



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

December 28, 2007

Docket No. 040-06394
Control No. 141302

License No. SMB-141

Pamela E. Fry
Experimentation Support Manager
Department of the Army
U. S. Army Research, Development, and Engineering
Command
Army Research Laboratory
Aberdeen Proving Ground, MD 21005-5066

SUBJECT: DEPARTMENT OF THE ARMY, REQUEST FOR ADDITIONAL INFORMATION CONCERNING APPLICATION FOR AMENDMENT TO LICENSE, CONTROL NO. 141302

Dear Ms. Fry:

This is in reference to your letter dated November 6, 2007 requesting to amend Nuclear Regulatory Commission License No. SMB-141 to incorporate the "R-14 Range Decommissioning Plan, Rev. 0". In order to continue our review of this Decommissioning Plan (DP), we need the following additional information:

1. Section 1.0. "Executive Summary" states that non-contaminated debris may be disposed of, and decontaminated materials may be re-used. However, the release criteria was not specified. Please specify the criteria that you intend to use to determine if debris and other materials may be released for unrestricted use. See also items 4, 6, 7, 14, and 16.a. below.
2. Section 4.1.2, "Hot Line", on page 4-3 refers compares the contaminated water concentration of 3,500 micrograms per liter (ug/L) to the EPA drinking water limit of 30 ug/L. However, the NRC limits for natural uranium in water released to the environment is 3 E-7 microcuries per milliliter (uCi/ml) and to the sewer is 3 E-6 uCi/ml. Using the specific activity for natural uranium of 6.77 E-7 curies per gram, the concentration of 3,500 ug/L is equivalent to 2.4 E-6 mCi/ml, in excess of limits for release to the environment. Other sections of this DP also discuss uranium concentrations in water located in other tanks, etc. Confirm that you will compare water concentrations to applicable NRC limits, and that any discharges will meet NRC regulations as well as other applicable requirements.
3. Section 4.3, "Surface Soil Contamination" states that the thorium-234 concentration in soil of 511 picocuries per gram (pCi/g) based on gamma spectroscopy, is equivalent to 565 pCi/g depleted uranium (DU). Provide the conversion, including any assumptions needed.

4. Section 5.1, "Unrestricted Release of Structures Using NRC Screening Criteria" used NRC screening values for building surfaces to determine a Derived Concentration Guideline level (DCGL) for the DU of 100 disintegrations per minute (dpm) per 100 square centimeters of surface area (cm²). This is acceptable for building surfaces. However, the NRC screening values have not been approved for items of equipment to be released for unrestricted use. If you have release criteria for equipment approved already in your current license, you may use that release criteria for equipment. Specify the criteria you will use for equipment and items to be released for unrestricted use (re-use or disposal - see also Item 1 above) from any area at Range 14 included in this DP.
5. Section 5.2, "Unrestricted Release of Surface Soils Using Site-Specific Information" proposes to use a site-specific DCGL of 230 pCi/g, a value originally developed for use at the Transonic Range. Calculations for this value, and changes made in the dose modeling for the R-14 Range, were provided in Appendix C. However, the following information was not provided. Please submit
 - a. the input and output files from the computer code used to determine the site-specific DCGL, with the modeling changes; and
 - b. a discussion of the effect of uncertainty on the results, and the results of any sensitivity analysis performed.
6. Section 6.1.1 refers to release limits for steel specified in the Army's EM 385-1-80: *Radiation Protection Manual*. Section 6.1.4 also refers to release limits in this document. Please submit the criteria; if this criteria has been reviewed and approved for use by the NRC prior to this action, please provide the documentation for that.
7. Section 6.2, "Contaminated Systems and Equipment" discusses scanning to be performed to determine if material is contaminated or not contaminated. Scan surveys are usually not sensitive enough to determine if equipment meets unrestricted release criteria. Describe your scan survey criteria in more detail, including the release criteria based on scans, the scan sensitivity, the instrumentation to be used, and the method of scanning.
8. Section 6.3, "Surface Soil", states that the soil is assumed to be contaminated to a depth of six inches. Describe your criteria for deciding when additional actions will be taken to determine if soil contamination extends to a greater depth, and what those actions would be.
9. Section 6.3, "Surface Soil", states that the average DU activity in soil to be removed is in the range of 175 to 200 picocuries per gram (pCi/g). Confirm that waste soils will be sampled to verify the concentration to ensure appropriate disposal.
10. Section 6.3, "Surface Soil", does not describe the methods you plan to use for removal of surface soils during remediation or the radiation protection methods to be used during soil remediation. In addition, it does not specify which methods are currently authorized

under your license, and if any new methods are requested for approval. Please provide this information.

11. Section 7.3, "Decommissioning Task Management", does not address the use of Radiation Work Permits (RWP) or equivalent procedures to manage tasks. Please describe:
 - a. how tasks will be managed through the use of RWP or other procedures;
 - b. how decommissioning tasks are evaluated and the RWP or other procedures developed for the tasks;
 - c. how the RPW or other procedures are issued, maintained, revised, and terminated throughout the decommissioning process; and
 - d. how individuals performing tasks will be informed and/or trained in the use of the applicable RWP or other procedures.
12. Section 8.3, "Health Physics Audits, Inspections, and Recordkeeping Program", states that audits will be performed periodically. Specify a minimum frequency for audits to be performed during implementation of your Decommissioning Plan.
13. Confirm that, if assessment of internal dose is required to support Section 8.0, "Health and Safety Program During Decommissioning", you will follow procedures already approved under your license, or will submit new procedures for review and approval.
14. Section 10.1, "Solid Radioactive Waste", states that, if waste is generated that meets the unrestricted release criteria specified in the Cabrera RSP and qualifies for disposal as non-hazardous waste, it will be disposed of in a local landfill. Provide this criteria, describe the surveys that will be done to verify if materials meet this criteria, and explain any assumptions used in determining this criteria. Also, confirm the the Army Research Laboratory agrees to use of this criteria.
15. Section 10.1, "Solid Radioactive Waste", does not address management of mixed wastes that may be generated. However, Section 4.0, "Radiological Status of the Facility", states that some buildings contain asbestos and that other hazardous substances may be present. Please provide the information requested in NUREG-1757, Volume 1, Revision 2, Section 17.5.3, "Mixed Waste".
16. In the Appendix B, "R-14 Range Characterization Survey Report"
 - a. Section 3.4, "Other Structures", states that Building 1150D, the wash rack shed, and housings for the Cartridge and HEPA filter components were expected to be re-used and were not included in the characterization activities or decommissioning activities. If they will be re-used for activities with DU, this is acceptable but if they will be released for unrestricted use, then surveys would be required. Confirm if these structures will be released for unrestricted use, and if necessary, revise the Final Status Surveys to include these structures.

- b. Section 3.5.4 discusses pavement areas at Range 14. Confirm if the pavement was in place prior to any use of DU; if pavement was installed after use of DU began at Range 14, state if soil underlying the pavement may have been contaminated from previous activities and whether or not an assessment will be performed to determine soil contamination levels under the pavement.
17. In the Appendix D, "R-14 Range Decommissioning Final Status Survey Plan,"
- a. Section 3.7, "Survey Design" uses MARSSIM assumptions for the values of factors such as the LBGR and coefficient of variation, instead of actual data from the characterization surveys. The MARSSIM states that these factors are site-specific values that should be estimated from actual data where available. Explain why the MARSSIM assumptions were used instead of actual data.
 - b. Section 3.7 refers to the alpha DCGL and the beta DCGL. Specify the values for the alpha DCGL and the beta DCGL, and show how these values were determined.
 - c. Section 3.7 refers to use of area factors. The MARSSIM Tables 5.6 and 5.7 are provided as examples of area factors, based on an assumed concentration and specified dose models and are not intended to be used directly in situations that are different than the assumptions described in MARSSIM. Explain your use of the area factors from these tables. (Please note that Table 8.2, referenced in your plan, is a summary of statistical tests.) You may request alternate area factors if appropriate.
 - d. Section 3.7 describes surveys to be performed of two Class 3 structures, the Wash Rack Shed and Building 1150D. If these structures were not included in the characterization survey (see also Item 11.a. above), explain the basis for performing surveys only of certain parts of the interior of these structures.
 - e. Section 6.2.2, "Elevated Measurement Comparison Criteria", uses values from the MARSSIM Tables 5.6 and 5.7. As stated in Item 12.c. above, these values are based on a specific assumed concentration and certain dose models. Explain why the assumptions in MARSSIM are applicable to your facility, or request different area factors for development of your elevated measurement comparison criteria.

Current NRC regulations and guidance are included on the NRC's website at www.nrc.gov; select **Nuclear Materials; Medical, Academic, and Industrial Uses of Nuclear Material; Regulations, Guidance, and Communications**. You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 7:00 a.m. to 8:00 p.m. EST, Monday through Friday (except Federal holidays).

We will continue our review upon receipt of this information. Please reply to my attention at the Region I Office and refer to Mail Control No. 141302. If you have any technical questions regarding this deficiency letter, please call me at (610) 337-5040.

P. Fry
Department of the Army

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If we do not receive a reply from you within 30 calendar days from the date of this letter, we will assume that you do not wish to pursue your application.

Sincerely,

Original signed by Elizabeth Ullrich

Betsy Ullrich
Senior Health Physicist
Commercial and R&D Branch
Division of Nuclear Materials Safety

cc:
Richard Markland, Radiation Safety Officer

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