

From: [Schmidt, Duane](#)
To: [Roberts, Mark](#)
Subject: RE: USDA Final Status Survey Plan Amendment Justification for Mark.docx
Date: Thursday, June 26, 2014 3:19:35 PM

Mark,

I did get your voicemail from earlier this week, but was too busy on other things to get back to you until now...

I took a look at the USDA technical memo under May 12, 2014, letter and your document about the request and your discussion and recommended actions. I also talked some to colleagues here regarding the USDA request. And, you and I talked on the phone a few days ago.

Following are my comments and thoughts. The numbering of my comments follows your numbering of discussion and recommended actions.

1.a. Interstitial Soils Sampling

As your discussion states, the MARSSIM guidance does not strictly apply to the interstitial soils that have been removed and are being sampled after being spread out. However, I agree that it appears reasonable in this case to use the MARSSIM guidance on number of soil samples for the interstitial soils. This will result in a reasonable number of samples being collected to show that overall the soils being returned to the excavated area will not have an average or median concentration that exceeds the $DCGL_W$. Based on the same considerations described below under 1.b, I think that consideration of potential elevated areas is not a significant concern for this material, so basing the number of samples on the standard MARSSIM recommendations seems appropriate.

I do note that this interstitial material is intended to be returned to the excavation as backfill. One part of your writeup used the term "clean fill." The SER specifically mentioned in Section 5.4 that the NRC's conclusions were contingent on USDA using a minimum of 8 ft of clean backfill, consistent with the dose modeling that had been performed. It is my understanding that the interstitial material should not be considered clean backfill, as it may contain low levels of contamination. Thus, we may want to be careful to not refer to the interstitial material as clean backfill (just call it "backfill") and also careful to ensure that the USDA will be meeting the contingency in the SER regarding 8 ft of clean backfill.

1.b. MARSSIM class 1 survey units and class 3 survey units

As described in the documents and in our phone conversation, it sounds like the original reason to obtain 20 samples involved applying a 20% safety margin twice, which seems unnecessary. Based on my look at the USDA technical memo, it does seem reasonable that 16 samples should be a sufficient number of samples from each survey unit, based on the MARSSIM recommendations.

A possible issue is whether the number of samples should be increased to address the potential for elevated areas (given that the scan surveys will not detect H-3 and C-14, see number 2). Based on the NRC staff evaluation of the dose modeling for this specific case (this is not universally applicable), H-3 and C-14 are the primary contributors to dose and the dose would be primarily from ground water-dependent exposure pathways. Elevated

areas of these radionuclides are generally not as important as the total radionuclide inventory for the groundwater-dependent pathways. In addition, as you pointed out in our conversation, the material remaining in (or being returned to) the excavation generally should not contain any of the original waste material (that is being removed). Thus, the material remaining or being returned is not expected to contain significant elevated areas. In addition, the dose modeling appears to be conservative in some aspects. Based on these considerations, it seems reasonable that elevated areas of H-3 and C-14 are not a significant concern. Thus, neither scan surveys for H-3 and C-14 nor additional samples to evaluate potential for elevated areas should be needed. I conclude that the 16 samples proposed seems adequate.

2. Walkover Surveys

I agree with you that the principal radionuclides (H-3 and C-14) will not be detected in soil based on walkover surveys. Thus, there does not seem any technical reason to retain the requirement for a walkover beta scan survey.

3. Excavation Depths

As described, the depths of the buried material is not always 15 ft, as was suggested in the DP. If the materials are excavated to a depth of 1 ft below depth of waste materials, this seems like a reasonable depth to ensure no significant quantity of the waste materials will remain in the area. It sounds like it is relatively straightforward for the excavator operators to determine when they have reached native materials below the waste materials. In addition, the sampling provides additional confirmation that waste materials have most likely not been left behind. Thus, to me this modification seem reasonable.

4. Survey Design

Not having reviewed the original FSS design, it is unclear exactly what is being changed for the FSS design for the bottom of the excavation (the technical memo is not clear on what the change is). However, the general design, having two Class 1 survey units for the area previously occupied by the burial site plus a Class 3 "buffer" survey unit surrounding the Class 1 areas, seems reasonable and consistent with MARSSIM guidance. The areal extent of each survey unit is also consistent with the MARSSIM recommendations.

I hope this is clear, but please let me know if you have questions or want to discuss further.

Duane.

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From: Roberts, Mark
Sent: Monday, June 16, 2014 5:08 PM
To: Schmidt, Duane
Subject: FW: USDA Final Status Survey Plan Amendment Justification for Mark.docx

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From: Roberts, Mark
Sent: Thursday, June 12, 2014 3:30 PM
To: Watson, Bruce; Norato, Michael
Subject: USDA Final Status Survey Plan Amendment Justification for Mark.docx

Bruce and Mike

Attached is the Technical Memorandum from the USDA and a document that I created to give some background to their requests.

I previously discussed this request with you and could use some assistance to confirm that the modifications requested are reasonable and can be incorporated in an amendment to their license. As explained in my memo, they significantly changed the method for waste handling and expect to be done with their excavation work within a week or so. Any assistance with an expedited review by one of your Health Physicists would be greatly appreciated. I am available to discuss any questions on the attachments.

Also, as a heads up, I will be requesting some confirmatory measurement assistance from ORAU. I will be submitting my request shortly, as soon as I get their revised schedule.

Thanks.

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