May Meeting and Dinner Presentation

Development of the Shale Plays and the Disposal of Oilfield Fluid Wastes in Ohio

by Tom Tomastik

Date: May 16, 2013

Location: LaScala Italian Bistro
http://www.lascalaitalianbistro.com/LaScala.html

Schedule: Social Hour at 5 pm
Dinner at 6 pm
Presentation at 7 pm

RSVP: President-Elect Curt Coe
(614) 265-6733
Curtis.Coe@dnr.state.oh.us

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Message from the President

Tom Jenkins, CPG-07892

The Ohio section has been active in the first quarter of 2013 and continues to push forward on objectives for the year. The 4th Annual AIPG Conference – “Marcellus, Utica, and Point Pleasant Shale: Energy Development and Enhancement by Hydraulic Fracturing” was held April 9th and 10th in Canton, Ohio. By all accounts the conference was a huge success. Curt Coe made arrangements at ODNR to develop a booth representing the Ohio Geological Survey, the Division of Oil and Gas, the Division of Soil and Water Resources, as well as the Ohio Section AIPG. Curt manned the booth and Ohio Section Executive Committee members Rick Trippel and Brent Huntsman also attended the conference. I attended the Utica Shale Congress here in Columbus, Ohio. The Section was provided space free of charge to present AIPG materials. This conference was also very well attended with a number of AIPG members present.

The Wright State University AIPG Student Section has been active and is planning a field trip for Ohio Section AIPG members this fall. The students are handling all the logistical aspects of the field trip, the Ohio Section will be providing some financial support. The initiative, resourcefulness and planning by the Wright State University AIPG Student Section is very encouraging. Our objective is to see a number of Ohio universities develop similar active student sections. We are sending the current issue of The Professional Geologist to each university with active student members along with a letter to the department head. Also, Ohio State student Victor Perez was awarded a $1,000 scholarship from AIPG National based on his academic record and an essay that he submitted. Tim Brown, Greg Kinsall and I presented the award to Victor Perez over lunch that included his advisor, Dr. William Ausich. I asked Mr. Perez what he would like to get from the AIPG Student Section at OSU, and he responded that field trips that provide examples of what professional geologists do would be very worthwhile. This points out that students want to learn what geologists do, and if we are going to advance student participation in AIPG, we need to provide interaction that is of value to the student sections. There is competition for student time and attention, and what we have to offer is a view to the workplace. We will be soliciting volunteers to conduct workplace student tours – either at the office or at a jobsite.

The effort last year by the Ohio Section AIPG and others to support the ODNR Division of Geologic Survey seems to have paid off. At present, funding has been partially restored to the Survey. The effort by the Ohio Section in general and Greg Kinsall in particular, likely had a significant bearing on the legislature’s decision to restore funding. We need to continue the drumbeat for General Revenue Fund support for the ODNR Division of Geologic Survey.

Activities for the second and third quarters include additional effort in support of the ODNR Geologic Survey, expanding Student Section activity, and quarterly AIPG Ohio Section meetings. If you want to help out, let us know – because what we are doing seems to be making a difference. ●
Annual AIPG Conference Examines Energy Development and Enhancement through Hydraulic Fracturing

The 4th Annual AIPG Conference was held on April 10 and 11, 2013 at the McKinley Grand Hotel in Canton, Ohio. The subject of the Conference was:

**Marcellus, Utica, and Point Pleasant Shale: Energy Development and Enhancement by Hydraulic Fracturing**

Ohio Section AIPG President-Elect Mr. Curt Coe attended the event, and said, “The meeting was well attended and all had a great time. The Ohio Section booth was a great hit. The ODNR allowed the Ohio section of AIPG to represent the Ohio Geological Survey, the Division of Oil and Gas as well as the Division of Soil and Water Resources. Many engineers as well as geologists wanted information on the geology of the Utica/Point Pleasant shale play. Many were also interested in the occurrence and migration of gas in the subsurface.”

A list of presenters and links to the presentations is available on the AIPG National Site via the following link:

http://www.aipg.org/Seminars/HFMS13/HFMS13-presentations.html

Booth representing Ohio Section AIPG, Ohio Divisions of Geological Survey, Oil and Gas, and Soil and Water Resources at the *4th Annual AIPG Conference* in Canton Ohio.
Ohio Section May Meeting and Dinner Presentation

Feature Topic: Development of the Shale Plays and the Disposal of Oilfield Fluid Wastes in Ohio

Presented by: Tom Tomastik

The Ohio Section is pleased to invite you to the May Meeting and Dinner presentation, which will take place at LaScala Italian Bistro on Thursday, May 16. We are pleased to host Mr. Tom Tomastik, who will be presenting on the timely topic: Development of the Shale Plays and the Disposal of Oilfield Wastes in Ohio.

ABSTRACT

Historically, oil and gas regulations in Ohio were sparse and the disposal of oilfield fluid wastes was conducted in open and unlined pits. In 1981, new laws and rules were passed to strengthen the regulations regarding Class II and Class III injection wells in Ohio. In 1983, ODNR, Division of Oil and Gas Resources Management received primacy of its Underground Injection Well Program from U.S. EPA to regulate the Class II saltwater injection, Class II enhanced oil recovery injection, and Class III salt-solution mining wells.

Class II saltwater injection wells are used exclusively to inject fluid wastes associated with the drilling, completion, stimulation, and production of oil and natural gas. Class II injection wells are constructed with at least three layers of steel casing and cement to ensure protection of underground sources of drinking water. All applications for Class II injection include a preliminary area of review, pre-site field inspection, public notice requirement, and additional conditions required for each permit. Due to the seismic events around the Northstar #1 injection well in Youngstown, Ohio, new rules were enacted that require continuous monitoring for mechanical integrity, a shut-off switch set to the maximum allowable injection pressure on the injection pump, possible seismic surveys or seismic monitoring, and prohibition of drilling injection wells into the Precambrian basement rocks.

Class II saltwater injection well activity has increased dramatically over the last several years due to the development of the Marcellus and Utica shale plays. Due to the lack of disposal methods in New York, Pennsylvania, and West Virginia, Ohio has seen a dramatic increase in the disposal of oilfield fluid wastes in Ohio’s Class II saltwater injection wells. Currently, 211 Class II saltwater injection wells are permitted in Ohio and 190 are in operation. Another 21 applications for Class II saltwater injection are pending. In 2012, almost 14,000,000 barrels of brine were injected in Ohio Class II saltwater injection wells. Class II injection remains the best management practice for the disposal of oilfield fluid wastes and Ohio’s Class II injection well program is one of the most stringently regulated programs in the country.
PRESENTER

Tom Tomastik received his BS and MS degrees in geology from Ohio University in 1979 and 1981. From 1982 to 1988, Mr. Tomastik was employed as a consulting geologist involved in oil and gas exploration and development in southeastern Ohio. Since December of 1988, Tom has been employed by the Ohio Department of Natural Resources, Division of Oil and Gas Resources Management, UIC Section. He is responsible for all of the Underground Injection Control (UIC) duties, which include performing independent reviews of applications for Class II saltwater injection, secondary and enhanced recovery projects, and Class III salt-solution mining wells in Ohio. Tom also plans and implements highly complex groundwater conflict investigations involving oil and gas investigations. He provides technical expertise to the general public, oil and gas industry, governmental agencies and officials regarding Federal and State regulations, oil and gas and injection well construction, well operations, and groundwater contamination investigations. He has authored or co-authored articles on various aspects of Ohio’s oil and gas industry, groundwater investigations, injection, solution mining, and geology.

2013 Calendar of Upcoming Events

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<tr>
<th>Date</th>
<th>Event Description</th>
<th>Details</th>
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<tr>
<td>August 5-6</td>
<td>2013 OOGA Summer Meeting – at the Zanesville Country Club, Zanesville, OH</td>
<td><a href="http://www.ooga.org/">www.ooga.org/</a></td>
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<tr>
<td>September 19</td>
<td>Ohio Section AIPG Meeting and Dinner Presentation – Event details to be announced at a later date</td>
<td><a href="http://www.aipg-ohio.org/">http://www.aipg-ohio.org/</a></td>
</tr>
<tr>
<td>November 21</td>
<td>Ohio Section AIPG Annual Meeting and Dinner Presentation – Event details to be announced at a later date</td>
<td><a href="http://www.aipg-ohio.org/">http://www.aipg-ohio.org/</a></td>
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March Ohio Section Meeting and Dinner Presentation Revisited

The Ohio Section’s initial meeting and dinner presentation of 2013 was an enjoyable evening for all attendees. The event, which took place on March 21 at La Scala, included a social hour, dinner, and a presentation by Kenneth Richter and Tim Van Echo on the new Columbus Upground Reservoir U-2. Among the members of the Ohio geological community attending the event was a sizeable contingent of geology students from Wright State University, representing the first student chapter of the Ohio Section.

Presentation of Meeting Agenda and Opening Remarks by President Tom Jenkins

At the conclusion of social hour, President Tom Jenkins called the meeting to order and welcomed fellow members and guests. The meeting agenda included a reminder of upcoming April events, including the 4th Annual AIPG Conference on the Marcellus, Utica, and Point Pleasant Shale in Canton, and the Utica Shale Congress taking place in Columbus. Tom asserted the continuing need for the Section to continue support for the ODNR Division of Geological Survey resolution - former Division Chief and past AIPG President Tom Berg is spearheading the effort. President Jenkins also reminded the audience of volunteer opportunities with the Section, and stated the need for fellow members to take some time and stop in at area colleges and universities and speak to geology student sections about becoming involved in the Ohio Section, during routine travel throughout the state.

Following the presentation of President Jenkins’ agenda, Mark Rowland, the chairman of the advisory committee for the Division Geological Survey, remarked on how the Ohio Section’s resolution of support for the Division of Geological Survey and letter to the director helped secure the general revenue funding. Mark mentioned that new Division Chief Thomas Serenko may be looking for new members to serve on the advisory council.

Dinner Presentation by Kenneth Richter and Tim Van Echo

After dinner President-Elect Curt Coe introduced the evening’s keynote speakers, Kenneth Richter, P.E., and Tim Van Echo. Mr. Richter is a Senior Project Manager at ms consultants, Inc. in Columbus, and has over 29 years of experience in the planning, design, financing, and construction of a wide variety of projects, such as public water supply, treatment, and distribution; wastewater collection and treatment; and solid and hazardous waste management. Mr. Van Echo is a Principal Engineer and the Ohio Branch Manager of S&ME, Inc., located in Dublin, Ohio, and has 32 years of experience in the areas of water resources, geotechnical engineering and environmental services, and has worked on 11 upground reservoir projects and numerous dam projects. Kenneth and Tim’s presentation was entitled Columbus Upground Reservoir U-2, Delaware and Union Counties, Ohio.

Kenneth Richter began the presentation by explaining the need for the project and the many engineering challenges that it presented. Ken explained the need for the construction of a new reservoir, as the existing reservoir system in place that serves most of Franklin and southern Delaware Counties was projected to fall short of meeting projected future water demands. Columbus Upground Reservoir U-2, located in northwestern Delaware County, is a large scale reservoir designed to contain an estimated 9.2 billion gallons of water, covering a surface area of approximately 850 acres. The five mile length of embankment surrounding the reservoir required over 4.5 million cubic yards of soil to construct.
March Ohio Section Meeting and Dinner Presentation Revisited (continued)

A significant engineering challenge of the project was the installation of a large 72-inch diameter steel pipeline connecting the reservoir to the Scioto River.

Tim Van Echo’s portion of the presentation provided information on the potential concerns and challenges presented by the geological and hydrogeological setting of the reservoir. Mr. Van Echo indicated that the general stratigraphy of the area consists of a limited thickness of silty clay till overlying a sand and gravel unit, which is underlain by limestone bedrock. A significant concern of the project was the potential presence of karst features associated with the limestone bedrock, which are not uncommon in the region. Despite this concern, no sinkholes were encountered during the project. Tim discussed the extensive monitoring well network associated with the project, including 14 bedrock monitoring wells and numerous shallow wells; the wells have been used for dewatering as well as groundwater monitoring. In addition, over 350 soil borings were installed to evaluate the depth to the sand and gravel layer. Numerous private water wells in the area were also monitored during the project.

Tim also provided detail on reservoir liner construction and testing, and the extensive measures that were undertaken to reduce the potential for punctures. Tim created a stir in the audience when he mentioned that an effort was made to remove all stones exceeding one-half inch in size from the 850-acre reservoir surface – a task taken on by a group of college students. At the conclusion of the presentation, Ken and Tim fielded a good group of questions from the audience. •

2012 President-Elect Coe presents speakers Kenneth Richter and Tim Van Echo with an engraved desktop item to display the Section’s appreciation.
Local Geology Student Receives AIPG Scholarship

Victor Perez, an undergraduate geology student at The Ohio State University, has been awarded a student scholarship by the national AIPG Executive Committee. Mr. Perez is enrolled in the honors program and is currently pursuing a Bachelor of Science in the School of Earth Sciences. Victor’s primary interests include paleobiology and organic geochemistry. At The Ohio State University, Victor has been working with Dr. William Ausich and Dr. Yo Chin in a new area of paleobiology research involving the isolation and identification of taxon-specific biomarkers from echinoderm fossils exceeding 200 million years in age. Victor’s senior thesis deals with the speciation of a suite of molecules using mass spectrometers and other equipment, and he intends to use the scholarship award to assist in funding the project. Future plans for Mr. Perez include attending graduate school, and his long-term goal is to become a professor at a research university. An article prepared by Victor will appear in a future edition of *The Professional Geologist*.

AIPG scholarships are awarded to assist students with college education costs as well as to promote student participation in the AIPG. Detailed information about AIPG’s National Scholarship Program, including scholarship awards and eligibility requirements can be viewed at: [http://www.aipg.org/students/scholarship.htm](http://www.aipg.org/students/scholarship.htm).
## Ohio Section Awards Committee Seeks Nominations

The Awards Committee is actively seeking nominations for Awards to be presented at the Ohio Section Annual Meeting in November. Please submit nominations to Awards Chairman, Curtis J. Coe via e-mail at Curtis.Coe@dnr.state.oh.us.

Award categories and criteria area include the following:

<table>
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<th>Award Category</th>
<th>Description</th>
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<tr>
<td><strong>Award of Honor</strong></td>
<td>The Award of Honor is presented to individuals that have a demonstrated record for distinguished service, as acknowledged by receipt of two of the available awards.</td>
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| **Outstanding Public Service** | The Outstanding Public Service Award is presented to those individuals that have made outstanding contributions to the public health and welfare during their career through:  
  - Expert testimony to governmental units  
  - Distinguished service on governmental commissions and committees  
  - Geological expertise where needed by the public at large |
| **Outstanding Service to the Profession** | The Outstanding Service to the Profession Award is presented to those individuals that have given to the profession by a:  
  - Long record of service  
  - Improvement of the profession as an articulate and effective advocate  
  - Emphasis on the profession/public interface |
| **Outstanding Service to the Institute** | The Outstanding Service to the Institute Award is presented to those individuals that have made outstanding contributions of time and effort to the Ohio Section – AIPG |
| **Certificate of Merit** | This certificate is presented to individuals who have demonstrated meritorious or unusual service to the president of the Ohio Section. Nominations are made by the Ohio Section President. |
| **Outstanding Achievement Award** | This award is presented to those individuals who have made an outstanding geologically related contribution to either the geologic profession or the general public. This award is open to individuals inclusive of:  
  - Government  
  - Other professions  
  - Other Scientists  
  - Academicians and  
  - Media Professionals |
The 3rd Annual Utica & Marcellus NGL & Gas Markets Summit 2013 will take place at the Hyatt Regency Columbus Hotel, in Columbus, Ohio, on May 29 - 30, 2013. Topics will include:

*Delivering Midstream Pipeline Plans And Processing Infrastructure Updates, And Identifying New Market Opportunities For Marcellus & Utica NGLs, Residue Gas & LNG*

View 2-day Agenda Here.

**Day 1: NGL, Ethane, Condensate: Production, Pricing & Takeaway**

**Day 2: Drilling Plans, Gas Marketing & Regulations**

Senior Industry Speakers Include Range Resources, MarkWest, Chevron, Williams, Statoil, Kinder Morgan, M3 Midstream, Chesapeake, Caiman Energy, Hilcorp, Spectra & many more. See 2013 Speaker Line-Up Here.

**15% OFF for members of the AIPG Ohio Section**

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**What’s New This Year?**

- **UTICA PRODUCTION:** This year there will be more concentration on the Utica focusing on how an influx of production from the play will impact pricing for NGLs and gas and in which markets Utica products will yield optimal netback

- **MARKET FOCUSED:** After two years of focusing on midstream infrastructure, the congress this year will take a closer look at identifying the most lucrative markets for Utica and Marcellus products, as well as how to get it there

- **LNG EXPORT & GAS MARKETS:** The congress will analyze solutions for digesting gas locally and assess global LNG demand and pricing to evaluate the commercial and regulatory feasibility of exporting LNG internationally

- **MARKET ACTIVITY:** A brand new session delivering JV and M&A updates will be delivered to explain how new ventures are opening up previously untapped midstream development opportunities

- **LOCATION:** In response to demand, we have moved the location to Columbus, Ohio this year to better reach the market and enable higher attendance figures from Utica as well as Marcellus operators

**Pressing Topics Include:**

- **NGL MARKETING & PRICING:** Analyzing how NGL supply and demand will impact pricing and delivering updates on the latest plans for increasing takeaway capacity

- **ETHANE:** Where to take ethane - assessing market demand, upcoming takeaway projects and processing capacity increases to ensure Utica and Marcellus ethane always finds a market

- **REGULATIONS & PERMITTING:** Assessing how to swiftly attain pipeline permits in PA, WV and OH to ensure projects can consistently be delivered on time

For more information or to register a place, please visit: [www.utica-marcellus-ngl-markets-2013.com](http://www.utica-marcellus-ngl-markets-2013.com)
Introduction

Hydraulic fracturing as applied in the oil and gas industry (commonly referred to as "fracking," "fracing," or "hydrofracking") is the process of pumping a mixture of water, sand or similar material, and chemical additives, under high pressure, to create small interconnecting fractures to increase permeability in targeted subsurface rock formations. Oil and gas companies perform hydraulic fracturing after a well is drilled, cased and cemented, to increase the well's productivity. Sand is used to prop open the fractures, and chemical additives reduce friction, control bacteria, decrease corrosion, and serve other purposes. More than 50 percent of the natural gas, and a growing percentage of the oil, produced in the U.S. comes from hydraulically fractured reservoirs. The following statement describes hydraulic fracturing in the oil and gas industry, discusses environmental concerns about the practice and associated activity, and expresses the position of the Association of American State Geologists (AASG).

Why hydraulic fracturing is used

For an oil or gas well to be productive, hydrocarbons must flow through the rocks in which they are contained (the reservoir) into the well and to the surface. Much of the oil and gas resource in the U.S. resides in "tight" rock formations, rocks so impermeable that they do not allow oil and gas to flow easily through the rock to the wellbore. Reservoir rocks are fractured to enhance their permeability and enable oil and natural gas to flow. Hydraulic fracturing is employed on both traditional vertical wells and on horizontal wells, which are increasingly common. Most of these wells would not flow at rates that would make the drilling of the well worthwhile without hydraulic fracturing. The combination of horizontal wells and hydraulic fracturing has led to increasing both oil and natural gas production and the addition of large new reserves in the United States after years of decline.

Lessons from over 60 years of hydraulic fracturing

Hydraulic fracturing was first used in the oil and gas industry in the U.S. in 1947. Since then, more than one million oil and gas wells have been hydraulically fractured in the U.S., and hydraulic fracturing has become a common well-stimulation technique. The application of hydraulic fracturing to horizontally drilled wells uses higher volumes of fluids than more traditional applications. Today’s accumulated geological and engineering knowledge and improved technology are used to protect public health and the environment while producing larger volumes of oil and gas. Modern wellbore casing and cementing are designed to isolate freshwater aquifers from hydraulically fractured oil and gas reservoirs, which are generally thousands of feet below the aquifers. Casing and cementing are required and regulated by state regulatory agencies and have performed as intended in the oil and natural gas wells already drilled and currently operating in the U.S.

Environmental issues associated with hydraulic fracturing

Environmental impacts are a concern for any activity on or below the land’s surface, including drilling and hydraulically fracturing an oil or gas well. Constant vigilance is imperative to insure the quality of air, land, and water. Environmental issues raised in association with hydraulic fracturing and other drilling and production operations include the potential for contamination of fresh groundwater, water consumption, earthquakes triggered by injecting fluids, venting or flaring methane, and the disposal of fluids. When they occur, most of these problems are not related to hydraulic fracturing, but to the drilling, casing and cementing of the well, or disposal of fluids.

After decades of hydraulic fracturing-related activity there is little evidence if any that hydraulic fracturing itself has contaminated fresh groundwater. No occurrences are known where hydraulic fracturing fluids have moved upward from the zone of fracturing of a horizontal well into the fresh drinking water. In a single case currently under investigation, contamination may have occurred when a vertical well was hydraulically fractured in a zone just a few hundred feet below the base of the freshwater. In most cases, however, freshwater aquifers are near the surface, and are thousands of feet above deeply buried oil- or gas-bearing formations. Under these geologic conditions, it is highly unlikely that a connection would develop between a hydraulically fractured oil or gas reservoir and a freshwater aquifer. To further minimize the chance of such a connection, it is important to locate and plug any abandoned wells that could provide a conduit between reservoir rocks and shallower freshwater aquifers, although no cases are known where this has led to groundwater contamination from hydraulic fracturing fluids. Contamination has occurred, however, from spills or mishandling of hydraulic fracturing fluids on the surface. Sound professional and regulatory practices therefore should be diligently followed when handling fluids on the surface to minimize or eliminate this source of contamination.

Known instances of methane migration associated with well drilling are unrelated to hydraulic fracturing and could occur while drilling any kind of well. All wells should be carefully cemented and tested properly to avoid methane migration. In some areas, methane occurs in water wells because there is a natural source of methane within or just beneath the aquifer and in these cases methane was present in water wells long before drilling or the use of hydraulic fracturing. It is important for oil and gas regulatory agencies to determine if methane in freshwater wells has increased following drilling activities. This can only be done if baseline water quality testing is carried out before oil and gas drilling. Also, enhanced practices and regulations may be required to minimize release of methane, a greenhouse gas, to the atmosphere.
Water used for hydraulic fracturing is generally obtained from nearby water wells, lakes, streams and rivers. Although a substantial amount of water is used in hydraulic fracturing, this represents a one-time use, and the amount is considerably less than the volumes required in other common ongoing uses, such as agriculture, municipal supplies, and industrial processes. Oil and gas operators must follow state laws in the acquisition and use of water and make sure that they do not negatively impact local (individual, city, or county) water supplies. The industry is working to reduce their freshwater needs, including recycling the water they use in hydraulic fracturing operations.

Much of the water used in hydraulic fracturing flows from the well along with gas, oil, and saline water during normal production operations. That “wastewater,” or “flow-back water,” must be recycled or disposed of properly. Disposal is generally through deep wells drilled specifically for that purpose. In some locations, injecting returned water into deep wells has triggered small earthquakes (generally less than Magnitude 3.0), a phenomenon called triggered seismicity or induced seismicity. Proper well siting away from faults and using managed injection rates and pressures can minimize or eliminate triggered seismicity.

With new technologies, exploration has expanded into areas and communities that have seen little oil and gas drilling, or have not seen it recently. That has created a variety of new issues—some positive, some negative. Caution, good judgment, and sound regulatory practices must be exercised in areas where less information is available about the subsurface geology.

AASG statement

State geological surveys are important sources of information and expertise related to subsurface geology, water resources, and energy. AASG members regularly monitor and discuss issues related to hydraulic fracturing. Several state surveys have been engaged in investigations of potential freshwater contamination that may have been caused by recent hydraulic fracturing-related activities; others are undertaking research on, and providing information about, hydraulic fracturing. The following points constitute AASG’s position on hydraulic fracturing:

- AASG advocates that comprehensive public information based on sound science and open processes be utilized when formulating energy and environmental policy. We encourage a balanced, independent, fact-based analysis of controversies regarding natural resource development.

- AASG supports and encourages the disclosure of hydraulic fracturing fluids and chemical additives on FracFocus, the hydraulic fracturing chemical registry website, developed by the Interstate Oil and Gas Compact Commission (IOGCC) and the Groundwater Protection Council (GWPC).

- AASG advocates for better understanding and scientific documentation of our subsurface geology and aquifers, which will result in improved geologic models to help all parties avoid problems that might occur during drilling and hydraulic fracturing activities of oil or gas reservoirs, especially in new fields. This will allow safer and enhanced production of oil and gas.

- AASG is committed to protecting the nation’s public safety and the natural environment, including groundwater and surface-water resources. AASG supports the wise and prudent production of oil and gas resources to help fulfill the nation’s energy needs.

- AASG recognizes the economic and social importance, and the abundance, of oil and gas resources that only can be recovered if reservoir rocks are hydraulically fractured.

- AASG maintains that state oil and gas regulatory agencies are best equipped, through statutory authority, expertise, and experience, to ensure that hydraulic fracturing and all other operations associated with oil and natural gas development proceed in a manner that protects the natural environment, including public safety as well as groundwater and surface-water resources.

- AASG recognizes that the environmental record of hydraulic fracturing activities over the past 60 years has been overwhelmingly positive. AASG also maintains that operators who do not follow regulatory requirements should be appropriately sanctioned and, where appropriate, barred from conducting further oil and gas operations.

- AASG notes that geologic data generally show a significant vertical separation between most oil and natural gas reservoirs targeted for hydraulic fracturing and the shallower freshwater aquifers. In areas where targets of hydraulic fracturing are comparatively close to freshwater aquifers, thorough geologic characterization of the area is warranted and even greater caution should be exercised by operators and regulatory agencies.

- AASG recognizes the fast pace of recent drilling for oil and natural gas and the associated hydraulic fracturing activities. AASG suggests that caution and careful attention to community relations be exercised by operators, contractors, and regulators in the design, review, approval, documentation, implementation, and verification of plans for the drilling, completion, stimulation and production of oil and gas wells.

- AASG encourages continuing work to acquire and maintain local pre-drilling water quality assessment and ongoing information on freshwater quality, and recommends that casing and cementing operations in hydraulically fractured wells be carefully documented by operators, contractors, and regulators.
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(AVAILABLE AUGUST 2012)
Letters to the Editor and Editorial Submittal Guidelines

The Ohio Section welcomes and encourages membership discourse via the Section newsletter on relevant geopolitical and geological topics, in accordance with our chartered purpose. Contributing authors are requested to abide by the following guidelines to ensure civility and professionalism.

1. Scientific interpretations should include accurate and effective references.

2. Opinion pieces should be presented with reasoning. Fellow members may choose to comment or challenge a submittal with their own contribution.

3. Authors must abide by the AIPG Code of Ethics. Any author who violates this code will not be published. Authors must be respectful to fellow members, all political parties, officials and candidates.

4. Letters to the Editor should be under one page in 12 pt. Arial font.

5. Member authors should provide their name and certification number.

6. The Ohio Section also welcomes and will consider relevant articles from non-members, provided contributions abide by the above stated guidelines.

Contributions to the Ohio Section newsletter do not necessarily reflect the opinion of the Ohio Section or the editor. We reserve the right to edit for clarity and space considerations. Please send submittals to the editor at tbrown@hullinc.com.
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