From:	Ullrich, Elizabeth
To:	sandy.soucy@pw.utc.com
Cc:	Paul Steinmeyer (kpstein@radpro.com); Gaskins, Farrah
Subject:	Request for Additional Information (RAI) from letters dated February 27, 2012 and January 20, 2012 with RSA-2000 survey report
Date:	Tuesday, May 15, 2012 1:12:00 PM

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Control No. 577052

1. Based on a review of your letter dated February 27, 2012 with the Decommissioning Plan for Building 10, and the letter dated January 20, 2012 with the Final Radiological Status Report for Building 10 dated August 9, 2000, we understand that licensed activities in Building 10 ceased sometime in 1999 or 2002, and that a decommissioning survey was performed in June and July 2000. This survey was NOT submitted to the NRC at that time. Sometime between 2000 and 2006, Building 10 was demolished, leaving only a concrete slab. During 2006-2007, remediation of the slab and sub-soil for PCBs was performed of some areas of the concrete slab and subsoil. If any of our understandings are incorrect, please inform us in writing. Please note that Section 1, Purpose and Scope, should clearly indicate that only the concrete pad from Building 10 remains at this time, and the remaining decommissioning activities consist of confirming if any residual contamination exists on the concrete pad or in soil.

2. Section 2, History

    a. This paragraph refers to the August 7, 2000 Report RSA-2000, however, the copy of that report submitted with your January 20, 2012 letter was dated August 9, 2000. Confirm if August 9 is the correct report date, or if another report exists.
    b. As part of the historical site assessment, please describe the building at the time of the 2000 survey compared to the remaining concrete slab. In particular, describe any floor or sub-floor materials that may have been over the concrete slab. Also, list the date when demolition of the building occurred, and the site where the building materials were disposed of.
    c. In this section, discuss the limits you used for the August 2000 survey from Regulatory Guide 1.86 (RG 1.86), although the NRC required implementation of the dose-based license termination criteria in 10 CFR 20 Subpart E as of July 1998 for release of buildings and grounds. The RG 1.86 criteria were still acceptable for equipment, and for facilities in which additional work with licensed materials was planned.
    d. Based on results of the surveys of contaminated materials disposed of at the time of demolition of the building, you should estimate the dose to members of the public, including any landfill workers, from the contaminated materials that were disposed of at that time.

3. Section 3, Current Situation should clearly state if contamination is, or is not, expected on the remaining concrete slab and in surrounding or underlying soils. The current situation should be the result of what is known and documented in the historical suite assessment regarding the uses of thorium at the site, typical

contamination levels during operational use of thorium, and the survey that was done in 2000. In addition, this section should discuss the likelihood of thorium contamination of the areas that were later remediated for PCB contamination, based on the residual contamination at the time of building demolition; and the likelihood of thorium contamination getting into other areas of the concrete slab or soils during the PCB remediation. The current situation should support the purpose and scope of your decommissioning plan.

4. Section 4, Observations:
    a. Section 4.1 states that the sample counting times were not long enough to meet current NRC screening values for thorium-232 residual contamination of 6 disintegrations per minute over a 100 square-centimeter area (dpm/100 sq cm) total residual contamination, and 0.6 dpm/100 sq cm removable. Please note that the 6 dpm/100 sq cm is the value for Th-232 and all progeny, and that for each Th-232 disintegration, 6 alpha particles are generated. Explain how your lower limit of detection (LLD) of about 13 dpm/100 sq cm alpha relates to the current criteria, and how you will improve the LLD for any surveys to be performed in the future.
    b. Section 4.2 states that a sufficient number of samples was taken, but does not explain how the number of samples was determined. MARSSIM does provide a way to determine an appropriate number of samples. Confirm that you will use the MARSSIM method to determine the number and locations of samples for any future surveys.
    c. Section 4.3 states that the removable contamination was “quite small”, however, the LLD was approximately 13 dpm/100 sq cm, so values less than that are not reliable. Also, this does not consider that the LLD exceeds the current NRC screening value of 0.6 dpm/100 sq cm for Th-232 removable contamination.
    d. Sections 4.3 and 4.4 discuss potential for doses from potentially contaminated material may have been sent to the hazardous materials landfill site along with PCB-contaminated materials during that remediation, or that was used to backfill the areas remediated for PCBs. However, there is no discussion here or in the History regarding the likelihood of Th-232 contamination of the materials or the amounts of thorium contamination. Describe your basis for any estimated doses.

5. Section 5, Proposed Additional Decommissioning Activity
    a. Section 5.1 states that you plan to classify Areas 1 and 2 as one survey unit, and Area 10 as another. However, it does not state if these are MARSSIM Class 1, 2 or 3 areas in the MARSSIM classification scheme. It also states that you will increase the number of wipe and direct measurements by 50% but does not state what the base number of samples is. Confirm that you will use the MARSSIM process to determine the appropriate number of sample and survey points, and the locations of those survey points in your future surveys.
    b. Section 5.2 states that no surveys are planned in the former areas 3, 4, 5, 6 and 8 because the concrete slab was removed, 10 feet of soil depth was removed, and it has been backfilled with a bituminous concrete cap. This may be acceptable, depending on the likelihood of cross-contamination from the building demolition and/or the PCB-remediation activities. These areas

also should be assigned a MARSSIM area classification in their current state.

c. Section 5.3 states that no surveys will be done in areas 7, 9A, 9B, or 9C because the concrete slab was removed along with 6 inches of soil in these areas. This may be acceptable depending on the likelihood of th-232 contamination in the backfill. These areas also should be assigned a MARSSIM area classification in their current state.

d. Section 5.4 discusses obtaining 2 soil samples in Area 11, which was the most contaminated area based on the RSA-2000 report. Please assign a MARSSIM area classification to Area 11 in its current state. Discuss the basis for taking soil samples, using the History and current status. If soil samples are required, confirm that you will determine the number of samples and their locations using the MARSSIM process.

e. Section 5.5 states that no surveys will be done in Area 12 because the concrete slab was removed along with 5 feet of soil in this area. This may be acceptable depending on the likelihood of th-232 contamination in the backfill. This area also should be assigned a MARSSIM area classification in its current state.

f. Section 5.6 does not provide any justification for the statement that, if any soil sent out in the PCB remediation also contained some Th-232 contamination, it is unlikely that the dose would be greater than 25 millirem to a member of the public. The current NRC screening value for Th-232 contamination in soil is 11 picocuries per gram soil. If it is likely that Th-232 residual contamination was present in materials disposed because of PCB contamination, you should provide a basis for your estimate that the dose is less than the 25 millirem in any one year to a member of the public.

6. Table 2 is the only location where this Plan states that this plan is for a scoping survey, and that areas will decontaminate as needed, then a final MARSSIM final status survey (FSS) will be performed. Please note that, if you expect there to be no residual contamination greater than NRC screening values, the scoping survey could be designed as the FSS. If this decommissioning plan will include both scoping surveys and FSS, it should be stated in the Purpose and Scope of the Plan.

7. Section 6, Justifications, does not explain what is being justified. Please note the following:

a. Section 6.1 refers to samples above 5 dpm/100 sq cm; however, this number is below the LLD and therefore not useful. In addition, you should be comparing survey results to current criteria. This section also discusses the likelihood of cracks in the concrete leading to contamination in sub-slab soil, but does not discuss if there was a sub-floor and/or floor in the building above the concrete pad.

b. Section 6.2 discusses the possibility that Th-232 contaminated materials were sent to a hazardous landfill during PCB remediation activities. Please note that this normally requires a request for alternate waste disposal pursuant to 10 CFR 20.2002. If it is likely that th-232 contamination was present in the PCB-remediated areas, you should estimate the level of contamination and perform a dose assessment.

c. Section 6.3 discusses the use of a background comparison for Th-232 in soil and on concrete. Confirm that you will perform your background comparison in accordance with MARSSIM. This is particularly important if soil samples from under the concrete slab are required, given your discussion of possible excavation and backfill in Section 6.4.
d. Section 6.5 discusses the presence of nickel under the concrete slab, and the assumption that any Th-232 present could only be from your activities if it is in a ratio of 98:2, as this was the ration of Ni:Th in your alloy. However, you do not discuss if there were other possible sources of nickel that may have caused such contamination in the soil, and you have not established in the background levels of thorium in the soil, which also could affect the ratio. In addition, other forms of thorium were authorized on your license in the past.

Please respond to this RAI in a hard copy letter, a fax copy of a letter, or a pdf of a signed hard copy response. We cannot accept a response by email alone. Farrah and/or I can discuss any questions with you by telephone or email listed below.

Thanks,
Betsy

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