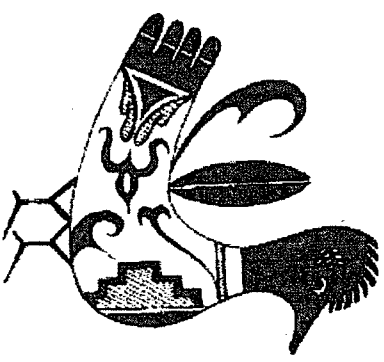


SURFACE WASTE FACILITIES

OIL CONSERVATION COMMISSION HEARING

CASE 13586

APRIL 20, 2006



New Mexico Citizens for

Clean Air & Water, Inc.

P.O. Box 5 Los Alamos 87544

PHILOSOPHY OF OUR PRESENTATION

Landfarms: A landfarm is a temporary remediation facility. After its use, the land should be returned to nearly its natural state.

As stated by the API:

“... *successful remediation suggests a landscape and ecosystem which have recovered sufficiently to support healthy and self-sustaining plant and animal growth, minimal erosion, and negligible long-term impact on usable surface or subsurface water.*”

American Petroleum Institute Publication 4663,

Remediation of Salt-Affected Soils and Oil and Gas Production Facilities (1997).

PHILOSOPHY OF OUR PRESENTATION, can't

Landfills: A landfill becomes a permanent repository, intended to remain secure and to generate no releases throughout all human history following its closure.

A landfill is a subsurface sacrifice region, not intended for any future human use including structural support for a building, **but**

a closed landfill should not preclude future use of the land surface itself, or of the surrounding land, air, or water by man, plants, or animals.

There are three fundamental issues to be resolved in establishing numerical limits:

- The effects of salt remaining in and beneath closed landfarms;
- The effects of petroleum hydrocarbons and associated contaminants remaining in and beneath closed landfarms; and
- How we measure the contaminants in comparison with the limits.

OUTLINE

SCIENCE

- Modeling: absolute vs relative answers
- Salt, sodium, and chloride in soil
- Petroleum hydrocarbons in soil
- Sampling and statistics

PROPOSED RULES AND CLOSURE

Bonding

Design of facilities

Monitoring and sampling

Bioremediation endpoint

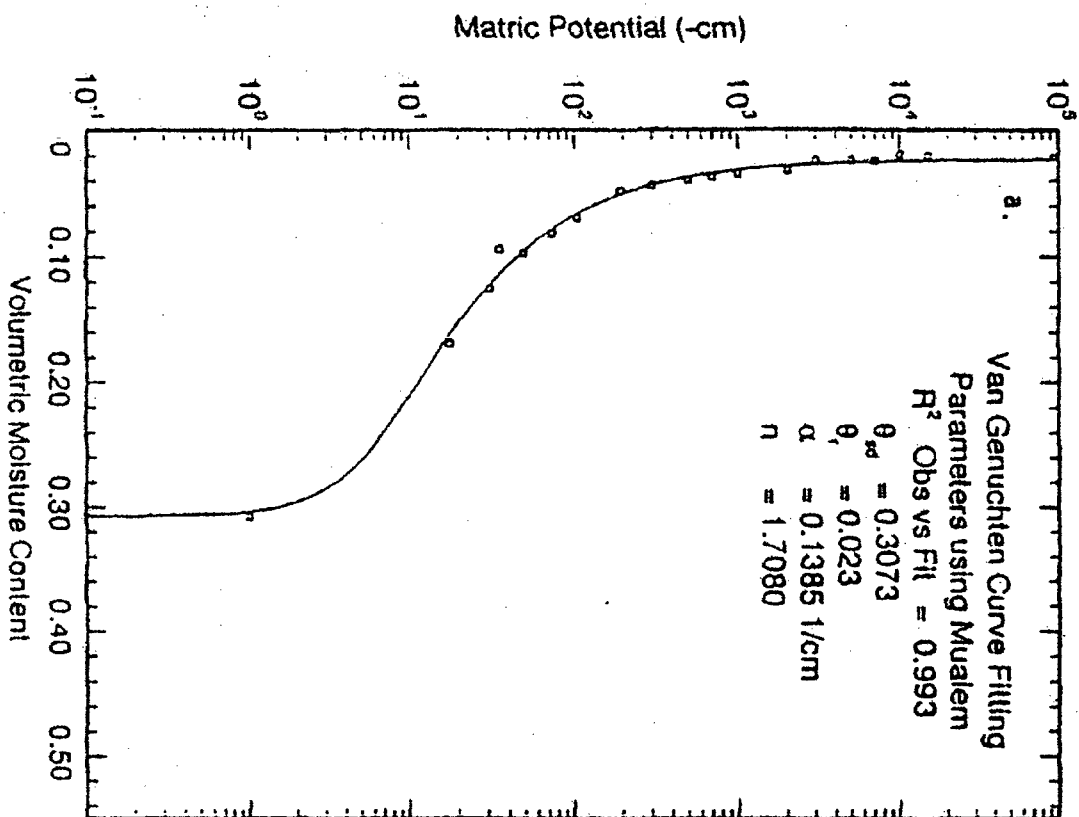
⁶Science:

modeling and input parameters

Modeling is very useful for ascertaining relative changes--for example, in comparing the effect of different chloride concentrations.

However, to provide an absolute prediction, the model must use the input parameters (e.g. hydraulic conductivity) vary with depth at the site.

NMCCA&W Exhibit 1



Copied from: R. Khaleel and J. Relyea, "Evaluation of van Genuchten-Mualem relationships to estimate unsaturated hydraulic conductivity at low water contents," Water Resources Research 31, 2569-2668, 1995.