

cleanup situations involving pollutants for which no MCLs exist. Establishment of a complete set of regulations specifying generic criteria for granting ACLs presents difficulties for rulemaking, since ACL determinations often involve complex judgments that are not amenable to being reduced to simple regulatory requirements. In this regard we note that such regulations do not yet exist in final form for sites directly regulated under RCRA.

However, the Agency has issued interim final Alternate Concentration Limit Guidance (OSWER Directive 9481.00; EPA/SW-87-017), and has proposed several relevant rules, e.g., under 40 CFR parts 264, 265, 270, and 271, for Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facilities (55 FR 30798; July 27, 1990). In addition, the NRC proposed a draft Technical Position on Alternate Concentration Limits for Uranium Mills at Title II sites on March 21, 1994 (59 FR 13345). EPA has reviewed the NRC draft Technical position, and we find that it is consistent, in general, with EPA's own guidance and proposed rules. The NRC draft position does not, however, specify an upper limit on risks to humans from carcinogens. We have reconsidered the issue of EPA review or oversight of ACLs at Title I sites in light of this review, and concluded that, in the interests of assuring that public health is adequately protected while at the same time minimizing the regulatory burden on DOE, the best course of action is to specify that upper limit in this regulation and assign the responsibility for making determinations for ACLs at individual sites to NRC. Accordingly, in this rule, in the implementing guidance contained in subpart C, § 192.20(a)(2), we now specify that the criterion for known or suspected carcinogens contained in the above-referenced RCRA documents should be applied in granting ACLs. That criterion specifies that ACLs should be established at levels which represent an excess lifetime risk, at a point of exposure, no greater than  $10^{-4}$  to  $10^{-6}$  to an average individual.

EPA is required by UMTRCA (Section 206) to be consistent, to the maximum extent practicable, with RCRA. For this reason, relevant portions of the RCRA regulations have been incorporated. For example, these regulations provide for the use of ACLs when it can be shown that the criteria specified in § 192.02(c)(3)(ii) are satisfied. It remains the view of the Agency that, as at the Title II sites, an ACL is appropriate if the NRC has determined that these

criteria are satisfied when the otherwise applicable standard will be met within the site boundary (or at a distance of 500 meters, if this is closer). It is clear that ACLs will usually be appropriate to accommodate the controlled minor seepage anticipated from properly designed tailings disposal within such distances, when public use is not possible.

#### *Cost*

Greater consideration of cost and cost-benefit analysis was requested by several commenters. In 1983, Congress amended UMTRCA to provide that when establishing standards the Administrator should consider, among other factors, the economic costs of compliance. We have considered these costs in two ways. First, we compared them to the benefit, expressed in terms of the value of the product—processed uranium ore—which has led to contamination of groundwater at these sites. We estimate the present value of the processed uranium ore from these sites as approximately 3.9 billion dollars (1989 dollars). The estimated cost of compliance is approximately 5.5% of this value, and we judge this to be a not unreasonable incremental cost for the remediation of contamination from the operations which produced this uranium. As a second way of considering the economic costs of compliance, we examined the cost of alternative ways to supply the resources for future use represented by these groundwaters. As noted earlier, water is a scarce resource in the Western States where this cleanup would occur. When other resources have been exhausted, the only remaining alternative to cleaning up groundwater in the vicinity of these sites is to replace this water by transporting water from the nearest alternative source. Our analysis of the costs of doing this indicates that it is significantly more costly to supply water from alternative sources than it would be to clean up the groundwater at these sites. We have concluded, therefore, that this final rule involves a reasonable relationship between the overall costs and benefits of compliance.

The RCRA subpart F regulations do not include cost as a consideration for the degree of cleanup of groundwater, and these regulations also do not provide for site-specific standards based on site-specific costs. Nonetheless, it is clearly desirable and appropriate to apply the most cost-effective remedies available to meet these standards at each site, and we anticipate that DOE will make such choices in choosing the remedies it applies to satisfy these standards. Further, once the basic

criteria for establishing ACLs set forth in § 192.02(c)(3)(ii)(B) have been satisfied, if a higher level of protection is reasonably achievable, this should be carried out. However, we do not believe it is appropriate to apply detailed cost/benefit balancing judgments to justify lesser levels of protection for ground water. The benefits of cleaning up groundwater are often not quantifiable and may not become known for many years; therefore, site-specific cost-benefit analyses are difficult to apply in such situations. Moreover, Congress provided no authority that protection of ground water at each site should be limited by cost/benefit considerations, even after reconsidering the question in the 1984 amendments.

Some reviewers raised the issue of additional costs arising from use of these standards in other applications, such as CERCLA cleanups. We recognize that there may be costs associated with using these standards as precedents for other waste cleanup projects. However, the reasonableness of incurring such costs should be assessed when it is possible to do so with complete information, that is, at the time of application of these standards as precedents for situations other than the one for which they were developed.

#### *Natural Restoration*

The use of natural restoration of an aquifer was discussed by several reviewers. Some felt that it was a viable and desirable alternative, because it is easy and inexpensive to apply, for groundwaters that are not expected to be used for drinking or other purposes during the cleanup period. Others felt that it should be prohibited because it required a reliance on institutional controls and would circumvent active cleanup of groundwater. EPA believes that the use of natural restoration can be a viable alternative in situations where water use and ecological considerations are not affected, and cleanup will occur within a reasonable time. We have concluded that institutional controls, when enforced by government entities, or that otherwise have a high degree of permanence, can be relied on for periods of time up to 100 years, and that adequate safeguards are provided through NRC oversight of the implementation of these standards to prevent this alternative from being used to circumvent active cleanup of water that will be used by nearby populations.

Commenters suggested that natural restoration was not adequate to restore water quality at these sites. DOE has indicated that they expect that natural restoration may be all that is necessary at up to eight sites and could be used