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This is a preliminary staff working draft EPA Radiation Site Cleanup Regulation. It is expected to change and is intended to be used primarily to maximize public discussion and comment.

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Part 196 - ENVIRONMENTAL PROTECTION AGENCY RADIATION SITE CLEANUP REGULATION

Subpart A - Environmental Standards for Site Remediation

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AUTHORITY:

The Atomic Energy Act of 1954, as amended; and the Reorganization Plan No. 3 of 1970.

SOURCE(S):

(insert as appropriate)

Subpart A - Environmental Standards for Site Remediation

§ 196.01 Applicability.

This part applies to:

- (a) Sites under the control of a Federal Agency and sites licensed by the NRC or an Agreement State that are to be released for public use except that this part does not apply to:
 - (1) facilities regulated under 40 CFR part 191, subparts B and C;
 - (2) any uranium mill tailings pile after it has been disposed of under 40 CFR part 192; or
 - (3) sites that have been remediated under 40 CFR part 300 with signed Records of Decision as of the effective date of this part, are not subject to the requirements of this part.
- (b) Radiation doses received by members of the public as a result of radionuclide contamination on site, or post-remedial radionuclide concentrations.
- (c) Indoor radon levels in enclosed structures on-site.

§ 196.02 Definitions.

- Accessible environment means the area outside of the unreleased portions of a site.
- Active control measures means those control measures which rely on institutions and continued expenditures for active maintenance.
- Annual committed effective dose means the committed effective dose resulting from a one-year intake of radionuclides released plus the annual effective dose caused by direct radiation from a site.
- Background radiation means radiation from natural cosmic and terrestrial sources of primordial radionuclides.
- Commercial or industrial use means... [insert referenced language]

- Compliance Assessment means an assessment to determine compliance with this part.
- Dose equivalent means the product of absorbed dose and appropriate factors to account for differences in biological effectiveness due to the quality of radiation and its spatial distribution in the body; the unit of dose equivalent is the "rem" ("sievert" in SI units).
- Effective dose means the sum over specified tissues of the products of the dose equivalent received following an exposure of, or an intake of radionuclides into, specified tissues of the body, multiplied by appropriate weighting factors. This allows the various tissue-specific health risks to be summed into an overall health risk. For purposes of this part, doses caused by radon-222 and its respective decay products formed after the radon is released from the site are not included.
- Federal Agency means any agency, department or instrumentality of the United States Federal Government.
- Federal Facility means any site owned or operated by any department, commission, agency, office, bureau or other unit of the government of the United States of America.
- Implementing agency means a Federal agency or Agreement State that owns, leases, operates, supervises, licenses, or otherwise controls a site.
- International System of Units is the version of the metric system which has been established by the International Bureau of Weights and Measures and is administered in the United States by the National Institute of Standards and Technology. The abbreviation for this system is "SI."
- Member of the public means any individual except during the time when that individual is a worker engaged in any activity, operation, or process that is covered by the Atomic Energy Act of 1954, as amended.
- Potential sources of drinking water should be determined by a State's ground water classification system. EPA has identified factors for States to consider in defining ground waters that are "reasonably expected sources of drinking water" in the "Final Comprehensive State Ground Water Protection Program Guidance". In the absence of a State's classification of potential drinking water sources, ground waters of sufficient quantity and quality to supply the needs of a single family household will be considered potential sources of drinking water. In this latter instance, ground waters which can yield over 150 gallons per day to a well and which have a total-dissolved-solids (TDS) content of less than 10,000 mg/l, or which can be treated using methods reasonably employed in a public water supply system, will be considered potential sources of drinking water.
- Radioactive material means matter composed of or containing radionuclides in amounts that exceed natural background or otherwise exceed amounts typically and naturally found in a given media.
- Radionuclide means a type of atom which spontaneously undergoes radioactive decay.
- Radionuclide concentrations means those concentrations of radionuclides in quantities that exceed natural background concentrations.
- Remediate or remediation or remedial action means those actions consistent with permanent remedy, to prevent or minimize the release of radioactive material so that the present and future health of the public and the environment will be protected.
- Residential use means... *[insert referenced language]*
- Site means the area contained within the boundary of a location under the effective control of the implementing agency possessing or using radioactive materials or radioactive waste.
- SI unit means a unit of measure in the International System of Units.
- Technically impracticable from an engineering perspective is a determination that should be made when either of the following specific criteria are met: the current engineering methods necessary to construct and maintain a remedial action to meet the standard cannot reasonably be implemented, or; the potential for the alternative to continue to meet the standard into the future is low, either because the continued reliability of technical and institutional controls is doubtful, or because of inordinate maintenance costs. §

196.03 Public participation.

- (a) For the purpose of this part, public notice and comment will consist of:
- (1) notification of the Administrator by the implementing agency;
 - (2) notification of local and state governments in the vicinity of the site as well as any Indian Nation or other local communities that could be affected by the site remediation;
 - (3) notice publication in the Federal Register and in a forum, such as a site-local newspaper, which is readily accessible to individuals in the vicinity of the site so as to actively solicit comments from parties affected by the site remediation; and
 - (4) consideration of comments of any affected individuals or organizations who present recommendations or concerns regarding site remediation activities and subsequent site use.
- (b) The implementing agency shall conduct public notice and comment as specified by § 196.03(a) under the following

situations when it:

- (1) initially intends to remediate a site, or portions thereof, for the release of the site for use by members of the public;
- (2) makes a determination of the preferred future land use of a site, including the use of any active control measures;
- (3) finds that remediation for the preferred future cannot be performed, requiring revision of the preferred future land, or a determination that the land will not be released for public use;
- (4) has remediated a site and intends to release it within 60 days;
- (5) has determined that failure of the selected active control measures has occurred; and (6) presents results of verification of the standard as specified in § 196.05, or has failed to perform verification of the standard.

(c) At the onset of the site remediation process, the implementing agency shall establish a repository open to the public, consisting of public information and all documents pertaining to site remediation activities. This repository shall be maintained for the duration of remediation and while any active control measures are being implemented at the site.

(d) All applicable public participation processes must be followed when determining future land uses and not supersede any current land use determination policies.

§196.04 Standards.

(a) Remediation of sites shall be conducted to provide a reasonable expectation that, for 1,000 years after completion of the remedial action, radionuclide concentrations in excess of natural background levels shall not exceed those amounts that could cause any member of the public to receive, through all potential pathways under a residential land use scenario, an annual committed effective dose of 15 mrem/yr (0.15 mSv/yr).

(b) Compliance with §196.04(a) shall remove from the implementing agency any further responsibility under this part for the management of radioactive material on the site.

(c) In the event that remediation of a site will not meet the conditions of §196.04(a), the implementing agency shall:

- (1) remediate the site to provide a reasonable expectation that, for 1,000 years after completion of the remedial action, radionuclide concentrations in excess of natural background levels shall not exceed those concentrations that could cause any member of the public to receive, through all potential pathways under the conditions of the selected active control measures, an annual committed effective dose of 15 mrem/yr (0.15 mSv/yr); and
- (2) remediate the site to provide a reasonable expectation that, for 1,000 years after completion of the remedial action in the absence of active control measures, radionuclide concentrations in excess of natural background levels on the site shall not exceed those amounts that could cause any member of the public to receive, through all potential pathways under the conditions of residential land use, an annual committed effective dose that is less than 75 mrem/yr (0.75 mSv/yr).

(d) All existing and future structures on sites shall meet the guidelines of the U.S. EPA Radon Program.

(e) The implementing agency shall perform compliance assessments. Compliance assessments need not provide complete assurance that the requirements of § 196.04 of this subpart will be met. Because of the long time period involved and the nature of the processes and events of interest, there may be substantial uncertainties in projecting remedial action performance. Proof of the future annual committed effective dose from radioactive concentrations is not to be had in the ordinary sense of the word in situations that deal with much shorter time frames. Instead, what is required is a reasonable expectation, on the basis of the record before the implementing agency, that compliance with § 196.04 will be achieved.

(f) At any time after notifying the public of their intention to remediate for release for public use, as specified by § 196.03(b)(1), the implementing agencies may make a determination not to release a site for public use.

(g) Those sites at which the implementing agencies have made a public notice of their decision not to release, as specified by §§ 196.03(b)(2) or 196.03(b)(3), shall then be subject to the requirements for managing on-site radioactive material as specified by 40 CFR 19#. [*Citation for Waste Management rule*]

(h) Compliance with the provisions in this section does not negate the necessity to comply with any other applicable Federal regulations or requirements.

§196.05 Assurance requirements.

(a) Sites that are not remediated to permit residential use as specified by §196.04(a) shall be reevaluated by the implementing agency every *X* years to:

- (1) ensure that radionuclide concentrations in excess of natural background levels on the site do not exceed those amounts that could cause any member of the public to receive, through all potential pathways, an annual committed effective dose of 15 mrem/yr (0.15 mSv/yr);
- (2) ensure that radionuclide concentrations in excess of natural background levels on the site do not exceed those amounts that could cause any member of the public to receive, through all potential pathways, an annual committed effective dose of 15 mrem/yr (0.15 mSv/yr) under the conditions of the selected site use; and
- (3) determine whether the site can be remediated further to meet the conditions specified in § 196.04(a).

§196.06 Effective date.

(a) The standards in this part shall be effective on [30 days after the date of publication in the Federal Register].

Subpart B - Environmental Standards for Ground-Water Protection § 196.21 Applicability.

(a) This subpart applies to:

- (1) Radiation doses received by members of the public through exposure to groundwater as a result of activities subject to subpart A of this part; and
- (2) Radioactive contamination of ground water that is a current or potential sources of drinking water in the accessible environment as a result of such activities.

§ 196.22 General provision.

(a) Determination of compliance with this subpart shall be based upon ground waters that are current or potential sources of drinking water which have been identified on the date the implementing agency determines compliance with subpart B of this part.

§ 196.23 Remediation standards.

(a) Remediation of sites shall be conducted so as to provide a reasonable expectation that 1,000 years after completion of the remedial action, on-site radioactive material shall not cause the levels of radioactivity in any ground water that is a current or potential source of drinking water, in the accessible environment, to exceed the limits specified in 40 CFR part 141.

(b) Compliance assessments need not provide complete assurance that the requirements of § 196.23 of this subpart will be met. Because of the long time period involved and the nature of the processes and events of interest, there will inevitably be substantial uncertainties in projecting remedial action performance. Proof of the future levels of radioactivity in any ground water that is a current or potential source of drinking water, in the accessible environment, is not to be had in the ordinary sense of the word in situations that deal with much shorter time frames. Instead, what is required is a reasonable expectation, on the basis of the record before the implementing agency, that compliance with § 196.23 will be achieved.

(c) Compliance with § 196.23(a) of this subpart will not be required, if the implementing agency determines compliance to be technically impracticable from an engineering perspective. In this situation, the implementing agencies shall:

- (1) Select active control measures that ensure members of the public will not be exposed to ground water that is drinking water, in which the levels of radioactivity exceed the limits specified in 40 CFR part 141;
- (2) Select and perform remedial actions that limit to the greatest extent, contamination of ground water that is not already contaminated, as is reasonable under the circumstances;
- (3) Select and perform remedial actions that restore to the greatest extent, ground water that is already contaminated, as is reasonable under the circumstances;
- (4) Comply with the public notice and comment requirements of § 196.03(a) of subpart A; and
- (5) Comply with the periodic verification requirements of § 196.24 of this subpart.

§ 196.24 Assurance requirements.

(a) Implementing agencies shall reevaluate sites that are not remediated to permit unrestricted residential use as specified by § 196.04(a) of subpart A every *X* years to ensure that on-site radionuclide concentrations in excess of natural background levels do not cause the levels of radioactivity in any ground water that is a current or potential source of drinking water, in the accessible environment, to exceed the limits specified in § 196.23(a) of this subpart.

(b) Implementing agencies shall reevaluate sites that are remediated to comply with §§ 196.23(c)(1) to 196.23(c)(3), every *X* years to:

- (1) ensure that the active control measures that were selected, are continuing to ensure that members of the public are not being exposed to ground water that is drinking water, in which the levels of radioactivity exceed the limits specified in 40 CFR part 141;
- (2) ensure that remedial actions that were undertaken, are continuing to limit to the greatest extent, contamination of ground water that is not already contaminated, as is reasonable under the circumstances;

- (3) ensure that remedial actions that were undertaken, are continuing to limit to the greatest extent, ground water that is already contaminated, as is reasonable under the circumstances; and
- (4) determine whether the site can be remediated further to meet the conditions specified in § 196.23(a).

(c) If a *X* year review of a site determines that either § 196.24(a) or §§ 196.24(c)(1) to 196.24(c)(3) are not being complied with, or if the implementing agency is unable to conduct the *X* year review, the implementing agency shall comply with the public notice and comment requirements of § 196.03(a) of subpart A.

§ 196.25 Compliance with other Federal regulations.

(a) Nothing in this subpart relieves an implementing agency from the necessity to comply with any other applicable Federal regulations or requirements.