

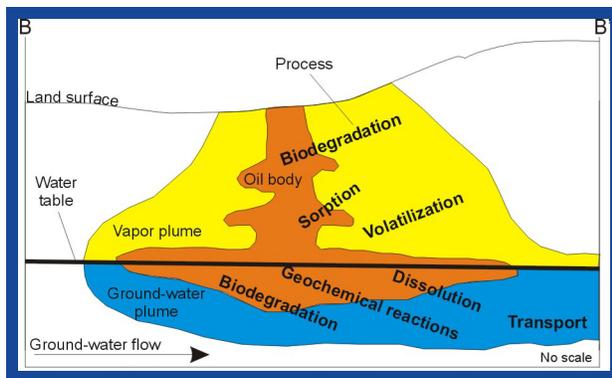
# Terrestrial Crude Oil Spills Symposium: Decades of Science from the Bemidji, Minnesota, Research Site

**Monday, June 11, 2012 - 8:00 AM - 5:00 PM**  
University of St. Thomas, St. Paul, Minnesota

**OPTIONAL TUESDAY PROGRAM:**

**Tuesday, June 12, 2012 - 1:00 PM - 5:00 PM**  
Bemidji, Minnesota, Research Site

Research at the National Crude Oil Spill Fate and Natural Attenuation Research Site, near Bemidji, Minnesota, is entering its 30<sup>th</sup> year. Researchers from across the globe have studied many different aspects of this terrestrial crude oil spill. This symposium is aimed at bringing together researchers, consultants, petroleum and pipeline industry representatives, and environmental regulators and policy development officials to transfer important research results from academic journals into remediation practitioners' and regulators' hands.



**Site background:** In 1979, a crude-oil pipeline burst, releasing about 450,000 gallons of crude oil onto a glacial outwash deposit. After initial cleanup efforts about 105,000 gallons of crude oil remained in the subsurface, which eventually became the basis for the National Crude Oil Spill Fate and Natural Attenuation Research Site. Almost three decades of innovative research has been conducted at this site near Bemidji, MN, in order to understand the progression and evolution of natural attenuation processes, and determine the factors that control the spatial and temporal extent of LNAPL and hydrocarbon plumes. This long-term comprehensive, interdisciplinary research has resulted in over 200 publications (complete list available at: <http://toxics.usgs.gov/bib/bib-bemidji.html>). Additional technical information regarding the site is available at: <http://mn.water.usgs.gov/projects/bemidji/index.html>.

*This symposium will bring together researchers, practitioners, and regulators to foster information and idea exchange to help improve natural attenuation remediation practice, provide science for guidance and regulation development, and share practitioner and regulator knowledge gaps with researchers for development of new research avenues.*

## This Symposium Offers a Unique Opportunity To:

- Attend sessions on innovative topics such as new minimally invasive natural attenuation investigation techniques, chemical and biological natural attenuation evolution processes and control factors, and unique soil and groundwater sampling techniques developed at this site
- Exchange information and ideas among researchers, regulators, consultants, and industry to help improve hydrocarbon investigation and remediation practices and provide documentation for guidance and regulation development
- Share knowledge gaps with researchers to develop new research avenues
- Participate in the optional poster session to share your own project results with your peers
- Tour this long-term petroleum spill research site, and speak one-on-one with long-time natural attenuation and biodegradation researchers

## WHO SHOULD ATTEND?

Anyone who works on or regulates crude oil or petroleum hydrocarbon spill projects: geologists, engineers, geochemists, oil industry remediation managers/planners, pipeline and refinery operators, oil and pipeline association representatives, state and national regulators, consultants and academics. Register online at:

<http://www.regonline.com/2012spillsym>

## Symposium Hosts:

- U.S. Geological Survey
- Minnesota Pollution Control Agency
- Enbridge Energy Limited Partnership
- Beltrami County



Financial sponsorship provided by the American Petroleum Institute



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# Symposium Program - Monday, June 11, 2012

- 7:00 AM Registration and continental breakfast
- 8:00 Welcome  
*Mindy Erickson, Hydrologist and Site Manager, USGS, Minnesota Water Science Center*
- 8:05 **How did the oil get into the ground, how did the national research site get off of the ground, and why is the science important?**  
*Steve Lee, Remediation Manager, Minnesota Pollution Control Agency*
- 8:30 **Oil and contaminant transport research at the Bemidji, Minnesota crude oil spill site — Historical perspectives**  
*Bill Herkelrath, Research Hydrologist Emeritus, USGS, National Research Program*
- 9:15 **Is the North Pool Oil Body Stable or Still Spreading? – Testing a Hypothesis**  
*Don Lundy, Principal Hydrogeologist, Groundwater & Environmental Services, Inc. and University of Georgia*
- 9:45 Break with snacks  
Poster Sessions
- 10:15 **What controls the rates of biodegradation in contaminant plumes?**  
*Jennifer McGuire, Associate Professor, University of St. Thomas*  
*Isabelle Cozzarelli, Research Hydrologist, USGS, National Research Program*
- 10:45 **Biodegradation in the vadose zone: What can we learn from measuring gases?**  
*Natasha Sihota, Graduate Research Assistant, University of British Columbia*
- 11:30 **Temperature increases due to subsurface microbial activity**  
*Ean Warren, Hydrologist, USGS, National Research Program*
- 12:00 NOON Lunch  
Poster Sessions
- 1:30 PM **Bringing the lab into the field: Using in situ approaches to measure biodegradation reactions**  
*Barbara Bekins, Research Hydrologist, USGS, National Research Program*  
*Isabelle Cozzarelli, Research Hydrologist, USGS, National Research Program*  
*Jennifer McGuire, Associate Professor, University of St. Thomas*
- 2:15 **Control of hydrology on rates of subsurface crude oil dissolution and degradation**  
*Barbara Bekins, Research Hydrologist, USGS, National Research Program*
- 3:00 Break with snacks  
Poster Sessions
- 3:30 **Using electrical geophysics to understand long term biodegradation of a mature oil spill**  
*Lee Slater, Professor, Rutgers University*
- 4:15 **Spatial distribution of water repellency of soil at the Bemidji oil spill site; effects on vegetative growth and testing of a proposed remediation approach**  
*John Nieber, Professor, University of Minnesota*
- 5:00 Wrap-up, reminder of site tour in Bemidji, Adjourn  
*Mindy Erickson, Hydrologist and Site Manager, USGS, Minnesota Water Science Center*

## Optional Bemidji Research Site Visit - Tuesday, June 12, 2012 - 1:00-5:00 PM

- View the release area and the spray zone 33 years after initial cleanup efforts, and active research on the hydrophobic soil
- See the comprehensive infrastructure built for new and/or long-term subsurface observations
- See the wetland area and down-gradient lake, and see the wetland and aquifer experiments in progress
- Chat with researchers one-on-one about their projects, results, and your awareness and thoughts about knowledge gaps and research needs
- See the “Freezing Drive Shoe” in action. This core-collecting technique/technology, which obtains aquifer samples while preserving the solid, gas, and liquid phases intact, was developed at the site.
- See examples of less invasive, field-scale monitoring techniques
- See the latest ethanol research occurring at the site.

### Some space available for POSTER SESSIONS

We encourage you to bring a poster about your project(s) to the symposium.

To display a poster, contact  
**Mindy Erickson, USGS,**  
**merickso@usgs.gov.**

You will be asked to provide a summary or an abstract of the poster content (no more than 300 words) and your (and any co-authors) name and contact information.

Posters may be set up any time after 7:00 AM on June 11 and may remain in-place all day.

## LOCATION

The University of St. Thomas' St. Paul Campus (2115 Summit Avenue) in Minnesota has been selected as the site for this event. All Symposium activities will be held at the new Anderson Student Center. Since its opening in January 2012 the Center has become the heart of the University's St. Paul campus, the home of most social activities, student clubs & organizations, dining, entertainment, and several administrative functions. The Center's convenient location (on the corner of Summit and Cretin Avenues) makes it easily accessible from I-94 and all points in the Twin Cities. There is ample FREE parking in the Anderson parking facility) The Symposium's oral and poster sessions will be held in the James B. Woulfe Alumni Hall located on the third floor with its state-of-the-art technology and commanding views of the campus.



Photo of Anderson Student Center, St. Thomas University

## OVERNIGHT LODGING OPTIONS

Symposium attendees needing overnight lodging (Sunday and/or Monday) have two options:

- On-campus—Flynn Hall located within easy-walking distance of the Symposium site. This lodging will provide each individual with a private sleeping room & bath, and shared kitchen & lounge facilities. Cost is \$63.63 (including tax)/person each night. This cost will be added to your Symposium registration fee. To view information concerning this housing option, visit the St. Thomas website: <http://www.stthomas.edu/residencelife/housing/apartments/flynn/default.html> NOTE: A roommate preference can be provided on your registration form—if none is provided you will be matched with another conference attendee of the same gender.
- Off-campus—Radisson Hotel (2540 North Cleveland Avenue) in Roseville. This hotel is located approximately 7 miles from the St. Thomas Campus. Reservations must be made by contacting the hotel directly (651-636-4567 or 1-800-333-3333) no later than May 28. Make sure to mention the Crude Oil Spills Symposium to obtain this special rate of \$98.01/night including tax). NOTE: If reservation numbers justify, complementary shuttle service to/from St. Thomas will be available

## FEES

An "Early Bird" registration fee of \$80/person applies to registrations postmarked no later than May 11, 2012. The fee for registrations postmarked after that date is \$100/person. Symposium sponsors are also pleased to offer a special "Student" registration fee (regardless of postmark date) of \$30/person. To qualify for the student rate, individuals must provide the following information on their registration form: institution attending, degree program in which they are enrolled, ultimate degree being sought and expected graduation date. All fees include registration, on-site instructional materials, luncheon and refreshment breaks.

All registrations must be received no later than **Friday, June 1**. Approximately one week before the Symposium you will receive a final confirmation of your registration **only if** you provide an email address!

## REGISTRATION

Online registration is available at <http://www.regonline.com/2012spillsym> You can also go to [www.mngts.org/petroleum](http://www.mngts.org/petroleum) and find Symposium information there. The GTS online registration system allows for group registrations from the same organization, payment via all major credit cards and provides an immediate registration confirmation. You may also print an invoice for future payments via check. If registering online is not an option for you, print out the paper registration form included in this brochure and return it to GTS Educational Events via mail (2233 University Avenue, Suite 150, St. Paul, MN 55114) or fax (651-223-5307).

## CREDITS

*This Symposium meets the criteria set by the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience, and Interior Design to qualify as continuing education.*

## CANCELLATION

Fees will be refunded (less a \$20 service fee) if the registration is cancelled no later than **Tuesday, May 29, 2012**. Alternates will be accepted at any time. Should weather or other circumstances beyond our control necessitate program cancellation, notification will be posted on the WCCO websites: [www.wcco.com](http://www.wcco.com) and [www.830wcco.com](http://www.830wcco.com) (under School Closing tab).

## SPECIAL NEEDS

If you require special services, or have special dietary needs, every effort will be made to provide such accommodations. Indicate the nature of your needs on the registration form **and return no later than Friday, May 25, 2012**.

## FOR FURTHER INFORMATION

### Registration/Accommodation Questions

Catherine Dubbe, [cdubbe@mngts.org](mailto:cdubbe@mngts.org), 651-222-7409 x200  
Carol Schoeneck, [cschoeneck@mngts.org](mailto:cschoeneck@mngts.org), 651-222-7409 x205

### Technical Program Questions

Mindy Erickson, USGS, [merickso@usgs.gov](mailto:merickso@usgs.gov), 763-783-3231  
Jim McCann, MPCA, [jim.mccann@state.mn.us](mailto:jim.mccann@state.mn.us), 651-757-2159

### Poster Questions

Mindy Erickson, USGS, [merickso@usgs.gov](mailto:merickso@usgs.gov), 763-783-3231



GTS Educational Events  
[www.mngts.org](http://www.mngts.org)  
651-222-7409 or  
Minnesota Toll Free 651-500-8547

GTS is a non-profit organization dedicated to helping those who provide services to Minnesota citizens and communities meet current needs for knowledge and skills, plus anticipate and prepare for changes to come. Its staff has worked with policymakers, staff and appointed officials from all levels of government and all types of non-profit agencies—and their collaborators in associations, business, higher education and community groups—since 1976. GTS is pleased to provide program management and support services to this Symposium.

