General

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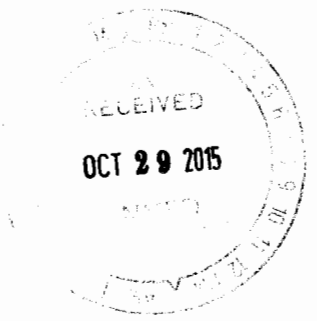


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Mr. David Cobrain
New Mexico Environment Department (NMED)
Hazardous Waste Bureau
2905 Rodeo Park Dr. E/Bldg 1
Santa Fe, NM 87505

RE: Review of the *Derivation and Use of Radionuclide Screening Action Levels, Revision 4*, Los Alamos National Laboratory, September 2015.

Dear Mr. Cobrain:

This letter addresses our review of the *Derivation and Use of Radionuclide Screening Action Levels, Revision 4*, Los Alamos National Laboratory (LANL), September 2015 (Revision 4). The primary change noted in Revision 4 is that residential and recreational screening action levels (SALs) were derived using the dose conversion factors (DCFs) calculated by linear interpolation of the International Commission on Radiological Protection (ICRP) 72 DCFs for the three month, one year, and five year old child scenario-specific age ranges. Other changes were noted with the use of RESRAD Version 7.0 which includes revised nuclear decay data from ICRP Publication 107. These decay data are used in conjunction with the internal dosimetry methodology described in ICRP Publication 60 (ICRP 1991, 223037), and the resulting DCFs are referred to as "DCFPAK 3.02" in RESRAD's internal dose library. All of the other parameters and input assumptions between Revisions 3 and 4 were held constant. The SALs in Revision 4 are slightly less conservative than those presented in Revision 3, but this is attributable to the changes in published DCFs.

In previous versions of these screening levels, the driving regulatory document that LANL followed was the National Nuclear Security Administration Service Center (NNSA SC), which dictated that site-specific radiation dose not exceed 15 millirem per year (mrem/yr). In addition, the use of a 15 mrem/yr dose was demonstrated by the Environmental Protection Agency (EPA) as being equivalent to an approximate increased lifetime cancer risk of 1E-04. However, more recent scientific information reflected in EPA's Federal Guidance Report (FGR) 13 indicates that 12 mrem/yr is now considered to correspond approximately to 3E-04 excess lifetime cancer risk (OSWER Directive 9285.6-20). The updated approach employed by EPA is based on FGR 13's assumption of a risk of cancer incidence of 8.46E-04 per rem of exposure (while still using the EPA CERCLA standard period of exposure of 30 years for residential land use, which also was the basis of the 15 mrem/yr determination in OSWER Directive 9200.4-18). Revision 4 of the radionuclide SALs follows the recommendations outlined in 2011 Department of Energy (DOE)

Order 458.1
(http://nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/doe%20order%20458.1.pdf).

Following DOE Order 458.1, a site-specific modeled radiation dose up to 25 mrem/yr for cleanup guidelines and the release of real property is allowed. However, the Order also specifies that the principles of As Low As Reasonably Achievable (ALARA) also be applied. LANL has proposed (Section 4) that for sites where public access is or will be available and the radiological dose is above 3 mrem/yr and equal to or below 25 mrem/yr, a quantitative ALARA analyses be conducted.

In researching EPA's position with the DOE Order 458.1, it appears that EPA's understanding is that ALARA will achieve cleanup levels that will be within the risk range EPA considers protective (http://pbadupws.nrc.gov/docs/ML0126/ML012670035.pdf). The EPA risk range, as established in the 1990 revisions to the National Contingency Plan and EPA guidance under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) for cleanups and remedial actions under the Superfund program, is 1E-04 to 1E-06 excess lifetime cancer risk from all radiological and non-radiological carcinogens. EPA has strongly suggested that DOE meet the Superfund/EPA risk range.

While the use of a 25 mrem/yr dose limit does result in less conservation radiological SALs, Section 4 of Revision 4 specifically states that "if the analysis determines the dose is not ALARA, additional remediation is warranted to lower the dose further or an alternative scenario may be used to restrict activity and land use for that property, if transferred." The application of ALARA should ensure that adequate evaluation and assessment of risk is conducted and provide for flexibility in requiring additional actions and/or controls on sites to be released for public use.

In comments sent on Revision 3 of the SALs, it was requested that additional details and support be provided related to the calculation of the plant ingestion rates for the listed age ranges. Revision 4 includes a detailed discussion of how the plant ingestion rates were derived (Section 6.1 and Equations 6.1-1 and 6.1-2) resolving these previously submitted comments.

No comments are noted with Revision 4 and the SALs as presented are deemed acceptable.

If you have any questions, please contact me at (801) 451-2864 or via email at paigewalton@msn.com.

Thank you,

Paige Walton
AQS Senior Scientist and Program Manager

cc: Neelam Dhawan, NMED (electronic)
Joel Workman, AQS (electronic)