Proposed Rulemaking – Public Long Term 2 Enhanced Surface Water Treatment Rule (LT2)

LT2 Applicability and Scope

- Applies to all surface water public drinking water systems (PWSs)
- Impacts approximately 355 PWSs, serving about 8.4 million people
- Specifically targets Cryptosporidium

Purpose of Revisions

- Require equal pathogen protection at all systems
  - Under previous regulations, treatment requirements are not based on actual source water pathogen levels...
  - Consumers are not necessarily equally protected against microbial threats
  - LT2 will require more treatment for source waters with high Cryptosporidium loading; thereby affording equal protection at all systems

LT2 Provisions

- Monitoring of source water to determine actual Cryptosporidium levels
- Treatment requirements based on source water Cryptosporidium levels
- Multiple compliance tools for higher-risk source waters to provide additional treatment

Initial Source Water Monitoring Schedule 1-3 Systems

- Source water monitoring dates are based on population categories (schedules 1-4)
- Schedule 1, 2 and 3 systems must monitor for *Cryptosporidium, E. coli,* and Turbidity starting on the following dates:

Schedule	Serves	Start Monitoring...
1	100,000 +	October 2006
2	50,000 - 99,999	April 2007
3	10,000 - 49,999	April 2008

Initial Monitoring Schedule 4 Systems

- Schedule 4 systems start by monitoring *E. coli only*
  - Approximately $25/sample
- High *E. coli* levels will trigger Cryptosporidium monitoring
  - Approximately $500/sample

Schedule 4	Serves	*At The Latest, Start Monitoring…
E.Coli	<10,000	October 2008
Crypto	<10,000	April 2010

Source Water Sampling Frequency

- Schedule 1-3: Cryptosporidium, *E. coli*, & Turbidity
  - 1 sample / month for 24 consecutive months
    - Bin Classification is based on highest average Cryptosporidium concentration of 12 consecutive months
- Schedule 4: *E. coli* monitoring
  - 1 E. coli sample every 2 weeks for 12 consecutive months – 26 total samples
  - *E. coli* results determine if Cryptosporidium sampling is necessary

Bin Requirement Table

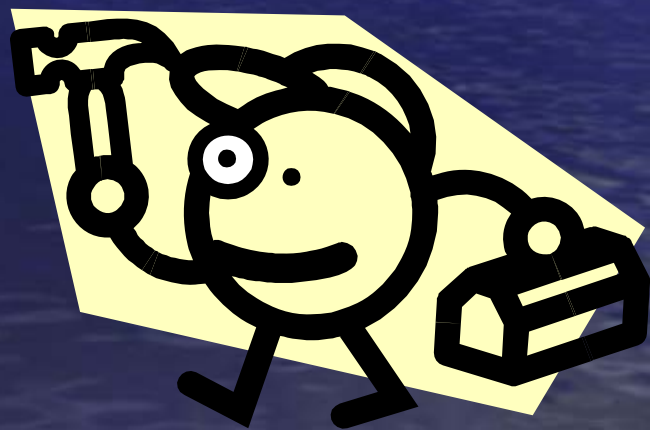
Bin Number	Average Cryptosporidium Concentration
1	*Cryptosporidium* LT 0.075/L OR Small systems whose E. coli levels did not trigger *Cryptosporidium* monitoring
2	0.075/L ≤ *Cryptosporidium* <1.0/L
3	1.0/L ≤ *Cryptosporidium* <3.0/L
4	*Cryptosporidium* >3.0/L

Additional Treatment Technique Requirements

Bin Classification	Additional Treatment Requirements Beyond Existing Regulations			
	Conventional Filtration	Direct Filtration	Slow sand or DE	Alternative Filtration Tech.
Bin 1	No additional treatment	No additional treatment	No additional treatment	No additional treatment
Bin 2	1-log	1.5 log	1-log	Determined by State
Bin 3	2-log	2.5 log	2-log	Determined by State
Bin 4	2.5-log	3-log	2.5-log	Determined by State

Microbial Toolbox Options

- Microbial Toolbox = 16 different compliance tools to meet bin requirements
  - Arranged in 5 Toolbox Component Categories:
    - Source Protection and Management
    - Pre-filtration
    - Treatment Performance
    - Additional Filtration
    - Inactivation



Treatment Performance Options

- Combined Filter Performance
  - 0.5-log additional credit for filter plants that meet ≤ 0.15 NTU, 95% of time
    - Existing regulatory requirement ≤ 0.3 NTU
- Individual Filter Performance
  - 0.5-log additional credit for filter plants that meet ≤ 0.15 NTU, 95% of time
    - Existing regulatory requirement ≤ 0.5 NTU

Bin 3 or Bin 4 Sources

- Systems treating Bin 3 or Bin 4 sources must install and operate at least one of the following Microbial Toolbox options:
  - Additional Filtration Options
    - Bag or cartridge filters
    - Membrane filtration
    - Second stage filtration
    - Slow sand filters
  - Inactivation Options
    - Ultraviolet Light (UV)
    - Ozone
    - Chlorine Dioxide

Implementation Timeline

Schedule	Systems Serving:	Submit Source Monitoring Plan, or Intent to Grandfather by:	Submit Grandfathered Date if applicable by:	Complete Source Water Monitoring By:	Determine bin classification by:
1	≥ 100 K	7/1/06	12/1/06	9/30/08	3/31/09
2	50 K–99,999	1/1/07	6/1/07	3/31/09	9/30/09
3	10 K–49,999	1/1/08	6/1/08	3/31/10	9/30/10
4	<10K E coli <10K Crypto	7/1/08 1/1/10	12/1/08 6/1/10	9/30/09 3/31/12	NA 9/30/12

Additional LT2 Monitoring

- Second round of source water monitoring
  - 6 years after completion of the first round
  - Determine change in Cryptosporidium loading
- Monitoring required for new surface sources and groundwater sources under the direct influence of surface water (GUDI sources)
- Systems with multiple sources must adequately monitor all sources

Compliance Strategy

- Workgroup concept of Regulatory Development
- Training
  - DEP provided
  - Ongoing through industry associations
- Technical Assistance
- Update/create new guidance documents
  - Forms/procedures for reporting toolbox options

Compliance Costs of Proposed Amendments

- Estimated compliance costs to Pa Regulated Community is $3.3 million including:
  - Non-treatment costs
  - Additional monitoring & reporting
  - Recordkeeping
  - Additional treatment
  - Additional O&M

Public Outreach

- The proposed LT2 amendments to Chapter 109 were submitted for comments to the Technical Assistance Center (TAC) for small water systems on November 13, 2007.
- The TAC Board approved the proposed LT2 in a letter dated December 12, 2007.
- The proposal was presented to DEP Regional Managers, Technical Chiefs and Supervisors.
- DEP and EPA notified all affected systems in Pennsylvania about the upcoming LT2.

Next Steps

- Continuing to assist PWSs with source water monitoring
- Transition from EPA to DEP
  - Review/approve grandfathered E. coli data
  - Review/approve PWS bin determinations