UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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MEMORANDUM

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

Subject: Ecological Considerations of RCRA Corrective Action Remedies

From: Matt Hale, Director
Office of Resource Conservation and Recovery

To: RCRA Directors, Regions I-X

The purpose of this memorandum is to: (1) confirm that, under existing regulations and guidance, ecological considerations are an integral part of Corrective Action under the Resource Conservation and Recovery Act (RCRA), including the attendant final remedies, and (2) to identify the various resource tools/guidance that may be used in conducting such assessments.

Statutory Basis for Ecological Considerations

The Corrective Action program has two central goals outlined in the RCRA statute: (1) protecting human health and (2) protecting the environment, in both cases from the harmful effects of releases of hazardous wastes or constituents from solid waste management units at facilities that are subject to a RCRA permit or interim status. Thus, the environmental protection goal, including factoring ecological considerations into cleanup decisions, is statutorily based. Specifically, the 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA created the RCRA Corrective Action program; commonly-used authorities in sections 3004, 3008, and 7003 all state the two goals listed in the statute. Regulations promulgated the following year at 40 CFR 264.101 reiterate the mandate to protect both human health and the environment.

Ecological Risk and Cleanup Standards

At sites subject to RCRA Corrective Action, regulators select media cleanup standards and facility owner/operators evaluate potential remedies to meet those standards. Because cleanup standards must protect both human health and the environment, ecological concerns will generally need to be considered at RCRA Corrective Action facilities.

The 1996 ANPR (61 FR 19432, May 1, 1996) provided updated guidance for the Corrective Action program that is still applicable. It states that the program must be implemented in a manner that is protective of both human health and the environment. This includes the selection of media cleanup standards and the implementation of remedial activities that are protective of ecologic receptors. The guidance cautions that often ecological receptors are sensitive to contamination at lower concentrations than humans. It goes further to note that ecological risk assessment may be even more important when non-residential land use assumptions are used.

Specifically, the ANPR states, "The use of ecological risk assessment is an important component of the corrective action program. Often, environmental receptors are sensitive to contamination at lower concentrations than humans are, and the exposure is usually longer and more intense. In order to fulfill EPA's mandate, the program must be implemented in a manner that is protective of both human health and the environment. This includes the selection of media cleanup standards that are protective of ecologic receptors. . . Action or cleanup levels based on human health exposure scenarios or land use assumptions might not be protective of ecological receptors; therefore, consideration of the ecological exposure pathway may, in certain settings, be the driving factor in selection of action or cleanup levels." See 61 FR 19451, May 1, 1996.

Ecological Risk and Final Remedies

The 1990 Subpart S proposal identified the following four remedy threshold criteria to help regulators choose a final remedy: (1) be protective of human health and the environment; (2) attain media cleanup standards; (3) control the source(s) of releases so as to reduce or eliminate, to the extent practicable, further releases of hazardous waste (including hazardous constituents) that might pose threats to human health and the environment; and (4) comply with applicable standards for waste management. While the 1990 Subpart S proposal was later withdrawn, the 1996 ANPR states that the threshold criteria remain appropriate as general goals for cleanup and screening tools for potential remedies.[1] Based on these threshold criteria, and the previous discussion regarding ecological risk in conducting cleanups, it should be clear that final remedies under the RCRA Corrective Action program must be protective of ecological receptors.

In an effort to stress the importance of ecological risk in conducting RCRA Corrective Action, EPA's Corrective Action training, "RCRA Corrective Action Training: Getting to Yes! Strategies for Meeting the 2020 Vision," which is currently being presented to the Regions, States and other stakeholders, states the importance of protecting human health and the environment throughout the curriculum.[2] Specifically, the training speaks to the ecological component of "protecting human health and the environment" in several places. For instance, Module 4, Slide 10 presents a draft Corrective Measures Study plan flowchart that includes a box on "ecological receptors." Module 7, Slide 8 notes that cleanup goals should be "based upon reasonably anticipated land and groundwater uses: human exposure scenarios…, ecological scenarios, and groundwater /surface water interaction." The speaker notes to that slide state, "[c]leanup criteria should be consistent with the identified groundwater use designation, reasonably expected worker or public exposure and ecological considerations at that facility." The notes recognize that while "cleanup criteria for soil and groundwater are typically based on human exposure scenarios such as direct contact, ingestion and inhalation… sediment and surface water criteria are more often established based upon ecological considerations." The speaker notes to Module 7, Slide 21 states that "[p]rotecting the environment involves, among other things, considering the ecological setting around a facility when evaluating and selecting a final remedy," and gives an example about possible negative impact to a fragile wetland area. Slide 33 (also of Module 7) focuses on the use of the area, and the speaker notes for that slide states "[e]cologically sensitive areas pose special considerations and difficulties" [when choosing

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[1] See 61 FR 19449, May 1, 1996.

[2] RCRA Corrective Action Training: Getting to Yes! For the materials for this training course see: http://www.epa.gov/osw/hazard/correctiveaction/training/vision/index.htm

remedies] and discusses examples of potential negative ecological impacts that might occur from particular remedies. Speaker notes for Module 8, slide 10, state, "[a]n ecological risk assessment provides information important to MNR [Monitored Natural Recovery] and other remediation approaches. Where a formal ecological assessment proves necessary, EPA (or a state) can either direct the facility to perform the risk assessment or choose to do the risk assessment itself based on data submitted by the owner/operator. Ecological risk assessments are currently being used successfully at RCRA Corrective Action sites.

Useful Resources

The Agency has developed several tools to assist in ecological risk assessment, which have and can be used at RCRA Corrective Action facilities. A number of publications, memos and resources can be found at: http://www.epa.gov/oswer/riskassessment. This risk assessment website includes a section on ecological risk at RCRA sites. A list of ecological risk assessment tools can also be found at: http://www.epa.gov/oswer/riskassessment/tooleco.htm. This memo, and links to resources cited here, will be accessible at: http://www.epa.gov/correctiveaction. Also, CERCLA's National Contingency Plan (NCP) designates certain key Federal agencies, state agencies and Indian tribes as natural resource trustees.[3] These trustee agencies have a great deal of experience in their respective areas and can be used as a valuable resource when conducting ecological assessments.

In addition, RCRA requires that other federal laws, including the Endangered Species Act (ESA), be considered and their procedures followed, where appropriate, in the issuance of permits under RCRA. See 40 CFR 270.3(c). Thus, the ESA is another resource that should be used to address ecological risks. Specifically, the ESA provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. ESA requires federal agencies, in consultation with the U.S. Fish and Wildlife Service (FWS) and/or the U.S. National Oceanic and Atmospheric Administration (NOAA) Fisheries Service, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The ESA requires consultation with the FWS if that action may affect species classified under the act as threatened or endangered.[4]

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[3] See 55 FR 8666, March 8, 1990.

[4] See the Endangered Species Act, §7(a), 16 U.S.C. § 1531 et. seq. Regulations governing compliance with the ESA are presented in 50 CFR 402. These requirements are also codified in the RCRA regulations at 40 CFR 270.3(c).