



Geophysical Society of Pittsburgh



Proudly Presents Tuesday, January 7th, 2014

At

Penn Brewery, Pittsburgh, Pennsylvania

The Shell-NEOS neoPROSPECTOR Project in Tioga County, North-Eastern Pennsylvania:

Use of Remote Sensing Technologies to Detect Surface and Near-Surface Stray Gas Occurrence and Potential Migration Pathways

by

Bryce McKee (Shell E&P) and Craig Beasley (NEOS GeoSolutions)

Abstract: Shell has an active program of Marcellus gas well development drilling in northeastern Pennsylvania. The gas industry's license to operate in Pennsylvania depends on our ability to drill and complete gas wells in a safe and environmentally responsible manner. The key to this is protection of fresh groundwater resources through avoidance of pre-existing natural and anthropogenic conduits of methane coupled with proper drilling and well construction techniques to ensure zonal isolation.

In August 2011, Shell contracted with NEOS to conduct a remote sensing survey of our Tioga County operating area in Pennsylvania. A fixed-wing aircraft was used to collect band-specific hyperspectral, magnetic, gravity, electromagnetic and radiometric data over all of Tioga County. In addition, a helicopter system was used to collect high-resolution band-specific hyperspectral, magnetic, electromagnetic and radiometric data over a project specific area. Key project objectives were:

- Detection of surface hydrocarbon seeps and potential indirect hydrocarbon indicators.
- Detection of abandoned / derelict oil and gas wells not found in state agency or commercial databases.
- Mapping of resistivity anomalies in the near-surface to provide an indication of potential aquifer salinity variations and locations of shallow gas sands in the Upper Devonian Bradford Group.
- Definition of surface lineaments and fracture corridors, and identification of fault networks that can be extended from the surface into the subsurface when integrated with 3D and 2D seismic.
- Developing a hyperspectral-derived image of surface geo-hazards and geo-botanical variations.



Biography: Bryce is the senior staff geologist at Shell's Pittsburgh, Pennsylvania office. He is responsible for oversight and technical assurance of well planning and operations and field development planning within Shell Appalachia's development team. He is also the subsurface technical focal point for Shell's multidisciplinary groundwater protection and stray gas mitigation team. Bryce has 26 years of oil industry experience, having worked on both exploration and production projects in the

North Sea, Middle East, Poland, Trinidad, Argentina, offshore Brazil, offshore Australia, offshore West Africa, East Texas, South Texas, the Permian Basin, and the Gulf of Mexico. He earned a Bachelor of Science Degree in 1984 and a Master of Science Degree in 1986, both in Geology, from Baylor University in Waco, Texas. Bryce is a member of the American Association of Petroleum Geologists, the Pittsburgh Association of Petroleum Geologists, the Society of Exploration Geophysicists, the Geophysical Society of Pittsburgh, and the Houston Geological Society. A Pennsylvania native, Bryce spent the last 38 years living and working in Texas. He requested a transfer to his hometown of Pittsburgh when Shell started operations in the Marcellus shale-gas play in 2010. Licensed Professional Geologist in the State of Pennsylvania (Lic. No. PG005046) and Texas (Lic. No. 11365).

Please RSVP using the PayPal link on the Geophysical Society of Pittsburgh website at: www.thegsp.org

Cost: \$35 Members, \$40 Non-members (\$20 for Students). Meeting Location: Penn Brewery, 800 Vinial St., Pittsburgh, PA 412.237.9400

Tuesday, January 7th Meeting Menu

5:00 pm Social Hour

This month's social hour is proudly sponsored by
[Dawson Geophysical Company](#)



Beer on Tap:

Penn Dark Lager Beer, European-Style Dark

Penn Gold Lager, Munichener Helles Style

Penn Pilsner, Vienna Style Pilsner

Also Available: Red & White wine

Hors D'oeuvres:

Side of Smoked Salmon with Pumpernickel, Cream Cheese, Chopped Eggs and Red Onions, and Capers

6:00 pm Dinner

Dinner Buffet

Weiner Schnitzel

Sausages and Sauerkraut

Penne Alfredo,

Grilled Vegetables,

Potato Pancakes,

Green Beans with Red Peppers, and,

Tossed Green Salad with Ranch, Italian and Balsamic Dressing.

Dessert: Apple and Cherry Pie

Coffee & Cream

7:00 pm Lecture

We are pleased to announce that this month's lecture will be held at :

Penn Brewery

800 Vinial Street

Pittsburgh, PA 15212 USA

412.237.9400

