

United States  
Department of  
Agriculture

Soil  
Conservation  
Service

Northeast NTC  
160 East 7th Street  
Chester, PA 19013

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Subject: Ground-penetrating Radar Field  
Assistance in Wisconsin,  
9 -12 May 1988

Date: May 17, 1988

To: Rodney F. Harner  
National Leader  
National Soil Survey Quality Assurance Staff  
Soil Conservation Service  
Midwest National Technical Service Center  
Federal Building, Room 345  
100 Centennial Mall North  
Lincoln, NE 68508-3866

File code: 430-13

**Purpose:**

To provide field assistance to members of the University of Wisconsin-Extension, Geologic and Natural History Survey on the operation of the ground-penetrating radar (GPR) and on the interpretation of the radar data.

**Participants:**

Ken Bradberry, Assoc. Prof., University of Wisconsin, Madison, WI  
James A. Doolittle, Soil Specialist (GPR), SCS, Chester, PA  
John Koenig, Res. Asst., Entomology Dept., U of Wisconsin, Madison, WI  
John Krugger, RC&D Coordinator, SCS, Stevens Point, WI  
Sam Kung, Ass't. Prof., University of Wisconsin, Madison, WI  
Mike Lemke, Geotechnician, Wisconsin Geol. & Nat'l. Hist. Survey,  
Madison, WI  
Fred Madison, Assoc Prof., Soil Science, U of Wisconsin, Madison, WI  
Byron Shaw, Prof., College of Nat'l Res., U of Wisconsin, Stevens  
Point, WI

**Activities:**

An informal discussion was held on the afternoon of May 9, in the office of the Wisconsin Geologic and Natural History Survey. During this meeting, the theory, uses, and interpretations of ground-penetrating radar data were discussed. Dr. Kung gave a slide presentation on his studies of tracing the paths of water infiltration in areas of Plainfield soils. In response to Dr. Kung's presentation, potential applications and the involvement of GPR techniques were discussed.

Field studies were conducted with the GPR at the Hancock Experiment Station on 10 May, and near Stevens Point on 11 and 12 May 1988. Field techniques, equipment selection and calibration, and data interpretations were discussed at each site. At several sites, the radar imagery was confirmed with ground truth soil borings or excavated pits.

**Discussion:**

This field trip provided participants with an excellent opportunity to exchange ideas on field techniques, data interpretations, and equipment selection and calibration. Dr. Fred Madison and Mike Lemke are enthusiastic and well versed in the use of the ground-penetrating radar. Their efforts in Wisconsin will be shared with and have an impact upon the uses of GPR techniques within the soil survey program.

During this field trip, I was able to share my experiences with the participants. I confirmed many of their interpretations while acquainting myself with developing areas of GPR applications.

James A. Doolittle  
Soil Specialist (GPR)

cc: Earling Gamble, Soil Scientist, NSSQAS, SCS, MWNTC< Lincoln, NE