

Public Comment and NRC Response: Proposed Alternative Standard for the Uravan Site

In response to the *Federal Register* notice (76 FR 70170; November 10, 2011), the U.S. Nuclear Regulatory Commission (NRC) staff received two comment letters (Agencywide Documents Access and Management System Accession (ADAMS) Nos. ML11346A586 and ML12033A032). The Montrose County Planning and Development Director sent the first, and a citizen in Montrose County sent the second.

The NRC staff made changes to the draft staff assessment to clarify the level of protection provided by the current standards. This change makes the determination by the staff more explicit. The staff did clarify their basis for their conclusion to clearly state that the decision was based on the level of protection provided by the alternative standards which was found to be a more stringent level of protection of public health and safety and the environment than that provided by the current standards, and avoidance of worker risk and environmental damage.

Comments and Responses

Comment 1 (Montrose County):

Montrose County, CO supports the Colorado Department of Public Health and the Environment's proposal to use alternative standards for soil cleanup on the Uravan site.

NRC Response:

No response is needed.

Comment 2 (Marv Ballantyne):

I must complain that the notification for a proposal of relaxation of remediation requirements is very hard to understand/interpret by a lay person such as myself. The greatest difficulty is in finding and interpreting the existing standards for concentration of contaminants to which this request for an alternative standard was made.

NRC Response:

The proposed alternative standard submitted by the Colorado Department of Public Health and the Environment (CDPHE) would not result in the relaxation of the remediation requirements for this site. As discussed in the *Federal Register* notice (76 FR 70170; November 10, 2011), that requested public comment on the approval of Alternative Standards, the NRC is required under Section 274o of the Atomic Energy Act to find that the alternative standards are equivalent to, to the extent practicable, or more stringent than the level of protection that would be achieved by the standards and requirements of the NRC and the Environmental Protection Agency (EPA).

Congress amended the Atomic Energy Act to allow site-specific or generic alternative standards in situations that can better be addressed by alternative standards to the specific regulatory requirements. As noted above, any alternative standards must provide an equivalent or more stringent level of protection for public health and safety and the environment than the current regulatory requirement.

The specific soil cleanup standard in the regulations (10 CFR Part 40, Appendix A, Criterion 6 or Colorado equivalent, 6 CCR 1007-1, Part 18, Appendix A, Criterion 6) requires soils concentrations of radium-226 to not exceed the background level by more than 5 picocuries/gram (pCi/g) (0.18 Bq/g) of radium-226 averaged over the first 15 centimeters (cm) (0.5 feet) below the surface and 15 pCi/g (0.56 Bq/g) of radium-226 averaged over 15 cm (0.5 feet) thick layers more than 15 cm below the surface. The CDPHE approved background concentration is 2.1 pCi/g (0.078 Bq/g) of radium-226. The Uravan soil cleanup standards were 7.1 pCi/g (0.26 Bq/g) for the first 15 cm (0.5 feet) below the surface and 17.1 pCi/g (0.63 Bq/g) for the layers below 15 cm (0.5 feet).

The alternative standard would leave the material in place for the four areas identified by the Colorado licensee, Umetco Minerals Corporation. The licensee remediated the areas to the extent practical as described in the licensee's report submitted to the CDPHE (ML081150505). The CDPHE has accepted the licensee's report and has concluded that, while the current levels are higher than the standards above, they are protective of public health (ML092820404). The licensee performed dose calculations based on reasonable future use after termination of the specific license and transfer to the Department of Energy (DOE) for long-term care of the site. Based on this evaluation, the licensee concluded that the doses received would be less than the doses associated with the clean-up standards due to physical limitations, which would reduce the potential for human exposure. These dose calculations identified that the level of protection provided by the alternative standards is more stringent than the level protection that was the basis for the current standards. This conclusion is further supported by applying the criteria for supplemental standards in Uranium Mill Tailings Radiation Control Act of 1978, (UMTRCA) Title I standards in 40 CFR 192.21 "Supplemental Standards". The four areas each qualified under the 10 CFR 192.21 criteria.

The NRC staff found that the proposed alternative standards for soil cleanup for the Uravan uranium mill site are more stringent than the standards implemented by the NRC for the same purposes. Further remediation of the areas affected by the alternative standards would either put workers at unreasonable risk or cause significant environmental harm greater than the benefits to be achieved by additional remediation. In addition, the areas affected will be under the control of the DOE as part of the long-term care of the Uravan disposal site.

Comment 3 (Marv Ballantyne):

I believe there is a requested change of the standard associated with radium only, not other radioactive materials. From the proposal: "This standard is that the background level is not exceeded by more than 5 pCi/g (picocuries per gram) of radium-226 averaged over the first 15 centimeters (cm) below the surface and 15 pCi/g of radium-226 averaged over 15 cm thick layers more than 15 cm below the surface." Not knowing what the existing standard is in pCi/g makes it difficult to know whether 5 more is significant. I think, from looking at <http://www.nrc.gov/reading-rm/doc-collections/cfr/part040/part040-appa.html>, the standard is 5 mg/L, so I don't know how to compare the two.

NRC Response:

As stated in Comment 2 above, the proposed site-specific alternative standards would only be applicable to the four areas identified in the proposal. The regulatory soil cleanup standard in Colorado regulations would still apply in all other areas of the State of Colorado. The analysis of the material being left in place at this site shows that the impacts are less than those considered in the development of the regulatory requirements. Therefore, the NRC staff

concluded that the alternative standards provide a level of protection that is more stringent than the level of protection provide by the soil cleanup standards in the regulations.

The milligrams per liter (mg/L) designation referenced on the NRC web site is a measure for chemical constituents in ground water which is not applicable to the alternative standard addressed in this notice.

Comment 4 (Marv Ballantyne):

I don't understand why standards should be relaxed based on the geography of the locations.

NRC Response:

See Comment 2 response above.

The commenter's suggestion is that the current standards are being relaxed. The standards (for NRC -10 CFR Part 40, Appendix A or the State of Colorado equivalent - 6 CCR 1007-1, Part 18) provide for alternative standards to the specific standards in the regulations when such alternatives provide equivalent or more stringent protection of public health and safety and are protective of the environment. The licensee remediated the four areas to the extent practical. In this site-specific case, the licensee proposed and the State of Colorado agreed that the proposed alternative standards are at least as protective as the specific standards in the regulations based on physical limitations of the areas, which would reduce the possibility of human exposure. The proposed standards also avoid significant environmental damage that would occur if additional remediation activities were required. Such additional remediation would pose an unreasonable risk to the workers given the steep slopes and other unique operational concerns and would cause significant harm to the environment. Therefore, the NRC has determined that, considering the geography (geology and topography) of the site, leaving the materials in place provides acceptable levels of protection to public health and safety and protection of the environment from radiological and nonradiological hazards associated with each of the four areas.

Comment 5 (Marv Ballantyne):

What the Colorado Department of [Public] Health and the Environment is actually proposing is that Alternative Standards, which reflect the existing conditions, should be applied such that no additional effort or expense is necessary.

NRC Response:

The comment is correct that no additional action would be taken by the CDPHE. However, the NRC staff did not explicitly and quantitatively consider monetary costs in evaluating the acceptability of the alternative standards. The licensee remediated the four discrete areas of the site to the extent practical to meet the standard for levels of radium-226 in soil, found in 6 CCR 1007-1, Part 18, Appendix A, Criterion 6. The NRC staff determined that any additional effort to remediate the four areas would be unsafe to those involved in the remediation, lead to damage to the existing environment or habitat, and would have very limited benefits with respect to hazard reduction.

Comment 6 (Marv Ballantyne):

The Mill Hillside Area was considered too steep and dangerous to cleanup. It drains directly into the San Miguel River, which joins with the Dolores River which then drains into the Colorado River, a drinking water supply for much of Arizona, Nevada, and California. The Dolores River is habitat for several endangered species of fish, and is also a current candidate for Wild and Scenic Designation. Surely there could be some way to mitigate the situation at Mill Hillside, possibly to include diverting surface water and water table water from flowing into the area, as well as catching and treating water which comes out of the area, before it reaches the river.

NRC Response:

The licensee remediated and cleaned the Mill Hillside area to the extent practical. Challenges to worker safety prevented additional remediation along the cliff face that makes up a majority of the Mill Hillside area under consideration for the alternative standards. Remediation was performed as much as possible and was terminated when safety to workers became too much of a risk and when concern arose that additional removal could cause wasting of the cliff face, which could impact the long-term stability of the disposal area on the mesa resulting in even greater impact on the San Miguel River.

The proposed solution of diverting surface water or groundwater would be very difficult to implement given the steep slopes and would not lead to any benefit with respect to removal of hazards and the residual radioactive material. The material left in place is not readily mobilized since it has been there for many years. The only water flowing over the hillside is the water that falls as precipitation on the hillside and runs off into the San Miguel River.

The Dolores River runs north and joins the San Miguel River downstream of the Uravan site, and the Mill Hillside area is not adjacent to the Dolores River; therefore, there would be no impact to the Dolores River from the Mill Hillside area.

The licensee has been monitoring the San Miguel River upstream and downstream of the Uravan site. This monitoring has not detected any water quality changes resulting from the reclaimed Uravan site.

Comment 7 (Marv Ballantyne):

The A-Plant North Area and the River Ponds area were said to be impractical to remediate because they were buried by three feet of sediment during spring floods.

NRC Response:

This is correct. During the past remediation process for the River Ponds area, a spring flood deposited sediment on top of remediated area before the licensee could verify the completeness of the remediation. The licensee stated that the area may meet the soil cleanup standard. The licensee cleaned the area to bedrock or river bottom gravel/cobble. The licensee could not collect samples from this area before the deposition of the sediments. The A-Plant North area collected sediments over time in the riparian area. Disturbing the naturally stabilized riparian areas in attempts to collect pre-sedimentation materials to verify that the regulatory requirements have been met would result in further damage to the sensitive environment of the riparian areas.

Comment 8 (Marv Ballantyne):

There was also the unreasonable assumption that the San Miguel River will not be relocated.

NRC Response:

The commenter did not provide sufficient information to indicate that the assumption that the San Miguel River will not be relocated is unreasonable. The riverbed for the San Miguel River is situated at the base of a canyon valley. The bedrock edges to the river channel limit the ability of the San Miguel River to meander. Relocation of the San Miguel River during the foreseeable future is not anticipated due to being limited by bedrock.

Comment 9 (Marv Ballantyne):

The fourth area, County Road Y-11, is supposedly unnecessary to cleanup because the contamination is under three feet of road. This appears to be a way of shifting the responsibility to Montrose County, which has neither money nor expertise to manage such a risk.

NRC Response:

Because there is 3 feet (0.9 meters) of road above the contamination in the County Road Y-11 area, there is little chance that workers will be exposed to any radiation from the remaining radioactive material.

The DOE which will own the road will be responsible for any remaining radioactive material under the road. Montrose County will continue to have the right-of-way over the DOE property for the County Road Y-11 affected by the alternative standard.

If the road requires significant work that would involve disturbing the remaining radioactive material, the Statewide plan with the Colorado Department of Transportation already addresses this possibility for future work on the road. Any road work within the County right-of way would need to be coordinated with the DOE as the site owner.