



Department of Energy

ROCKY FLATS FIELD OFFICE
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00-DOE-04277

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Mr. Steven Gunderson
Rocky Flats Cleanup Agreement Project Coordinator
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

Dear Gentlemen:

This is to follow up with you on several issues related to characterization of buildings for beryllium and decommissioning cleanup levels of buildings that have beryllium contamination hazards. These issues have been raised because you are concerned that the Department of Energy's (DOE) Chronic Beryllium Disease Prevention Program rule, 10 CFR 850 (CBDPP), does not clearly define the beryllium contamination levels below which building surfaces and waste may be released as free of a beryllium hazard.

As we have discussed and you understand, DOE's CBDPP is an occupational safety rule primarily designed to address workplace hazards from beryllium operations, including decommissioning activities conducted by workers. The Rocky Flats Environmental Technology Site (Site) adheres to these requirements in the context of decommissioning activities because they are directly applicable to all contractor scope of work activities. Chapter 28 of the Occupational Safety and Industrial Hygiene Program Manual (OS&IH Program Manual) implements the CBDPP for this work.

However, parts 850.31, .32, and .38 also provide requirements for the release of potentially beryllium contaminated equipment to the public and for management of beryllium contaminated waste. The standards established by these requirements are now listed as "Relevant and Appropriate Requirements" in Rocky Flats Cleanup Agreement (RFCA) decommissioning decision documents. The contamination level standard established for release of potentially contaminated equipment (loose surface contamination less than 0.2 micrograms per 100 square centimeters), while not directly applicable, may be considered the acceptable RFCA standard for a "free release" determination for building surfaces and waste.



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The reason for this as discussed in the preamble to the final rule at 64 FR 68887 is that DOE concluded that re-suspension of beryllium from surfaces with loose contamination of 0.2 micrograms per 100 square centimeters would be expected to result in airborne contamination levels below 0.01 micrograms per cubic meter. That level of airborne contamination is the 30-day average concentration based ambient "National Emission Standard for Beryllium" at 40 CFR 61.32 (b) promulgated pursuant to the Clean Air Act, 42 U.S.C. §7412. This standard has been adopted in Colorado's Air Quality Control Commission Regulation No. 8, Part A. This conclusion was based on a Lovelace Respiratory Research Institute Report, "Acceptable Cleanliness Index for Beryllium on Surfaces", LRRI-20001102, by M.D. Hoover (Hoover report). You have been provided a copy of the Hoover report.

The Hoover report notes that re-suspension factors, defined as the ratio of air concentration (micrograms per cubic meter) above a contaminated surface to loose surface concentration (micrograms per square meter), are typically on the order of $10E-6$. Factors are higher, on the order of $10E-4$, for conditions of active working or mechanical disruption in areas with loose surface dust. See Hoover report, p.4. These conditions might be expected during facility decommissioning activities. The report calculated expected air concentrations for surface contamination of 25 micrograms per cubic foot (approximately 2.7 micrograms per 100 square centimeters) and presented this information in Table 1. Based on that table, at a $10E-4$ re-suspension factor a 0.2 microgram per 100 square centimeter surface contamination level would yield an air concentration of approximately 0.002 micrograms per cubic meter. This is approximately one-fifth of the standard at 40 CFR 61.32(b).

As discussed in the preamble to the rule at 64 FR 68887, part 850.31(a) also requires that beryllium contamination be cleaned to the lowest loose surface contamination level practicable. The DOE noted in the rule preamble that it would be costly, if not infeasible, to implement a contamination level of 0.1 micrograms per 100 square centimeters. That level of contamination is used as the laboratory contract lower limit of detection. The Site is revising its characterization methodology to clearly require further investigation if beryllium contamination surveys show beryllium detected at above approximately 0.15 micrograms per 100 square centimeters to determine if a potential beryllium hazard exists. Although it is possible to achieve a laboratory lower limit of detection approaching 0.01 micrograms per 100 square centimeters, the cost and sample turnaround times involved are not justified based upon the herein-articulated cleanup standard. An investigation level at approximately 150 percent of the contract level of detection and 75 percent of the cleanup standard is reasonable based upon the conservative nature of the standard. Also, this is consistent with the Predemolition Survey Plan's use of 75 percent of the Derived Concentration Guide Limit for radiological contamination as an initiation point for additional measurements.

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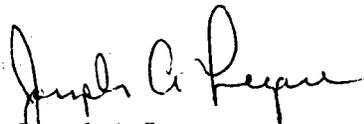
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Thus, if beryllium contamination above this level is found an assessment is done of the extent of potential beryllium contamination to determine whether the standard may be exceeded. The characterization methodology also requires an evaluation regarding the possibility of below surface beryllium contamination. We believe that these steps meet the intent of the standard. As you know, we also have agreed to consult regarding appropriate Integrated Monitoring Plan provisions for ambient air monitoring during demolition of facilities that had beryllium hazards.

Regarding waste disposal as discussed in the preamble to the rule at 64 FR 6888 the purpose of the requirements in part 850.32 is to prevent re-suspension of beryllium into the workplace atmosphere and to minimize the spread of beryllium contamination throughout the facility or beyond the site boundary. As discussed above, the potential for re-suspension to create a 30-day average ambient airborne concentration exceeding 0.01 micrograms per cubic meter is low when the surface contamination level is below 0.2 micrograms per 100 square centimeters. Thus, the potential for airborne exposure beyond the site boundary from possible contamination below this release limit is also low. Therefore, waste coming from areas below these levels is not considered to be beryllium contaminated and is not subject to the requirement of section 850.32.

We trust this information is responsive to your needs. If you have any questions regarding this letter please call me at (303) 966-5918.

Sincerely,



Joseph A. Legare
Assistant Manager
for Environment and Infrastructure

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