

satisfies the requirements of the Clean Air Act. An emission standard promulgated under the Clean Air Act would be duplicative with the uranium fuel cycle standard and would not offer any additional public health protection. During the Agency's upcoming review of 40 CFR Part 190, this issue will be reexamined.

Uranium mill tailings remain after uranium is removed from the ore. Many thousands of acres of these tailings exist at both inactive and active uranium mill sites, located mostly in the West. The high concentration of radium-226 in the tailings can result in significant emission of radon-222, a radioactive gas. Under current EPA disposal standards which require long term stabilization of the tailings piles, 95% or more of the random emissions will be controlled. These standards, issued under the authority of the Uranium Mill Tailings Radiation Control Act of 1978 (Pub. L. 95-604), provide a level of public health protection comparable to an air emission standard.

However, commenters noted that radon emissions from the tailings piles at licensed uranium mills are exempted from the requirements of 40 CFR Part 190. They are controlled, instead, by NRC regulations which allow a concentration of 3pCi/l of radon-222 in unrestricted areas. This value represents a level of risk that may be significant. EPA is publishing, simultaneously with this notice, and Advance Notice of Proposed Rulemaking to consider the need for an emission standard for radon emission from licensed uranium mills.

Highly radioactive liquid or solid wastes from reprocessing spent nuclear fuel, or the spent fuel elements themselves if they are disposed of without reprocessing, are considered high-level radioactive waste. EPA has proposed standards under the Atomic Energy Act to limit public exposure to the radionuclides in this waste prior to disposal and has proposed that operations be conducted to reduce exposures below the standard to the extent reasonably achievable. The Agency expects its standards for the management of high-level radioactive waste to be promulgated in the near future. These standards will control emissions during the operational phase of the disposal site to a level which results in a dose equivalent no greater than 25 mrem/y to the whole body or to any organ, except the thyroid, which may receive a dose as high as 75 mrem/y. These standards will provide a level of public health protection comparable to an emission standard issued under the Clean Air Act.

After consideration of all comments, EPA affirms and makes final its decision not to issue separate standards under the Clean Air Act for radionuclide emissions from the uranium fuel cycle, uranium mill tailings, and management of high-level radioactive waste.

E. Low Energy Accelerators

Accelerators impart energy to charged particles, such as electrons, alpha particles, protons, and neutrons. They are used for a wide variety of applications, including radiography, activation analysis, food sterilization and preservation, and radiation therapy and research. Accelerators, other than those owned by the DOE, operate at comparatively low energy levels and therefore emit very small quantities of radionuclides. The doses and health risks associated with these emissions are extremely low. Lifetime individual risks range from one in ten trillion to one in one billion. Further, there is no potential for the emissions from these facilities to increase significantly.

The Agency proposed not to regulate this category. No comments were received on this proposal, and the Agency is not aware of any new information indicating a need for a standard. Therefore, the Agency affirms and makes final its decision not to regulate radionuclide emissions from low energy accelerators.

IX. Miscellaneous

Docket

The docket is an organized and complete file of all information considered by EPA in this rulemaking. It is a dynamic file, since material is added throughout the rulemaking process. The docket allows interested persons to identify and locate documents so they can effectively participate in the rulemaking process, and it also serves as the record for judicial review.

Transcripts of the hearings, all written statements, the Agency's responses to comments, and other relevant documents have been placed in the docket and are available for inspection and copying during normal working hours.

Dated: October 23, 1984.

William D. Ruckelshaus,
Administrator.

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40 CFR Part 61

[AD-FRL 2694-2a]

National Emission Standards for Hazardous Air Pollutants; Standards for Radon-222 Emissions From Underground Uranium Mines

AGENCY: Environmental Protection Agency (EPA).

ACTION: Advance notice of proposed rulemaking.

SUMMARY: This notice announces the Agency's intent, under Section 112 of the Clean Air Act, as amended, to start a program to consider a standard based on bulkheading or related techniques to control radon emissions from underground uranium mines. This standard could be an emission standard, or a design, equipment, work practice, or operational standard, or a combination thereof. The Agency requests interested parties to submit information and comments relative to controlling these emissions.

DATES: Information received by April 30, 1985 will be of maximum value.

ADDRESS: Comments must be submitted (in duplicate, if possible) to: Central Docket Section (LE-130) Attention: Docket No. A-79-11, Environmental Protection Agency, 401 M Street, SW., Washington, D.C. 20460.

FOR FURTHER INFORMATION CONTACT: James M. Hardin, (703) 557-8977, Environmental Standards Branch, Criteria and Standards Division (ANR-460), Office of Radiation Programs, Environmental Protection Agency, Washington, D.C. 20460.

SUPPLEMENTARY INFORMATION: This Advance Notice of Proposed Rulemaking (ANPR) serves to inform interested parties that the Agency is considering a rulemaking related to the design and type of equipment, work practices, operational procedures, or to emission standards based on these techniques, to control the radon-222 emissions from underground uranium mines. As of January 1983, there were 139 of these mines located in Arizona, Colorado, New Mexico, Utah, and Wyoming. These mines have a production rate of 6,200 tons of U_3O_8 and account for about 46% of the total production of U_3O_8 in the United States.

The Agency proposed a standard under section 112 of the Clean Air Act in April of 1983 for underground uranium mines that would limit the annual radon-222 concentration in air due to emissions from an underground mine to 0.2 pCi/l above background in any unrestricted area. The principal method

to meet this standard was considered to be control of land around the mine, since at the time, the Agency believed that no emission reduction measures were practical.

In EPA's most recent evaluation of the risks due to radon-222 emissions from underground uranium mines, the estimated lifetime risk of fatal cancer to nearby individuals ranges from one in one thousand to one in one hundred. The potential exists for an even higher risk in some situations (up to one in ten) for individuals living very close to several horizontal vents or in areas influenced by multiple mine emissions. The fatal cancer risk to the total population from radon-222 emissions from all underground uranium mines is five fatal cancers per year. The Agency considers these risks to be significant and believes action is needed to protect individuals living near underground mines and other populations.

However, analysis of the likely reduction in health risks afforded by the proposed standard showed that, while risks to nearby individuals were reduced by a factor of about ten, the risks to the total population were only negligibly reduced. The lack of population risk reduction was due to the fact that radon releases would not be reduced, they would only be more widely dispersed.

The Agency decided to withdraw its proposed standard for underground uranium mines based on its conclusion that the proposed standard was not authorized by the Clean Air Act and that the limited reduction in population risk would not meet the full intent of section 112 to provide adequate public health protection.

Because radon-222 is a noble gas and the volume of air discharged through mine vents is very large, there is no practical method to remove radon-222 from the mine exhaust air. Adsorption onto activated charcoal is the most widely used method for removing noble gases from a low volume air stream. However, application of this method to the removal of radon-222 from mine ventilation air at the volumes of air that must be treated would require large, complex, unproven systems which would be extremely costly.

Since proposal, EPA has received additional information indicating that work practices, such as bulkheading, are more feasible and cost-effective than originally thought. The Agency has decided to begin development of standards based on bulkheading or similar techniques to control radon releases from underground uranium mines. Interested parties are requested

to submit information and comments on the following issues:

- (1) Measured or estimated radon-222 releases from underground mines;
- (2) Applicable standards for reducing radon emissions, including such practices as bulkheading, sealants, mine pressurization, and backfilling;
- (3) Methods of procedures to predict releases of radon-222 without controls and with controls, such as bulkheading, sealants, mine pressurization, and backfilling;
- (4) Effectiveness, feasibility and costs of controls;
- (5) Methods of determining compliance with design, equipment, work practice, or operational type standards;
- (6) Estimates of impacts on nearby individuals and populations due to radon-222 emissions before and after control;
- (7) Extent of radon-222 controls now practiced by the industry, including such methods as bulkheading, sealants, mine pressurization, and backfilling; and
- (8) Effect on the industry if controls are required.

Dated: October 23, 1984.

William D. Ruckelshaus,
Administrator.

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40 CFR Part 61

[AD FRL 2694-2b]

National Emission Standards for Hazardous Air Pollutants; Standards for Radon-222 Emissions from Licensed Uranium Mills

AGENCY: Environmental Protection Agency (EPA).

ACTION: Advance notice of proposed rule making.

SUMMARY: This notice announces the Agency's intent, under section 112 of the Clean Air Act, as amended, to consider development of standards to control radon-222 emissions from licensed uranium mills. The Agency requests interested parties to submit information and comments relative to controlling these emissions.

DATES: Information received by April 30, 1985 will be of maximum value.

ADDRESS: Comments must be submitted (in duplicate, if possible) to: Central Docket Section (LE-130) Attention: Docket No. A-79-11, Environmental Protection Agency, 401 M Street, SW., Washington, D.C. 20460.

FOR FURTHER INFORMATION CONTACT: James M. Hardin, (703) 557-8977.

Environmental Standards Branch, Criteria and Standards Division (ANR-460), Office of Radiation Programs, Environmental Protection Agency, Washington, D.C. 20460.

SUPPLEMENTARY INFORMATION: This Advance Notice of Proposed Rulemaking (ANPR) serves to inform interested parties that the Agency is considering emission standards under the Clean Air Act for licensed uranium ore processing facilities. As of January 1983, there were 27 licensed uranium mills located in Colorado, New Mexico, South Dakota, Texas, Utah, Washington, and Wyoming. These mills have produced a total of over 150 million metric tons of tailings which contain radioactive elements from the uranium decay chain, including radium-226 which decays to radon-222. The latter is a radioactive gas which is emitted from the piles to the ambient air.

EPA issued standards under the Uranium Mill Tailings Radiation Control Act (UMTRCA) (40 CFR Part 192 Subparts D and E) for the management of tailings at locations that are licensed by the Nuclear Regulatory Commission (NRC) or the States under Title II of the UMTRCA. These standards do not specifically limit radon-222 emissions until after closure of the facility. When the UMTRCA standards were promulgated, the Agency stated that it would issue an ANPR for consideration of control of radon emissions from uranium tailings piles during the operational period of a uranium mill. This notice fulfills that commitment.

The Agency issued Environmental Radiation Protection Standards for Nuclear Power Operations (42 FR 2858, January 13, 1977). These standards (40 CFR Part 190) limit the total individual radiation dose caused by emissions from facilities that comprise the uranium fuel cycle, including licensed uranium mills. At the time 40 CFR Part 190 was promulgated, there existed considerable uncertainty about the public health impact of existing levels of radon-222 in the atmosphere, as well as uncertainty about the best method for management of new man-made sources of the gas. The Agency exempted radon-222 from control under 40 CFR Part 190 since at that time the problems associated with radon emissions were considered sufficiently different from those of other radioactive materials associated with the fuel cycle to warrant separate consideration.

Subsequently, standards were proposed under the Clean Air Act (48 FR 15076, April 6, 1983) for NRC licensees, but uranium fuel cycle facilities, which included operating uranium mills, were

excluded because these sources are subject to EPA's 40 CFR Part 190 standard that provided protection equivalent to that of the Clean Air Act. It was noted during the comment period for the Clean Air Act standards that radon-222 emitted from operating uranium mills and their actively used tailings piles are not subject to any current or proposed EPA standards, and that there may be significant risks associated with resulting radon-222 emission.

The Agency is particularly interested in receiving information on the following issues:

- (1) Radon-222 emissions from these facilities;
- (2) Applicable control options and strategies, including work practices;
- (3) Feasibility and cost of control options and strategies;
- (4) Local and regional impacts due to emissions of radon-222 from active uranium mills;

(5) Methods of determining compliance with a work practice type of standard; and

(6) Effect on the industry if controls are required.

Dated: October 23, 1984.

William D. Ruckelshaus,
Administrator.

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