PA Planners Association Conference Lancaster, Pa. – October 4, 2010 Can Natural Gas Drilling Be Done Safely? Paul Swartz SRBC Executive Director



Susquehanna River Basin Commission



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Major Types of Power Generation in SRB - Total 15,134 Megawatts (MW) -



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Relicensing of Hydroelectric Facilities within the Basin

• Exelon – Conowingo

- Cecil/Harford Counties
- Hydroelectric Dam; 573 MW
- Relicensing Currently Under Review

<u>Exelon – Muddy Run</u>

- Lancaster County
- Hydroelectric/Pumped Storage; 800 MW
- Relicensing & Water Withdrawal Currently Under Review

• York Haven

- York County
- Hydroelectric Dam; 19.7 MW
- Relicensing Currently Under Review

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Estimated Consumptive Water Use by Source within the Basin

Energy Sources Gal per MW 29,000 Municipal Solid Waste Wood 23,000 Coal 19,000 Nuclear 18,000 Landfill Gas 13,000 6,000 Natural Gas 3-5 gal H₂O per Ethanol gal Ethanol

References: SRBC 2010; U.S. Energy Information Administration 2008

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Maximum Approved Daily Consumptive Use



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Natural Gas Industry Actual Water Use Data*

- Total Water Withdrawn: 716.0 Million Gallons (mgal)
 - 209.2 mgal from public water supply (29%)
 - 506.8 mgal from surface water sites (71%)
- Average Total Vol. of Fluid Used per Well: 3.3 mgal
 - Average fresh water used per well: 2.8 mgal
 - Average flowback reuse per well: 0.5 mgal
- Average Flowback per Well: 11% of injected fluids in first 30-days

*220 wells reported (June 1, 2008 - May 21, 2010)

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Comprehensive Plan Vision Statement

"The Commission's vision for the Susquehanna River" Basin is healthy ecosystems that provide groundwater and surface water of sufficient quality and in adequate supply to support abundant and diverse populations of aquatic, riparian, and terrestrial organisms, as well as human uses and enjoyment. Through enlightened planning for and management of the basin's water resources, the health, safety and welfare of the its citizens are safeguarded during times of flooding and drought, a vibrant economy is sustained, the Chesapeake Bay's water quality and living resources are improved, and an informed public is involved in resolving water resource issues. The *Commission provides the necessary leadership and* coordination of efforts among its member jurisdictions and with the private sector to make this vision a reality."

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Comprehensive Plan Priority Management Areas

- 1. Water Supply
- 2. Water Quality
- 3. Flooding
- 4. Ecosystem
- 5. Chesapeake Bay
- 6. Coordination, Cooperation and Public Information

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Susquehanna River Basin Compact (P.L. 91-575, Section 14.2)

Requires SRBC to adopt a water resources program:

- · Annually
- Based on Comprehensive Plan

 Listing programs and projects of SRBC and other authorized governmental and nongovernmental entities.

Priority Management Areas

Water Supply, Goal A.

Support and encourage the sustainable use of water for domestic, industrial, municipal, commercial, agricultural, and recreational activities in the basin.

Water Quality, Goal D. Protect the quality of the basin's biological resources and sources of public drinking water supply.

Ecosystems, Goal A.

Perform ecosystem monitoring and assessment to provide data needed for effective watershed management.

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SRBC Comprehensive Plan – Relationship to Local Comprehensive Planning

- Planning and Legal concepts are related.
- SRBC and municipalities have legal tools to achieve the ends.
- Framers of SRB Compact would likely view locally crafted comprehensive plans as extension of SRBC Comp Plan.
- Current SRBC Comp Plan embraces notion that this plan is for water managers at all levels of government.
- MPC links water resource planning to river basin commissions.

SRBC Position on Local Regulation of Groundwater Withdrawals

"The Commission recommends that Pennsylvania" municipalities in the Susquehanna River Basin make full use of the authority contained in the **Pennsylvania Municipalities Planning Code and** related authorities to adopt comprehensive plans, local zoning and subdivision ordinances containing standards for ensuring that new developments incorporate adequate provisions for a reliable, safe and adequate water supply."

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SRBC Meetings and SRBC Staff



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SRBC's Marcellus Shale web page www.srbc.net/programs/projreviewmarcellus.htm

	Project Review Susquehanna River Basin Commission			
What's New About Us & Meetings Public Information Programs & Activities Hydrologic Conditions Forms & Applications Policies, Guidances, Regulations	Marcellus Shale and Natural Gas Well Development			
Subbasin Information Press Releases Bay Partners Useful Links E-mail Us Site Map Home	Regulatory Effective June 23, 2010, Post-Hydrofracture Reports are to be submitted online by the natural gas industry. The purpose of the Post-Hydrofracture Report is to track the volumes of water associated with the hydrofracturing process. To submit a report, login to the SRBC's Monitoring Data Website using your previously assigned username and password. Under the "Hydrofracture" heading, choose "Review/Submit Reports" to access the Post-Hydrofracture Report. If you need assistance, please contact Jennifer Reese at (717) 238-0423, ext. 208 or jreese@srbc.net. Project Review Regulations and Project Fee Schedule Forms and Applications (includes Approval by Rule procedures for 18 CFR 806.22(ft)) Standard SW Docket Conditions for Gas Wells Standard CU Docket Conditions for Gas Wells Projects Schedule for Action Final Rulemaking: Natural Gas Well Development Projects On December 4, the commissioner parent of final pulemaking mean final pulemaking			

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Geographic Location of Marcellus Shale within Susq. River Basin

> 72% of Basin (20,000 Sq. Miles) Underlain by Marcellus Shale



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Recoverable Gas in Marcellus Shale

 Marcellus Shale: Recoverable Gas Reserves = 50-200 TCF

5,000-6,000
 Wells to Be
 Drilled in SRB
 in 2009-2010



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SRBC Water Withdrawal and Use Regulations

- Normal thresholds 100,000 gpd withdrawals and 20,000 gpd consumptive use.
- All water related to natural gas is regulated regardless of quantities.
- 100% of water use for natural gas is consumptive.
- Use "Approval by Rule" for consumptive use.

Concerns About Low-Flow Events - **Environmental Concerns** -

- Water Quality
 Loss of Fishery
- Habitat
- Impacts on Recreational Uses



 Cumulative Impact of Consumptive Uses on Chesapeake Bay

SRBC's Low Flow Planning and Management Roles

- Passby Requirements Imposed on Surface Withdrawals
- Mitigation of Cumulative Losses through Consumptive Use Requirements
- Consumptive Use Mitigation Plan



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Coordination Challenges

- Critical Need for Interagency Coordination
- Critical Need for
 Understanding
 Applicable
 Laws and
 Requirements



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Transmission Lines

Water
 Involved in
 Pipeline
 Construction

FERC

 Coordinates
 Issuance of
 Federal
 Authorizations
 for Natural Gas
 Infrastructure



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Shale Gas Well Development

<u>Year</u> <u>SRBC</u>	<u># Pads Approve</u>	<u>d by</u>	
2008	~50		
2009	321		
2010	(est.) ~1,200		
Future			<image/>

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Notice of Intents (NOIs) Submitted & ABRs Approved

2009

NOIs Submitted 443 ABRs Issued 321

2010 to Date (Sept. 24, 2010) NOIs Submitted 749 ABRs Issued 776

Total to Date (Sept. 24, 2010) NOIs Submitted 1,192 ABRs Issued 1,097

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Remote Water Quality Monitoring Network

- Establish baselines.
- Verify whether or not natural gas and other activities are impacting streams.
- Allow for timely response.
- Enhance water supply protection.
- Use advanced technology to reduce cost of data collection.
- Form collaborative partnerships.



