

Division of Environmental Response and Revitalization  
Remedial Response Program Fact Sheet  
Remediation Using Monitored Natural Attenuation  
January 17, 2001

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**PURPOSE**

This fact sheet discusses the Division of Environmental Response and Revitalization's (DERR) expectations with respect to the evaluation and implementation of monitored natural attenuation (MNA) as a response action at DERR Remedial Response sites. DERR will seek to include these expectations in cleanup agreements between the agency and potentially responsible parties negotiated either directly with the agency or through the Ohio Attorney General's Office. This fact sheet only applies to sites in DERR's enforcement program. Other programs may have different standards established by rule. This fact sheet is based upon the national guidance documents referenced herein and is intended to be used in conjunction with those guidance documents. Evaluation and implementation of MNA at DERR Remedial Response sites is to be performed in accordance with approved work plans developed pursuant to DERR's enforcement orders and attached Statements of Work, the referenced national guidance, and other relevant DERR-approved guidance.

**QUESTION**

What are DERR's expectations with respect to the use of Monitored Natural Attenuation as a response action at Remedial Response enforcement sites?

**BACKGROUND**

Naturally occurring processes of biodegradation, chemical reaction, sorption and dispersion may effectively reduce the level of soil and ground water contamination at some contaminated sites. In such cases, natural processes may serve as a useful means for effective remediation. MNA may also be an effective means of remediation if used in conjunction with external removal and remediation processes. DERR would consider the use of natural attenuation processes a Remedial Response enforcement sites where those processes could be demonstrated to be a timely, effective and reliable means of remediation. In appropriate situations, a natural attenuation remedy can be considered alongside other traditional remedial options and may be selected if it proves to best meet the remedy selection criteria. Consideration of MNA as a potential response action begins with initial project scoping. This helps ensure that data needs unique to the evaluation of MNA as a potential remedy are identified up front and incorporated into project work plans. MNA should not be considered a default or presumptive remedy. The use of MNA as a method of remediation should be restricted to sites where credible evidence exists that remedial objectives are likely to be achieved in a reasonable time frame when compared to more aggressive engineered remedies.

MNA is not a no-further-action or do-nothing approach to remediation. Indeed, MNA may actually cost more than more aggressive remedial or removal efforts due to the

extensive site characterization and long-term monitoring requirements that accompany a properly designed MNA remedy. Also, a more extensive outreach and public education effort may be necessary to gain acceptance of MNA in those situations where it has potential to be selected as a remedial action. Public outreach and education activities need to be identified early in the remedial process and incorporated into site-specific community relations plans.

## **BASIC PRINCIPLES**

The DERR considers the following to be the minimum standard for implementing an effective remedy relying on MNA:

- The nature and extent of contamination and the local hydrogeology are well understood.
- The natural attenuation process(es) is clearly demonstrated to be occurring at the present time and can be reliably monitored in the future.
- The rate of natural attenuation is shown to be sufficient to achieve remediation in a reasonable time frame when compared with more aggressive remedial approaches.
- During the course of natural attenuation, contaminant levels will not increase significantly in presently contaminated areas or spread to currently uncontaminated areas. This includes contamination by breakdown products that may be more toxic or mobile than the parent compounds.
- Contaminant source areas will be removed or controlled in those situations where removal is not practicable.
- Pathways and risks to potential receptors such as drinking water wells and surface water bodies, and possibilities for cross-media contamination are delineated and addressed.
- A monitoring program will be in place for sufficient time to establish that permanent remediation has occurred.
- The monitored natural attenuation remedy includes contingent remedies and clearly identified triggers for their implementation should natural attenuation not succeed within a predicted time frame.

## **REFERENCES**

Wiedemeier, Todd H., et al, Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water, United States Environmental Protection Agency, EPA/600/R-98/128, 1998.

Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites, United States Environmental Protection Agency, Office of Solid Waste and Emergency Response Directive 9200.4-17P, 1999.

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Generic Statement of Work, Remedial Investigation/Feasibility Study, Ohio Environmental Protection Agency DERR, September 1, 2006.

Region 5 Framework for Monitored Natural Attenuation Decisions for Groundwater, United States Environmental Protection Agency, Region 5 Superfund Program, September 27, 2000