.

As you recall, my 2.206 petition argued that I felt the sampling siting, methodology and analytical method for Pohakuloa Training Area, Hawaii, were inadequate. In reading the report, not only are my concerns supported but enhanced. I believe, with urgency, before additional samples are collected, it is time to make major adjustments in the radiation monitoring plan for PTA.

The analytical data for the three quarters in 2017 at PTA are reported as "estimated" because of measurement uncertainty and MDA being greater than 10 percent of sample activity. This is fully a condition of inadequate sample analysis. If the chosen technique cannot even determine natural background with certainty and consistency, it would be impossible to determine even modest DU contamination. Further, there is no control site or reference sample for comparison and that in itself invalidates this entire sampling program. Alpha spectrometry as used is improper and for this type of analysis. A check of the U238/U235 ratio supports this observation and perhaps suggests enriched uranium should also be considered for analysis. I recommend that alpha spectrometry be discarded and all samples be analyzed with either TIMS or ICP-MS not only for natural uranium isotopes but for isotopes consistent with expended fuel rod reclamation.

The report states the sample site originally identified was found to be located outside the PTA boundary and the sample collector, apparently on self-volition, chose an alternate sample site thought to be within the PTA boundary. As far as it is known, this alternative sample site was never reviewed for proper and adequate connection with the RCAs. To even suggest that the sample site is acceptable because it is downstream from the RCAs is a travesty and an insult to the scientific method. I recommend that this site be properly confirmed immediately with rigorous field inspection and that a drainage analysis be performed to show how it is connected to the RCAs and how much drainage from other sites may be involved to create dilution effects of the sample. If you

Mr. Stephen Koenick p. 2 September 18, 2018

insist on continuation of this analytical method, and because of the high probability of sample dilution, I again recommend that the ratio of 3 for U238/U234 used to define DU presence be discarded and anything greater than 1 (within 1 sigma counting statistics) be used to indicate the presence of DU. Note in Appendix A of the report the amount of DU that would have to be in a natural sample to obtain a ratio of 3. That is not probable at PTA unless sampling is within the RCAs. In addition, a comprehensive and rigorous air-sampling program must be emplaced because of the obvious and demonstrated inadequacy of the sediment sampling program at PTA.

It was my recollection that the Army made a correction to the map of the sample site in that the boundary of PTA was originally misplaced because of a scale transfer error. The location error should have been corrected previously but it appears this was not the case.

It is critically urgent for an immediate inspection of the PTA site because of the sample site location change. In addition, in the past year there have been some significant precipitation events at PTA and sampling should have been conducted immediately during or after those events so that some water samples may have been available. As I previously pointed out, the high porosity of the basalts at PTA offers little chance to find standing or flowing water so this appears to be an opportunity lost. This point again confirms the inadequacy of the sampling program at PTA.

Please consider reopening my 2.206 petition on your own motion. I proposed several alternative methods that would vastly improve this sampling program. It is time to make adjustments to ensure the monitoring program is realistic for its stated purpose and not just a shell to address the requirement of the Source Materials License SUC-1593.

Sincerely,

Michael Reimer, Ph.D. Retired geologist <u>GeoMike5@att.net</u>