

SPHERES OF INFLUENCE

A QUARTERLY NEWSLETTER FOR DEG – NOVEMBER 2012

President's Column

By Tom J. Temples

Welcome to the second issue of *Spheres Of Influence* for this fiscal year. This go-round, we feature the biography of our new Special Issues Editor, Michele Cooney, and a book review on the topic of Canada's oil sands. You'll also find a new list of good, bad, and ugly web links regarding the petroleum industry, as well as a great photo expose on caving in Belize.

The keynote speaker at the ICE in Singapore was Mr. John Fontana. His talk was entitled "Water Well 'Problems' in Areas of Unconventional Resource Development: Appearances are Deceiving and Solutions are Many." In his presentation, John discussed the proper way to configure a monitoring program to assess water quality and determine the source(s) of contamination of water wells in active drilling areas. This happens to be an appropriate example of the kinds of topics that our new website initiative – Shale Gas Highlights – intends to provide our membership. In alignment with DEG's mission, we are building a new section of our website to provide you with links and information regarding technical studies, research, data, and 'on-the-ground' happenings relevant to shale gas development. Our thanks go out to Mr. John Leitel, a relatively new AAPG student member, who has agreed to spearhead this work for DEG, and who provided the enclosed summary on a natural-gas-fired power plant to be built in northeastern Pennsylvania.

We hope you find this quarterly e-newsletter interesting and useful. Have some great field trip, outcrop or rock photos? Is there a burning question in your mind? Consider contributing to a future issue of *Spheres of Influence* – we welcome your input.

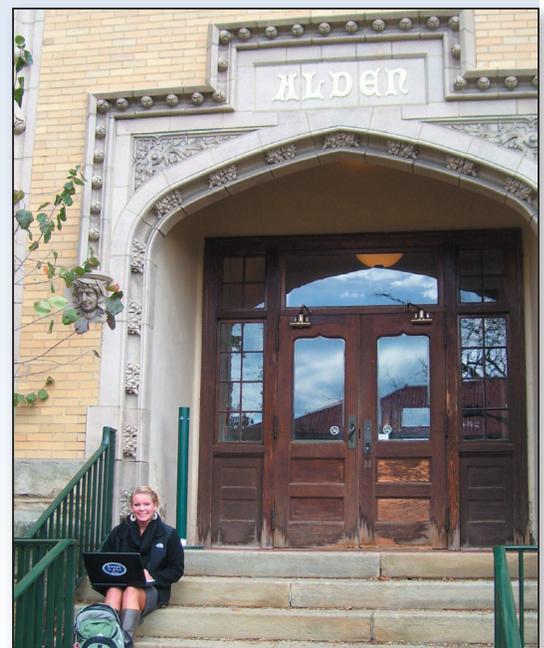


Featured Biography: Michele Cooney, Special Issues Editor

Michele Cooney is a senior undergraduate student at Allegheny College (Meadville, PA), where she is pursuing a Bachelor of Science degree in geology and a minor in writing. Michele spent her past two summers as a geologic intern with the Pennsylvania Geological Survey, where she worked on reservoir characterization and mapping activities for the Survey's Midwest Regional Carbon Sequestration Partnership research. At Allegheny, Michele serves as President of the Geology Club and as Treasurer of her sorority, Kappa Kappa Gamma. In addition, she is a Teaching Assistant for the Biology Department and serves as a tour guide for prospective students.

Michele is currently working on her senior thesis, which involves characterization of the Utica Shale gas play across Pennsylvania using publicly available rock cuttings, outcrop samples, and well and geologic data. As part of this work, Michele is evaluating her samples using X-ray diffraction, bitumen reflectance, and TOC measurements. Michele hopes to attend graduate school and subsequently work in the oil and gas industry.

Michele is a student member of the American Association of Petroleum Geologists, the Geological Society of America, and the Pittsburgh Geological Society. She received Allegheny College's Outstanding Junior Geology Major prize in 2011.





SPHERES OF INFLUENCE

From the Editor-in-Chief's Desk

Welcome to the Fall issue of *Spheres of Influence*! I wanted to tell everyone about the upcoming issue of *Environmental Geosciences* (to be delivered early December), as well as chime in on our plans for the 2013 AAPG Annual Convention and Exhibition to be held in Pittsburgh, Pennsylvania.

The December issue of the Journal includes papers that demonstrate how certain surface geologic and topographic analyses can be used to characterize and plan for the wise use of our subsurface geologic resources, whether they are related to water supplies (Dar and others) or petroleum and/or sequestration reservoirs (Petrie and others).

As for the upcoming AAPG ACE that will be held at the David L. Lawrence Convention Center in Pittsburgh from May 19 through 22, 2013, the planning committee has been furiously reviewing truckloads of technical abstracts for 11 different themes. Having contributed to the abstract review process as DEG's Vice Chair, I can proudly say that several of the themes have topics of interest to our membership, including CO₂ beneficial use and sequestration, hydraulic fracturing and water management studies, stray gas migration, enhanced oil and gas recovery, and regulatory matters, among others. In addition, DEG will be offering two field trips, one on the topic of acid mine drainage and the other regarding the military geology of the Gettysburg battlefield. Please stay tuned for future updates on the plans for the 2013 ACE!

Book Review

Ethical Oil: The Case for Canada's Oil Sands

"We've to shut down the tar sands to save Canada," Ezra Levant states in his introduction to *Ethical Oil: The Case for Canada's Oil Sands*. The statement follows page after page of horror stories surrounding Canada's oil sands in Fort McMurray, Alberta. Just as Levant convinces his readers that the oil sands in Canada present a daunting environmental, political, and moral threat, he then admits, "It's not true. Every single fact in the preceding pages is false. Every one of them." This is a shocking statement to the reader who has indulged in every horrific tale on the previous pages, but it's a tactic that, according to Levant, environmental activists are currently using to sway public opinion surrounding this resource and shut down oil sand production.

While Levant admits that the oil sands have negative side effects (like any other industrial project), he spends the remainder of the book arguing against the tactics of environmental activists and political powerhouses to present the benefits that the Canadian oil sands present. Canada is the number one supplier of oil to the United States and, Levant states, "if Americans don't fill up their car with Canadian gasoline, their gas is going to come from another oil-producing country." Levant tackles this issue from the perspective of a concerned American consumer, one who considers the morals of the government from which oil is being supplied. If American oil is not imported from Canada, it will be purchased from any number of corrupt governments who abuse their power and their citizens such as Saudi Arabia, Iran, and Nigeria, just to name a few. Levant argues that shutting down the oil sands is an ethical issue, and could lead to American citizens funding immoral governments overseas rather than the liberal democracy of Canada.

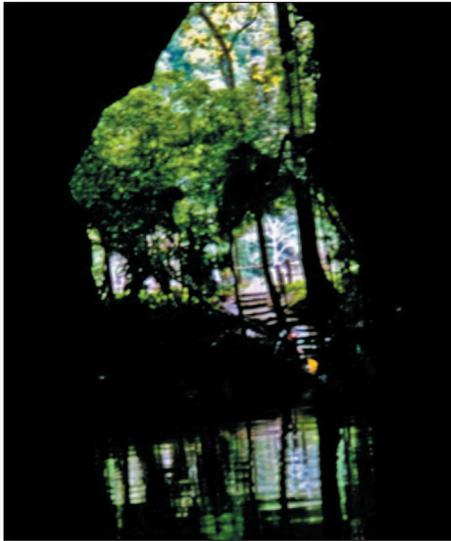
Another point of concern for many environmental activists is the environmental and human health impacts that the oil sands have on the nearby towns in Alberta. Levant uses the example of a Nova Scotian doctor who found six cases of the rare cholangiocarcinoma, a cancer of the bile ducts, in the Aboriginal town of Fort Chipewyan. The cancer story gained huge publicity and further tarnished the reputation of the oil sands. However, Levant states, after an investigation by the Alberta College of Physicians and Surgeons, it was found that only two of the six suspected cases were confirmed. By the time the results came back to the college, the doctor refused to release his medical records and a documentary had already been made about the cancer diagnosis in the town. Again, Levant points out the scare tactics and false accusations used by opponents of the oil sands to frighten the public and pressure set back towards their development.

Although Levant discusses these and many more instances of environmental and health claims, tidbits of political propaganda surrounding the petroleum industry, and specific company experiences with the Canadian oil sands and abroad, one message stands out – that not only are the oil sands an important resource for Canada and the United States, but ceasing their production would be unethical and hypocritical. The oil sands are an industry that Canada should be proud of as a petroleum superpower and environmental advocate. Levant urges his readers to see through the tactics of environmental activists and political persuasion to recognize the present and future benefits of the Canadian oil sands.

Michele Cooney, Special Issues Editor

Mapping Cave Passages in the Maya Mountains of Belize, Central America

In 2000, cavers from the National Speleological Society were invited by the government of Belize to map a cave that houses several Mayan artifacts. These photographs provide spectacular views of (a) the cave entrance (roughly 60 feet wide by 125 feet high), and (b) significant thrust faulting, which was a controlling factor in the cave's development. The cave-mapping team included volunteers from Indiana, Ohio, and Texas.



Photographs contributed by Katherine W. Schmid, Senior Geologic Scientist, Pennsylvania Geological Survey, who assisted with the mapping of this cave.

Shale Gas Highlights – A new benefit to DEG Members

DEG will soon be adding a new component to our website called "Shale Gas Highlights." This section of our website will alert members to various studies, data, and reports related to shale gas exploration, production, and environmental issues, which our Editorial Board has vetted for credibility and seen fit to post. Our thanks to Mr. John Leitel, Environmental Geology major at the University of Pittsburgh and student AAPG member, for taking on this task for us. As a sampling of what you can expect to see on "Shale Gas Highlights" in the coming month or so, have a look at the following summary.

On October 10, 2012 Pennsylvania's Department of Environmental Protection granted an Air Quality Permit to Moxie Liberty, LLC., the last step in approval for construction of a natural gas-fired power generation plant. The plant will be located in Asylum Township, Bradford County and will be the first power generation facility in the state powered exclusively by natural gas, some of which will be obtained from the state's Marcellus shale.

The plant is estimated to cost \$800 million to complete and will have two combined-cycle generators, each consisting of a combustion gas turbine and a steam turbine. Waste heat will be reclaimed and exchanged to steam in two heat recovery generators, then piped to the turbines, increasing the overall efficiency of the generators.

Construction will begin in Spring or Summer 2013 and is estimated to require 30 to 36 months to complete.

<http://wnep.com/2012/10/10/states-first-natural-gas-power-plant-approved/>

<http://www.prnewswire.com/news-releases/dep-approves-first-natural-gas-fired-power-plant-in-pennsylvania-173504281.html>

The Good, The Bad, and The Ugly

Here they are, folks, in no particular order. Enjoy perusing the latest internet-based information regarding the petroleum industry....

<http://www.energyfromshale.org>

Information regarding fracing processes, logistics of production, challenges faced by industry, and resources to learn more on these topics.

<http://oilsandsfactcheck.org>

A website dedicated to fact checking all types of information about Canada's oil sands.

<http://earthworksaction.org>

Nonprofit organization's website dedicated to improve the function of governments and industry relative to oil, gas, and mineral extractive activities.

<http://www.ogj.com/articles/print/vol-110/issue-10/general-interest/some-e-p-companies-changing-plans.html>

An article posted by the Oil & Gas Journal regarding Utica Shale prospects.

<http://fracfocus.org>

A hydraulic fracturing chemical disclosure registry managed by the Groundwater Protection Council and Interstate Oil & Gas Compact Commission, and supported by many E&P companies.

<http://www.marcellus-shale.us>

A website serving up Marcellus shale gas well site photographs, blogs, news, and information regarding public meetings.

<http://www.dispatch.com/content/stories/business/2012/10/13/utica-shale-estimate-doubted.html>

News story from The Columbus Dispatch regarding the recent Utica Shale reserve estimates published by the U.S. Geological Survey.

<http://www.statejournal.com/story/19774344/lawmakers-briefed-on-energy-industry-connection-to-earthquakes>

Article posted by Grounded, a state journal energy blog, regarding the importance of monitoring induced seismicity in West Virginia relative to deep shale gas development activities.

http://articles.marketwatch.com/2012-10-18/commentary/34548639_1_shale-oil-power-plants-volumes

Article posted by Market Watch on how Union Pacific is one of many companies turning to shale gas and oil to power its business.

<http://www.businessinsider.com/epa-data-links-groundwater-contamination-fracking-2012-10>

Article posted regarding potential methane contamination in groundwater drinking wells in northeastern Pennsylvania, based on input from Duke University.

We welcome your articles, comments and feedback for this quarterly Newsletter publication.

Kristin Carter, DEG Editor-In-Chief

Submissions deadline for 3rd Quarter Issue: December 15, 2012
Submit to krcarter@pa.gov



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