

PTTC Focused Technology Workshop

“Recent Developments in Upper Devonian Sandstone Plays”

May 26, 2005; Washington, PA

Workshop Summary

This workshop was the second consecutive cooperative venture with the Pittsburgh Association of Petroleum Geologists (PAPG), an AAPG-affiliated society that was established to offer continuing education and fellowship to petroleum geologists and engineers in the Pittsburgh area. On March 8, 2005 we teamed with PAPG to produce and host a workshop on carbonate reservoirs at the same location.

The workshop also was the latest in our series of “PAG-championed” workshops, a workshop where a member or members of our PAG steps forward to recruit speakers around a central theme or topic that has been approved in advance by the entire PAG. In this particular case, two PAG members, Leo Schrider and Roger Willis, worked with Dan Billman, Vice President of PAPG who is in charge of the technical component of PAPG monthly meetings, and the RLO Director to organize and host the workshop.

It was not always easy to stay the course. In the beginning, everyone involved seemed to have certain key speakers and presentations in mind, and when these key speakers began to decline their invitation to speak, the three organizers seemed to take turns being discouraged to the point of abandoning the entire idea. Fortunately, we began to hold weekly phone conferences to update the status of the technical program, identify additional potential speakers, and set a plan for the upcoming week. The phone conferences also served to bolster the confidence of all involved, and kept them fully involved and on the team.

In the end, although the program may not have been what the workshop organizers originally had envisioned, it was a quality program and no one outside of the small working group knew the difference.

The workshop was developed to emphasize the importance of Upper Devonian sandstone reservoirs to independent operators in Pennsylvania and West Virginia and to introduce technical problems and barriers that have been or still need to be overcome to fully exploit this largely natural gas resource. Therefore, the morning session was organized around themes of current drilling activity, production trends and using the relation of geology and production trends to find the next prospect. The afternoon session concentrated on better methods to complete and produce these low-permeability gas reservoirs.

The high attendance at the workshop (105) indicated that operators still prefer play-based workshops, and that they will attend workshops that are not related to the Trenton and Black River carbonates. Although the Upper Devonian sandstone plays

are mainly in Pennsylvania and West Virginia, the workshop drew attendees from Ohio, New York, Michigan, Virginia, Connecticut and even Texas. These attendees represented a good mix of repeat customers and new converts; of producers and service companies; and of geologists and engineers.

Based on the attendance, audience participation, personal feedback during and after the workshop and evaluation forms (below), we would have to conclude that the workshop was very well received.

We made a little progress in our new program to offer Professional Development Hour (PDH) certificates to those who attend the entire workshop. At the end of the previous workshop, nearly half of the eligible participants failed to pick up their certificates when they turned in their evaluation forms. At the end of this workshop, the number of those who failed to accept the certificates was less than 40%, most of whom were geologists. However, and perhaps more importantly, nearly everyone stayed for the entire program, and many remained to hold conversations in small groups until the maintenance crew arrived to clean up the room.

Evaluation Forms

We continue to do a much better job in encouraging participants to fill out and submit an evaluation form. Sixty two were received, a very favorable 85% submittal rate. Thirty six of these were from employees of production companies, 14 from consultants, and 12 from universities and state and federal government agencies. Respondents gave high marks to the program, speakers, facilities and overall organization. Additional comments that were received included "well done" in terms of organization and presentation; "cores onsite very helpful," a reference to cores supplied by Dr. Smith and by Dr. William Harrison, Director of the PTTC Satellite Resource Center in Michigan; "cd invaluable," and "glad to see CD of presentations was included," references to the fact that both speakers offered their slides on cd; "wonderful, fast-paced outline;" "workbook was well appreciated - especially the cd;" "excellent presentations;" "one of the best PTTC short courses attended;" and "very informative and interesting."

Other comments suggested that some of the more important points were weakly developed, that the meeting room was too cold (it was), and that "adverse weather/hazardous drive up caused participants to miss 1st hour of workshop," which reinforces our traditional practice of not offering workshops during winter months.

The list of additional topics that participants would like to see in future workshops was long and versified. However, many of them can be grouped into more play-based workshops; workshops that focus on reservoirs, both conventional and fractured; drilling (including horizontal), logging (including interpretation) and completion techniques; and general geology and basin structure related to plays. Specific plays listed for future play-based workshops included the Big Lime in Kentucky and West Virginia; Upper

Devonian sandstones (we will address this one on May 26); the Oriskany Sandstone; and Silurian sandstones, specifically the Bald Eagle (which actually is Ordovician), Medina and Tuscarora.

One comment was well-thought out and more detailed than the normal response. It came from a Senior Geologist with Dominion Exploration and Production Company, and is as follows: "Another idea for a topic would be modern completion and prospects in tight sands. For example, in southern WV, there are up to 3,000 feet of tight Pennsylvanian sands above the Avis Lime. These sands are almost always tight with porosities in the 6 to 8% range, but are certainly gas charged and sometimes productive. The common perception is that if these sands do not give up natural shows, they are not productive. This is untrue. Many tight sand plays in the Midwest and west Texas are like this. How do they compare/differ? Typical names for these sands include the following: Breathitt sands, Lee sands, Salt sands, etc. Any help in how to take advantage of these sands would be highly beneficial here in the Appalachian Basin."

Attendance List

Attached.