

PCPG Newsletter

Communicating Key Information & Concerns
to Geologists and Environmental Professionals

Issue 4 / 2015

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MESSAGE FROM THE PRESIDENT

Greetings!

I hope you all have a wonderful holiday season as we approach year-end. It has been a tremendous honor to serve as President of PCPG in 2015 and I thank the Board for their assistance and for their time and labor contributions to the organization throughout their terms and especially throughout the past year. In the past few years, PCPG has greatly expanded its educational outreach and last year's job fair was but one example of that expansion. At our upcoming annual meeting on March 15, 2016, PCPG will be hosting the Second Annual Job Fair and I would encourage our members to consider signing up for a booth to interview job candidates. Last year's program was by all accounts a great success and we at PCPG are looking to continue that success into 2016. Preliminary feedback from geology Departments at several colleges and universities has been great and we anticipate this year's job fair will see increased participation.

Planning for PCPG's 2016 educational opportunities is well underway and I'm pleased to announce we'll have a great selection of high quality seminars on tap for the coming year to enable our members to obtain professional development hour credits and network with colleagues and regulatory contacts.

Additionally, voting is underway for 2016 Board of Directors candidates, if you haven't already voted, I would like to ask each of our members to review the list of candidates, their qualifications and goals for PCPG and vote for the candidates of your choice. We have five openings on the PCPG Board for 2016 and a great diverse slate of candidates from the energy industry, consulting industry and academia. Having a diverse, engaged and committed Board is crucial to the success of PCPG's mission of advancing "the practice of geology and allied science and the success of our members through advocacy, education, and networking."

As always, I welcome your thoughts, feedback and comments on PCPG's vision and mission. Feel free to send me an email (drw@stevenslee.com) and don't forget to visit our website at www.pcpg.org for more information on our events and programs.

Very truly yours,

Donald R. Wagner, P.G.
PCPG President



IN MEMORY OF DR. RICHARD P. "NICK" NICKELSEN

Richard Wardrop, PG

On October 8, 2015, a classic beautiful October day in Pennsylvania, I returned to the Bear Valley strip mine near Shamokin, Pennsylvania, with a small group for a field trip, prior to the 2015 Field Conference of Pennsylvania Geologists. I believe I have visited this world class exposure five times during my career as a student and practicing professional geologist. The trip was led by Dr. Mary Beth Gray (Photo A), Geology Professor, Bucknell University. The mine was intended to be Stop #5 - Day 1 of the Field Conference but the access road had been eroded to the point where buses carrying large numbers of conference attendees could not deliver the group to the trail head leading to the mine.

On November 23, 2014 we lost the man who unraveled the geologic story embedded in the rocks exposed at Bear Valley and turned the mine into one of the world's most important structural geology laboratories. Over a period of nearly two decades Dr. Richard P. Nickelsen "Nick" (Photo B), Geology Professor, Bucknell University, performed a structural analysis of the Bear Valley strip mine, and the famous "Whaleback" anticline, and published his results in the American Journal of Science (Nickelsen, 1979). By meticulously mapping structural features and noting crosscutting



Photo A - Bucknell geology alums Dr. Mary Beth Gray and Rick Wardrop above slickenlines on the "Whaleback" during pre-conference field trip (photo by Kurt Frieauf, Professor of Geology, Kutztown University)

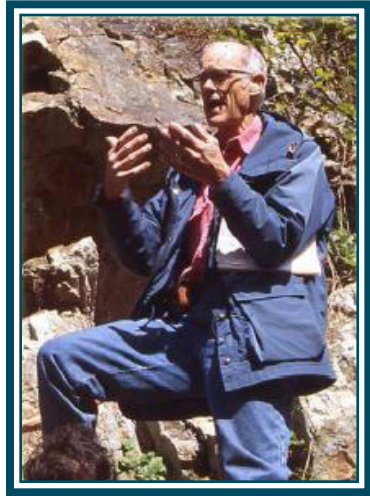


Photo B - Nick leading at the 1996 Field Conference of Pennsylvania Geologists (from www.facstaff.bucknell.edu/cad022/DrNickPhotosObituaryArticle.pdf)

relationships he was able to reveal six structural stages (Figure 1) of deformation during the Allegheny orogeny that are recorded in the mine, from pre-fold jointing to grabens created by fold-related extension (Fleeger, 2014). In addition, there are remarkable fossils of carboniferous tree trunks and root balls (Photo D) (probably *Lepidodendron* or *Sigillaria*), in undisturbed growth positions (Whisner, 2015) and many other Pennsylvanian plant fossils to be observed at the mine.

Nick was my structural geology professor and senior thesis advisor as he was for many who have graduated from Bucknell's geology program, including our field trip leader, Mary Beth, and Gary Fleeger of the Pennsylvania Geological Survey. Gary published an exceptional and comprehensive memoriam to Nick in the Winter 2014 issue of Pennsylvania Geology, www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_20030613.pdf

which I encourage everyone to take the time to read. Gary's article provides detailed information about Nick's research projects, his passion for teaching, love of birding, awards, and large list of publications. In addition, the Bucknell Geology Department has posted a pictorial tribute to Nick at www.facstaff.bucknell.edu/cad022/DrNickPhotosObituaryArticle.pdf.

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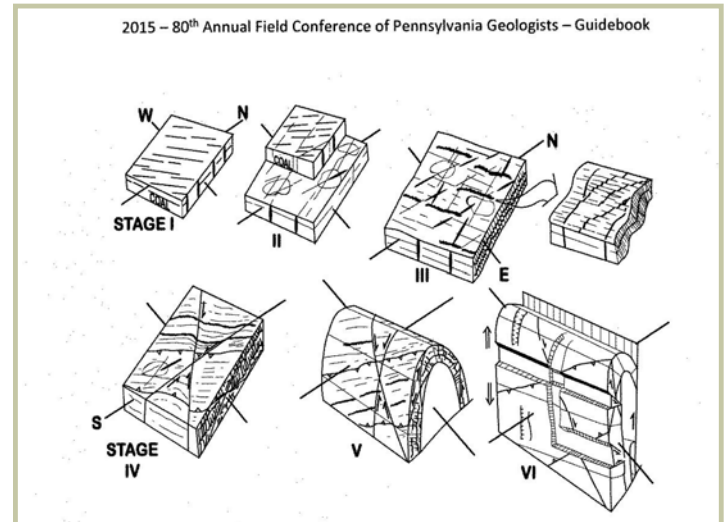


Figure 1 - Six stages of deformation during the Allegheny orogeny shown in the Bear Valley strip mine as mapped by R. P. Nickelsen. Stage I. Orthogonal joints sets form in coal; Stage II. Several sets of hydraulic extensional joints form in sandstones and shales; Stage III. Pressure solution and primary crenulation cleavage and small-scale folds form; pressure solution of Stage II joint filling occurs; Stage IV. Conjugate wrench and wedge faults deform Stage III cleavage; Stage V. Large-scale folding of all previous structures occurs; Stage VI. Extensional joints and faults produce flattening perpendicular to bedding and layer-parallel extension, both parallel and perpendicular to fold hinges, forming grabens. From Whisner (2015).



Photo C - Pre-conference field trip attendees heading east along the axis of the "Whaleback" anticline (photo by Rick Wardrop)

DR. RICHARD P. "NICK" NICKELSEN *Continued from Page 2*

Nick was undeniably the person who lit the fire of geology in my soul so many years ago when, as a spring semester sophomore, I was looking for an undergraduate major after unfulfilling forays into psychology and business. Many Bucknell geology alum have similar stories of Nick's inspiration. He started the geology program at Bucknell in 1959 and made it very field-oriented. His dedication to teaching equaled his scholarly pursuits, which was evident in the unlimited amount of one-on-one time he was willing to offer, if only asked.

This most recent visit to Bear Valley, on a bright October day, brought back fond memories of the precious time I had with this exceptional researcher, educator and person and I will be forever grateful.



Photo D - Root ball fossil in growth position within talus boulder (photo by Rick Wardrop)

References:

Fleeger, G. M., 2014, In Memoriam, Richard P. Nickelsen, Pennsylvania Geology, v. 44, no. 4, p. 22-29.

Nickelsen, R. P., 1979, Sequence of structural stages of the Alleghany orogeny, Bear Valley strip mine, Shamokin, Pennsylvania: American Journal of Science, v. 279, no. 3, p. 225-271.

Whisner, S., 2015, Stop#5: Alleghenian Deformation at the Bear Valley Strip Mine, in Conglomerate, Coal and Calamities, 80th Annual Field Conference of Pennsylvania Geologists, Guidebook, p. 125-133.

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80TH ANNUAL FIELD CONFERENCE OF PENNSYLVANIA GEOLOGISTS OCTOBER 8 TO 10, 2015

CONGLOMERATE, COAL, AND CALAMITES

GEOLOGY, MINING HISTORY, AND PALEONTOLOGY OF “THE REGION”
SCHUYLKILL, NORTHUMBERLAND, AND COLUMBIA COUNTIES, PENNSYLVANIA

Gary Kribbs, P.G.

For the 80th time, the Pennsylvania Geological Survey staff, trip leaders and Guidebook contributors assembled an excellent field conference, much to the benefit of the over 170 geologists and students who participated this year. The 2015 Conference involved extensive coal history along with an industry unique to Pennsylvania. The Conference Road Log can be seen at http://fcopg.org/wp-content/uploads/2014/06/2015_FCOPG_ROADLOG.pdf.

The conference began with a visit to the famous Centralia Mine Fire, in Centralia PA, where a mine fire caused the relocation of an entire town. Dr. Jennifer Elick of Susquehanna University led the stop and explained the field conditions.

Centralia: The Difference Maker

Centralia is the best known of all the coal fires in Northeastern Pennsylvania. It started during a period when coal companies were going out of business and abandoning efforts at remediation, while the government, with its system of cost-benefit analysis, was stepping in. It would ultimately change how fires were fought and perceived by the public.

Centralia is located near the center of one basin in the Western Middle Field (Eggleston et al., 1999). The borough of Centralia had been using an abandoned surface mine as a garbage dump. In May of 1962 the dump was set on fire, accidentally igniting the Buck Mountain coal bed (Nolter and Vice, 2004). The fire began on the nose of an anticline which made it



Mine Fire Vent at the Centralia Mine



The Field Conference “Gang” listen as Blaschak Coal’s Robin Koeberle discusses the Logan Pit operation.

Continued on Page 5

FIELD CONFERENCE *Continued from Page 4*

possible for the fire to spread along four different fronts. The dipping and fractured coal beds permitted the propagation of fire deep into the subsurface and contributed to the formation of a self-propagating convection cell (Chaiken et al., 1980). Basically, as air is drawn into the fire through fractures in the surrounding coal and bedrock, hot coal gases escape up the dip of the coal bed, and more air can come in. A 1938 study by McElroy showed that these convection cells can provide fires with a steady enough supply of air to allow them to spread both laterally and down dip in a coal bed (DeKok, 2000).

On the field trip we observed coal fire vents releasing heat (photograph) along PA-61 near the St. Ignatius Cemetery. Collapse trenches define the path of the fire.

The Llewellyn Formation is contorted into complex folded and faulted synclinoria. "Superimposed upon these complex fold systems are a multitude of low angle thrust, high-angle reverse, underthrust, tear, and bedding-plane faults," (Guidebook, 2015). Current surface mining operations continue to encounter geologic evidence of this incredible chronological development (Guidebook, 2015). Commercial geologists can aid in the understanding of this missing geology by either documenting their observations or contacting the BTGS, in a timely fashion, to gather data that will be lost.



Day 2 Stop 9 The Field Conference "Gang" listening to Susan K. Brown of H&K group discuss the new non-coal permit Strip Pit at Pottsville Materials on the Mine Hill Anticline axis.



Day 2 Stop 9 The Field Conference "Gang" listening to Susan K. Brown of H&K group discuss the new non-coal permit Strip Pit at Pottsville Materials on the Mine Hill Anticline axis.

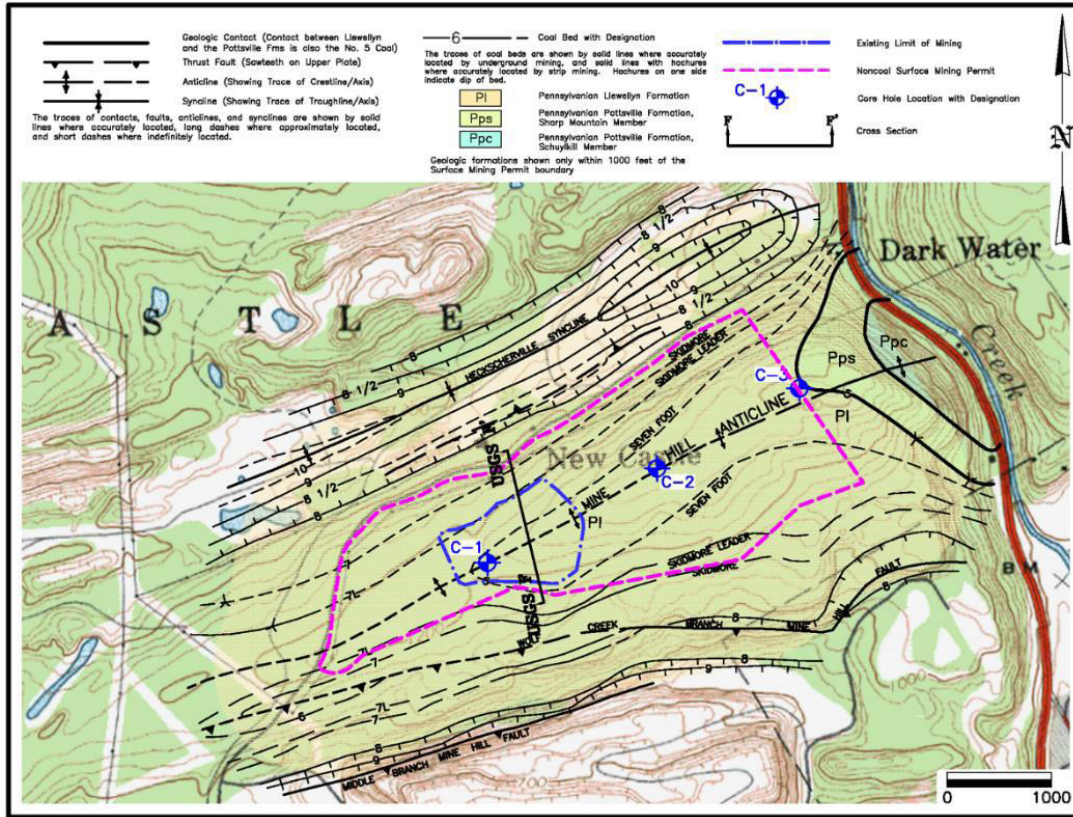


At Day 2 Stop 9 the group visited the new aggregate pit owned by Pottsville Materials LLC. The pit is a 179-acre area permitted by the Pennsylvania Department of Environmental Protection (PADEP) under a Large Noncoal Surface Mining Permit, and produces construction aggregate and hot-mix asphalt. Prior to the initial permit date of October 14, 2009, the non-coal permitted

Continued on Page 6

FIELD CONFERENCE *Continued from Page 5*

area was part of the surrounding, larger coal mining permit known as the Wadesville Mine, operated by Reading Anthracite Company. Through a partnership between The H&K Group and Reading Anthracite, the 179-acre site was carved out of the coal permit to form the non-coal permit in order to mine and process construction aggregates. Having two permits combined is rather unusual and creative. See figures (Figures 2 & 3) below detailing the areal limits and the mines structural superposition:



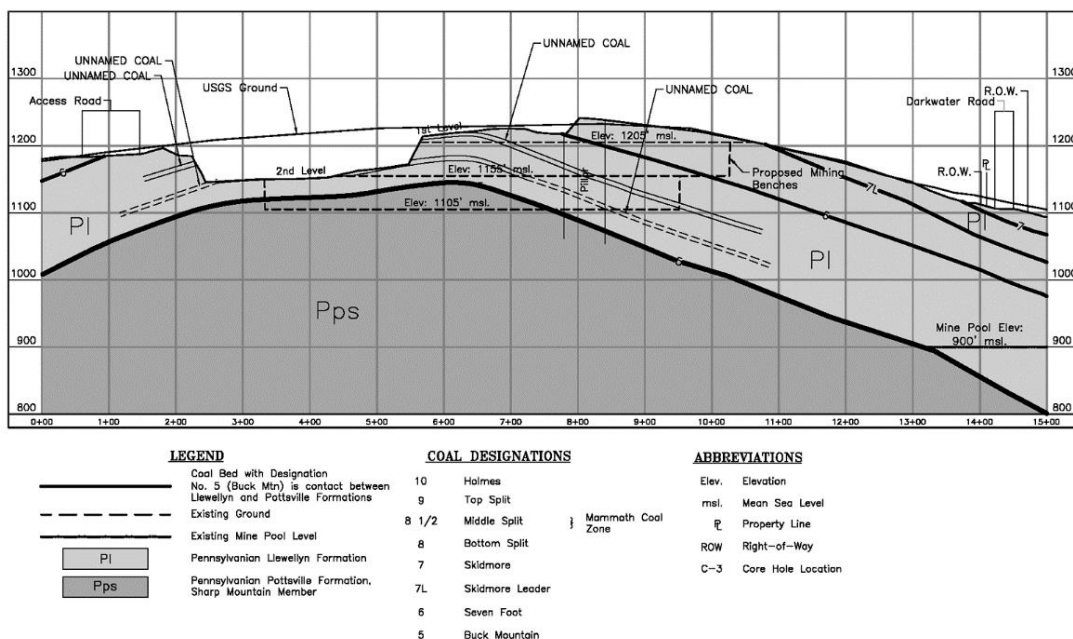
This is an excellent example of agency/private sector cooperation to productively use Pennsylvania resources.

Overall, the event was a great combination of education, networking and time spent outdoors.

For future planning: the 81st Annual Field Conference of Pennsylvania Geologists will be headquartered in Indiana, PA, in 2016, and the subject will be "Energy and the Environment."

See www.fcopg.org for details as they become available.

Register early – the Field Conference usually fills quickly and has a waiting list each year!



PCPG's GOVERNMENT AFFAIRS COMMITTEE (GAC) UPDATE

Mark Ios, P.G. (Skelly & Loy)

Legislative Bills

Since mid-June 2015, there has been a dramatic slow-down of legislative activity in Harrisburg. This slow-down is due to the House and Senate's summer recess and the stalemate between the governor and the legislature over the passage of the Commonwealth's 2015-2016 budget.

The GAC follows legislative action in both the House and Senate. The following bills of interest to geologists are being tracked. A more inclusive list of current bills is included on PCPG's website, under Government Affairs, and clicking on "Members-Only content".

House

- **Environmental Resources & Energy committee**

HB 81 - Water Well Construction Standards; proposed legislation submitted on January 21, 2015. No Action.

HB 398 - Vehicular Transportation of Leachate; proposed legislation submitted on February 9, 2015, Re-committed to Appropriations, June 2, 2015, Referred to Environmental Resources & Energy committee, June 12, 2015. (See Senate Bill 513 which was signed by the Governor on October 7, 2015.

- **Professional Licensure committee**

HB 92 - Granting State Licensing Boards the Power to Expunge Technical Violations; legislation submitted on January 21, 2015, Approved by Committee vote on April 1, 2015; Passed House vote on April 21, 2015 (194-0); Referred to Consumer Protection and Professional Licensure committee in the Senate on May 1, 2015.

HB 209 - Requiring all licensees to report convictions within 30-days; legislation submitted on January 23, 2015; Passed House vote on February 25, 2015 (198-0); Referred to Consumer Protection and Professional Licensure committee in the Senate on February 27, 2015.

HB 802 - Carryover of Continuing Educational Credits; New legislation to amend Act 48 of 1993 (Bureau of Professional and Occupations Affairs Act) restricting the carryover of excess CE credits for one biennial renewal term only. Proposed legislation submitted on March 17, 2015. Committee Vote on October 20, 2015, Approved (24-0). Reported as committed from Professional Licensure, October 21, 2015. First consideration, October 21, 2015. Laid on the table, October 21, 2015.

HB 1253 - Continuing Education Restrictions; Introduction of new legislation that changes to current exemptions and cleans up some loose continuing education language. Change #1 - proposes to eliminate the broad exemption from licensure for engineers that work in industrial settings whether or not the engineering work affects safety, health or welfare. The elimination of this exemption will make for less confusion and better public protection. Change #2 - This bill also replaces antiquated terms like "correspondence courses" and "tutorials" with "distance learning". The intent is to strengthen the integrity of the continuing education requirements for licensees under this act. This legislation is supported by the Pennsylvania Society of Professional Engineers and the Pennsylvania Society of Professional Engineers and the Pennsylvania Society of Land Surveyors. Proposed legislation submitted on May 28, 2015. No Action.

HB 1704 - Continuing Education Restrictions Modification of HB 1253; Introduction of new legislation that makes a number of changes to current exemptions and cleans up some loose continuing education language. This is similar to a bill (HB 1253) introduced earlier this session that removed an exemption commonly referred to as the "industrial exemption". This new bill drops that change making passage of the legislation much easier. This bill also replaces antiquated terms like "correspondence courses" and "tutorials" with "distance learning". The intent is to strengthen the integrity of the continuing education requirements for licensees under this act.

- **Consumer Affairs committee**

HB 48 - Water Well Construction Standards; proposed legislation submitted on January 21, 2015, Public hearing was held on May 12, 2015. Passed Committee Vote (26-0-1) on June 24, 2015. New printer number PN 1884. Re-reported to the committee on, July 21, 2015.

- **Labor and Industry**

HB 430 - Mechanics' Lien Law of 1963; Reintroduction of legislation expanding Pennsylvania's Mechanic Lien Laws to add

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GAC UPDATE *Continued from Page 7*

design professionals as a group that would be able to place a lien on a property if they are not paid for their work. Proposed legislation submitted on February 10, 2015. No Action.

Senate

- **Environmental Resources & Energy committee**

SB 513 - Vehicular Transportation of Leachate; proposed legislation submitted on February 19, 2015. Signed in Senate, September 29, 2015, Signed in House, September 30, 2015, Presented to the Governor, September 30, 2015, Approved by the Governor, October 7, 2015. **Act No. 45.**

SB 875 - Beneficial use of treated mine water in oil and gas operations; proposed legislation submitted on June 4, 2015. Signed in Senate, September 29, 2015. Signed in House, September 30, 2015. Presented to the Governor, September 30, 2015. Approved by the Governor, October 8, 2015. **Act No. 47.**

SB 1011 - Prohibiting the PADEP and the Environmental Quality Board (EQB) from finalizing and adopting Chapter 78 conventional oil and gas drilling regulations; proposed legislation submitted on September 25, 2015.

- **Consumer Protection and Professional Licensure committee**

SB 538 - Strengthening Licensee Reporting Requirements and Suspensions; legislation submitted on February 25, 2015; Approved by committee vote on May 12, 2015. Passed Senate vote (49-0) on June 9, 2015. Referred to House Professional Licensure committee on June 11, 2015. Re-referred to Appropriations committee on June 27, 2015. Passed House vote (192-0) on June 28, 2015. In the Senate, referred to the Rules and Executive Nominations committee on June 28, 2015.

SB 845 - Licensure of Soil Scientists; proposed legislation submitted on May 20, 2015. No Action.

Update - Technical Guidance for Vapor Intrusion

On Saturday July 25, 2015, the Pennsylvania Department of Environmental Protection ("PADEP"), Bureau of Environmental Cleanup & Brownfields Land Recycling Program published a notice in the Pennsylvania Bulletin announcing proposed substantive revisions to the draft guidance document Land Recycling Program Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2 (261-0300-101). Public comment for the draft document ended on September 23, 2015. Comments are currently under review for PADEP response. It is anticipated that final Vapor Intrusion Guidance will be published in the first quarter of 2016.

Regulatory Changes to the Land Recycling Program (Act 2)

Highlights of the proposed changes include revising the limits for 190 of the 390 chemicals listed in the Cleanup Standards. Ten percent of the proposed changes will lower the cleanup levels (i.e., be made more stringent). Six new chemicals are proposed to be added. The PADEP is proposing to make changes to the public notice requirements of Act 2. The proposed changes have been reviewed and approved by both the Cleanup Standards Science Advisory Board (CSSAB) and the Storage Tank Advisory Committee (STAC). The Environmental Hearing Board is scheduled to review the proposed changes in February/March 2016. Promulgation is not anticipated until third quarter of 2016.

Updates to the Technical Guidance Manual for the Land Recycling Program (Act 2)

The Pennsylvania Department of Environmental Protection (PADEP) is currently in the process of updating the Technical Guidance Manual (TGM) for the Land Recycling Program (Act 2). The TGM was last updated in 2004. Revised section will have to be presented to the CSSAB for review and approval. Once changes are completed, there will be a 12 to 14 month public comment period. The final version of the TGM is not expected until the end of 2016.

Management of Fill Policy

On Saturday December 20, 2014, the Pennsylvania Department of Environmental Protection ("PADEP") published a notice announcing proposed substantive revisions to the Management of Fill Policy, 258-2182-773. All comments have been addressed and the final package has been completed for Policy Office review. The package remains under further review and consideration by the Policy Office. Promulgation is not anticipated until the first or second quarter of 2016.

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GAC UPDATE *Continued from Page 8*

Management of Reclamation Fill Technical Guidance Document

This policy establishes the Department's procedures and standards for using Reclamation Fill for reclamation at active permitted non-coal mine sites. The revised policy is ready to be finalized. The PADEP discussed the policy with the Aggregate Advisory Board (AAB) in November 2015. Because the Cleanup Standards Science Advisory Board (CSSAB) meeting scheduled for December 2015 was canceled, the PADEP plans on publishing a final version of this TGD sometime in December 2015. The proposed version of the revised policy can be viewed at the following link:

https://www.portal.state.pa.us/portal/server.pt/document/1613202/technical_guidance_use_of_reclamation_fill_at_active_noncoal_sites_pdf

Final Chapter 78 Drilling Regulations – EQB Meeting Rescheduled February 3, 2016

The Environmental Quality Board's (EQB) meeting to consider the final Chapter 78 (conventional) and 78A (Marcellus) drilling regulations will now be February 3, 2016 so it does not conflict with the Governor's budget address on February 2, 2016. The EQB will not conduct a meeting in January 2016.

Interested in Joining/Participating on the PCPG GAC?

Historically the GAC has been involved with disseminating new regulatory information to members, providing testimony on new policy and legislative bills, and interacting with members of the Professional Engineering and Land Surveying professions on joint legislative issues. If you are interested in becoming involved with the GAC, please contact Mark Ios, Chairperson PCPG Government Affairs Committee at mioos@skellyloy.com.



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9:00 am – 1:30 pm **REGISTRATION OPEN**

9:00 am – 7:30 pm **EXHIBIT HALL OPEN**

11:30 pm – 12:30 pm **LUNCH ON YOUR OWN**

12:30 – 1:30 pm **Keynote Address: Residential Water-Well Construction Standards: What Lies On the Road Ahead?**
 – Todd Giddings, Ph.D., P.G., *Todd Giddings and Associates, Inc.*

1:30 – 2:30 pm **Detailed Drilled Well Recovery Tests: A Method for Characterizing Overall Well 'Yield' and Identifying Water Bearing Zones** – Scott L. Barnes, P.G., *PA DEP*

3:00 – 4:00 pm **Understanding Hydrogeology and Its Impact on Large-Scale Geothermal Heat Pump Systems: A New Guidance Document by the NGWA** – Todd Giddings, Ph.D., P.G., *Todd Giddings and Associates, Inc.*

4:00 – 5:00 pm **Water-Well Contaminants and Treatment Options**
 – Peter S. Cartwright, P.E., *NGWA McElhiney Lecturer.*

5:00 – 7:30 pm **RECEPTION & SCHOLARSHIP AUCTION in the Exhibit Hall**

FRIDAY JANUARY 29, 2016

7:30 – 9:00 am **BREAKFAST** (provided) and **General Membership Meeting**

9:00 – 10:00 am **Continuous Water Chemistry Monitoring and Biological Results in the Marcellus Shale Region of the Susquehanna River Basin** – Dawn R. Hintz, *SRBC*

10:00 – 11:00 am **Water-Budget and Recharge - Area Simulations for Spring Creek and Nittany Creek Basins and Parts of the Spruce Creek Basin, Centre and Huntingdon Counties, Pennsylvania** – Dennis Risser, *USGS*

11:00 am – 12:00 pm **How to Use the XS Casing Advancement System to Air-Rotary Drill Through Caving Overburden**
 – Todd Giddings, Ph.D., P.G., *Todd Giddings and Associates, Inc.*

12:00 pm – 1:00 pm **LUNCH** (provided)

1:00 – 2:00 pm **Towanda Municipal Authority New Well Field Development: Replacing Aging Water Supplies in an Extremely Challenging Geologic, Regulatory, and Socioeconomic Setting** – James R. Casselberry, P.G., *Casselberry & Associates*

2:00 – 3:00 pm **Issues Associated with the Use of Untreated Roadside Springs as a Source of Drinking Water**
 – Bryan Swistock, *PSU Extension*

3:00 – 4:00 pm **How to Construct a Geothermal Loop Field Right Next to a Public Water-Supply Well-Field**
 – Todd Giddings, Ph.D., P.G., *Todd Giddings and Associates, Inc.*

4:00 pm **CONFERENCE ADJOURNS**

Go to **www.pgwa.org**
 for abstracts of each presentation, and to print a registration
 form to mail **before January 22, 2016.**

The Holiday Inn Harrisburg/Hershey (in Grantville) has a block of discounted sleeping rooms
 at **\$94 until January 19, 2016.** Call (717) 469-0661 to make your hotel reservation today!

www.pgwa.org

UPCOMING EVENTS

February 4-5, 2016

PCPG Review Course
for the Practicing Geologist
and ASBOG Exam Candidate

March 15, 2016

PCPG Annual Meeting, Luncheon, and
Program Sessions with Networking
Opportunities

March 15, 2016

PCPG Annual Job Fair

Don't forget to check the "Courses & Events"
calendar on PCPG's home page frequently
for up to date information on upcoming
educational opportunities.

DEADLINE FOR OUR NEXT NEWSLETTER IS FEBRUARY 20, 2016

For more information, contact our PCPG Newsletter Editor and Communications Committee Chairperson - John Torrence, P.G., by **Email** or telephone at 609-932-7090.

2015 PCPG NON-MEMBER

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(Rates are listed as amount per issue)

Size	Commitment:	1x	4x
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Through PA GEOPAC, the official political action committee (PAC) of PCPG, you have an effective way to lend financial support to candidates and legislators who support the legislative goals of our organization, or who are willing to lend an ear to our members. More than 200 trade and professional organizations in the state have formed PACs including doctors, dentists, lawyers, bankers, and builders.

Your donation will help to strengthen our voice when and where it is needed most...right now at the state Capitol, where decisions are being made regarding many topics that affect the business of geology in Pennsylvania.

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