



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP - 8 2015

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

Mr. Larry W. Camper, Director,
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs
U.S Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Mr. Camper:

I am writing in response to your letter of June 10, 2015, regarding the Mallinckrodt LLC site in St. Louis, Missouri. The June 10 letter notified EPA that the Mallinckrodt site triggers an NRC consultation with EPA in accordance with the 2002 Memorandum of Understanding (MOU) entitled: "Consultation and Finality on Decommissioning and Decontamination of Contaminated Sites" (OSWER No. 9295.8-06, signed by EPA on September 6, 2002, and NRC on October 9, 2002). This letter responds to the notification in accordance with Section V.D.1 of the MOU, when NRC requests EPA's consultation on a decommissioning plan or a license termination plan, EPA is obligated to provide written notification of its views within 90 days of NRC's notice.

Your letter constitutes a Level 2 consultation as specified in the MOU as the consultation is concerning residual radioactive contamination remaining after completion of the Final Status Survey (FSS).

The views expressed by EPA in this letter regarding NRC's decommissioning are limited to discussions related to the MOU. The comments provided here do not constitute guidance related to the cleanup of sites under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).¹ EPA's views on the matters addressed by this letter were developed from information furnished by NRC in the June 10 letter, other materials provided by NRC, and staff discussions.

¹Please see the memorandum entitled: "Distribution of Memorandum of Understanding between EPA and the Nuclear Regulatory Commission" (OSWER No. 9295.8-06a, October 9, 2002) which includes guidance to the EPA Regions to facilitate Regional compliance with the MOU and to clarify that the MOU does not affect CERCLA actions that do not involve NRC (e.g., the MOU does not establish cleanup levels for CERCLA sites). This memorandum may be found on the Internet at: <http://www.epa.gov/superfund/resources/radiation/pdf/transmou2fin.pdf>.

EPA Consultation Views

This response is limited to those matters that initiated NRC's request for consultation in its letter of June 10. NRC initiated this consultation because the measured soil concentrations for radium-262 exceed the MOU trigger values.

Soil: Supplemental Standards

NRC triggered the consultation for soil on the basis of measured soil concentrations for radium-262 in the FSS exceeding the Table 1 values in the MOU. In Table 1, the 5 pCi/g soil concentrations for radium-262 are based on soil standards developed under the Uranium Mill Tailings Radiation Control Act (UMTRCA) and implementing regulations (40 C.F.R. 192). The UMTRCA standard is often identified as an Applicable or Relevant and Appropriate Requirement (ARAR) at CERCLA sites and establishes cleanup levels for radium-262. 40 C.F.R. 192 also contains provisions for the establishment of "supplemental standards" under some special circumstances that allow the selection and performance of remedial actions that come as close as reasonably achievable to meeting the UMTRCA standards. Supplemental standards were designed:

- for situations in which worker safety would be adversely impacted or clearly greater environmental harm would result from the remedial action necessary to attain the standards,
- for situations in which the materials do not pose a clear present or future hazard and improvements could be achieved only at unreasonably high cost, or
- where concentrations of other radionuclides are sufficiently high to constitute a significant radiation hazard.

If supplemental standards are used for the remediation of soil, EPA will generally include institutional controls as a component of the cleanup alternative to ensure the response will be protective over time. For further information regarding how EPA selects institutional controls, see "Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups" (OSWER Directive 9355.0-74FS-P, September 2000). This guidance document may be found on the Internet at: <http://www.epa.gov/superfund/action/ic/guide/guide.pdf>. For further information regarding how EPA interprets the soil standards of 40 C.F.R. 192 as a potential ARAR, see the "Use of Soil Cleanup Criteria in 40 CFR Part 192 as Remediation Goals for CERCLA sites" (OSWER Directive 9200.4-25, February 12, 1998). This guidance document may be found on the Internet at: <http://www.epa.gov/superfund/resources/radiation/pdf/umtrcagu.pdf>.

EPA's understanding is that future direct contact with soil having contamination over the Table 1 values is highly unlikely at this site based on the likely foreseeable land use and the presence of a pavement cover. NRC's compliance exposure scenarios for its dose assessment assume that the clean pavement cover over the soil with radium-262 concentrations up to 9.1 pCi/g is not completely removed. Therefore, direct contact to human receptors of the soil with radium-262 concentrations up to 9.1 pCi/g does not occur. In addition, NRC included the background concentration of 2.5 pCi/g in their FSS values. Since EPA generally considers the 5 pCi/g standard as the increment over background, EPA likely would have established a

concentration of 7.5 pCi/g of radium-226 to meet the 5 pCi/g over background standard. Thus only survey unit 12, at 9.1 pCi/g, or 6.6 pCi/g over background would have exceeded the 5 pCi/g over background standard.

In EPA's view, NRC should select and implement institutional controls to ensure there is no human access to the subsurface portion of the site with radium contamination in excess of the Table 1 value. If Mallinckrodt were a CERCLA site, and EPA had made the same determination as NRC, EPA might consider the selection of supplemental standards. However, when selecting supplemental standards, EPA would likely have selected institutional controls consistent with the exposure assumptions underlying the establishment of the supplemental standards as part of its remedy decision. EPA generally prefers that more than one institutional control be implemented to ensure that a restrictive land use continues and the remedy remains protective. This helps avoid returning to the same site later to conduct further remedial actions because of an unexpected change in the land use of the site.

Conclusion

EPA staff will remain available to NRC for consultation if needed at the site. If you have any questions regarding this letter, please contact Stuart Walker of my staff at (703) 603-8748.

Sincerely,



Dana Stalcup, Director
Assessment and Remediation Division
Office of Superfund Remediation and
Technology Innovation