

US EPA ARCHIVE DOCUMENT



## RARE Project Summary

# Dust Suppressants and Water Quality

USING SCIENCE TO MAKE A DIFFERENCE IN U.S. EPA REGION 9, THE PACIFIC SOUTHWEST REGION

### Regional Applied Research Effort Testing of Dust Suppressants for Water Quality Impacts

The use of dust suppressants not only enhances dust control but can also significantly reduce the amount of water needed to effectively control dust. However, application of dust suppressants could also negatively impact the quality of underground water and surface water bodies through infiltration or storm water runoff.



AZ (left) and NV (right) soil columns before and after product application.

The purpose of this research was to identify dust suppressant products with minimal to

no adverse impacts on water quality and aquatic life relative to use of water alone. Simulated stormwater runoff from small-scale

soil plots treated with six dust suppressant products was evaluated for water quality and aquatic toxicity. The study also evaluated the quality of water leached through soils treated with dust suppressant products. The study design replicated, to the extent possible, conditions under which dust suppressants are typically applied at construction sites in desert climates.



Treated Arizona Soil Trays Under Heat Lamps.

Dust suppressant products tested included:

- Chem-Loc 101 (surfactant)
- Enviro RoadMoisture 2.5 (surfactant)
- Durasoil (synthetic organic)
- Jet-Dry (surfactant)
- Haul Road Dust Control (surfactant)
- EnviroKleen (synthetic polymer)

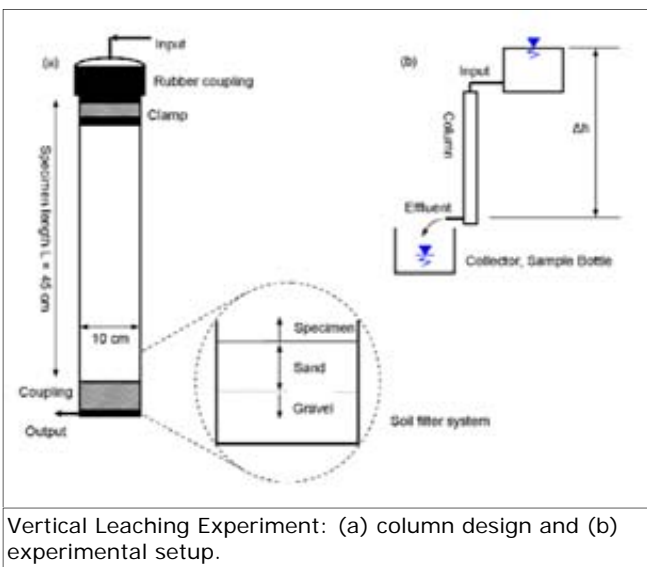
Overall, water quality results for the dust suppressant products were favorable and generally minimal, showing concentrations similar to water-only control tests on untreated soils for the majority of parameters evaluated. However, this study is not a substitute for site-specific monitoring of dust suppressant impacts and results should not be applied to products that were not tested.

**Regional Scientists:** Karen Irwin and Peter Husby

**ORD Scientists:** David Reisman, National Risk Management Research Laboratory, Cincinnati, OH

**Partners:** Edward Beighley, San Diego State University; Clark County Department of Air Quality & Environmental Management, Las Vegas, NV; Maricopa County Air Quality Department (AQD), Phoenix, AZ; Environmental Quality Management, Inc.

**Summary Report:** <http://www.epa.gov/region09/air/dust/DustSuppressants-sept2008.pdf>



Vertical Leaching Experiment: (a) column design and (b) experimental setup.