

Derric L. Iles

Work Experience

- Jan. 1998 – Present **State Geologist and Administrator**, *Geological Survey Program, South Dakota Department of Environment and Natural Resources, Vermillion, South Dakota*
- Plan, organize, and direct the activities of the South Dakota Geological Survey to locate, describe, map, and evaluate the natural resources of South Dakota.
 - Provide scientific advice and expertise to the South Dakota Department of Environment and Natural Resources, other governmental agencies, consultants, and the public.
- 1986 – 1993 **Adjunct Instructor**, *Department of Earth Sciences and Physics, University of South Dakota, Vermillion, South Dakota*
- Taught a 3-credit Environmental Earth Science course.
 - Taught introductory earth science laboratories.
- Feb. 1986 – Dec. 1998 **Hydrologist**, *Geological Survey Program, South Dakota Department of Environment and Natural Resources, Vermillion, South Dakota*
- Designed and directed hydrogeologic investigations focused on water quantity, water quality, and the vulnerability of certain aquifers to surface sources of contamination.
 - Planned and directed research on the movement of ground water through low permeability glacial till. Utilized test drilling, well installation, laboratory and field testing of sediment permeability, general water chemistry, stable isotopes, lithologic description, water levels, and hydraulic gradients to characterize hydrogeologic conditions.
 - Directed drilling, well installation, and water sampling activities.
 - Produced maps and written scientific reports.
 - Reviewed and evaluated consultants' reports on hydrogeologic characterizations of future landfill sites. Assisted consultants in preparing work plans to gather hydrogeologic information necessary for the permitting process related to solid waste disposal facilities in low-permeability geologic settings.
 - Designed and implemented a statewide ground water quality monitoring network for South Dakota that is focused on long-term monitoring of the ambient quality of water in 25 of the state's surface aquifers.
 - Provided expert witness testimony regarding the hydrology and geology of potential landfill sites on behalf of the South Dakota Department of Environment and Natural Resources.
- Nov. 1984 – Jan. 1986 **Senior Hydrogeologist/Project Manager**, *Soil Exploration Company, Twin City Testing Corporation, Huntingdon Engineering and Environmental Inc., St. Paul, Minnesota*
- Designed and directed investigations of sites having petroleum contamination in the subsurface. Field methods employed were drilling of test holes, installation of monitoring wells, collection of sediment and ground water samples, and collection of water level data.
 - Project sites ranged geographically from West Virginia to California and encompassed bedrock, alluvial, and glacial geologic settings.
 - Hired and directed subcontractors for project sites remote from the Minneapolis, Minnesota, area.
 - Evaluated aquifer test data to assist in the understanding of subsurface hydrologic conditions.

- Used geologic, hydrologic, and contaminant data to interpret subsurface conditions, and to predict future environmental impacts of contamination.
- Designed and implemented remedial action at project sites to mitigate environmental impacts and to protect human health and safety.
- Prepared maps, cross sections, and written reports.

June 1977 – Oct. 1984 **Geologist/Hydrologist**, *Geological Survey Program, South Dakota Department of Environment and Natural Resources, Vermillion, South Dakota*

- Compiled and evaluated existing hydrologic and geologic information in preparation for the planning of drilling and well installation projects.
- Planned field investigations based on existing information. Investigations were conducted in (1) highly variable glacial sediments (including buried and surficial glacial outwash aquifers), (2) Cretaceous age geologic units of Niobrara Formation, Carlile Shale, Greenhorn Formation, Graneros Shale, Dakota Formation, and Split Rock Creek Formation, and (3) Precambrian age Sioux Quartzite.
- Directed drilling and well installation for ground-water resource investigations wherein the extent, thickness, and water quality of various aquifers were studied. Investigations were performed to locate new or supplemental sources of drinking water for cities and rural water systems. Drilling and well depths ranged from very shallow to greater than 800 feet. The primary drilling method employed was the forward mud rotary method. Auger drilling (solid stem and hollow stem) was also used but to a much lesser extent.
- Planned and directed drilling and well installation activities to characterize the hydrogeology at potential or existing landfill sites.
- Planned and directed the investigation of sites contaminated with petroleum products (gasoline, diesel, fuel oil). Directed test drilling, well installation, and performed sampling of water and contaminants.
- Spent extensive time in the field with drilling projects as the well-site geologist and project director; logged and interpreted drill cuttings.
- Performed and interpreted results of geophysical logging of test holes (single-point resistivity, spontaneous potential, and natural gamma) to define subsurface geology.
- Used isotopic analysis of ground water to interpret paleo-hydrogeologic environment and age of the ground water.
- Interpreted surface and subsurface geology and hydrology in order to construct aquifer maps. The process included reconstruction of geologic history and an evaluation of all available hydrologic parameters.
- Developed wells, commonly using compressed air, and sampled wells for water quality analysis using a variety of methods (air lift, bailer, centrifugal pump, bladder pump).
- Collected water levels and used them to construct water table maps and potentiometric surface maps.
- Prepared maps, cross sections, and written reports for projects lasting a few months to several years.
- Made presentations of project results to city councils, rural water system boards of directors, consultants, other government officials, and the general public.

Education

1975-1977

Master of Science, Geology, *Iowa State University, Ames, Iowa*

1971-1975

Bachelor of Arts, Geology, *University of Northern Iowa, Cedar Falls, Iowa*

Additional Training

- 24-hour Mine Safety & Health Administration training, November 2006 and January 2009
- Legal Arena, SD Bureau of Personnel training
- various OSHA 8-hour refresher courses for hazardous materials
- Source Water Protection Workshop, December 1997
- Introduction to ArcView, March 1997
- Recognizing & Identifying Hazardous Materials Train-the-Trainer Course, December 1990
- Introduction to AutoCAD, August 1990
- Wellhead Protection Area Delineation, October 1988
- Sampling for Hazardous Materials (165.9), August 1988
- Safety at Hazardous Materials Sites: A Hands-On Workshop, May 1998
- Risk Based Corrective Action Training, December 1995
- Drug and Alcohol Detection Training Course for Supervisors, June 1995
- Personnel Protection and Safety (165.2), March 1988
- Incident Mitigation & Treatment Methods, September 1986
- Intermediate Hazmat Safety, April 1985

Memberships American Institute of Professional Geologists, CPG 10986
 Association of American State Geologists
 National Ground Water Association

Awards

2005 John Paul Gries "Geologist of the Year" Award, *American Institute of Professional Geologists, South Dakota Section*

2001 Agency Person of the Year Award, *Black Hills Resource Conservation and Development, Inc.*

1998 Environmental Achievement Award, *U.S. Environmental Protection Agency, Region 8*

Publications/Reports

Iles, D.L. and Barari, A., 1978, *Ground-water study for the city of Redfield*: South Dakota Geological Survey Open-File Report UR-22, 23 P.

Iles, D.L. 1979, *Ground-water study for southern Union County*: South Dakota Geological Survey Open-File Report UR-28, 63p.

Iles, D.L., 1979, *Ground-water study for the city of Huron*: South Dakota Geological Survey Open-File Report UR-24, 37 p.

Iles, D.L. 1979, *Sanitary landfill investigations for the city of Huron*: South Dakota Geological Survey Open-File Report UR-26, 30 p.

Ludvigson, G.A. McKay, R.M., Iles, D.L., and Bretz, R.F., 1981, *Lithostratigraphy and sedimentary petrology of the Split Rock Creek Formation, late Cretaceous, of southeastern South Dakota*, in Brenner and others, *Cretaceous stratigraphy and sedimentation in northwest Iowa, northeast Nebraska, and southeast South Dakota*: Iowa Geological Survey Guidebook Series 4.

Hedges, L.S., Burch, S.L., Iles, D.L. Barari, R.A., and Schoon, R.A., 1982, *Evaluation of ground-water resources in eastern South Dakota and upper Big Sioux River, South Dakota and Iowa, Task 1: Bedrock topography and distribution; Task 2: Extent of aquifers; Task 3: Ground-water storage; Task 4: Computerized data base*: Department of Water and Natural Resources, Division of Geological Survey, Vermillion, South Dakota, Prepared for Planning Division, U.S. Army Corps of Engineers, Omaha, Nebraska, Contract DACW 45-80-C-0185.

- Iles, D.L. 1984, *Platte petroleum spill*: (revised 1989), South Dakota Geological Survey Open-File Report UR-39, 38p.
- Iles, D.L. 1984, *Pleistocene recharge to the Dakota Formation in Lincoln County, South Dakota*, in *Proceedings of the First C.V. Theis Conferences on Geohydrology: Geohydrology of the Dakota Aquifer*: held October 5-6, 1982, Lincoln, Nebraska, p. 135-146; published by the National Water Well Association.
- Hedges, L.S., Burch, S.L., and Iles, D.L., 1985, *Evaluation of groundwater resources eastern South Dakota and upper Big Sioux River South Dakota and Iowa, Task 6: Average annual ground-water use in eastern South Dakota*: Department of Water and Natural Resources, Division of Geological Survey, Vermillion, South Dakota, Prepared for Planning Division, U.S. Army Corps of Engineers, Omaha, Nebraska, Contract DACW 45-80-C-0185.
- Allen, J.C., Iles, D.L., and Petres, A.K., 1985, *Analysis of groundwater and streamflow data western Dakotas region of South Dakota, Tasks 3A, B, C and 4A, B: Groundwater resource inventory*: Department of Water and Natural Resources, Division of Geological Survey, Vermillion, South Dakota, Prepared for Planning Division, U.S. Army Corps of Engineers, Omaha, Nebraska, Contract DACW 45-82-C-0151.
- Hedges, L.S., Burch, S.L., and Iles, D.L., 1985, *Evaluation of groundwater resources eastern South Dakota and upper Big Sioux River South Dakota and Iowa, Task 11: Artificial recharge potential*: Department of Water and Natural Resources, Division of Geological Survey, Vermillion, South Dakota, Prepared for Planning Division, U.S. Army Corps of Engineers, Omaha, Nebraska, Contract DACW 45-80-C-0185.
- Iles, D.L. 1986, *Gregory petroleum leak*: South Dakota Geological Survey Open-File Report UR-38, 21 p.
- Iles, D.L. 1986, *Tripp petroleum leak*: South Dakota Geological Survey Open-File Report UR-37, 17 p.
- Iles, D.L., 1988, *Investigation of petroleum contamination at Washington High School, Sioux Falls, South Dakota*: South Dakota Geological Survey Open-File Report UR-53, 27 p.
- Iles, D.L. and Dawson, P.M., 1988, *Hydrogeologic investigation for an alternate water source for the Brookings-Deuel Rural Water System near Clear Lake, South Dakota*: South Dakota Geological Survey Open-File Report UR-51, 79 p.
- Iles, D.L., Meyer, M.R., Baron, L.R. and Markley, W.E., 1988, *Assessment of hydrogeologic and ground water contamination data in the vicinity of the Hayward Elementary School, West 12th Street, Sioux Falls, South Dakota*: South Dakota Geological Survey Open-File Report UR-44, 231 p.
- Barari, A., Cowman, T.C., and Iles, D.L. 1988, *Evaluation of data on nitrate concentrations in the Big Sioux aquifer*: South Dakota Geological Survey Open-File Report UR-54, 30 p.
- Iles, D.L., 1989, *Investigation of the Sioux Falls sanitary landfill*: South Dakota Geological Survey Open-File Report UR-58, 69p.
- Barari, A., Iles, D.L., and Cowman, T.C., 1989, *Assessment of water resources and conceptual evaluation of a regional water supply for southeastern South Dakota*: South Dakota Geological Survey Open-File Report UR-60, 18 p.
- Barari, A., Cowman, T.C., and Iles, D.L., 1989, *A summary of current hydrologic conditions in the Dolton aquifer*: South Dakota Geological Survey Open-File Report UR-59, 11 p.
- Frykman, L.J., and Iles, D.L., 1990, *Hydrologic investigation of the Dakota Formation to identify additional municipal well sites for the city of Canton, South Dakota*: South Dakota Geological Survey Open-File Report UR-62, 79 p.
- Iles, D.L. and Frykman, L.J., 1991, *Hydrogeology of the southern Skunk Creek management unit of the Big Sioux aquifer*: South Dakota Geological Survey Open-File Report UR-63, 171 p.
- Iles, D.L., Hammond, P.D., and Schulz, L.D., 1992, *Effects of sampling methods on inorganic water chemistry results in Proceedings of National Groundwater Sampling Symposium*: held November 30, 1992, Washington, DC, p. 41-68; published by Grundfos Pumps Corporation, Environmental Products Division.
- Barari, A., Iles, D.L., and Cowman, T.C., 1993, *Wellhead protection and monitoring options for the Sioux Falls airport wellfield, South Dakota* in Moore, B.A., editor, *Case studies in wellhead protection area delineation and monitoring*: Environmental Monitoring Systems Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Las Vegas, Nevada, Contract number 68-CO-0049.
- Holly, D.E., Iles, D.L., and Barari, A., 1993, *Ground-water study for the TM Rural Water District in the vicinities of Dolton and Parker, South Dakota*: South Dakota Geological Survey Open-File Report UR-65, 112 p.
- Iles, D.L., 1996, *Investigation of the Dakota Formation for the Lincoln County Rural Water System*: South Dakota Geological Survey Open-File Report UR-71, 12 p.
- Iles, D.L., Barari, A., and Hedges, L.S., 1996, *Ground-water movement within till in Lincoln County, South Dakota*: South Dakota Geological Survey Open-File Report BAS-04, 82 p.

- Frykman, L.J., and Iles, D.L., 1996, *Investigation of nitrate-nitrogen contamination in ground water in the vicinity of Alcester, South Dakota*: South Dakota Geological Survey Open-File Report UR-76, 50 p.
- Davis, R.K., Iles, D.L., Schaefer, V.R., Kortran, J.M., Koch, B., and Peterson, E.W., 1997, *Hydrogeology and hydrochemistry of clayey till at the Sioux Falls landfill, Sioux Falls, South Dakota*: South Dakota Geological Survey Open-File Report BAS-09, 186 p.