Water Acquisition for Unconventional Natural Gas Development Within the Susquehanna River Basin

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What Does SRBC Regulate?

- Surface Water Withdrawals; Threshold (100,000 gpd)
- Groundwater Withdrawals; Threshold (100,000 gpd)
- Consumptive Use; Threshold (20,000 gpd)
- Diversions; Thresholds (any amt. In; 20,000 gpd out)
- For Unconventional Natural Gas Industry, all regulatory thresholds are set at “Gallon One.”
Major Changes in SRBC Regulations Relevant to Unconventional Natural Gas Development

• On-line application process,
• Regulate CU through Approval-by-Rule (ABR); Ave. 30-Day Turn-Around of CU approvals,
• Multiple withdrawals/sources for multiple pad sites,
• Source water sharing between companies,
• Reuse of flowback, pad-to-pad transfers of flowback, and interbasin transfers of flowback,
• Pipeline docket approvals, facilitates ABR source water approvals,
Major Changes in SRBC Regulations Relevant to Unconventional Natural Gas Development (Cont.)

- PWS and wastewater source approvals,
- Facilitate/encourage use of lesser quality waters,
- Allow on-pad use of top-hole water, direct precip., stormwater with ABR approval,
- Hydrocarbon water storage facility registration (Third Party Owners),
- Named additional geologic formations eligible for ABR approval process.
Major SRBC Challenges Posed by Unconventional Natural Gas Development

- Operates in headwaters - historically least developed portions of basin,
- Nomadic and short-term nature of projects,
- Volume of applications received and processed,
- Withdrawals distant from consumptive use locations,
- Rapid pace of industry is at odds with bureaucracy,
- Public scrutiny/opposition.
Pad and Water Withdrawal Approvals

- Pad Approvals
- Water Withdrawals

Calendar Year

- 2008
- 2009
- 2010
- 2011
- 2012

Pad Approvals

- 2008: 54
- 2009: 362
- 2010: 160
- 2012: 260

Withdrawal Approvals

- 2008: 66
- 2009: 123
- 2010: 1339
- 2011: 1795
- 2012: 2088

Graph showing the increase in Pad and Water Withdrawal Approvals from 2008 to 2012, with Pad Approvals on the left y-axis and Withdrawal Approvals on the right y-axis.
Marcellus – Basin Water Use Profile
(July 1, 2008 thru Dec. 31, 2012)

- 1,977 Unconv. gas wells hydraulically fractured,
- 10.3 billion gallons of water consumptively used,
- 8.0 billion gallons of water withdrawn from docketed sources,
- 2.3 billion gallons of water withdrawn from non-docketed approved sources (primarily PWS).
• 4.4 million gallons (ave.) used per well for hydraulic fracturing (86% freshwater, 14% flowback reused).

• 8% - 10% of injected water is recovered as flowback w/i first 30 days after release of pressure.

• 87% of water brought on-site is used, balance of 13% temporarily stored on site, or transferred to another site.
Summary of SRBC “Reviews”

- Science-based decision making,
- Cumulative impacts are critical,
- “Locations” of withdrawals more important than “amounts” of withdrawals,
- Use “interruptible sources” (passby’s) to minimize impacts on aquatic ecosystems during low flow periods.
Questions?