Chesapeake Bay Tributary Strategy & Nutrient Management Challenges & Opportunities for Pennsylvania Business

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How does the Chesapeake Bay Tributary Strategy affect business?

- Limits on phosphorus and nitrogen loadings in direct discharges (NPDES limits).
- Loading limits on local sewage treatment plants →
  - Impacts on incoming industrial wastewaters
  - Limits on future expansion & development
- Limits on new or increased discharge (offsetting credit required).
- Stricter controls of stormwater management.
The Pennsylvania area affected
Chesapeake Bay Agreement (2000)

- New water quality goals established, to achieve dissolved oxygen, chlorophyll-a and water clarity objectives.
- Overall nutrient and sediment reduction objectives:
  - Nitrogen: 285 → 175 MM lbs.
  - Phosphorous: 19.1 → 12.8 MM lbs.
  - Sediment: 5.04 → 4.15 MM tons
PA sources of nitrogen and phosphorus

2002 Total = 109,209,000 lb/yr

2002 Total = 3,580,000 lb/yr
Pa. Tributary Strategy

- Issued December 2004.
- Not adopted as a regulation or a policy.
- Being implemented by PaDEP without specific rules.
- Sets strategy for reducing Nitrogen and Phosphorous loads from point and non-point sources by roughly 1/3 each.
Controls on existing point sources under strategy

- ~ 150 existing significant sewage & industrial dischargers identified

- POTWs/STPs:
  - NPDES permits amended to limit loads of TKN and P load caps based on projected 2010 flows and concentration of 8 mg/l N and 1 mg/l P.

- Industries
  - NPDES permits to be amended with N and P load caps, based on existing concentrations and future (full capacity) flow rates.
  - Requires, in many cases, monitoring to set values.
  - Timing uncertain.
Non-point source control strategies

- More stringent control of stormwater management, with emphasis on stormwater infiltration
  - PaDEP Comprehensive Stormwater Management Strategy
  - PaDEP Stormwater Management BMP Manual (*under development*)

- Not clear what actions expected at existing developments, as opposed to new facilities.

- Largely voluntary controls for agriculture, with reliance on “nutrient trading” to stimulate progress.
### Estimated cost of implementing strategy

<table>
<thead>
<tr>
<th>Source</th>
<th>2002 % Loadings</th>
<th>Estimated Cost of Controls (millions)</th>
<th>Estimated % of Control Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point Sources</td>
<td>11 N, 18 P, 0 S</td>
<td>$376.4-500</td>
<td>4.6%</td>
</tr>
<tr>
<td>Septic Systems</td>
<td>4 N, 0 P, 0 S</td>
<td>$1,600</td>
<td>19.5%</td>
</tr>
<tr>
<td>Forest</td>
<td>21 N, 3 P, 17 S</td>
<td>$25</td>
<td>0.3%</td>
</tr>
<tr>
<td>Mixed Open/Developed – Stormwater</td>
<td>14 N, 15 P, 11 S</td>
<td>$5,600</td>
<td>68.4%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>49 N, 63 P, 72 S</td>
<td>593</td>
<td>7.2%</td>
</tr>
</tbody>
</table>
New and increased discharges

- New or increased discharges involving N and P loadings to be allowed only with corresponding reductions (offsets/credits) from existing loading sources.
- Source of offsets = nutrient trading program
PaDEP Nutrient & Sediment Reduction Credit Trading Interim Final Policy & Guidelines

- PaDEP Doc. 392-0900-001, issued 10/1/2005
- “Policy” adopted without prior notice and public comments
- Establishes regime for creating and trading credits re: nutrients and sediment loadings in Chesapeake Bay tributary area
Thresholds of eligibility for credit generation point sources

- Reduction in N or P loadings below discharge loading limit expressed in an NPDES permit.

- Example: Company has NPDES limit of 1500 lb/year of N, and can either control generation or implements better treatment, lowering discharge to 600 lb/year – can get credit of 900 lb/year.

- Problem: can’t effectively generate credits until caps are established in NPDES (don’t control too early)
Thresholds of eligibility for credit generation: agricultural non-point sources

- Must have an approved and implemented nutrient management budget for N & P.
- Must have a minimum 100 foot setback for manure application, or a minimum 35 foot vegetative buffer (or more if required by law or reg) along streams.
- Credit generation is for activities above and bond what is required for nutrient management budget and minimum setback/buffer requirement.
- Problem: most agricultural users are not subject to mandate of having nutrient management budget or buffer area – so incentives must be provided to undertake to get users to point where they first start to generate credits.
Methods for generating tradable credits in agriculture

- PaDEP’s preferred alternatives
  - Forested buffer areas
  - Cover crops
  - Advanced nutrient management

- Requirements
  - Inspection to assure control is proper siting, plans satisfy established quality specifications and performance standards
  - Annual inspections to ensure continuing functionality
  - Annual account balancing, using seasonal monitoring
  - Developed and implemented maintenance plan
Trading credits

- Trading parameter by parameter (N for N)
- Credits adjusted for:
  - Uncertainty ratios – variation in expected reliability and efficiency of reduction
  - Delivery ratios – based on location in basin of credit generation vs. credit use points
  - Retirement ratio – general 5% reduction
  - Special needs ratios – sensitive waters or other issues
  - Administration ratio – not described in policy, but = 5%
How are trades accomplished?

- One-for-one trade – by contract between parties, with approval of PaDEP (who must be third party beneficiary of agreement).

- PaDEP or Approved Entities (conservation districts) – maintain list of entities potentially interested in trade.

- PaDEP trading website –
  www.dep.state.pa.us/river/river_trading.htm

- **All trades must be registered with PaDEP.**

- Trades made legally enforceable through:
  - NPDES Permit limits
  - Contracts – with PaDEP as beneficiary able to enforce
Issues in credit trading

- Who makes investment to get “seller” site to threshold of eligibility to begin generating credits?
- Who makes the investment in activities to create the credit; and who owns the credit (must be specified in contract).
- What happens when “seller” does not maintain activities that generated the credit?
  - Buyer or PaDEP may enforce contract.
  - PaDEP takes position that credits are good for each year.
  - If seller ceases BMP actions, buyer may need to seek replacement credits elsewhere => potential for lost capital investment, and need to have ongoing financial incentive to “seller.”
Issues in credit trading (cont)

- Enforcement issues:
  - Covenants and restrictive covenants from seller.
  - Do covenants run with land?
  - Access and inspection.
  - Right to obtain injunctive relief.
  - Liquidated damages for breach.
  - Future changes in land use (change from agriculture)

- Ultimately, number of credits available is finite; implications for future development in region.