



Geologists in the Public Eye

On June 8, Ed Murphy co-led a field trip, along with Ron Ness (ND Petroleum Council), Lynn Helms (ND Oil and Gas Division), Larry Melvin (U.S. Forest Service), and Kent Ellis (Bismarck Public Schools), through western North Dakota for the North Dakota Petroleum Council's 2004 Teacher Education Seminar. Forty K-12 teachers participated in the fieldtrip and seminar, which was held in Bismarck. Ed also presented a talk entitled *Coal-Bearing Rocks in the Northern Great Plains* to 130 K-12 teachers enrolled in the Lignite Energy Council's 2004 Teacher Education Seminar held in Bismarck from June 15-17. Earlier in the year, on January 20, Ed gave a presentation entitled "*Slope Stability Problems with the Northern Pacific Railway Bridge at Bismarck, ND*" to members of the North Dakota Geological Society, and on April 7 spoke on the "*Geologic Observations by Lewis and Clark in North Dakota*" at the North Dakota Lewis and Clark Interpretive Center in Washburn.

Randy Burke and his co-author Ralph Nelms presented a paper entitled "*Evaluation of Oil Reservoir Characteristics to Assess North Dakota Carbon Dioxide Miscible Flooding Potential*" at the 12th Williston Basin Petroleum Conference in May (see related articles on pages 22 and 23). They also displayed a poster at the conference illustrating "*Geologic, Petrophysical and Engineering Spreadsheets for North Dakota Oil Field Units.*" A detailed description of these spreadsheets follows this article.

The NDGS was featured on the North Dakota Geological Society's agenda again this spring when Brett Woodward spoke on the topic of "*Taxonomy, Paleoecology, and Evolution of the Otolith-based Fishes of the Upper Cretaceous Kemp Clay, Hunt County, Texas*" at its May 18 meeting.

Courtesy of the State Health Department Lorraine Manz used its portable stream table to demonstrate the nature and importance of riparian areas to 6th grade students at the Gateway to Science Environmental Festival held at Bismarck State College on March 17, and again on May 6-7 to 3rd graders at the Bismarck Public Schools Third Grade Water Festival, also held in Bismarck at the Hughes Education Center. On April 28 Lorraine traveled to the Lewis and Clark Elementary School in Plaza to give a presentation on North Dakota geology to a small, but very attentive and appreciative group of first through fifth-grade students.

Geologic, Petrophysical and Engineering Spreadsheet for North Dakota Oil Field Units

By Randy Burke and Ralph Nelms¹

¹Westport Oil and Gas Company, Denver, Colorado

An Excel spreadsheet with a wide range of geologic, petrophysical and engineering data for 84 unitized reservoirs and 13 non-unitized fields is temporarily available on the North Dakota Geological Survey website (see below). The spreadsheet contains over 79 columns of data and interpretations. Utilizing the North Dakota Oil and Gas Commission field unit data base as a starting point, the best data available from a wide range of literature was added to create the spreadsheet. Our data base was created as one part of a screening process used in assessing the potential of using CO₂ enhanced oil technology to recover additional oil from unitized fields in North Dakota (Nelms and Burke, 2004). Much of the data is necessary for populating reservoir simulation models, but it also will find many other uses for those interested in better understanding North Dakota units and oil reservoirs.

Two similar, but slightly different spread sheets are available to be downloaded. They can be downloaded in part or in their entirety. The major difference between the two is that one contains the data we compiled and the sources from which the data came, and the second contains the data we chose from the first spreadsheet to use in reservoir models and our interpretations of that data. Examples of interpreted data include an assessment of the significance of fracturing in a reservoir, and adjusted OOIP numbers where current cumulative production values calculated unreasonable recovery factors.

Currently spreadsheets are only available on the NDGS website for downloading because the spreadsheets (97 oil reservoirs by 79 criteria or observations) are too large for hardcopy publication. The spread sheet can be downloaded by going to the North Dakota Geological Survey web site at, <http://www.state.nd.us/ndgs/>. At this website, go to the Williston Basin Horizontal Well and Petroleum Conference link and click on the download file link. At that location there are three files; 1) the two spreadsheets, 2) the paper we presented at the Conference, and 3) the Power Point presentation we gave at the conference (Nelms and Burke, 2004). The Power Point presentation includes a few graphs not in the paper.

Reference:

Nelms, R.L. and Burke, R.B., 2004. Evaluation of Oil Reservoir Characteristics to Assess North Dakota Carbon Dioxide Miscible Flooding Potential, *in*, 12th Williston Basin Horizontal Well & Petroleum Conference Proceedings, Minot North Dakota May 2-4th, North Dakota Geological Survey and Saskatchewan Industry and Resources; G-1 – G-5.

The Canadian Quaternary Association (CANQUA)

The 2005 Canadian Quaternary Association (CANQUA) meeting will be held next year in Winnipeg from June 5-9. The meeting will include field trips in the Lake Agassiz basin and across the Prairies, as well as a riverboat cruise.

Three special sessions are planned:

1. "Paleoenvironmental change in glaciated North America: a special session in honor of Vic Prest"
2. "Lakes in transition"
3. "Climate at the edge"

For more details visit the CANQUA web site at www.mun.ca/canqua/index.html, or contact chair Jim Teller (tellerjt@ms.umanitoba.ca).

Comings and Goings

Fred Anderson



In January this year the NDGS was pleased to welcome Fred J. Anderson as the Survey's newest addition to the surface mapping team. Fred has a Bachelor's degree in Earth Science (Geology) from Minot State University and a Master of Science degree in Geology and Geological Engineering from the South Dakota School of Mines and Technology with research emphases in field geology, geologic mapping, and engineering geology.

Fred's primary duties will include detailed geologic mapping at the 1:24,000 scale throughout North Dakota. He is currently focused on mapping in the Red River Valley and is working on several quadrangles in the Fargo and Grand Forks areas as a part of the STATEMAP mapping program. In addition, Fred will be responsible for acting in an advisory capacity to the public and other agencies on environmental and engineering geologic problems throughout North Dakota, drawing on previous practical experience as a consulting geologist working on a diverse array of economic, engineering, and environmental geologic problems throughout the upper Midwest.

Fred is originally from Minot, a 1985 graduate of Minot High School. His wife Natalie is originally from Linton, a 1985 graduate of Linton High School. They have a beautiful three-year old daughter, Abigail (Abby), and a dog named Opie. Fred enjoys spending quality time outdoors with family and friends and also enjoys playing hockey in the winter with the Bismarck area senior men's group. He is a member of Sigma Xi, the Geological Society of America, and the Society for Mining, Metallurgy, and Exploration. Also, Fred is currently serving as the secretary/treasurer for the North Dakota Geological Society.

Linda Hagen

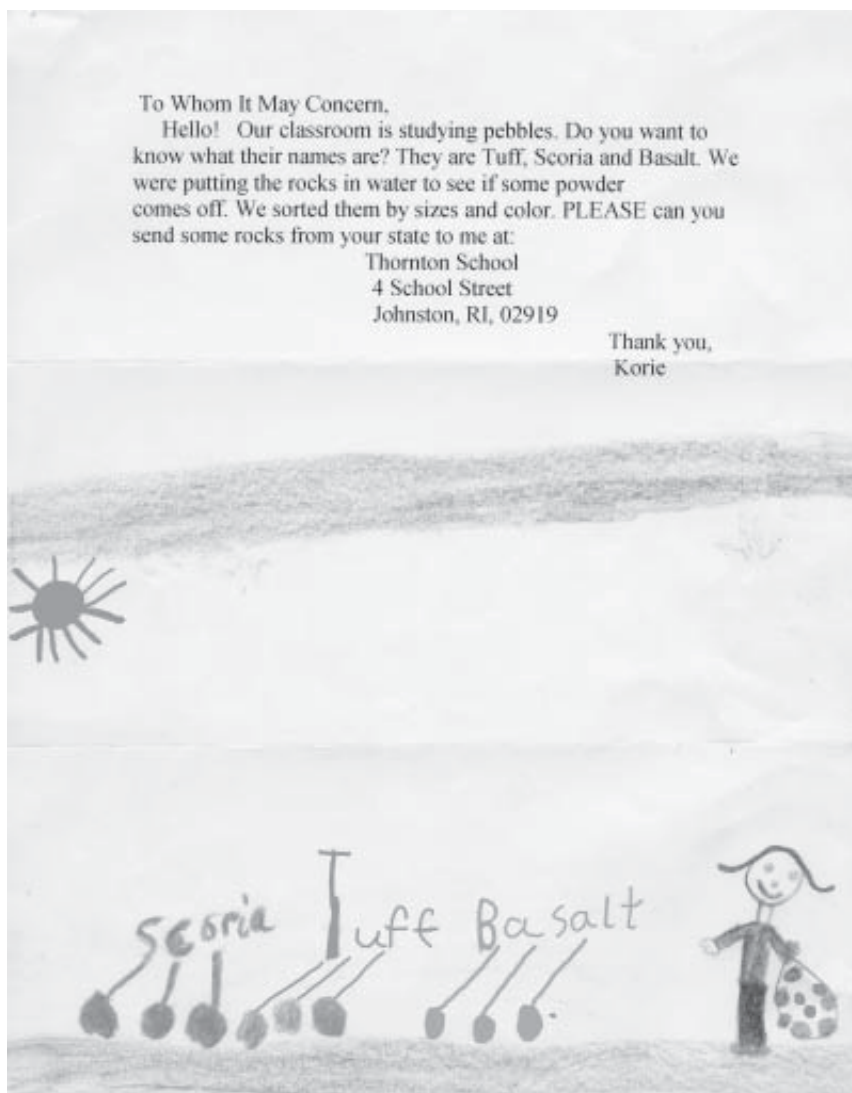
In June the NDGS bid farewell to Linda Hagen. Linda, who had been with the Survey for almost three years, was our publications clerk, and as such was a friendly, familiar face and voice to anyone who contacted our offices in search of maps and other geologic information. Linda ran the Survey's publications office with the composure and efficiency of a true professional. Never too busy to help, no matter how trivial the problem, she was (and no doubt will continue to be) a pleasure to work with.

Among her other duties Linda was the Survey's Risk Management Coordinator - an unenviable position - but one that she took very seriously and handled with enthusiasm. She was also an invaluable aid in the organization of the annual Williston Basin Horizontal Well & Petroleum Conferences, sending out mailings, compiling attendance lists, and taking care of most of the other administrative duties that have helped to make these meetings so successful.

Linda has taken up a position with the BCI Division of the North Dakota Office of Attorney General. We wish her well.

Letter from America

Not all of the correspondence that arrives at the NDGS offices comes from geologists and other professionals, as the letter below shows. The original, which is gloriously colored, is a particularly imaginative example of the many communications we receive from schoolchildren across the country who are interested in finding out more about North Dakota geology.



John Bluemle Receives AASG Presidential Recognition Award

On June 17, 2004 the Association of American State Geologists (AASG) presented John Bluemle with its Presidential Recognition Award. The beautifully framed certificate, which is signed by Association President and State Geologist of Indiana, John C. Steinmetz, was awarded to John in appreciation "for serving the Association as Editor for eight years and helping us (the other state geologists) all appear much more literate than we actually might be." Congratulations.

New Baby

Earlier this year the Mineral Information Institute (MII) released the latest version of its "Mineral Baby". (Long-time readers of the NDGS Newsletter may recall the MII Baby's debut in the winter 1998 issue.) Available for download from the MII web site, the Baby illustrates, in the Institute's own words: "WHY you Absolutely, Positively Must Have Someone Somewhere Who Develops the Resources You Use Every Day", and while the lifetime total poundage of minerals remains unchanged since 1998, there are some interesting differences in relative quantities that reflect our changing lifestyles. Salt (sodium chloride), lead, and other heavy metals, for example, are all down, while coal, petroleum and aluminum are up.

The Mineral Information Institute (MII) is a national non-profit organization dedicated to educating youth about the science of minerals and other natural resources, and about their importance in our every day lives. Through its National Education Program the Denver-based Institute develops and distributes a series of Teacher Helper packets to supplement existing science and science-related classroom curricula. Each packet contains color posters, lesson plans, information, and student activity pages. The packets are all downloadable free of charge from the MII web site, and are also available as hard copies for a small fee.

The MII website also provides homework help for students in the form of photographs, colorful charts, and illustrated articles describing dozens of rocks and minerals, covering topics that include origin, properties, sources and uses. There are also a number of links to other earth science-related web sites.

More than 29,000 teachers in all 50 states, plus 55 countries currently use materials provided by MII in their classrooms to teach subjects as diverse as earth science, sociology, and music. Fifty-six of these educators are in North Dakota. For more information visit the MII web site at www.mii.org.

