

US EPA ARCHIVE DOCUMENT



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

9
UNDATED

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Des Moines, Iowa - Trip Report

FROM: Stuart Z. Conen, Chemist *Stuart*
Exposure Assessment Branch, HED

TO: David J. Severn, Chief
Exposure Assessment Branch, HED

The purpose of the trip was to participate in a March 13, multi-agency meeting on ground-water problems in northeast Iowa. Recent completed and in-progress reports by the Iowa Geological Survey (IGS) have shown significant contamination of the limestone aquifer system in the Big Spring Basin and other areas of northeast Iowa by nitrates and pesticides. The work has been funded in part by the USDA-SCS and Region VII's UIC program. (Continued funding is an issue.) A committee has been formed to deal with the problem, and its membership includes the IGS, various private and governmental soil conservation organizations, the Department of Water, Air, and Waste Management (DWAWM), EPA, and one or two others. The Iowa Department of Agriculture is not playing an active role.

The night before the March 13 meeting, I had an informal, technical meeting with the IGS (George Hallberg and Bernie Hoyer) and the DWAWM (Rick Kelly), which was arranged by Taun Novak from EPA's Region VII UIC program. The agenda of the March 13 meeting is attached. Based on a previous conversation with Taun, I brought a bunch of slides to be used for the EPA presentation in the morning. After I had a chance to meet everybody and hear part of the meeting, I selected a few slides which were most appropriate for the group. Taun said a few words about possible funding by Region VII under FWPCA §205(j) (construction grants) and possible FY'85 funding by EPA-HQ, and I gave a mostly technical 10-15 minute presentation. The group was very appreciative that EPA-HQ took an interest in their problem, but I don't think they expected us to really help them in the future. This skepticism was, at least in part, brought about by the fact that they feel that the much ballyhooed EPA Ground Water Protection Strategy says very little and offers little help to the states. (According to the IGS, the State of Wisconsin has similar feelings.) The DWAWM is pushing its own ground-water protection strategy.

①

- 2 -

Technical Summary

The IGS has written two reports, with a third report in progress, on the assessment of the karst-carbonate aquifers in northeast Iowa.* The second report, under review by Dr. Datta, assessed the hydrogeology, water quality, and land management practices in the 103 square miles Big Spring Basin in northeast Iowa. Well over 100 wells in the basin have been sampled for nitrate, pesticide, and microbe analyses. Big Springs itself is an ideal system to study because it is a dammed spring which is almost entirely filled with the basin's ground-water discharge. Intensive sampling for water quality and quantity has been done, along with water quantity and erosion modeling.

I have not thoroughly reviewed their reports, but the table below is probably a fair summary of the pesticide analyses over the last two years in northeast Iowa, including the Big Spring Basin.

Pesticide	Typical Positive, ppb	Max. Conc., ppb	
		Karst (Sinkhole Source)	Infiltration Source
atrazine	0.2 - 0.7	9.0	1.6
alachlor (Lasso)	0.1 - 3	6.0	16.6
cyanazine (Bladex)	0.1	1.2	0.48
metolachlor (Dual)	?	0.62	0.11
fonofos (Dyfonate)	?	0.11	--
metribuzin (Sencor)	0.1 - 1.2	--	4.35

There was a qualitative, but not quantitative, correlation between pesticide and nitrate residues.

In spite of the sinkholes, a mass balance analysis by the IGS estimates that as much as 84% of the atrazine found in ground water comes from normal infiltration, rather than surface and inter-flow contamination through sinkholes.

Follow-Up

George Hallberg (IGS) will send me the QC summary of the pesticide results. DWAWM may request health advisories from us on some or all of these pesticides.

I recommend that we consider funding continued research in this area if a proposal is made.

The various agencies are now struggling with an attempt to devise a comprehensive best management practices scheme which may incorporate some of our criteria for pesticide ground-water contaminants.

cc: P. Datta, L. Richardson, S. Sherman,
Taun Novak - Drinking Water Branch, Region VII

* "Karst-carbonate" refers to irregular terrain characterized by a shallow (<50 ft) limestone aquifer system dotted with sinkholes.

Attachment

2

MEETING TO DISCUSS KARST AREA PROBLEMS

Sponsored By

NORTHEAST IOWA CONSERVANCY DISTRICT BOARD
and
IOWA COOPERATIVE EXTENSION SERVICE

Wallace State Office Building
Third Floor Conference Room
March 13, 1984
9:00 a.m.

1. Opening Remarks
2. Review October 26, 1983 Meeting
3. Agency Roles in Resolving Karst Area Problems *DWAWM - V. bbo*
SCS - Stan Mitchum
 - A. Agency Responsibilities and Authorities *Ag Syst. Sta.*
 - B. Activities Underway to Resolve Karst Area Problems *IGS Dept. SCS.*
4. Lunch Break *I. D. Ag.*
Sulf. Sec. Amer.
5. Divide into Work Groups to:
EPA
ISV Exl.
 - A. Identify Agency Activities or Actions Needing Interagency Coordination and/or Cooperation
 - B. Discuss Methods to Develop and Establish Interagency Coordination and Cooperation
6. Work Group Reports
7. Other Activities or Actions that can or should be Undertaken by Agencies or Organizations to Protect Groundwater in the Karst Areas
8. Other Concerns
9. Future Meetings