



UST and SAF Bulletin

Arizona Department of Environmental Quality

**Subject: Draft Monitored Natural
Attenuation Policy**

Effective: Mar 24, 2004

Item:

TYPE

Monitored Natural Attenuation Technical Guidance

BACKGROUND

A.R.S. § 49-1005
A.A.C. R18-12, Articles 1 and 2

Monitored natural attenuation (MNA) is a remedial technique to reduce contaminant concentrations through natural processes such as biodegradation, advection and dispersion. The Underground Storage Tank Corrective Action Section receives and reviews technical documents including plans to use monitored natural attenuation. This bulletin clarifies ADEQ's expectations for owners and operators who select MNA as a remedial option.

CONTENT

Please see attached guidance

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ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
UNDERGROUND STORAGE TANK (UST) PROGRAM

Monitored Natural Attenuation (MNA)

POLICY

ADEQ considers that MNA is a corrective action option that should be evaluated with other applicable remedies. Selection of MNA as a remediation method will be evaluated for all sites. MNA will not be considered as a presumptive or default remedy. As with other remediation methods, selection of MNA as a remediation method should be supported by detailed site specific information that demonstrates the efficacy of the remediation approach. In addition, the progress of MNA towards a site's remediation objectives should be carefully monitored and compared with expectations. Where MNA's ability to meet these expectations is uncertain and based predominately on predictive analyses, UST owners and operators should incorporate contingency measures into the remedy. Additionally, ADEQ considers MNA in groundwater to be a potential remedy only when the contaminant plume is stable or shrinking. Due to the uncertainty of MNA to meet remediation objectives that are protective of human health and the environment, **source control and long term performance monitoring will be fundamental components of any MNA remedy**.

DEFINITION

SOURCE MATERIAL: Source material is defined as materials that contain regulated or hazardous substances, pollutants or contaminants that act as a reservoir (either stationary or mobile) for migration of contaminant(s) to the groundwater, to surface water, to air (or other environmental media) or act as a source for direct exposure. Contaminated groundwater is not generally considered to be a source material although non-aqueous phase liquids (NAPLs, [occurring either as residual or free-phase]) may be viewed as source materials. (U.S. EPA, 1991).

REFERENCES

Air Force Center for Environmental Excellence (AFCEE), 2000. Designing Monitoring Programs to Effectively Evaluate the Performance of Natural Attenuation.

American Petroleum Institute, 1998, Evaluation of Sampling and Analytical Methods for Measuring Indicators of Intrinsic Bioremediation, API Soil and Groundwater Research Bulletin, No. 5.

American Society for Testing and Materials, ASTM Standard E 1943-98, Guide for Remediation of Ground Water by Natural Attenuation at Petroleum Release Sites.

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U.S. Environmental Protection Agency, 1991, A guide to principal threat and low level waste, Superfund Publication 9380.3-06FS (Fact Sheet, November version), Office of Emergency Remedial Response. Washington, D.C.

U.S. Environmental Protection Agency, 1999, Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites, OSWER Directive 9200.4-17P.