December 23, 2002

Ms. Connie K. DeWitte

Chief, Safety and Occupational Health Office

Department of the Army

U.S. Army Corps of Engineers

Washington, D.C. 20314-1000

Dear Ms. DeWitte:

Thank you for your January 5, 2001 letter to the Occupational Safety and Health Administration (OSHA), Directorate of Enforcement Programs, concerning occupational exposure limits to radon gas. This letter constitutes OSHA's interpretation only of the requirements discussed and may not be applicable to any questions or situations not delineated within your original correspondence. We apologize for the delay in this response.

Background: Soon after adoption of the OSHAct in 1970, OSHA promulgated the ionizing radiation standard pursuant to the authority granted by Section 6(a) of the Act. This section allowed the agency to promulgate certain existing federal standards and national consensus standards as enforceable OSHA standards. The ionizing radiation standard, 29 CFR 1910.96, was adopted from the standard under the Walsh Healy Public Contracts Act that, in turn, was taken from the existing Atomic Energy Commission (AEC) regulation. The OSHA standard refers to airborne radioactive materials exposure limits in Table I and Table II of Appendix B to 10 CFR Part 20 that was published by the AEC in 1969. Both the AEC and the OSHA limits were for a 40-hour exposure in any workweek of seven (7) consecutive days.

In 1996 the OSHA standard was re-designated as 29 CFR 1910.1096. The language of the standard did not change at that time, except to change the reference to the AEC to the NRC. Since OSHA issued the standard in 1971, the Nuclear Regulatory Commission (NRC), which was given the regulatory authority of the AEC, changed the format of the tables in Appendix B of 10 CFR Part 20, made the limits annual averages, reduced the radon exposure limits, and moved limits for minors from the table to the regulatory text.

Case law supports the interpretation that the original version of a referenced federal regulation is the enforceable regulation. Therefore, the 1969 version of Appendix B to 10 CFR Part 20 that was referenced in the original OSHA ionizing radiation standard in 1971 is enforceable (a copy of the 1969 Appendix B to 10 CFR Part 20 is attached). However, many requirements of the current NRC regulation provide as much or more protection than the OSHA standard for workers exposed to airborne radioactive materials. It would be considered a de minimis violation if an employer complied with the

more current regulation at 10 CFR Part 20, because the more current standard generally is considered as protective as or more protective than the older regulation.

You had specific questions regarding occupational exposure limits to airborne radioactive materials (radon gas) as set forth in 29 CFR 1910.1096. Your questions are summarized below and followed by our response.

Question 1: Although the U.S. Army Corps of Engineers (USACE) does not use or transport radon, is the presence of radon in structures considered "possession," making 29 CFR 1910.1096 applicable to USACE structures?

Reply: Yes. If the presence of radon in a structure controlled by the employer exposes employees to hazardous concentrations of airborne radiation as set forth in the standard, 29 CFR 1910.1096 would apply.

Question 2: If workers are only required to enter an area occasionally during a calendar quarter, can their exposures be averaged over the calendar quarter instead of one week to determine whether they should be allowed to enter the area?

Reply: No, not for airborne radioactive materials. Neither the OSHA nor the NRC ionizing radiation standard allows airborne radon concentrations to be averaged over a calendar quarter. The OSHA radon exposure limit is an average concentration for 40 hours in any workweek of 7 consecutive days. The still applicable 1971 radon-222 exposure limit for adult employees is 1 x 10-7 microcuries per milliliter (µCi/ml) [100 picocuries/liter (pCi/L)] averaged over a 40-hour workweek. However, OSHA would consider it a de minimis violation if an employer complied with the current NRC radon-222 (with daughters present) exposure limit for adult employees of 3x10-8 µCi/ml [30 pCi/L] averaged over a year (DAC-derived air concentrations).

Question 3: Does the provision at 1910.1096(c)(2), dealing with exposure to airborne radioactive materials by employees under the age of 18, apply to USACE structures?

Reply: Yes. According to paragraph 1910.1096(c)(2), the radon-222 exposure limit for employees under the age of 18 is 3x10-9 µCi/ml [3pCi/L] averaged over a 40-hour workweek as it was in 1971. However, OSHA would consider it a de minimis violation if an employer complied with the current NRC radon-222 exposure limit for employees under the age of 18 of 3x10-9 µCi/ml [3pCi/L] averaged over a year (i.e., 10% of the adult limit).

Question 4: Are we required to monitor and track workplaces where radon concentrations are below 4 pCi/L?

Reply: No. You must make surveys in order to comply with the provisions in 1910.1096. In addition, you must supply appropriate personnel monitoring equipment to adult employees who enter a restricted area and receive, or are likely to receive, a dose in any calendar quarter in excess of 25% of the applicable value in 1910.1096(b)(1). Likewise, personnel monitoring equipment must be supplied to employees under the age of 18 who enter a restricted area and are exposed to 5% of the applicable

value in 1910.1096(b)(1). The OSHA dose limit for whole body radiation is 1 ¼ rems per calendar quarter.

It should be noted that the Environmental Protection Agency (EPA) and other public health officials publish radon guidelines, but these guidelines are not occupational safety and health standards and do not carry the weight of law. EPA recommends remediation when the radon level is 4 pCi/L or higher. However, radon levels less than 4 pCi/L pose a risk and in many cases may be reduced.

Question 5: Must we restrict individuals under the age of 18 from entering areas where the radon concentration is greater than 3.0 pCi/L? Note: USACE feels this would place an undue burden on organizations that either employ persons under the age of 18 or that allow members of the public under the age of 18 to enter their facility.

Reply: Yes. You must provide access control to areas where your employees may be exposed over the applicable limits. This may be accomplished by restricting the employees' exposure time. OSHA does not regulate the general public.

Question 6: 29 CFR 1910.1096(e)(4)(i)(b) defines an "airborne radioactivity area" as "Any room, enclosure or operating area in which airborne radioactive materials exist in concentrations which, averaged over the number of hours in any week during which individuals are in the area, exceed 25 percent of the amounts specified in column 1 of Table 1 of appendix B to 10 CFR part 20."

Are we required to post areas that exceed 4 pCi/L if they are occupied for more than 75 hours a week? Are we required to post continuously occupied areas that exceed 1.8 pCi/L? Is there a lower concentration where posting is no longer required?

Reply: You are required to post airborne radioactive areas. The 1971 version of Appendix B to 10 CFR Part 20 lists the adult limit for radon-222 in column 1 of Table 1 as 1 x 10-7 microcuries per milliliter (µCi/ml) [100 pCi/L]. Thus, you must post a sign in accordance with 29 CFR 1910.1096(e)(4)(ii) when the weekly average exceeds 25% of these levels.

The NRC uses similar language to define "airborne radioactive area," except that the regulation at 10 CFR 20.1003 refers to the derived air concentrations (DAC) in Appendix B §§ 20.1001-20.2401 or the average weekly intake by an individual of 0.6 percent of the annual limit. Using the NRC's definition of an airborne radioactive area, posting is required in areas where the weekly average radon exposure limit is 0.18 pCi/L (30 pCi/L x 0.006 = 0.18 pCi/L). OSHA does not enforce this posting limit.

Additional: You outlined your program for ensuring worker safety and health and invited OSHA's comments regarding the program's compliance with 1910.1096. While OSHA does not approve or disapprove programs, we offer the following comments. Given that your questions have been specifically addressed, we in general note that the program outline you provided appears to be a good starting point. In fact, it appears to exceed some OSHA requirements.

Written notification of test results meets the requirement to inform employees of the occurrence of radioactive materials or of radiation in such portions of the radiation area [29 CFR 1910.1096(i)(2)]. However, you must also post a current copy of 29 CFR 1910.1096 and a copy of the operating procedures applicable to the work. These must be posted in conspicuous locations, or you must make these documents available for examination by employees upon request [29 CFR 1910.1096(i)(3)].

As a result of reviewing this subject, the following letters of interpretation will be edited to provide the correct information or archived: October 6, 1992 letter to Mr. Richard A. Schreiber

September 27, 1990 letter to Mr. James W. Krueger

August 16, 1989 memorandum for Harvey E. Harris, Director of the Office of Training and Education, OSHA.

Thank you for your interest in occupational safety and health. We hope you find this information helpful. OSHA requirements are set by statute, standards, and regulations. Our interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes OSHA's interpretation of the requirements discussed. Our enforcement guidance may be affected by changes to OSHA rules. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult the OSHA website at http://www.osha.gov. If you have any further questions, please feel free to contact the Office of Health Enforcement at (202) 693-2190.

Sincerely,

Richard E. Fairfax, Director

Directorate of Enforcement Programs