Gallagher, Carol

From: Hays, David C NWK [David.C.Hays@usace.army.mil]
Sent: Friday, August 27, 2010 8:18 AM
To: Chapman, Gregory
Cc: Gallagher, Carol
Subject: USACE Comments on NRC-2010-0158, DG-4018
Attachments: NRC-2010-0158 USACE Comments to DG 4018.docx

I apologize but we have had problems submitting these comments (USACE Comments on NRC-2010-0158, DG-4018) online. Any assistance in getting them to the correct persons would be appreciated. Please see attached word document.

4/20/2010
75 FR 20645

Thank You

David Hays
US Army Corps of Engineers

PS, plain text version included below:

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DOCKET ID: NRC-2010-0158
US Army Corps of Engineer (USACE) Comments to DG-4018, CONSTRAINT ON RELEASES OF AIRBORNE RADIOACTIVE MATERIALS TO THE ENVIRONMENT FOR LICENSEES OTHER THAN POWER REACTORS

1. The proposed change from 20% to 10% of the air effluent limit should be explained in more detail. As currently explained it would only be appropriate for radionuclides for which the stochastic limit is governing. If submersion is limiting the current explanation is inaccurate. Rather than adjust based on the age dependent factor (2, see note below), it may be appropriate to adjust the dose relationship factor of 50 to 500 (i.e. changes the derived limit from 0.1 rem to 0.01 rem). This would apply to both effluent limit calculation approaches, thus eliminating the submersion issue.
Note that 10 CFR 20 Appendix B states "The air concentration values listed in Table 2, Column 1, were derived by one of two methods. For those radionuclides for which the stochastic limit is governing, the occupational stochastic inhalation ALI was divided by 2.4 x 109ml, relating the inhalation ALI to the DAC, as explained above, and then divided by a factor of 300. The factor of 300 includes the following components: a factor of 50 to relate the 5-rem annual occupational dose limit to the 0.1-rem limit for members of the public, a factor of 3 to adjust for the difference in exposure time and the inhalation rate for a worker and that for members of the public; and a factor of 2 to adjust the occupational values (derived for adults) so that they are applicable to other age groups.
For those radionuclides for which submersion (external dose) is limiting, the occupational DAC in Table 1, Column 3, was divided by 219. The factor of 219 is composed of a factor of 50, as described above, and a factor of 4.38 relating occupational exposure for 2,000 hours per year to full-time exposure (8,760 hours per year). Note that an additional factor of 2 for age considerations is not warranted in the submersion case."

2. USACE agrees with and appreciates the addition of CAP88 as a potential modeling option.

3. More discussion should be added to the Guide to better facilitate understanding and compliance with the 10 CFR 20.1101(d) standard and the Clean Air Act.

a. USACE has performed dose calculations from air emissions on many sites, for many years. Often the hypothetical maximum exposed individual is an adult worker (member of general public). To address this receptor, the modeled dose to that worker is then corrected for time of exposure (8 or 10 hrs per day rather than 24hr/day), effectively reducing the exposure. This only corrects for the factor of 3 in the above notes. As discussed in the DG currently, it appears the limit for this receptor would equal to 5 mrem/yr.

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add = G. Chapman (GXC3)
M. Case - (MJC)

If the maximally exposed individual is an adult, the 10 CFR 20 Appendix B stated factor of 2 should also be addressed. These dose estimating issues should be discussed in the Guide, especially with regards to the computer models.

b. The values presented in Tables 1, 2, and 3 of 10 CFR 20 Appendix B are rounded up to the nearest whole number. This rounding is not significant given a dose limit of 100 mrem/yr, but it may be significant given a dose constraint of 10 or 5 mrem/yr.

4. Discussions should be added to the Guide addressing data QC and uncertainty to facilitate compliance with the standard. The 10% of air effluent value limits may be difficult to demonstrate for some radionuclides (e.g. Th-232), and meeting data QC requirements may also be difficult at these levels. Additionally, the measurement uncertainty at 10% of the air effluent limits may be significant. Modeling also adds uncertainty, however by accepting only certain models the uncertainty can be considered acceptable. At a minimum these issues should be discussed in the Guide.