

Statement to the Disposal Subcommittee of the
Blue Ribbon Commission on America's Nuclear Future
Jonathan Edwards, Director
EPA Radiation Protection Division
September 1, 2010

Good morning. My name is Jonathan Edwards, and I am the director of the Radiation Protection Division at the Environmental Protection Agency. On behalf of EPA and Administrator Lisa Jackson, I would like to thank the Subcommittee for the opportunity to provide information on the Agency's program for establishing radiation protection standards. Previous meetings of the Subcommittee and full Commission have demonstrated that there is significant interest in this topic. We hope that our experience will serve to inform the Commission's recommendations as they relate to the disposal of spent nuclear fuel and high-level waste. However, as a regulatory agency tasked with specific responsibilities in this area, EPA does not believe it is appropriate to offer recommendations regarding the form or content of future regulatory standards.

I would like to begin by describing EPA's overall authorities for establishing radiation protection standards. Reorganization Plan No. 3 of 1970 transferred to EPA certain functions of the Atomic Energy Commission under the Atomic Energy Act, most notably the function of "establishing generally applicable standards for the protection of the general environment from radioactive material." (Section 2(a)(6)) It is important to understand two aspects of this broad authority. First, the general environment is considered to lie "outside the boundaries of locations under the control of persons possessing or using radioactive material." Second, this authority does not extend to the implementation or enforcement of standards, which typically fall to the Nuclear Regulatory Commission or Department of Energy. These agencies are responsible for licensing

or otherwise approving the use of radioactive material, as well as for overseeing the operational aspects of any facility under their respective jurisdictions.

EPA has issued standards using this general authority, beginning with standards applicable to the uranium fuel cycle in 40 CFR part 190, which were issued in 1977. 40 CFR part 190 covers activities related to electric power production from the milling of uranium ore through the extended long-term storage and reprocessing of used fuel. It does not cover transportation or disposal activities. EPA has also issued standards pursuant to specific Congressional direction, such as those required under the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA).

I would now like to discuss generally the chronology of EPA's standard-setting efforts. Regarding spent nuclear fuel and high-level waste, the Nuclear Waste Policy Act of 1982 directed EPA to "promulgate generally applicable standards for protection of the general environment from offsite releases from radioactive material in repositories." (Section 121) This provision directed EPA to use authority granted under other provisions of law and did not confer new authority to the Administrator. It is also important to understand that, under the division of responsibilities laid out under the Act, EPA has no role in characterizing or selecting the site, or in approving the facility to operate.

EPA issued generally applicable standards for the management and disposal of spent nuclear fuel, high-level waste, and transuranic radioactive waste in 1985 as 40 CFR part 191. These standards were challenged before the Court of Appeals for the First Circuit, which remanded

portions to EPA for further consideration in 1987. In that same year, Congress amended the Nuclear Waste Policy Act to designate Yucca Mountain as the only site to be characterized for a repository.

In 1992, Congress passed two additional statutes that changed our obligations regarding these standards. The WIPP Land Withdrawal Act instructed EPA to issue revised standards to address the portions of 40 CFR part 191 that were remanded by the First Circuit and apply them to the Waste Isolation Pilot Plant; EPA issued revised standards in 1993. The Land Withdrawal Act also designated EPA to implement and enforce those standards for the WIPP, which is unique in giving the Agency responsibilities beyond standard-setting; EPA issued certification criteria in 1996 and approved the facility for operation in 1998. WIPP began operating in 1999; as required by the Land Withdrawal Act, DOE must apply for recertification every five years. EPA issued the first recertification decision in 2006 and is currently reviewing the second recertification application. Finally, the Land Withdrawal Act specifically stated that 40 CFR part 191 would not apply to the proposed repository at Yucca Mountain.

The Energy Policy Act of 1992 directed EPA to establish public health and safety standards applicable to the Yucca Mountain repository. I would like to point out the difference in statutory language used in the Energy Policy Act as compared to the Nuclear Waste Policy Act. As you know, the language in enabling legislation has a significant influence on the actions of regulatory agencies, so it may be useful to see the difference here as the Commission develops its recommendations. As noted earlier, the Nuclear Waste Policy Act directed EPA to establish standards “for protection of the general environment from offsite releases from radioactive

material in repositories,” which provides fairly broad discretion to the Agency. By contrast, the Energy Policy Act specifies that EPA’s standards for Yucca Mountain are to be “public health and safety standards for protection of the public.” Thus, EPA’s standards for Yucca Mountain were required to specifically protect public health and safety. In addition, the Energy Policy Act specifically requires that EPA’s standards “prescribe the maximum annual effective dose equivalent to individual members of the public.” (Section 801(a)(1)) The Energy Policy Act is thus much more prescriptive regarding exactly how EPA’s standards are to protect public health and safety.

Equally important, the Energy Policy Act required EPA to contract with the National Academy of Sciences for a study and to issue standards that are “based upon and consistent with the findings and recommendations of” the NAS. I highlight this provision because it has raised one of the most difficult questions facing both regulators and implementers of geologic disposal, which is the regulatory compliance period. The Commission heard testimony at the May meeting regarding the lengthy history of the NAS in evaluating issues related to geologic disposal. The NAS issued its report in 1995. EPA followed with proposed standards in 1999 and final standards, issued as 40 CFR part 197, in 2001.

EPA’s standards were challenged on several counts before the Court of Appeals for the District of Columbia Circuit. In 2004, the Court ruled in EPA’s favor on all counts except one. The Court found that the compliance period established by EPA was not “based upon and consistent with” the recommendation of the NAS panel. The NAS recommended that a compliance standard applicable to individuals apply “at the time of peak risk, whenever it occurs (within the

limits imposed by the long-term stability of the geologic environment).” (NAS Report p. 2)

NAS concluded that the long-term stability of the Yucca Mountain site would be on the order of 1 million years, and thus it would be feasible to project future exposures for compliance purposes for that period of time. NAS did, however, indicate that EPA might have valid policy reasons for not strictly adopting the NAS recommendation. EPA’s concerns regarding the increased uncertainty in projecting exposures for periods as long as 1 million years led it to establish of a 10,000-year compliance period, the same as in 40 CFR part 191. However, EPA also required that DOE perform projections to the time of peak dose and place them in the Environmental Impact Statement to ensure that the full record was available to the NRC and the public. EPA viewed this approach as consistent with the intent of the NAS recommendation that long-term projections not be neglected, as well as with its statements on policy considerations.

The D.C. Circuit disagreed and concluded that EPA’s approach was not consistent with the NAS technical recommendation, regardless of its policy justifications. The Court vacated the 10,000-year compliance period and remanded the rule to EPA for further consideration. EPA determined that its policy concerns regarding uncertainty in future projections could be adequately addressed by retaining the existing compliance limit for the first 10,000 years, then applying a different compliance limit for the period beyond that time and up to 1 million years, with some additional conforming changes to accommodate the extended time frame. EPA proposed such an approach in 2005 and issued its final amended standards in 2008. These standards have been challenged. The case is currently stayed pending resolution of DOE’s petition to withdraw the license application now undergoing NRC review.

With the decision to no longer pursue Yucca Mountain as the site of a repository, EPA is aware that legislation will be necessary to adopt a new course. At present, 40 CFR part 191 would apply to any future repository developed under the general framework of the Nuclear Waste Policy Act. EPA has no intention of revising this rule prior to issuance of recommendations by the Blue Ribbon Commission.

This concludes my statement. I will be happy to answer any questions you may have. Thank you.