

**Minutes of the Oil and Gas Technical Advisory Board Meeting
Marriott SpringHill Suites
Washington, PA
October 30, 2008**

A meeting of the Oil and Gas Technical Advisory Board (TAB) was held at 9:00 a.m. on October 30, 2008 at the Marriott SpringHill Suites in Washington, PA. TAB members present were Chairman Robert Watson, Burt Waite, Gary Slagel, Art Yingling and Sam Fragale. Ron Gilius, Dave English, Craig Lobins, Joseph Umholtz, Jack Crook, John Stefanko and Carol Daniels attended from DEP. Also attending were Steve Dell (Brinjac Engineering, Inc.), Dave Kemp (Somerset Conservation District), Roger Varner (HRG, Inc.), Deb Simko (Chestnut Ridge Trout Unlimited), Lou D'Amico (IOGA-PA), Steve Rhoades (POGAM) and Allan Schuck (GAI Consultants).

Special Addition: On October 29, Range Resources and CNX Gas gave the Technical Advisory Board Members and the DEP employees a tour of various projects. The tour started with an initial briefing by Range Resources about their plans for Marcellus Wells Development in the Washington County area. The group then toured the Mark West Gas Processing Plant. This plant is under construction and will separate the higher end gases from a natural gas for that region.

The group then went to one of Range Resource's horizontal wells that was being drilled followed by a visit to Stream Withdrawals and Impoundments used for the hydrofracing process.

CNX hosted a lunch for the group. The afternoon tour continued with a briefing from CNX on their Coalbed Methane operations in Westmoreland County. We visited several of their well sites and one of their gas processing facility that used osmotic membranes.

Agenda Item 1 – Introduction and Opening Remarks

The meeting was called to order by Chairman Watson at 9:00 a.m. Chairman Watson asked the two new TAB members, Art Yingling (ARK Resources) and Sam Fragale (Phillips Production Co.) to introduce themselves and provide an overview of their background. This was followed by attendee introductions.

Agenda Item 2 – Approval of draft May 29, 2008 Minutes – Attachment A

Chairman Watson asked for a motion to approve the previous TAB meeting minutes. Burt Waite moved to approve the minutes, seconded by Gary Slagel.

Agenda Item 3 – Proposed Rulemaking – Well Permit Fees

TAB Members were provided a copy of both the Executive Summary of the Marcellus Shale Well Permit Fees and the Oil and Gas Well Permit Fees (proposed amendments to 25 Pa. Code Chapter 78). Dave English of the DEP provided a summary to the Board of the proposed fee schedule for Marcellus Wells, and the total fee package found in the proposed regulatory package.

The permit fee has never been increased in nearly 24 years despite escalating program costs. Due to a recent and significant increase in workload, the \$100 permit fee no longer covers the Department's costs of administering the Act. The Department is proposing a regulatory fee increase for oil and gas well permit fees as well as a regulatory fee specific to Marcellus Shale gas wells.

The goal is to fund the program by the permit fees and also increase staff levels to meet the increased activity required to handle the current workload and projected workload associated with the Marcellus Shale wells. Discussion ensued about changing program requirements related to water withdrawal and disposal and the recent down turn in the economy and oil and gas prices. .

Ron Gilius mentioned that the projections also include staff to review the water protection aspects of an operation as well as for permitting and inspections. Staff include geologists, engineering, water quality specialists, etc. It was also mentioned that the fee increase would provide for an anticipated new office to cover the north central and north east area of the state as it is difficult for the staff located in the NWRO to cover this eastern portion of the state. Additional staff is needed in this area due to the increased permitting and drilling activity. The goal would be to adequately staff DEP to meet the projected permitting and inspections.

Gary Slagel and Burt Waite had concerns about increasing personnel and fees, erosion and sediment controls, and NPDES plans. Dave English explained that just being able to hold our own was the goal at this point and would not necessarily expedite turnaround. Steve Rhoades feels fees would be acceptable if used to improve turnaround, and have clear resolutions to problems. Ron Gilius mentioned that the fee increase would not solve the issues surrounding suitable disposal capacity.

Craig Lobins said 3,900 permits were issued in 2007 and are expecting a 20 to 25% increase in 2008. The majority of the permits were for non-Marcellus wells. Craig expressed the need for more Oil and Gas Inspectors. He said even if there is no projected increase in permitting, DEP is still understaffed in this area.

Small Operators expect about a 20% reduction in applications because land owners think they have a goldmine and small operators cannot afford the leases as well as the economic down turn.

Burt Waite voiced his concern about projections for the number of new wells used to project fee increases. Steve Rhoads asked about well projections as they related to new staffing. Dave English responded the projections to hire around 42 more people in fiscal year 2009 and 2010. Mr. Rhoades suggested that there needs to be a paradigm shift in Water Quality's upper management of the industry or the projections are fatally flawed. Gary Slagel also stated that it was extremely important that the water issues be addressed and that the Oil and Gas Program needs to be the focal program within the Department to administer the implementation of the water issues. It was also recommended that the Oil and Gas Program be very active in developing the policy and guidelines with Water Management. In general, the TAB members do not have a problem with fee increases if the permit turn-around, as well as responses from Water Quality and PNDI are improved, and well permit projections are accurate.

John Stefanko added that we cannot look at the fees schedule again for three years. Ron Gilius added that projections are critical; as the Department can only go on estimates based on industry reports.

Sam Fragale said Marcellus operators are agreeable to a fee increase if it results in an prompt permit turn around.

Agenda Item 4 – Discussion of Standards for Marcellus Shale Well Development

- **Drilling, Casing and Cementing, including Directional Drilling**
- **Hydraulic Fracturing**
- **Well Operational Standards**
- **Well Plugging**

Ron Gilius stated that Marcellus Shale Wells are here and fully expects them to be around for a long time. The objective for the meeting was to review the regulations to verify that they are adequate for the development of the Marcellus Shale wells. Chairman Watson recommended changing Marcellus Shale Wells to just “Shale” Wells. Everyone agreed on his suggestion as there are more shale formations than just Marcellus.

Discussion continued on how to improve on the current standards such as surface casing to protect fresh groundwater and nearby water supplies. Art Yingling mentioned that DEP should be included in each of the four elements listed above to greatly improve all aspects such as Regulations and Practice and Procedures.

Also discussed was saturation levels and hydrostatic pressures. Burt Waite said pressure at .433 psi is safe as you would have to exceed the 1.0 frac gradient to have migration around the casing seat. Craig Lobins stated that you do not want any excessive pressure on the casing seat above .433. There is a provision in the regulations regarding .433 psi. If it goes above this, a pop off valve could release the excess pressure. However, because of the volume, the safety valves freeze up. Craig also mentioned that with the current staff, there is only the capability of one inspection every ten years after completion and an inspector usually only goes to a well site if there is a complaint.

Next, locating multiple wells on one well site was discussed. The general consensus is that there is an environmental advantage to having multiple wells drilled from one well site. Gary Slagel mentioned that some coal companies are more prone to working with gas companies. Act 214 regarding spacing limits was discussed along with issues with coal and gas companies and how the Act 214 should be revised. Burt Wait said if the industries cannot work it out, only then should DEP step in. Steve Rhoades added that stepping in should be only as much as the law allows.

Discussion ensued regarding if cementing from the bridge plug up will allow the horizontal wells to remain open. Also discussed was vertical migration and the impact on drilling wells deeper, if fracing is propagating into shallow or produced zones or if the plug is setting 50 feet above that production zone.

The TAB consensus was there was no problem with open hole completions on wells and by leaving the frac pipe in and vent the back side.

Art Yingling indicated that shallow gas wells, less than 3,500 feet, would be drilled less frequently as lease costs were already too high because of Marcellus Shale drilling.

Gary Slagel mentioned that when drilling through coal, multiple wells from one well site is fine as long as it was not intermixed clustering and as long as coal retains their consent/objection right. There needs to be a rule change for multiple wells on the same pad and reasonableness in when that site is reclaimed as it could not be tied to completion of the first well, but tied to the last well proposed for the pad.

Ron suggested looking at other states such as Texas, Arkansas and Nebraska for information on how they plug horizontal portion of wells.

The general consensus of the TAB was that the current regulations adequately cover the Marcellus Well Development and Coalbed Methane Wells, with the exception of plugging horizontal wells.

Agenda Item 5 – Discussion of Standards for Coalbed Methane Wells

- **Drilling, Casing and Cementing, including Directional Drilling**
- **Hydraulic Fracturing**
- **Well Operational Standards**
- **Well Plugging**

Burt Waite said one access hole and one production hole equals one permit. Drilling multiple wells from one pad creates less earth disturbance as opposed to multiple well pads.

Discussion continued on Coal Bed Methane and Gas wells versus Coal removal

Art Yingling stated it is always best to vent wells (when plugging)– as it is the easiest and safest way – when plugging of the horizontal component of a coal bed methane (CBM) well. No one knows for sure the best method as coalbed methane is all lower pressure gas.

Discussion ensued about coal seams not being level and undulated. When attempting to plug the horizontal portions, the plugging material slumps and leaves pockets for gas to accumulate which causes problem when that area is mined through as the mine machine has to wait for the air to clear the gas. We should be looking for a better method or material to plug horizontal portions of the well, or leave them open. However, not all coal seams producing CBM are expected to be mined.

Burt Waite stated that by venting you could possibly be leaving some pockets. How do you fill and have 100% fill, as it would still leave some pockets?

A brief discussion on horizontal drilling and the sewer Gas concept.

It was suggested that the Bureau sit down with a Pennsylvania Coal Representative and coal experts to discuss further, then report back at the next meeting on the results.

Major difference is pressure inside the well. The casing should be put down to the coal seam.

Agenda Item 6 - Items of Interest

- **Water withdrawal and Disposal**

Water withdrawal and disposal can be workable on all sides including public concern from all different perspectives.

Burt Waite stated that in terms of water withdrawal, applications in the Susquehanna River Basin (SRB) must go through rigorous permitting process through the SRB Commission.

Discussion continued regarding the well fire in Clinton County which burned for 12 days. Craig Lobins said they had to cut off the well head and attach a new valve. This particular well is currently not working, although the storage field, consisting of 61 wells, is still being used.

Deb Simko asked how things were going using mine water for frac operations. Ron Gilius responded that the Department and industry were currently pursuing the mine water option.

Discussion continued on sewage treatment plants selling their water to Marcellus Wells. It was stated that Bonds and Synergy makes sense but may cause problems.

Gary Slagel asked about the Monongahela River issue and Ron said nothing was available. This was in regards to elevated total dissolved solids (TDS) readings in the river. A number of causes were possible including sewage by pass flows, low-flow conditions, abandoned mine drainage and gas well drilling wastewater.

Steve Rhoades said that the regulations issues need to be address and be more clear on what needs addressed

Burt Waite suggested we meet more than two times in a year in lieu of all the increasing activity. All agreed on this suggestion.

Agenda Item 7 - Comments from the Public

There were no comments from the public.

Ron proposed the date of January 22, 2009 in the Rachel Carson State Office Building in Harrisburg for the next Oil and Gas TAB meeting.

Gary Slagel motioned the meeting be adjourned. Burt Waite seconded that motion. The meeting adjourned at 11:45 AM.