Title: **Groundwater Quality Monitoring - Long-Term Effects of Intensive Farming and Sprinkler Irrigation on Groundwater Quality. (Study No. 17)**

Investigators:

Principal Investigator

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Objectives: To quantify water quality changes from intensive irrigated crop farming in Portage and Adams counties in Wisconsin and relate the changes to specific farming practices.

Background/Need: Previous research identified water quality changes since irrigated agriculture began in the Central Sands plain, though data is not sufficient to define trends.

Methods: Four sites consisting of 160-acre fields irrigated by a central sprinkler system were monitored for water-quality changes from 1979 to 1984. Piezometer nests measured the vertical and horizontal groundwater gradients. Water level measurements were made at the same time as groundwater samples taken, at the beginning and end of each irrigation season.

Results/Conclusions: Concentrations of nitrate-nitrogen, potassium and chloride tend to increase in the direction of groundwater movement. Inorganic constituents appear to increase in water from irrigation wells, though the cause of the increases has not yet been determined. Areal and seasonal variation in water quality occur at all sites.

Recommendations/ Implications: The investigator suggests continued monitoring of the study sites to relate water quality problems related to agriculture in the Central Sands plain and similar hydrogeologic areas.

Availability of Data: This data is available for viewing and loan at:

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