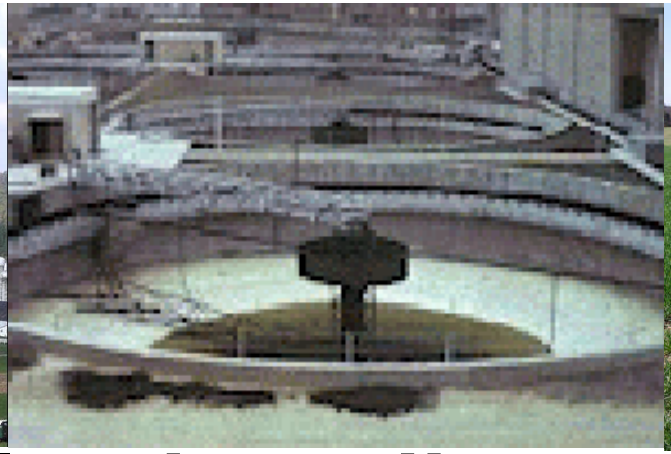
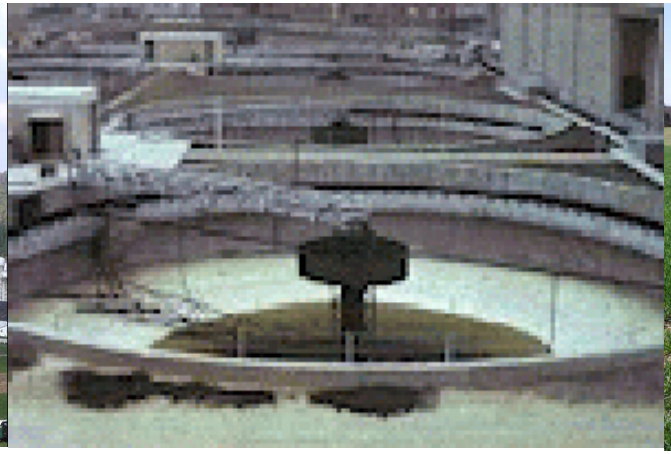




Maryland Trading Program Overview

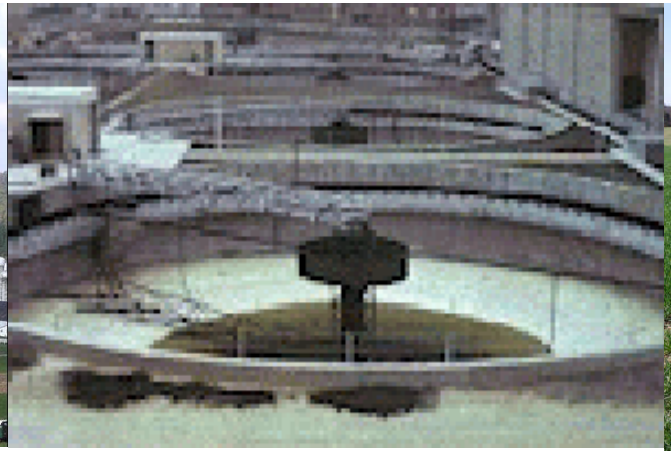
- Currently provides separate policy documents for PS-PS and PS-Agricultural NPS trading
  - Phase I addresses Point Source-Point Source trading
    - Final issued March, 2008
  - Phase II addresses Point Source-Non Point Source trading
    - Agricultural Draft issued February 2009
  - Phase III to address NPS to NPS
    - Urban NPS trading to be developed


Maryland Trading Program

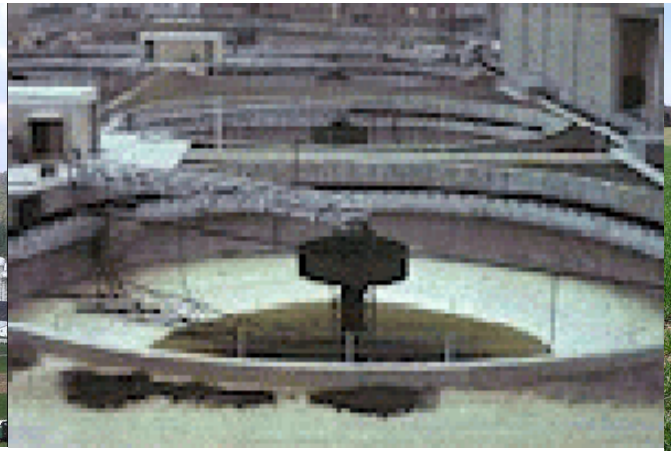
Phase I Policy

Point Source—Point Source Trading

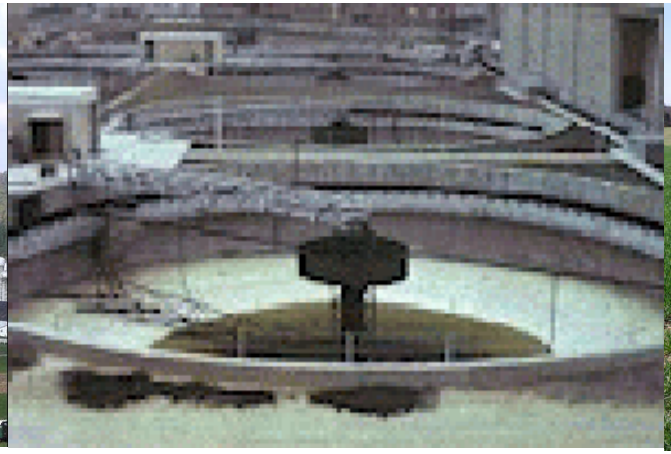

Purpose of Point Source Trading

- To offset new or increased discharges
- To establish economic incentives for reductions from all sources within a watershed
- To achieve greater environmental benefits than through the existing regulatory programs

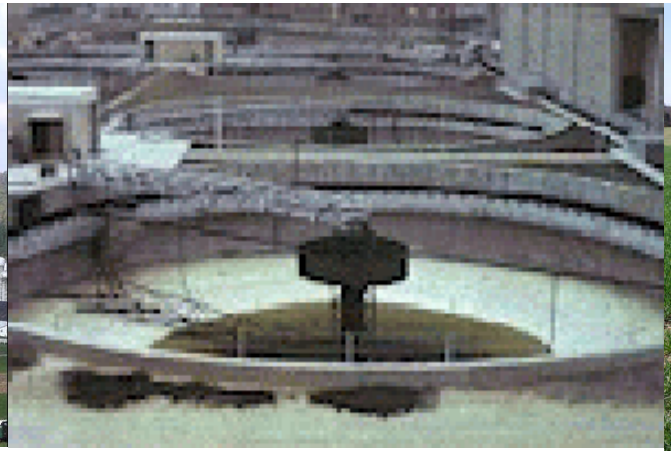

Key Principles

- All new and expanded point source nutrient loads must be fully offset
- Trades must be consistent with County Water and Sewerage Plans
- Trading will not be available in lieu of required Enhanced Nutrient Removal upgrades
- Point source trades will be implemented and enforced via NPDES permits

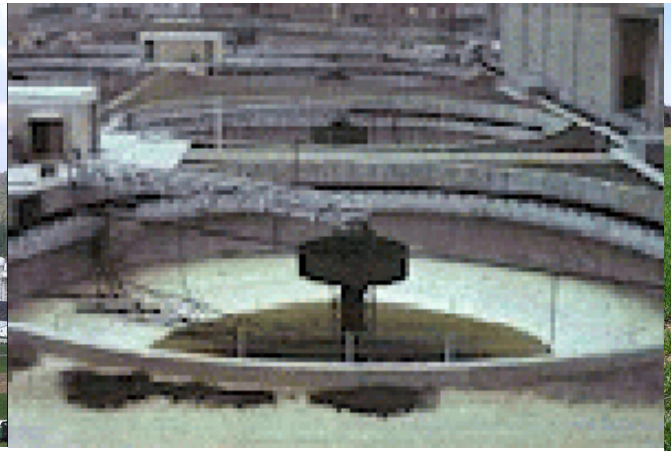

Key Principles

- Trades must be consistent with TMDLs
- Trades must protect local water quality
- Adequate public outreach/stakeholder participation

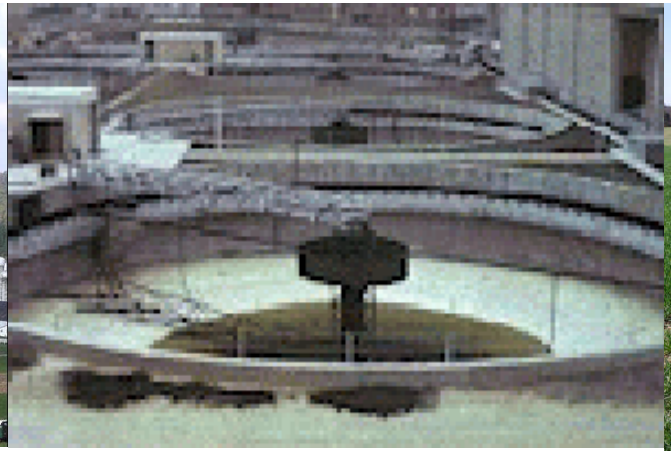

Trading Structure

- Unit of trade
  - One pound of nitrogen or phosphorus delivered to the mainstem of the Bay per year
- Trading areas
  - Potomac basin
  - Patuxent basin
  - Everywhere else

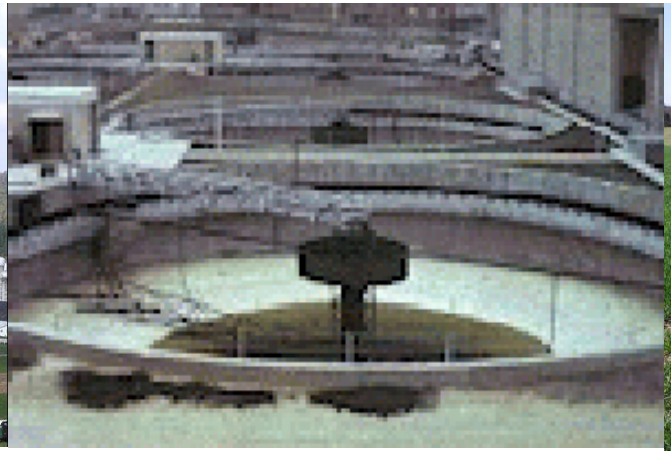

Trading Structure

- Point source baselines
  - Annual wasteload allocations for nitrogen and phosphorus
- 5% retirement ratio

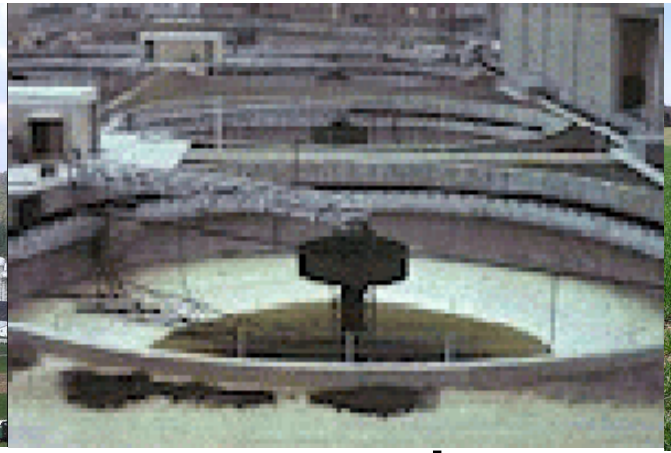

Generating Credits

- ENR facilities may generate point source discharge credits by:
  - Reducing effluent concentration
  - Maintaining flow at less than the design flow basis of the wasteload allocation
- Land application of wastewater with pretreatment and nutrient management controls

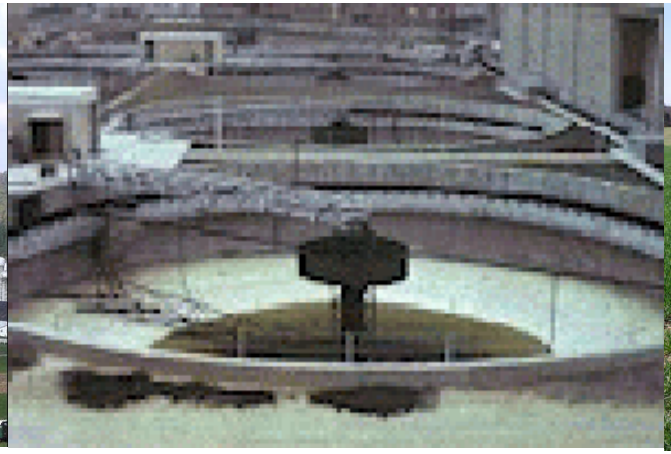

Generating Credits

- Upgrading an existing minor WWTP to BNR or ENR
- Retiring an existing minor WWTP and sending its flow to a BNR or ENR facility
- Retiring an existing Onsite Sewage Disposal System by connection to public sewer or cluster treatment

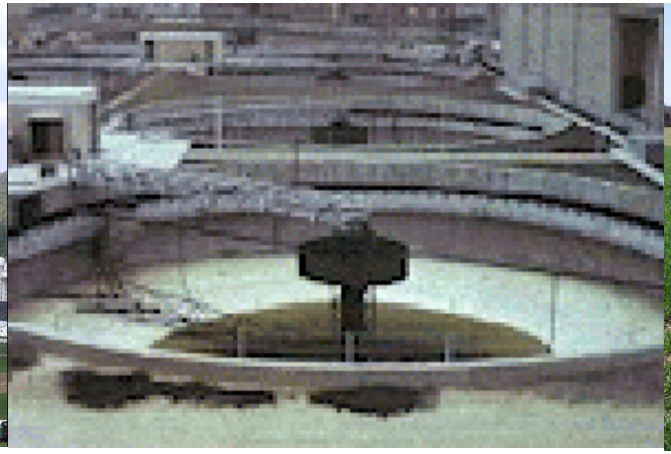

Onsite Sewage Disposal System Hookup for Nitrogen Credit

- Credit depends on location
  - 12.2 lbs/yr in Critical Area
  - 7.5 lbs/yr within 1,000 feet of any perennial surface water
  - 4.6 lbs/yr everywhere else
- Credit calculation assumes hookup to a WWTP discharging nitrogen at 4 mg/L
- Commercial OSDS credits
  - Will be higher
  - Determined on a case-by-case basis


Trade Duration

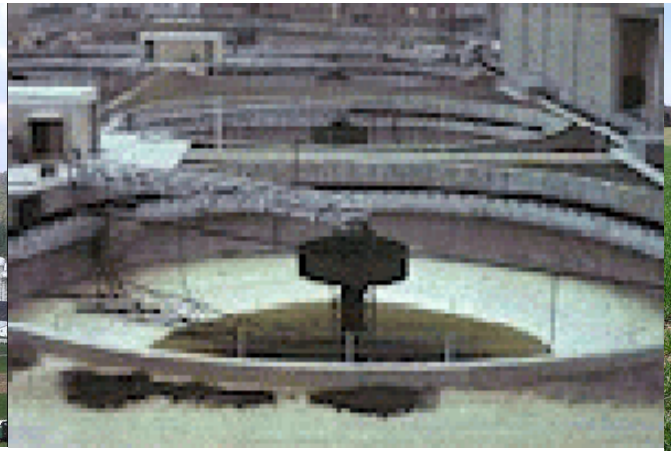
- WWTP buying credits to offset growth
  - Contractual arrangements for 10 years
  - Plan for acquiring the credits for the subsequent 10 years


Maryland's Trading Program – Phase II - Agriculture

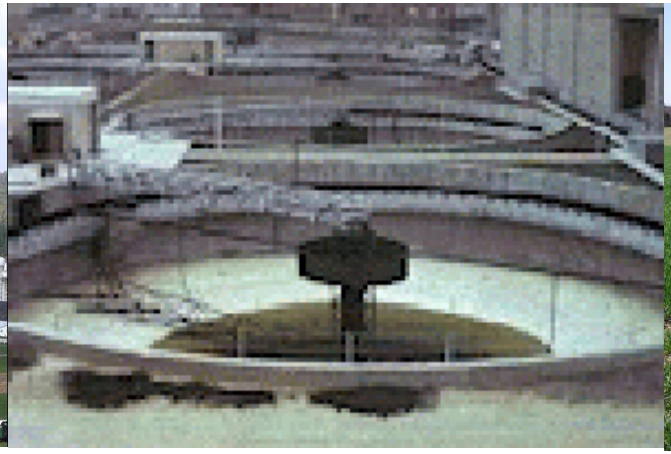
Phase II Policy

Point Source—Nonpoint Source Trading

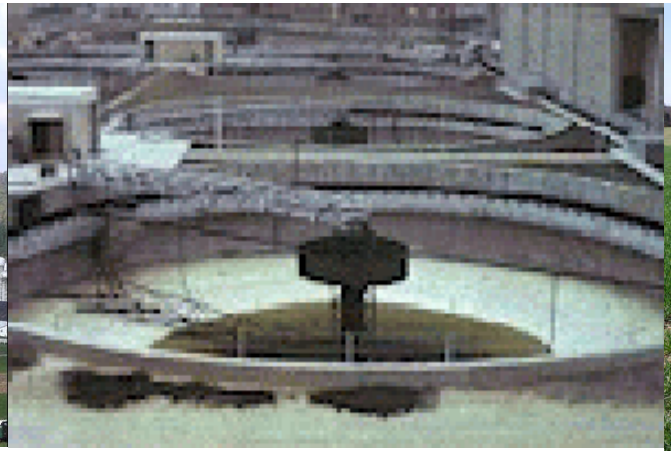

Maryland's Trading Program – Phase II Agricultural

- Two policy documents
  - Guidelines for the Generation of Agricultural Credits
  - Guidelines for the Exchange of Agricultural Credits

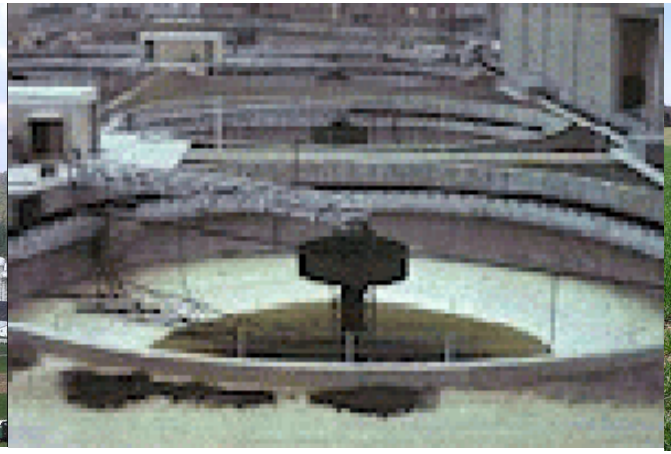

Guidelines for Generation of Agricultural Credits

- Assessing Credit Generation Potential
- Understanding and identifying baselines
- Calculating Potential Credits
- Certification and Approval of Credits

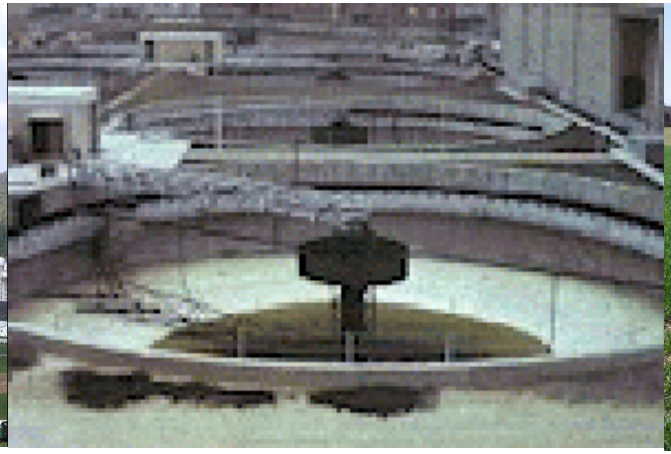

Guidelines for the Exchange of Non Point credits

- How to purchase credits
  - Market place
  - Registry
  - Contracts
- Approval
- Implementing a BMP
- Verification, Inspection

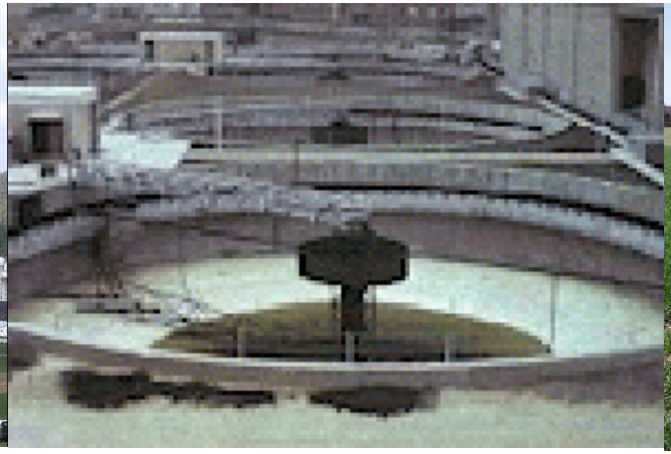

Agricultural Non Point Source Credit Generation Key Principles

- Agricultural sources must first meet baseline requirements before generating credits
  - Level of nutrient reduction called for in the Tributary Strategy for the basin or;
  - Level of nutrient reduction called for in TMDL for the watershed
- Can’t use cost-share funds to generate credits
- Can’t generate credits by taking and retiring farm land
- Must result in a net decrease in loads, a 5% retirement ratio
- Credits only generated once the BMP is installed


Agricultural Non Point Source Options for Generating Credits

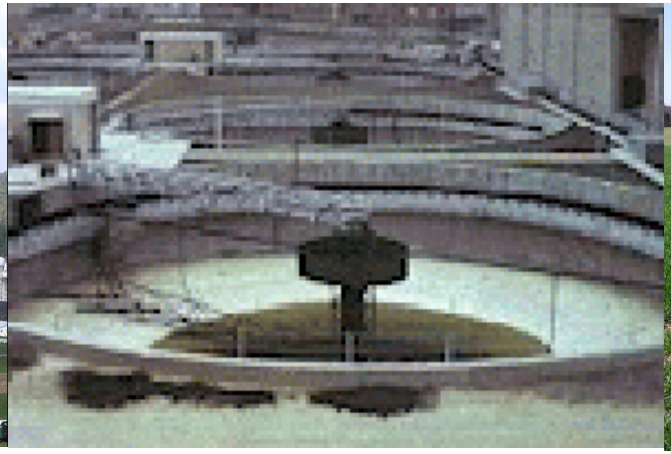
- Agronomic practices
  - Cover crops
  - Reduced fertilizer application
  - Manure export
- Structural BMPs
  - Riparian buffers
  - Livestock fencing


Agricultural Non Point Source Credit Certification

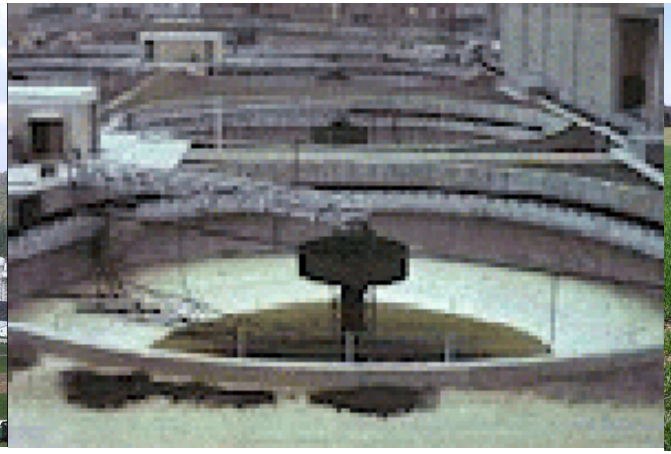
- Three categories of credit-generating practices

1. BMPs with “approved” load reductions
   - Bay Program peer review has been done
   - Stipulated BMP efficiencies built into watershed model
   - Uncertainty built into efficiency
   - No separate uncertainty ratio for the trade


Agricultural Non Point Source Credit Certification

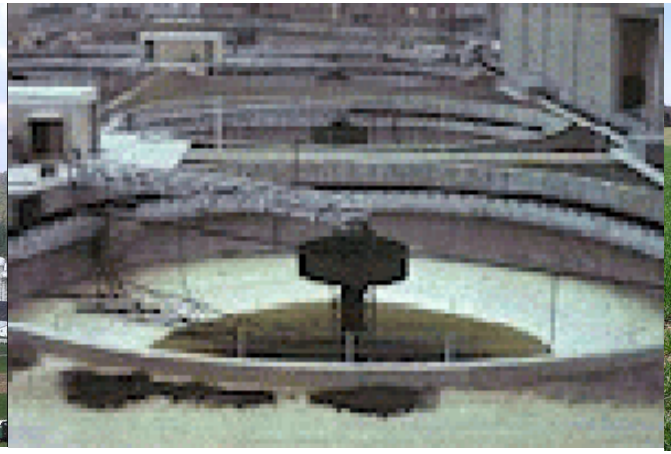
- **BMP's with Approved Load Reductions**
  - **Continuous No-Till**
  - **Riparian Forest Buffers Continuous No-Till**
  - **Riparian Grass Buffers**
  - **Wetland Restoration**
  - **Tree Planting**
  - **Cover Crops (Early – and Late – Planting)**
  - **Off – StreamWatering w/Fencing**
  - **Off – StreamWatering w/o Fencing**
  - **Off – StreamWatering, Fencing & Rotation Grazing**
  - **Animal Waste Management Systems: Livestock**
  - **Animal Waste Management Systems: Poultry**
  - **Barnyard Runoff Control/Loafing Lot Management**


Agricultural Non Point Source Credit Certification

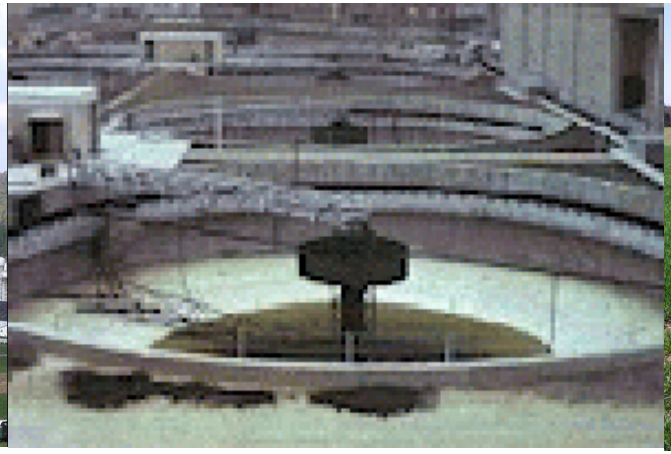
- Three categories of credit-generating practices

2. BMPs requiring technical review
   - Practices currently in use
   - Require review and establishment of efficiencies by technical workgroup
   - Credits can be traded but will be assigned an uncertainty ratio

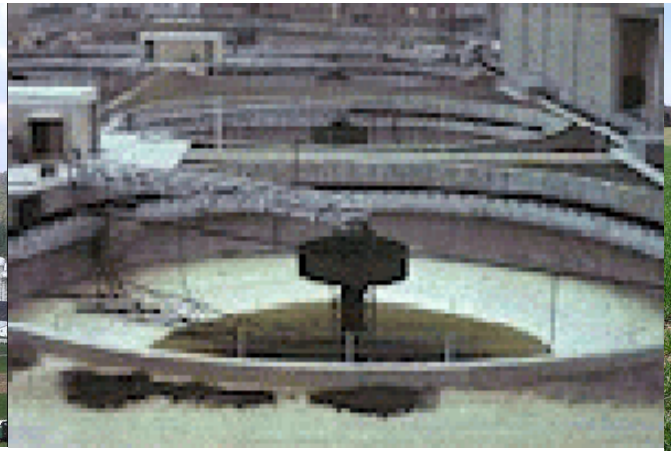

Agricultural Non Point Source Credit Certification

- BMP's Requiring Technical Review
  - Dairy Precision Feeding
  - Precision Agriculture
  - Conservation – Tillage Precision Grazing
  - Water Control Structures
  - Stream Restoration
  - Cropland Conversion
  - Enhanced Nutrient Efficiency
  - Commodity Cover Crops
  - Ammonia Emissions

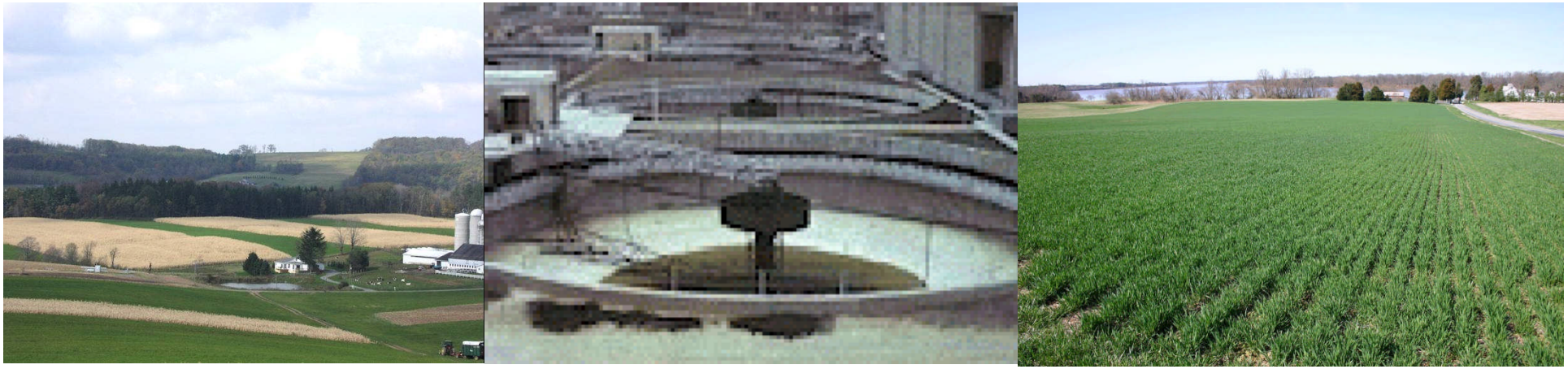

Agricultural Non Point Source Credit Certification

- **Three categories of credit-generating practices**
  - **3. Other BMPs, practices, or innovative approaches**
    - **Innovative practices not currently in widespread use**
    - **Will be reviewed on case-by-case basis**
    - **Will establish specifications for**
      - **– Installation**
      - **– Operation**
      - **– Maintenance**
      - **– Monitoring**
    - **Will establish uncertainty ratio**
    - **Proposal will be reviewed by a technical workgroup**

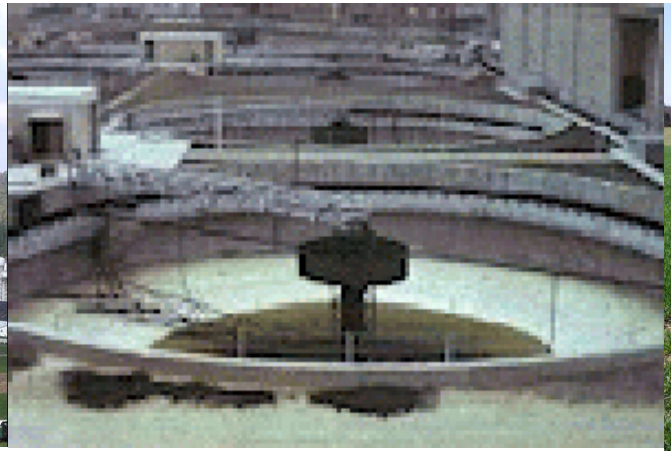

Agricultural Non Point Source Credit Certification

- Other BMP's, practices, or innovative approaches
  - Algal Turf Scrubber
  - Oyster Aquaculture
  - Carbon Sequestration
  - Alternative Crops



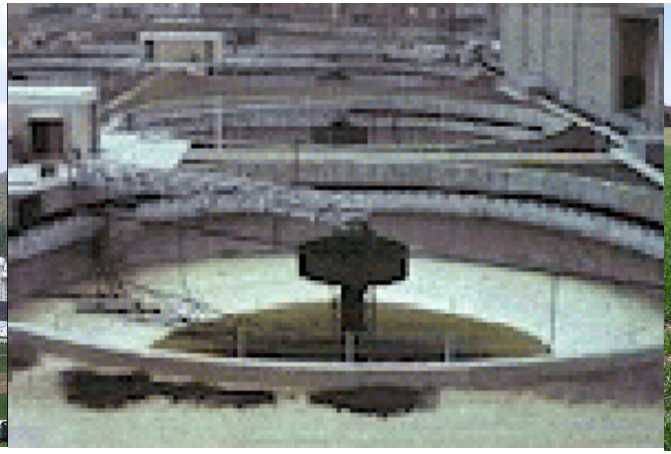
Agricultural Non Point Source Credit Verification

- Built and operated according to NRCS specifications
- Annual inspection or audit
  – By state, third party, or seller
- Insures that the BMP or practice is maintained in accordance with the specifications


Exchanging Non Point Source Credits - Agricultural

- Market structure
  - Bilateral agreements
  - Purchasing contracts between buyers and sellers
  - May be brokers or aggregators
    - Aggegators analagous to biosolids land-application Contractors
      - Contracts with many farmers
      - Assumes financial liability
      - Generally stable and reliable
      - Credit reserves to cover non performance


Non Point Source Program Structure

- Utilizing a web based nutrient trading application with tools to calculate eligibility and credit potential
- Provides for nitrogen and phosphorus credit calculation from agricultural sources
- Provides a separate market place for buyers and sellers of approved credits to post and exchange information on credit quantity and price
- Provides a registry to track and register trades