

070-00139
Terminated



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 20, 1996

Donald Chabot
Senior Environmental Engineer
Engineered Materials Group
Engelhard Corporation
Route 152
Plainville, MA 02762

Dear Mr. Chabot:

In a December 16, 1996, conference call involving you, me, other NRC staff, Engelhard Corporation consultants, and staff from the Oak Ridge Institute for Science and Education (ORISE), we communicated several comments concerning our review of Engelhard's "Final Status Survey Report, Survey Units 1 and 2 in Interior of Plainville, Massachusetts Plant of Engelhard Corporation," (FSSR), which you provided in November 1996. In the enclosed document, as promised, we have provided all comments that were communicated during the conference call.

As discussed during our conference call, we ask that you provide answers to our questions and provide other requested information within the next few weeks. As you know, we will be performing confirmatory survey activities at the Plainville facility during the week of January 6, 1997. Should you have additional questions concerning this request, please contact me at (301) 415-6721.

Sincerely,

A handwritten signature in cursive script, appearing to read "Richard H. Turtill".

Richard H. Turtill, Project Manager
Low-Level Waste and Decommissioning
Projects Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Docket No. 070-00139

Enclosure: As stated

cc: Engelhard Corporation Distribution List

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COMMENTS CONCERNING ENGELHARD'S FINAL STATUS SURVEY REPORT (FSSR)
SURVEY UNITS 1 AND 2 INTERIOR OF PLAINVILLE, MASSACHUSETTS PLANT

1. The results of the radiological characterization survey provided information on the nature and extent of the radiological contamination on the site - depleted, natural, and enriched uranium. However, it would be beneficial if the enrichment of the uranium was provided - page 5 of the report states, "uranium is enriched in U-234 and U-235 above naturally occurring levels." This information is necessary in order to assess the appropriateness of the conversion factor derived from converting measured count rates to surface activity units (dpm/100 cm²).
2. Survey data reduction is consistent with the guidance provided in the U.S. Nuclear Regulatory Commission's NUREG/CR-5849, "Manual for Conducting Radiological Surveys in Support of License Termination," with the exception that the methodology used to develop the conversion factor for determining uranium surface activity was not included in the final status report. Please provide this information.
3. There is some confusion as to the manner in which background surface activity was applied for various surface types to correct the gross counts. The tables in Appendix A should also specify the counting time that was used for surface activity measurements.
4. The minimum detectable activity (MDA) should be calculated to yield values comparable to the effective alpha activity. Specifically, the MDAs provided in Appendix A should be corrected by the total uranium conversion factor.
5. The description of affected areas on pages 3 and 4 of the report seem inconsistent with the survey unit described in section 3.4.2 (page 10), which in turn is inconsistent with the areas listed as belonging in Survey Units 1 and 2 on page 1 of Appendix A. Please provide a list and an accompanying diagram that explicitly identify the survey units and the rooms/areas that comprise them.
6. The confusion concerning Survey Unit 1 and 2 have made it difficult to validate the final survey statistics in Table A17. One of your consultants stated in the phone conference of December 16, that the data in Table A17 is correct. However, please specifically state which areas comprise each survey unit and confirm, in writing, the summary statistics in Table A17.
7. On page 13 of the FSSR, it is stated that "a smear was taken... to validate that both fixed and removable limits had been met." The sentence should be restructured to also state that direct measurements validate that fixed limits had been met (a smear can only assess removable activity.)
8. Survey results in Appendix A for the walls in rooms 2F, 2N, and 2P exhibit a number of surface activity levels that are negative. An excessive number of negative results may indicate that an improper background was subtracted from the gross results. Please provide additional discussion supporting the appropriateness of the background values used.

Enclosure

9. It is unclear how background radioactivity levels were obtained and used (i.e., frequency, location, etc.) during final survey activities. Please provide additional information concerning the measurement of background at the site.
10. Survey results in Appendix A measuring effective alpha activity for survey location Z,0 + 0.5,0 in the tunnel, is reported as $5,013 \pm 2,859$ dpm/100cm². In addition, effective alpha activity measurements in room 2C are measured at $4,890 \pm 440$, $4,205 \pm 425$, and $4,205 \pm 425$ dpm/100cm² at locations B,1, C,2+1, and D+0.6,2, respectively. An explanation should be provided for these values that exceed the average surface activity guideline.
11. The fourth paragraph on page 11, Section 3.4.2 of the FSSR states that "Exposure rate measurements were taken within a 10m x 10m area within each room, one meter off the floor surface." As stated in a previous NRC staff comment, (see letter dated August 21, 1996), and as agreed upon in the licensee correspondence letter dated September 19, 1996, exposure rate measurements should be performed at minimum of 1 measurement per 10 m². Please justify why exposure rate measurements were not obtained according to what was agreed upon and committed to in the final survey plan.
12. On page 21, Section 4.4, it is stated that "Table C2 provides the total uranium analyses of five composite roof material samples taken of... the original Building 2 roof surface." One of the five composite samples as indicated in the data from Appendix C measured 23.3 pCi/g total Uranium. Please describe how and where these samples, including roof background values, were collected. It is possible that one sample within the composite sample is in excess of the release guideline limit. Please address.