

# Marcellus Water Regulations Overview of Changes for 2010

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***Overview of Changes in Water  
Regulations in New York,  
Pennsylvania, and West Virginia  
in 2010***

# ■ ■ New York: Running in Circles



- Current status
- SGEIS on hold
- Individual permits
- Moratorium

## ■ ■ Status in New York 2010



- No large volume hydraulic fracture well permits issued by New York Department of Environmental Conservation in last 2 ½ years
- Draft SGEIS issued in September 2009 proposes new rules for large volume hydraulic fracturing

## ■ ■ Status in New York 2010 (continued)



Up until 2008, permitting for oil & gas had been governed by a GEIS – a streamlined permit for oil and gas exploration which did not address high volume fracking or horizontal wells and laterals – outdated NYDEC decides it needs to develop a new GEIS. Decide to draft a SGEIS. Other wells still covered by GEIS.

## ■ ■ SGEIS on Hold . . .



- 14,000 Public Comments Submitted by end of December 2009
- NYDEC continues review of comments
- Possible concerns regarding cumulative impacts of drilling
- Large scale opposition – concerns regarding groundwater contamination

## ■ ■ Individual Permits in New York



NYDEC has already announced SGEIS will not apply to wells proposed to be located in water sheds which supply drinking water to New York City and Syracuse; so, individual permitting terms and conditions will apply.

## ■ ■ Individual Permits in New York (continued)



Individual permitting will require an Environmental Impact Statement for each well. Very expensive and time consuming – it was the reason the GEIS was developed.

## ■ ■ New York Moratorium



- NY Senate in summer 2010 passed formal moratorium on large volume hydraulic fracturing until May 2011
- Lame Duck session of NY Assembly passed formal moratorium on November 29, 2010

## ■ ■ New York Moratorium (continued)



- Moratorium bill vetoed by Governor Patterson
- Governor's executive order banning use of high volume hydraulic fracturing through July 1, 2011

## ■ ■ New York Moratorium (continued)



Defacto moratorium of 2 ½ years will continue until the SGEIS is released and finalized. We can expect an immediate legal challenge – likely injunction.

## ■ ■ The Future



- Governor Elect Andrew Cuomo has taken no public position on large volume hydraulic fracturing and the NYDEC's SGEIS
- Moratorium appears to directly conflict with New York's State Energy Plan issued in December 2009 which includes a call to double domestic production of natural gas

# ■ ■ Evolving Pennsylvania Issues



- Gas Migration
- Well Construction Standards
- TDS Standard and Guidance
- Proposed Chloride Standard

# ■ ■ Gas Migration



General term given to the escape of gas from its geological formation, pipeline, gas well or landfill.

# ■ ■ Gas Migration in Dimock, Pennsylvania



Early 2010, water supply is contaminated by hydrocarbons migrating into water wells

# ■ ■ Gas Migration in Dimock, Pennsylvania



- Residents and PA DEP allege the contamination is the result of faulty well construction by Cabot Oil and Gas in areas adjacent to Dimock
- Cabot denies contamination is the result of its operations

## ■ ■ New Well Construction Standards



November 2010, the Independent Regulatory Review Commission unanimously approves new well construction standards means at least partly to address gas migration issues.

# ■ ■ New Well Construction Standards



## New provisions:

- 1) Require Operators to have a pressure barrier plan to minimize well control events
- 2) Require Operators to condition the well bore to ensure adequate an adequate bond between the cement, casing and the formation
- 3) Require the use of centralizers to ensure casings are properly positioned in the well bore
- 4) Improves the quality of cement placed on the casings that protects fresh groundwater

## ■ ■ Total Dissolved Solids



TDS is the measure of both organic and inorganic solids in water. TDS is made up mostly of salts contained in the water.

## ■ ■ TDS as a Secondary Containment of Concern



TDS is regulated as a secondary drinking water contaminant under the Safe Drinking Water Act due to the impact of TDS on the aesthetic quality of drinking water (taste and smell) and potential impacts to industrial processes.

# ■ ■ High TDS in the Mon River and Dunkard Creek



- High TDS in the Mon River in 2008-2009 and an outbreak of golden algae resulting from high levels of salts in Dunkard Creek leading to a total fish kill raised substantial awareness to TDS and perceived impacts from oil and gas exploration
- No evidence that oil and gas wastewater was the cause of high TDS in the Mon River or the cause of the golden algae outbreak in Dunkard Creek
- Surveys since 2008 show significant assimilative capacity for TDS

## ■ ■ Sources of TDS



- Sources of TDS though vary from POTWs, Power plants, industrial processes and significantly coal mining and pre-law coal mining
- PA DEP identifies TDS as a threat to water quality - little study or review

# ■ ■ New TDS WQS Approved in Summer 2010



- Independent Regulatory Review Committee approves a revised TDS standard which will impose different levels of compliance for certain industries.
- Oil and Gas related wastewater must meet a TDS level of 500 mg/l for surface water discharge.
- Initial proposal was for a statewide standard of 500 mg/l. Public comments showed real world result of such a standard. Power plants not able to comply.

## ■ ■ Existing Discharge and TDS



- Existing Discharges and their TDS loadings are grandfathered discharges and do not need to meet the new TDS standard
- Problem: Often no data or little data to determine facility TDS loading

# ■ ■ Expanded and New Discharges and TDS



- New discharges will be required to meet new WQS for TDS
- Portion of discharge above prior design limit will be subject to new WQS for TDS

## ■ ■ New Chloride Standard Put on Hold



July 2010, IRRC sends new proposed chloride WQS back to PA DEP for additional review

# ■ ■ West Virginia Joins the Marcellus Rush



- Water use before 2010
- Permit addendum
- Water use planning tool
- Wastewater in West Virginia
- New Surface Impoundment Rules
- Water Quality Standards
- New legislation

# ■ ■ Water Use in West Virginia Prior to 2010



## Water Resources Protection Act

- Water Use in excess of 250,000 gallons in a calendar month is required to be reported post-use
- The Act is not a permitting program
- The Act only requires post-use reporting
- Act actually was a result of drought in early 2000's and threat of eastern cities attempting to supplement their own water supplies using WV waters.

## ■ ■ Permit Addendum and Water Use



- January 2010, the WVDEP issues a policy statement regarding permitting in the Marcellus shale
- Permit Addendum requires permittees to identify source of fracturing water and manner of disposal

# ■ ■ Permit Addendum and Water Use



- Identify source – surface water, groundwater/public water supply, recycled water
- Disposal – surface waters, UIC, recycling, etc.

# ■ ■ Water Use Planning Tool



- Spring 2010, the WVDEP introduces its own water use planning tool
- Tool uses historical flow data for West Virginia surface waters collected by the USGS to determine whether it can be used as a source water for fracturing

## ■ ■ Water Planning Use Tool (continued)

- Tool is guidance and not a statute or rule
- Existing data does not address all surface waters and all parts of all surface waters
- Tool uses very conservative assumptions

# ■ ■ Wastewater in West Virginia in 2010



- January 2010 policy directive from Secretary Randy Huffman clearly encourages re-use of water
- January 2010 policy directive also encourages the use of underground injection as possible means of wastewater handling
- Surface water discharges of treated waste water will undergo heavy scrutiny

## ■ ■ UIC in West Virginia



- West Virginia maintains state authorized UIC permit program
- Unknown if geology is supportive of this type of wastewater handling
- Underground injection is highly scrutinized due to the ongoing controversy regarding the underground injection of coal slurry

## ■ ■ Land Application



- General Permit for the land application of oil and gas exploration wastewater expires, but is then extended for one year by the WVDEP in Summer 2010
- But WVDEP announces the permit will not be available to large volume hydraulic fracturing operations

## ■ ■ Surface Water Issues



- In reaction to ongoing controversy in Pennsylvania regarding high levels of TDS in the Monongahela River, city of Morgantown passes resolution in favor of new TDS standards and opposing discharge of oil and gas wastewater
- Dunkard Creek also a major concern

# ■ ■ Surface Impoundments in West Virginia

- Oil and Gas Rule, 35 CSR, Series 4, is amended to include additional requirements for the construction and operation of surface impoundments
- Surface impoundments are subject to enhanced liner requirements
- Surface impoundment design must be approved by Professional Engineer
- Surface impoundments subject to additional inspections

# ■ ■ West Virginia Water Quality Standards



WVDEP proposes substantial changes to the state's water quality standards which would impact oil and gas operations

# ■ ■ Total Dissolved Solids



- TDS standard of 500 mg/l proposed across all industries and the state
- While the standard allows for use of mixing zones, operations which propose to use smaller streams for discharge of wastewater and operators in the Northern part of state where source water already contains 500 mg/l TDS, mixing zones may not be available
- No current direct surface water discharge of oil & gas wastewater in North Central parts of WV

# ■ ■ Water Use as Water Quality



- Proposed standards would make water use part of the state's narrative water quality standards
- Water withdrawals that cause conditions which are adverse to the integrity of the waters of the state is impermissible
- USEPA has oversight jurisdiction under CWA
- Water use regulation best served in the Water Resources Protection Act

# ■ ■ New Statutory Regime in 2011?

- Already at least two competing bills
- Both import significant parts of Pennsylvania's program with regard to the use of water management plans (must ensure minimal flows to support designated uses, mitigate against fish entrainment, etc. . . .)
- WVDEP bill imports large portions of the state coal mining act with regard to enforcement processes and procedures – a significant change and shift in practice

# ■ ■ Susquehanna River Basin Commission



- Federal commission with jurisdiction to control the use and flow of water in the Susquehanna River basin
- SRBC has substantial authority with regard to the use and disposal of water within the basin

## ■ ■ SRBC: Challenges and Changes

- Established modified Approval by Rule procedure for the approval of consumptive water use requests
- ABR process takes the place of prior permitting process
- New ABR process substantially reduces time to obtain needed approvals

# ■ ■ Delaware River Basin Commission



- Federal commission with jurisdiction to control the use and flow of water in the Delaware River basin.
- DRBC imposes a moratorium on natural gas development while staff reviews impacts of large volume fracturing on water use.
- Draft rules issued December 8, 2010 and now subject to public comment.

# ■ ■ Delaware River Basin Commission



## **New Article 7 –**

Commission will attempt to control development through use of Natural Gas Development Plans – use plans to protect sensitive areas – keep development contained to certain areas.

Contains an ABR process to streamline project proposing to use existing Commission approved water allocations.

## ■ ■ ORSANCO and the Ohio River



- Made up of the states that drain into the Ohio River basin and the federal government
- Traditionally established water quality standards and guidelines for discharges to the Ohio River
- Had previously maintained a standard for TDS which was subsequently removed

## ■ ■ ORSANCO, TDS, and Water Use



- ORSANCO standards committee earlier this year proposed to establish new TDS standard of 500 mg/l for discharges to the Ohio River
- TDS proposal tabled in fall 2010 by members requesting more data to indicate evidence of impacts from TDS
- ORSANCO also looking into whether it should regulate water use

# ■ ■ Federal Involvement in 2010



- FRAC Act, first proposed in 2009 requires disclosure of fracture fluids and removes oil and gas exemption from the Safe Drinking Water Act
- Content of fracture fluids has already been disclosed and is available to the general public on the web in Pennsylvania and West Virginia
- The myth of the oil and gas “exemption” from the SDWA
- The Federal Energy Policy Act of 2005 only codified what had been the long-standing policy of the USEPA that oil and gas E&P was never intended to be subject to the SDWA

## ■ ■ USEPA Study



As a compromise to the FRAC Act in 2010, Congress authorizes USEPA study to study the impacts of hydraulic fracturing on surface and groundwater resources:

- Scope of study to be determined by end of 2010
- Initial results 2012
- Last Public Hearing held in New York in September 2010
- Final results 2015



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