

**From:** [Ullrich, Elizabeth](#)  
**To:** [K. Paul Steinmeyer](#)  
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**Subject:** request to amend license to remove 21 Pendleton location  
**Date:** Wednesday, July 03, 2013 3:26:00 PM

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License No. 06-30007-01  
Docket No. 030-33025  
Control No. 581256  
RSA Laboratories

In order to continue review of the request to remove the 21 Pendleton Drive location from your license, additional information is needed.:

1. Sections 2.0 and 5.0 refer to routine surveys that detected no elevated levels of residual activity. However, the action level which would be considered elevated is not described, and the MDA or LLD of those surveys is not given. Because some of the radionuclides used at your facility have very small screening values for release for unrestricted use, the reference to routine surveys is not helpful without that information. No response to this item is needed, however, because of the information provided by the scoping surveys and the final status surveys.
2. Section 4.0 states that isotopes were used as liquid sources. Confirm if you also possessed and used other materials that would be dispersible, such as solid powders, which also should be considered.
3. The table in Section 4.0 states, for all of the alpha emitters except Ra226, that the DCGL values were obtained from a Federal Register Notice. Based on that notice, and the values listed, confirm that the reference should be NUREG/CR-5512, table 5.19, at the 95% value.
4. Section 6.0 describes the derivation of the gross alpha and gross beta DCGL used in the final Radiological Status Report. The gross alpha/beta equation from Abelquist's book is not used in the NRC guidance in NUREG-1757 consolidated Decommissioning Guidance at all. Abelquist (page 109) states that this calculation often is an academic exercise, and probably the unity rule should be used, based on actual measurements. In addition, the examples cited by Abelquist use the fractions from the relative amounts in the 'source term' (what is known to be in the residual contamination, based on scoping surveys) but your fractions appear to be based on the total amounts purchased or possessed, which may not be the same relative fractions as in any residual contamination. If you wish to use this calculation, explain why the fractions used are appropriate in this case. If you do not wish to use this calculation, you should propose an alternate method. This may require new surveys, or revision of your final radiological survey report. The simplest/fastest method may be to choose the screening value for the most restrictive alpha radionuclide, and the screening value for the most restrictive beta/gamma radionuclide, and use the unity rule to show that the sum of the fractions for the two do (or do not) exceed unity when the residual contamination levels are compared to those screening values. (I understand that, because the screening value for thorium is so low, this may be a difficult test to pass.)

5. Section 7.0 includes a table that shows the calculation of the number of samples to be collected for four categories. Please note that a separate calculation is not required for removable contamination. The number of samples is calculated based on the DCGL for total residual contamination. The NRC assumptions in developing the screening values you have selected for your radionuclide-specific DCGLs is that not more than 10% of the total residual activity is removable, and the requirement is to demonstrate that the residual removable contamination does not exceed this assumption. In addition, the calculations determined that 11, 12, 9 and 9 samples would be required, respectively, and the results provided show samples collected at 32 locations. Please explain which locations were used to support the MARSSIM statistical survey results, and the reason for additional sampling locations.
6. Explain why Section 7.0 uses the standard assumptions for the value of the shift and the standard deviation, given that you performed scoping surveys which could provide actual data as the basis of these values.
7. Section 9.0 states that the total laboratory area is 118 square meters and is considered a single Class 2 area. However, the direct measurement and scan surveys were performed only of floor areas. Explain if the walls and ceilings were included in the Class 2 area, or should have been included in the Class 2 area. If the walls and ceilings were not part of the Class 2 area, explain their classification and provide any survey information, if applicable.
8. There are 20 samples for alpha/beta direct measurements on pages C-4 and C-5. Confirm if these the same 1-20 locations as on pages C-2 and C-3. Explain why there are no direct measurements for total residual radioactivity on the walls. Explain which of the 20 floor samples and the 21 wall samples are part of the MARSSIM random start statistical sample points, and which were additional locations you selected to survey. Section 9.3 refers to grid points and random locations, but I cannot tell which are which. What about scan survey results?
9. Appendix C, page C-2, explain why the alpha LLD is different for samples 1-17 than it is for samples 18-32. Explain how the LLD was calculated for this analytical instrument, and for the LSC on page C-3.
10. Explain how the values for alpha dpm and beta dpm, on pages C-4 and C-5 respectively, were calculated. I cannot replicate these calculations.

Please note that an original signature letter response is required, therefore you may not respond directly to this email. You may provide the signed letter as a pdf attachment to an email, or by facsimile to 610-337-5269, or by regular mail. If you have any questions, I will be working this evening from 5-7 pm and will also be in the office on Friday, July 5.

Thanks,  
Betsy

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