

Workshop for Proposed Regulation Amendments

Public Water Systems

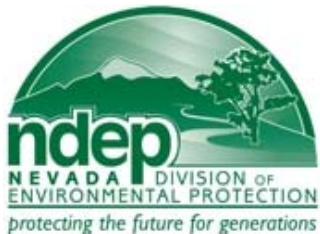
NAC 445A.450–.540; 445A.607 & .610; 445A.65505-.6731;
445A.67561

Nevada Division of Environmental Protection

Las Vegas, NV ~ June 23, 2009

Carson City, NV ~ June 24, 2009

Elko, NV ~ June 25, 2009



NDEP Representatives

- **Bureau of Safe Drinking water**
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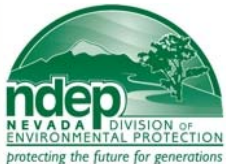
Public Participation

- Ways to Participate and Comment
 - ◆ Questions and Comments today, or
 - ◆ By July 6, 2009, for NDEP consideration for LCB re-draft incorporation

- Written Comments by letter :

Nevada Division of Environmental Protection
Bureau of Safe Drinking Water
901 South Stewart Street, Suite 4001
Carson City, NV 89701

- E-mail us your Comments
- Call to discuss your Comments



Regulation Amendment Process

- Draft Regulation Available
 - ◆ Posted to SEC website, June 5, 2009
 - ◆ <http://ndep.nv.gov/admin/public.htm#safe>
- Workshops: June 2009
 - ◆ Documents also posted on the BSDW webpage at <http://ndep.nv.gov/bsdw/regulations.htm>
- State Environmental Commission (SEC) Hearing
 - ◆ October 5th or 6th, 2009
 - ◆ Sign up at <http://www.sec.nv.gov/> to receive a notice

Overview of Proposed Amendments

- Obtain Primacy for Previously Adopted Rules
- Adopt New Rules
- General “Clean-up”
- Amendments to Design and Construction Regulations

Primacy...what's that?



Overview of Proposed Amendments

- Revisions to Nevada Administrative Code (NAC) to attain Primacy for Previously Adopted Rules
 - ◆ Variances and Exemptions Process
 - ◆ Lead and Copper Rule Minor Revisions
 - ◆ Public Notice Rule
 - ◆ Interim Enhanced Surface Water Treatment Rule (IESWTR)
 - ◆ Long Term 1 Enhanced Surface Water Treatment Rule (LT1)

Overview of Proposed Amendments

- Adoption of New Federal Regulations
 - ◆ Long Term 2 Enhanced Surface Water Treatment Rule
 - ◆ Stage 2 Disinfectants and Disinfection Byproducts
- General Clean-up
 - ◆ EPA Recommendations
 - ◆ Repealed and Superseded Federal Regulations

Overview of Proposed Amendments

- Amendments to Design, Construction, Operation & Maintenance Regulations:
 - ◆ Administrative Name Changes from “Health Division” to “Division or appropriate district board of health”; with Clarification of Certain Roles and Responsibilities
 - ◆ Clarification of NSHD and NDEP Roles and Responsibilities Related to Fluoridation Oversight

Primacy for Previously Adopted Rules

- LCB Section 24-Variations & Exemptions
 - ◆ EPA Administrator incorporation
 - ◆ BAT options for Variations are clarified
 - ◆ Repeal NAC 445A.4874:Unique circumstances
- LCB Section 21-Lead and Copper Rule
- LCB Sections 23, 41 & 43-Public Notice
 - ◆ Modification to Treatment of Water
 - ◆ Resolve conflicts between regulations

Primacy for Previously Adopted Rules

- LCB Section 22 – IESWTR
 - ◆ Significant Deficiencies
 - ◆ Special primacy requirement, 40 CFR142.16(b)(1)(iii)
- LCB Sections 3-5, 11-12 & 36 - IESWTR & LT1
 - ◆ Composite Correction Program
- LCB Section 25 - IESWTR & LT1
 - ◆ Turbidimeter locations

Primacy for Previously Adopted Rules Variances & Exemptions

For Primacy Approval:

- Amendment to Adopt Best Available Technology Listed in 40 CFR 142.61 to 142.65 by Reference
 - ◆ NAC 445A.4525 (LCB Section 17)
 - ◆ Cross-reference NAC 445A.487 (LCB Section 24)
- Amendment to add “and the Administrator of the United States Environmental Protection Agency find”
 - ◆ NAC 445A.487 (LCB Section 24)
- Repeal of NAC 445A.4874 Variances: Unique circumstances
 - ◆ Strike Additional Cross References in NAC 445A.485 (LCB Section 23) & 445A.488 (p 21)

Primacy for Previously Adopted Rules

Lead and Copper Rule Minor Revisions

- Methods of obtaining samples of water (LCB Section 21)
 - NAC 445A.459
 - Lead and Copper Monitoring
 - First Draw Sample

Primacy for Previously Adopted Rules

Public Notice Rule

- Conflicts between Public Notice Rule—NAC 445A.485 (LCB Section 23)—and Treatment of Water Regulations
 - ◆ Notification of Certain Events (LCB Section 41)
 - NAC 445A.538
 - Requirements for Notification in NAC 445A.485
 - ◆ Requirements for notification of persons served by system (LCB Section 43)
 - NAC 445A.540
 - Required language for Treatment Technique Violations
 - Struck because NAC 445A.485 now includes the required language

Primacy for Previously Adopted Rules IESWTR

- Significant Deficiencies (LCB Section 22)
 - ◆ NAC 445A.4665
 - Requires Significant Deficiencies be addressed in writing within 45 Days and supply Implementation Plan and Schedule.
 - Applies to all Public Water Systems (PWS)
 - ◆ Requires PWS to Implement modifications identified in sanitary survey plan 142.16(b)(1)(iii)
 - Federal requirement applies to all Subpart H systems
 - Proposed State regulation applies to all Public Water Systems

Primacy for Previously Adopted Rules IESWTR & LT1

- Composite Correction Program (CCP)
 - Definitions (LCB Sections 3-5 and 11)
 - Composite Correction Program
 - Comprehensive Performance Evaluation
 - Comprehensive Technical Assistance
 - CCP Requirements (LCB Section 12)
 - Performed by approved party
 - Additional information document
 - Requirement to Perform (LCB Section 36)
 - 445A.533 Subsection 7—Individual Filter Effluent Turbidity
 - never exceed 1.0 NTU
 - 445A.533 Subsection 10—Individual Filter Effluent Turbidity
 - recorded every 15 minutes
 - >2.0 NTU in 2 consecutive measurements triggers CCP

Primacy for Previously Adopted Rules IESWTR & LT1

- Turbidimeters
 - Locations of installation (LCB Section 25)
 - Combined filter effluent
 - If more than two filters
 - Install on each individual filter effluent

Adoption of New Federal Regulations

- Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR)
 - ◆ Promulgated: January 4, 2006
 - ◆ <http://www.epa.gov/safewater/disinfection/stage2/index.html>
- Long Term 2 Enhanced Surface Water Treatment Rule (LT2 ESWTR)
 - ◆ Promulgated: January 5, 2006
 - ◆ <http://www.epa.gov/safewater/disinfection/lt2/index.html>

Stage 2 DBPR Purposes

- Build upon existing rules in M-DBP Suite
- Identify more appropriate monitoring sites for DBPs
 - ◆ Initial distribution system evaluations (IDSEs) to investigate TTHM and HAA5 levels in the distribution system
- Improve protection of public health by reducing exposure to DBPs
 - ◆ Locational Running Annual Averages (LRAAs) to calculate compliance

Stage 2 DBPR Overview

- IDSE (Initial Distribution System Evaluation)
 - ◆ Very Small System Waiver (VSS)
 - ◆ 40/30 Certification (40/30)
 - ◆ Standard Monitoring
 - ◆ System Specific Study
- Stage 2 DBPR Compliance Monitoring
 - ◆ Sites chosen from IDSE and/or Stage 1 DBPR sites
 - ◆ Locational Running Annual Average (LRAA)
 - ◆ Operational Evaluations

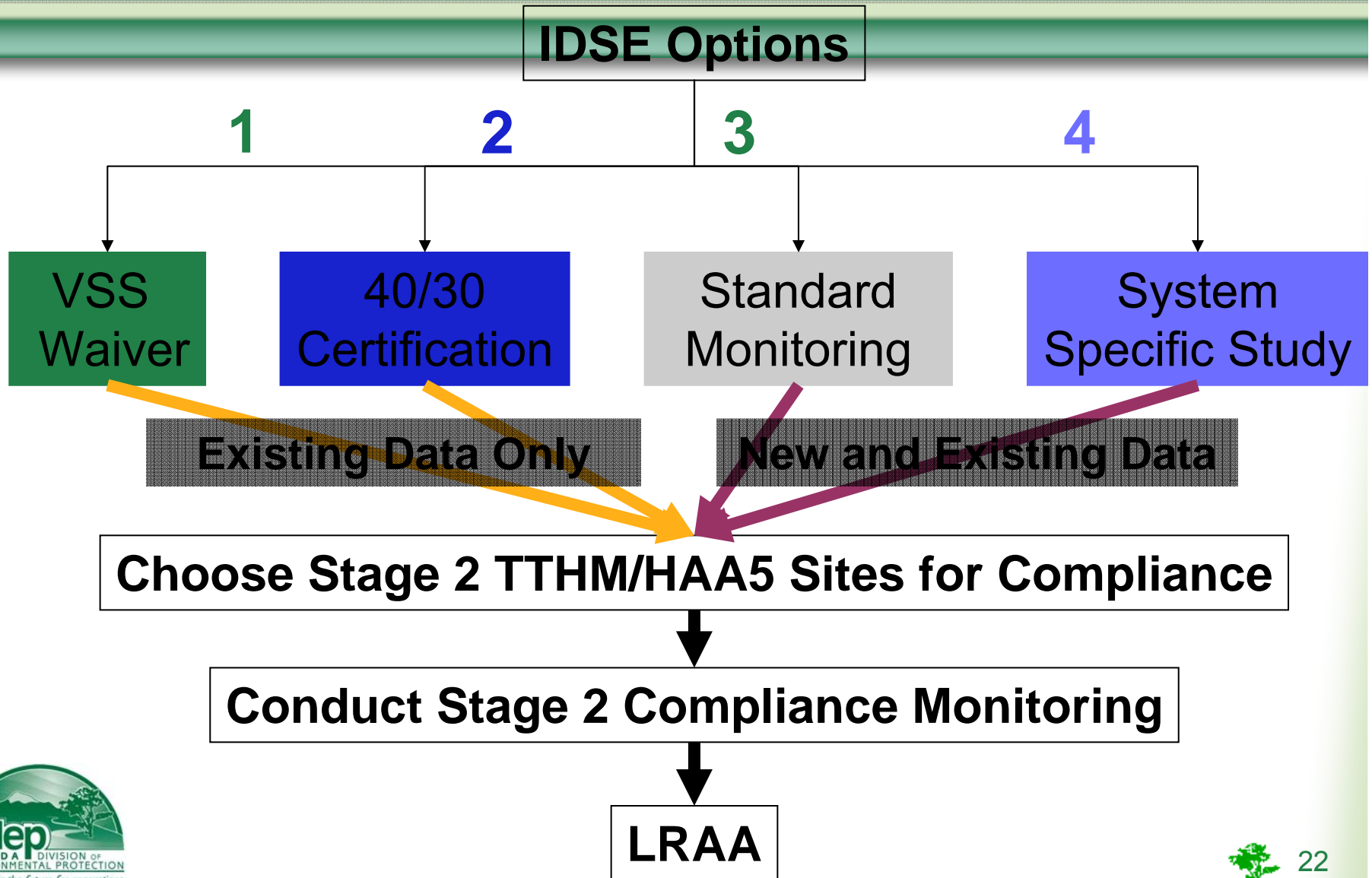
Stage 2 DBPR Overview

- Additional Issues
 - ◆ Consecutive systems, population-based compliance
 - ◆ Revisions to Stage 1 DBPR
 - Reduced monitoring based on TOC, Bromate reduced monitoring

Stage 2 DBPR Overview

- Consecutive systems not specifically addressed under Stage 1 DBPR
 - ◆ Regulation of DBP levels in consecutive systems varies widely among states
 - ◆ Consumers do not receive the same level of protection as non-consecutive system consumers
- Stage 2 DBPR extends protection to consecutive systems

Stage 2 DBPR



Stage 2 DBPR

- New Definitions
 - ◆ 40 CFR 141.2
- Removal TTHM Rule
 - ◆ 40 CFR 141.12 & .30
- Public Notification
 - ◆ 40 CFR 141.32 & .133
 - ◆ 40 CFR Appendix A & B to Subpart Q
- Record Maintenance
 - ◆ 40 CFR 141.33
- Maximum Contaminant Level Goals (MCLG)
 - ◆ 40 CFR 141.53
- Maximum Contaminant Level (MCL)
 - ◆ 40 CFR 141.64
- Analytical Requirements
 - ◆ 40 CFR 141.131
 - ◆ Treatment Techniques for Control of DBP precursors
 - 40 CFR 141.135
- Monitoring Requirements
 - ◆ 40 CFR 141.132
- Consumer Confidence Reports
 - ◆ 40 CFR 141.151 and .153

Stage 2 DBPR

- 40 CFR Regulations
 - ◆ Subpart U-Initial Distribution System Evaluation
 - 141.600-141.605
 - ◆ Subpart V-Stage 2 Disinfection Byproducts Requirements
 - 141.620-141.629
- Adoption by Reference
 - ◆ LCB Section 17, 445A.4525
- Primary Standards: Requirements
 - ◆ LCB Section 18, 445A.453

Stage 2 DBPR

New Definitions

- LCB Sections 16—NAC 445A.450 & 17—NAC 445A.4525 (40 CFR §141.2)
 - ◆ Combined Distribution System
 - ◆ Consecutive System
 - ◆ Dual Sample Set
 - ◆ Finished Water
 - ◆ GAC10
 - ◆ GAC20
 - ◆ Locational Running Annual Average
 - ◆ Wholesale System

Stage 2 DBPR Removal TTHM Rule

- LCB Section 17—NAC 445A.4525
(40 CFR 141.12 & .30)
 - ◆ 40 CFR 141.12-MCL for Total Trihalomethanes (TTHM)
 - ◆ 40 CFR 141.30- TTHM sampling, analytical and other requirements
- LCB Section 19
 - ◆ Struck 141.30 from NAC 445A.454

Stage 2 DBPR Public Notification

- LCB Section 17—NAC 445A.4525 (40 CFR 141.32, .133, Appendix A & B of Subpart Q)
 - ◆ 40 CFR 141.32- Public notification
 - Removed and reserved old section
 - 40 CFR 141.133- Disinfectant Residual, Disinfection Byproducts, and Disinfection Byproduct Precursors: Compliance Requirements
 - Amended reference to 141.32 to read “subpart Q of this part”
 - ◆ Appendix A & B of Subpart Q
 - Appendix A- Clean-up of endnote references and adding associations with new regulations
 - Appendix B- Reflect compliance dates for Stage 1 DBPR and Stage 2 DBPR MCLs and MRDLs

Stage 2 DBPR Record Maintenance

- LCB Section 17—NAC 445A.4525
(40 CFR 141.33)
 - ◆ 40 CFR 141.33- Record Maintenance
 - Changed biological to “microbiological”
 - 5 year retention
 - Monitoring Plans
 - Retain for same period as records of analyses required to be kept

Stage 2 DBPR MCLG

- 40 CFR 141.53- MCLG
 - ◆ State does not adopt MCLG
 - ◆ EPA Modifications
 - Chloroform- New 0.07 mg/L
 - Trichloroacetic Acid- Changed from 0.3 to 0.02 mg/L

Stage 2 DBPR MCL

- LCB Section 17—NAC 445A.4525
(40 CFR 141.64)
- MCL Compliance Dates
 - Revised structure to reflect dates for compliance from Stage 1 to Stage 2
 - Compliance with Stage 2 is based on Locational Running Annual Average
 - Stage 1 Compliance based on Running Annual Average

Stage 2 DBPR MCL cont'd

- LCB Section 17—NAC 445A.4525
(40 CFR 141.64)
 - ◆ BATs for Stage 2
 - Systems that Disinfect-Additions to existing BAT
 - Nanofiltration with Molecular Weight Cutoff of ≤ 1000 Daltons
 - GAC20
 - New BATs for Consecutive Systems
 - Chloramination ($\geq 10,000$ only)
 - Management of distribution system and storage

Stage 2 DBPR

Revisions to Stage 1 DBPR

- Analytical Requirements
- LCB Sections 17—NAC 445A.4525 & 19—NAC 445A.454 (40 CFR 141.131)
 - ◆ Revises language to reflect use of methods for Stage 2
 - ◆ Bromate Analysis
 - Adds a method 317.0
 - ◆ Lab Certification method revisions to
 - 141.131 (b) (2)
 - ◆ Chlorite Analysis
 - Lissamine Green Spectrophotometric

Stage 2 DBPR

Revisions to Stage 1 DBPR

- Analytical Requirements Cont'd
 - ◆ TOC Analysis
 - Adds EPA method 415.3
 - Inorganic carbon must be removed from the samples prior to analysis
 - ◆ Magnesium Analysis
 - Adds reference to methods in 141.23(k)(1)
 - 40 CFR 141.135-Treatment Techniques for Control of DBP precursors
 - Magnesium hardness monitoring now references these methods

Stage 2 DBPR

Revisions to Stage 1 DBPR

- Monitoring Requirements
- LCB Sections 17—NAC 445A.4525 & 19—NAC 445A.454 (40 CFR 141.132)
 - ◆ Revises TOC requirements
 - ◆ Revises Bromate requirements

Stage 2 DBPR

Revisions to Stage 1 DBPR

- Stage 1 DBPR
 - ◆ Systems with
 - TTHM \leq 0.040 mg/L, and
 - HAA5 \leq 0.030 mg/L, and
 - TOC \leq 4.0 mg/L as a running annual average (at a location prior to treatment)
 - ◆ Can qualify for reduced monitoring of TTHM and HAA5
 - ◆ No sampling frequency specified
- Stage 2 DBPR
 - ◆ Eligibility criteria unchanged, but sampling frequency added
 - ◆ Beginning April 1, 2008 or earlier if specified by the state, systems must:
 - Sample every 30 days to qualify for reduced monitoring
 - Sample every 90 days to stay on reduced monitoring

Stage 2 DBPR

Revisions to Stage 1 DBPR

- Reduced Monitoring for Bromate
 - ◆ Stage 1 DBPR
 - Systems that use ozone monitor for **bromate** at the entry point to the distribution system
 - Systems qualify for reduced monitoring if **bromide** *in source water* is < 0.05 mg/L
 - Stays in effect until March 31, 2009
 - ◆ Stage 2 DBPR
 - Systems can qualify for reduced monitoring if **bromate** is ≤ 0.0025 mg/L RAA at the entry point to the distribution system
 - New analytical method for **bromate** with lower detection limit
 - System must have 12 months of data utilizing new method
- Effective April 1, 2009

Stage 2 DBPR Consumer Confidence Report

- LCB Sections 17—NAC 445A.4525 and 445A.4845 (40 CFR 141.151 & .153)
 - ◆ References reporting limits established in 141.131(b)(2)(iv)
 - ◆ All LRAA above MCL must be reported
 - ◆ For a given calendar year must include IDSE monitoring results from the same calendar year



Stage 2 DBPR

IDSE and Compliance Monitoring

- LCB Sections 17—NAC 445A.4525 & 19—NAC 445A.454 (40 CFR 141.600 thru .605)
 - ◆ Compliance Based on 4 Schedules
 - ◆ Initial Distribution System Evaluation (IDSE)
 - Early Implementation Activity
 - All Schedules have now submitted IDSE Plans
 - IDSE sampling and reporting for Schedules 2-4 pending deadlines

Stage 2 DBPR

Schedule Numbers

<i>If you are this kind of system:</i>	<i>You are on schedule number:</i>
Systems serving 100,000 or more people OR belonging to a CDS in which the largest systems serves 100,000 or more	1
Systems serving 50,000 to 99,999 people OR belonging to a CDS in which the largest systems serves 50,000 to 99,999	2
Systems serving 10,000 to 49,999 people OR belonging to a CDS in which the largest system serves 10,000 to 49,999	3
Systems serving fewer than 10,000 and not connected to a larger system	4

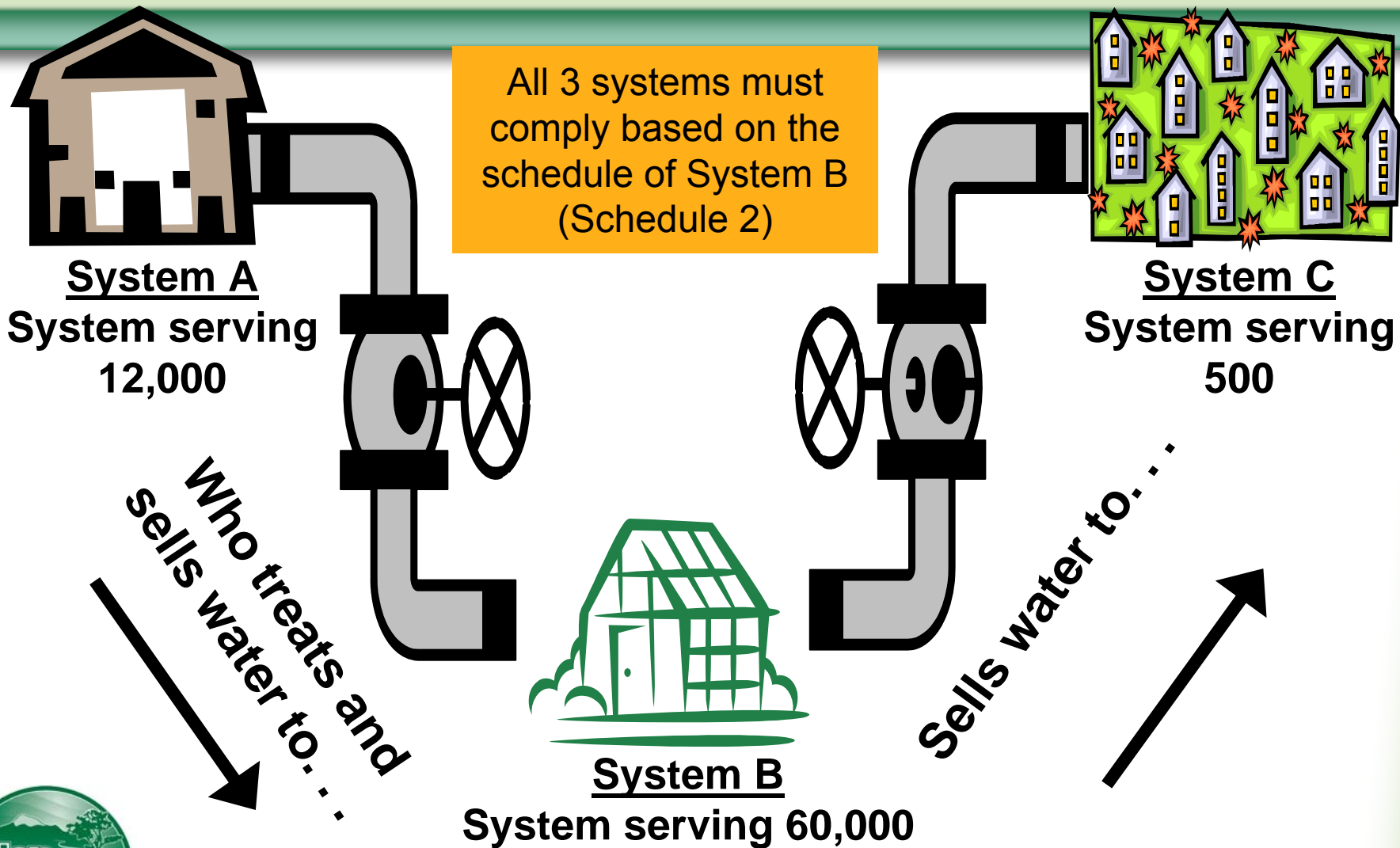
Stage 2 DBPR Compliance Schedule

Sch.	Systems Serving	IDSE Plan Submittal	Complete IDSE Monitoring	Submit IDSE Report and/or Compliance Sites	Compliance Monitoring Begins
1	≥ 100,000	10/1/2006	9/30/2008	1/1/2009	4/1/2012
2	50,000 – 99,999	4/1/2007	3/31/2009	7/1/2009	10/1/2012
3	10,000 – 49,999	10/1/2007	9/30/2009	1/1/2010	10/1/2013
4	< 10,000	4/1/2008	3/31/2010	7/1/2010	10/1/2013 or 10/1/2014

Schedule for systems in a combined distribution system is based on that of largest system in the combined distribution system

Stage 2 DBPR

Combined Distribution System

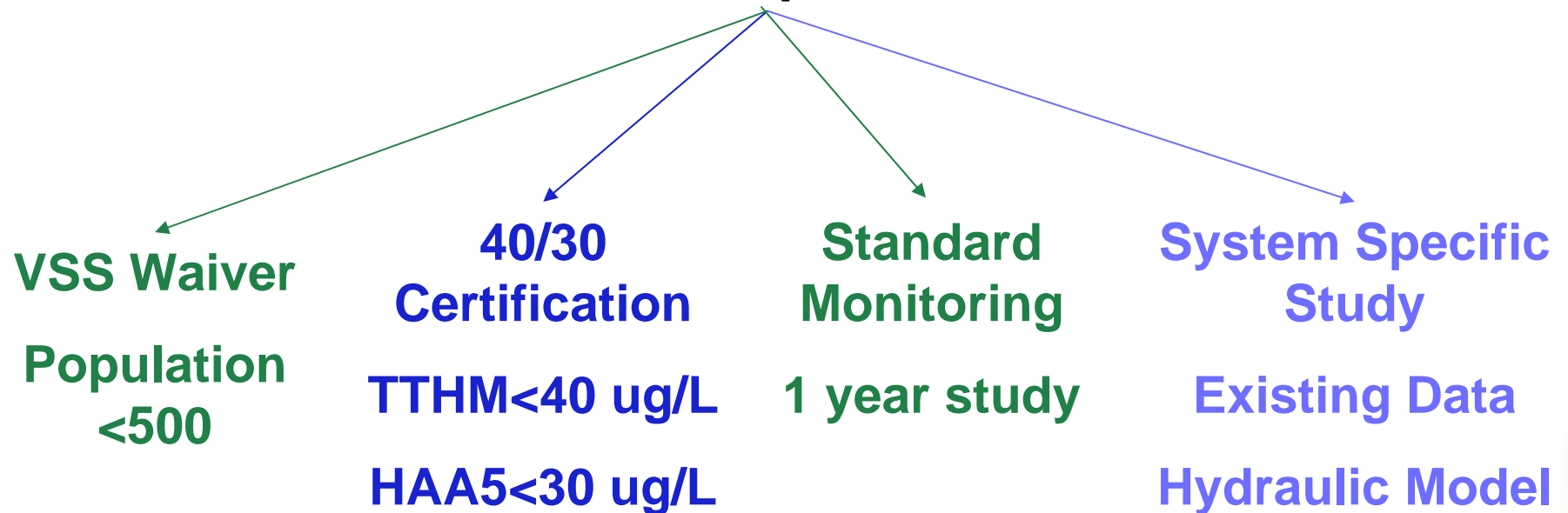


Stage 2 DBPR

Initial Distribution System Evaluation

Required of all CWS and all NTNCWS serving > 10,000 people

IDSE Options



Stage 2 DBPR

Initial Distribution System Evaluation

- Recordkeeping
 - ◆ All systems must keep a copy of their Standard Monitoring plan and Initial Distribution System Evaluation (IDSE) report for 10 years after date of submittal
 - ◆ All systems must keep a copy of EPA or State modification of monitoring requirements or approval of alternative sites on file for 10 years after date of notification

Stage 2 DBPR

Disinfection Byproducts Requirements

- LCB Sections 17—NAC 445A.4525 & 19—NAC 445A.454 (40 CFR 141.620 thru .629)
 - ◆ Compliance Based on 4 Schedules
 - ◆ Monitoring
 - Based on Population
 - Revision to Tables published in Nov 14, 2008 FR
 - Not being adopted at this time
 - ◆ Consecutive Systems must comply
 - Maximum Residual Disinfectant Level (MRDL)
 - TTHM/HAA5

Stage 2 DBPR

Disinfection Byproducts Requirements

- Operational Evaluation Levels (OEL)
- Reduced Monitoring Requirements
- Reporting and Recordkeeping

Stage 2 DBPR

Monitoring and Scheduling

- Stage 1 DBPR
 - ◆ Scheduling based on source water type and population served
 - ◆ Monitoring based on source water type, population served, and number of treatment plants/wells
- Stage 2 DBPR
 - ◆ Scheduling based on source water type, population served, and population of the largest system in combined distribution system (CDS)
 - ◆ Monitoring based on source water type and population served (excluding CDS)

Stage 2 DBPR

Compliance Routine Monitoring Sites

Source Water Type	Population Size Category	Monitoring Frequency	Distribution System <u>Monitoring Locations</u> per Monitoring Period
Subpart H (Surface Water or Ground Water Under Direct Influence)	< 500	Per year	1 may be split
	500-3,300	Per quarter	1 may be split
	3,301-9,999		2
	10,000-49,999		4
	50,000-249,999		8
	250,000-999,999		12
	1,000,000-4,999,999		16
	≥5,000,000	20	

Stage 2 DBPR

Compliance Routine Monitoring Sites

Source Water Type	Population Size Category	Monitoring Frequency	Distribution System <u>Monitoring Locations</u> per Monitoring Period
Ground Water	< 500	Per year	1 may be split
	500-9,999		2
	10,000-99,999	Per quarter	4
	100,000-499,999		6
	≥500,000		8

Stage 2 DBPR Compliance Monitoring

- Stage 2 DBPR monitoring
 - ◆ Number and frequency of sampling determined by source water type and population served
 - ◆ Locations determined by:
 - IDSE results if conducting Standard Monitoring or System Specific Study
 - Stage 1 DBPR data if granted VSS Waiver or approved 40/30 Certification
 - ◆ Locational Running Annual Averages (LRAAs) to calculate compliance
 - ◆ Additional requirements for consecutive systems
 - ◆ Conduct Operational Evaluations
 - ◆ Conduct Stage 1 DBPR monitoring until Stage 2 DBPR monitoring takes effect

Stage 2 DBPR Consecutive Systems

- Must comply with the Stage 1 DBPR requirements for chlorine and chloramines
 - ◆ April 1, 2009
- Must comply with IDSE requirements
- Must conduct Stage 2 DBPR TTHM and HAA5 compliance monitoring

Stage 2 Compliance Operational Evaluation Levels

- Operational Evaluation Level (OEL)
- If OEL is exceeded, the system must conduct an Operational Evaluation
- Operational Evaluation
 - ◆ Examination of treatment and distribution system's operational practices
 - Storage tank operations
 - Excess storage capacity
 - Distribution system flushing
 - Changes in sources or source water quality
 - Treatment changes or problems that may contribute to TTHM and HAA5 formation
 - Steps to minimize future exceedances

Stage 2 Compliance

Reduced Monitoring Sites

Source Water Type	Population Size Category	Monitoring Frequency	Distribution System <u>Monitoring Locations</u> per Monitoring Period
Subpart H (Surface Water or Ground Water Under Direct Influence)	< 500		Cannot reduce
	500-3,300	Per year	1 may be split
	3,301-9,999		2
	10,000-49,999	Per quarter	2
	50,000-249,999		4
	250,000-999,999		6
	1,000,000-4,999,999		8
	≥5,000,000		10

Stage 2 Compliance

Reduced Monitoring Sites

Source Water Type	Population Size Category	Monitoring Frequency	Distribution System Monitoring Locations per Monitoring Period
Ground Water	< 500	Every 3 rd year	1 may be split
	500-9,999	Per year	1 may be split
	10,000-99,999		2
	100,000-499,999	Per quarter	2
	≥500,000		4



Stage 2 Compliance Recordkeeping

- 10th of the month following quarter in which monitoring is required
 - ◆ Sample Results
 - ◆ Locational Running Annual Average TTHM & HAA5
 - ◆ Whether or not in compliance
 - ◆ Operational Evaluation Level
 - ◆ TOC Running Annual Average
 - Surface water on reduced monitoring
- Retain Monitoring Plans

LT2ESWTR

Purposes

- Improve public health protection
 - ◆ Reduce illness caused by *Crypto* and other microorganisms
 - ◆ Tailor requirements based on:
 - Level of treatment
 - Source water quality
 - System size
 - ◆ Provide systems and states with flexibility
- Supplement and fill data gaps
 - ◆ Most systems will only need to monitor
- Balance disinfection with control of DBPs

LT2ESWTR

Purposes

- Cryptosporidium
 - ◆ Protozoan parasite
 - ◆ Common in surface water
 - ◆ Resistant to traditional disinfectants
 - ◆ Can pass through filters
 - ◆ Causes cryptosporidiosis
 - ◆ Filtration and alternative disinfectants can remove and/or inactivate



LT2ESWTR Overview

- All Subpart H systems
 - ◆ Use surface water or GWUDI sources
 - ◆ CWSs, NTNCWSs, TNCWSs
 - ◆ Wholesale systems
- Compliance deadlines and options based on people served
 - ◆ Divided into four schedules
 - ◆ Wholesale systems with own Subpart H source(s) comply based on requirements for largest system in their CDS

LT2ESWTR Overview

<i>If you have a Subpart H source and are this kind of system:</i>	<i>You are on Schedule number:</i>
System serving 100,000 or more people OR a wholesale system in a CDS that contains a system serving $\geq 100,000$	1
System serving 50,000 to 99,999 people OR a wholesale system in a CDS that contains a system serving 50,000 to 99,999	2
System serving 10,000 to 49,999 people OR a wholesale system in a CDS that contains a system serving 10,000 to 49,999	3
System serving fewer than 10,000 and not a wholesale system (not covered in today's training)	4

LT2 ESWTR

- New Definitions
 - ◆ 40 CFR 141.2
- Public Notification
 - ◆ 40 CFR 141.211
 - ◆ Appendix A to Subpart Q
- Subpart W- Enhanced Treatment for Cryptosporidium
 - ◆ 40 CFR 141.700-141.723
 - ◆ Source Water Monitoring
 - ◆ Disinfection Profiling and Benchmarking
 - ◆ Treatment Technique Requirements
 - ◆ Requirements for Microbial Toolbox Components
 - ◆ Reporting and Recordkeeping

LT2 ESWTR

New Definitions

LCB Sections 16—NAC 445A.450 &
17—NAC 445A.4525
(40 CFR §141.2)

- ◆ Bag Filters
- ◆ Bank Filtration
- ◆ Cartridge Filters
- ◆ Flowing Stream
- ◆ Lake/Reservoir
- ◆ Membrane Filtration
- ◆ Plant Intake
- ◆ Presedimentation
- ◆ Two-stage Lime Softening
- ◆ Uncovered Finished Reservoir

LT2 ESWTR

New Definitions

- ◆ LCB Sections 2, 6, 7, and 8
 - New definitions added to Treatment of Water: Generally
 - Bin classification
 - Filtered system
 - Microbial toolbox
 - Unfiltered System
 - Utilized in new text for LT2 adoption in this section
 - LCB Sections 9 and 10

LT2ESWTR

Public Notification

- LCB Section 17—NAC 445A.4525, & LCB Section 23—NAC 445A.485 (141.211 & App A Subpart Q)
 - ◆ 40 CFR 141.211- Public notification
 - Added section to NAC 445A.485: Notification Requirements
 - Source Water Monitoring
 - Failure to collect any 3 months of monitoring
 - Tier 2 Violation—within 30 Days
 - Mandatory language
 - Bin Classification Report
 - Failure to report
 - Tier 2 Violation
 - Mandatory language
 - ◆ Appendix A to Subpart Q
 - Adds violations associated with LT2

LT2ESWTR

General Requirements

- All Subpart H systems
 - ◆ Use surface water or GWUDI sources
 - ◆ CWSs, NTNCWSs, TNCWSs
 - ◆ Wholesale systems
- Compliance deadlines and options based on people served
 - ◆ Divided into four schedules
 - ◆ Wholesale systems with own Subpart H source(s) comply based on requirements for largest system in their CDS

LT2ESWTR

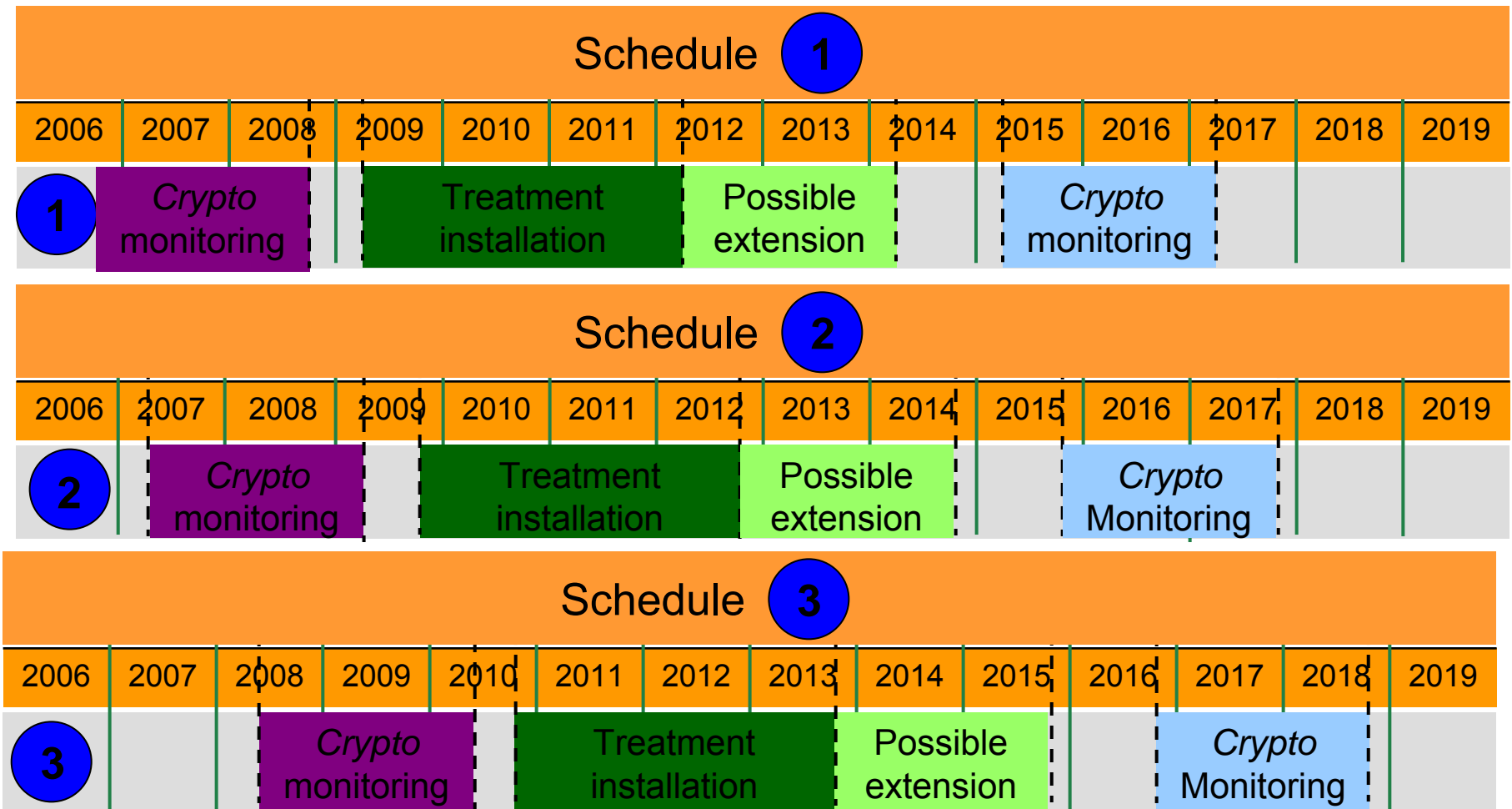
General Requirements

<i>If you have a Subpart H source and are this kind of system:</i>	<i>You are on Schedule number:</i>
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System serving 50,000 to 99,999 people OR a wholesale system in a CDS that contains a system serving 50,000 to 99,999	2
System serving 10,000 to 49,999 people OR a wholesale system in a CDS that contains a system serving 10,000 to 49,999	3
System serving fewer than 10,000 and not a wholesale system (not covered in today's training)	4

LT2ESWTR

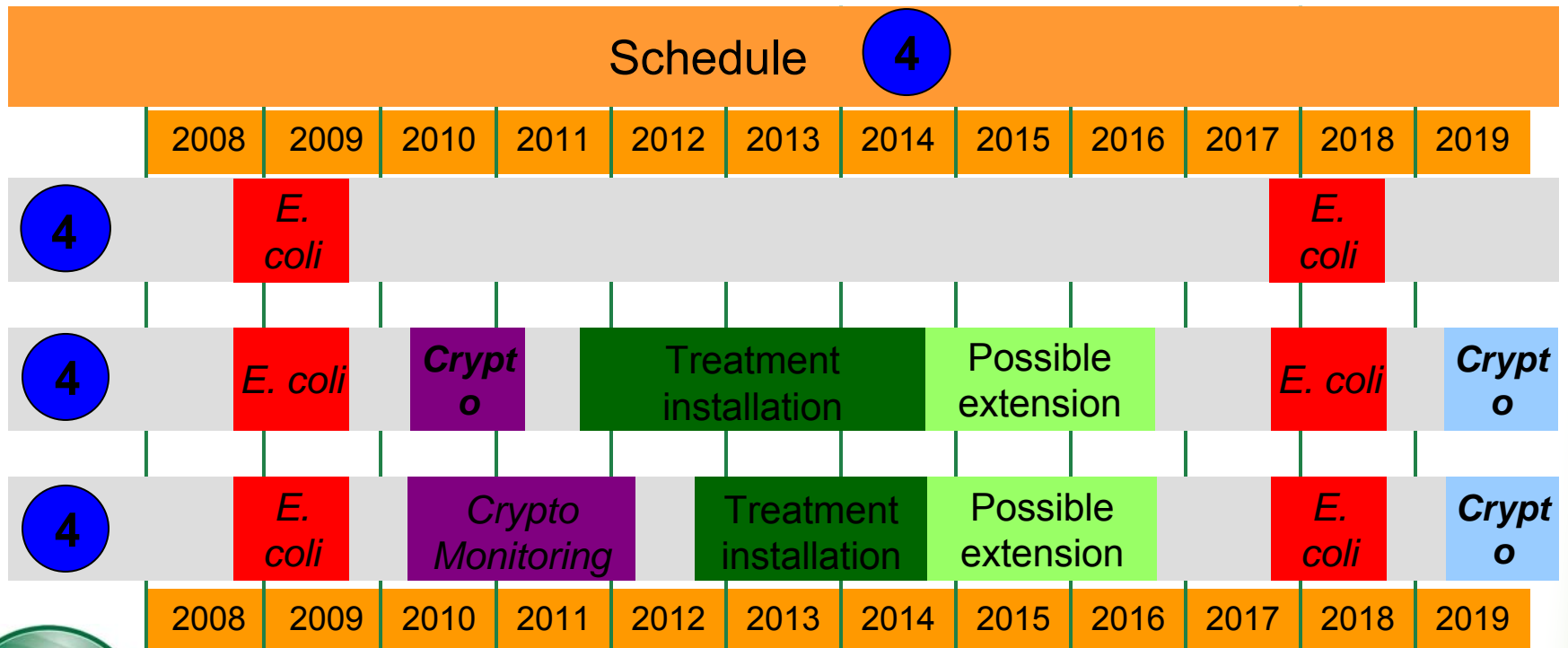
General Requirements

Implementation Timeline



LT2ESWTR General Requirements

Implementation Timeline



LT2ESWTR

General Requirements

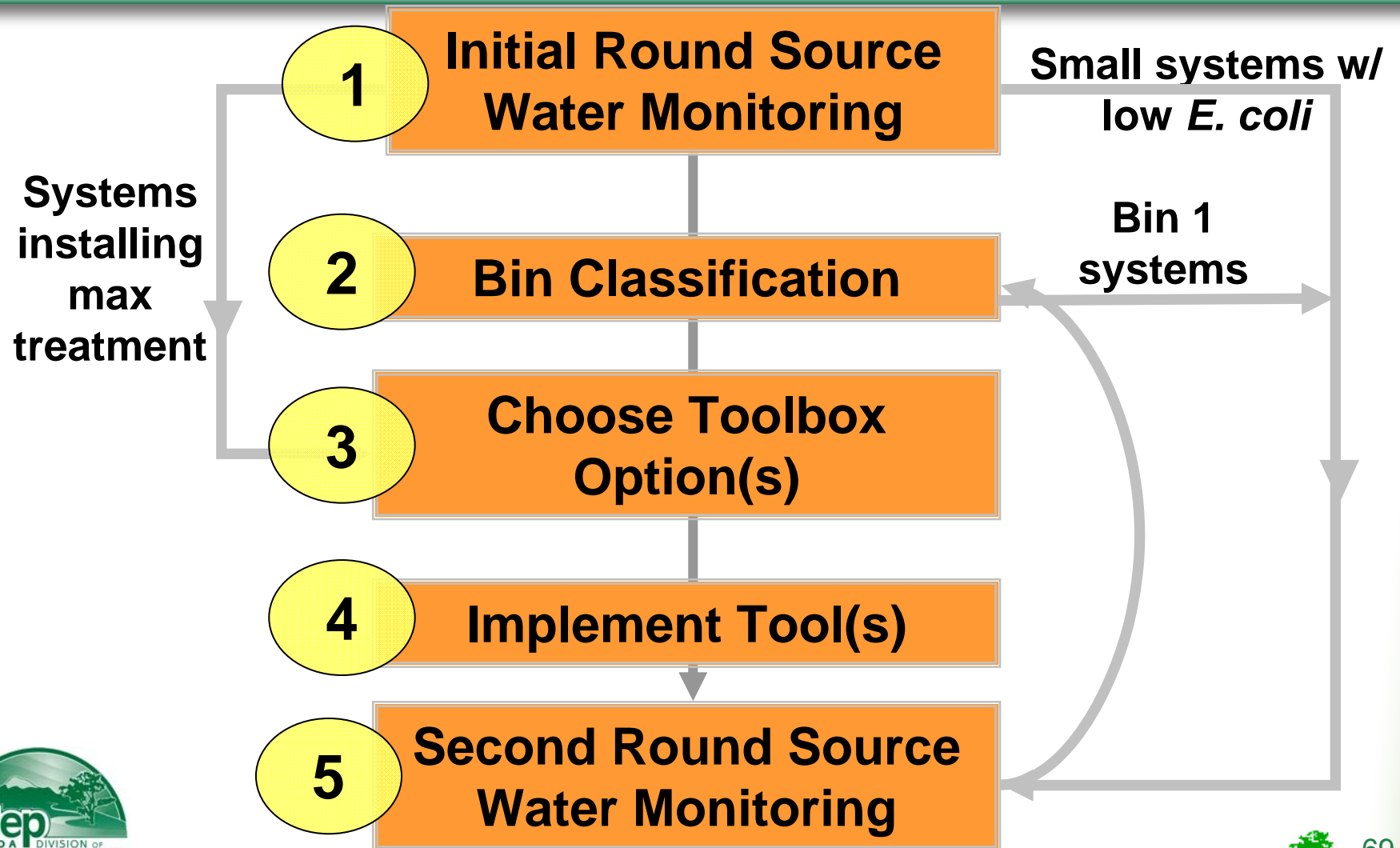
- LCB Section 27—NAC 445A.520 (141.700)
General Requirements for Treatment
 - ◆ Added 141.700
 - ◆ Added LCB Section 10
 - Constitute National Primary Drinking Water Regulations
 - Applicability
 - Requirements
 - Source Water Monitoring (1st & 2nd Round)
 - Disinfection Profile & Benchmark
 - Bin Classification determination & Crypto treatment
 - Uncovered finished reservoirs
 - Additional treatment for Crypto follow Microbial Toolbox options
 - Recordkeeping & Reporting
 - Significant deficiencies—EPA primacy

LT2ESWTR

General Requirements

- LCB Section 29—NAC 445A.522
Filtration: Efficiencies for removal
 - ◆ Must be in compliance with
 - NAC 445A.533 & .521
 - ◆ Achieve higher removal
 - Approved by Division or District Board of Health
 - Giardia & Virus-obtain reliably
 - Cryptosporidium-Treatment performance of Microbial Toolbox in LCB Section 10
- Conventional
 - ◆ Cryptosporidium—3-log
 - ◆ Giardia—2.5 log
 - ◆ Virus—2-log
- Direct
 - ◆ Cryptosporidium—2.5-log
 - ◆ Giardia—2 log
 - ◆ Virus—1-log
- Diatomaceous Earth & Slow Sand
 - ◆ Cryptosporidium—3-log
 - ◆ Giardia—2 log
 - ◆ Virus—1-log

LT2ESWTR Process



Applicability

- All Subpart H systems
 - ◆ Use surface water or GWUDI sources
 - ◆ CWSs, NTNCWSs, TNCWSs
 - ◆ Wholesale systems
- Compliance deadlines and options based on people served
 - ◆ Divided into four schedules
 - ◆ Wholesale systems with own Subpart H source(s) comply based on requirements for largest system in their CDS

1

LT2ESWTR Source Water Monitoring

- Requirements based on:
 - ◆ System size
 - ◆ Wholesale status
 - ◆ Source water
 - ◆ Filtration status
 - ◆ Operating calendar
- Initial round
 - ◆ Start date based on system size
 - ◆ For wholesale systems, based on largest system in CDS
- Grandfathering is permitted



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Source Water Monitoring

- Schedule 4 systems have flexibility in *Crypto* frequencies
 - ◆ 24 samples over 1 or 2 years
- Filtered systems have additional flexibilities
 - ◆ Can choose to monitor for *E. Coli*
 - ◆ Only required to monitor for *Crypto* if *E. Coli* triggers exceeded

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Source Water Monitoring

- LCB Section 9 (141.701 thru 141.707)
 - ◆ Source Water Monitoring
 - Conducted according to 141.701 thru 141.707
 - Existing Sources
 - Prior to July 1, 2008—According to schedule
 - New Sources—LCB Section 9 subsection 1(b) (141.701(f))
 - After July 1, 2008—Submit schedule for monitoring
 - 1 month before monitoring
 - Monitor 12 months prior to water project approval, unless justified
 - Authority given to Division
 - Linked to Design and Construction, LCB Section 69

2

LT2ESWTR Treatment Techniques

- Filtered PWSs are classified into one of four bins
 - ◆ Based on initial monitoring results
- May set additional requirements
 - ◆ Bin 1: no additional treatment
 - ◆ Bins 2, 3, 4: additional treatment or control processes
- Separate unfiltered system requirements
- Covered in future trainings

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Treatment Techniques

Bin Requirement Table

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

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Treatment Techniques

Bin Classification	Additional Treatment Requirements Beyond Existing Regulations			Total Required Treatment
	Conv. Filtration Treatment	Direct Filtration	Slow sand or DE Filtration	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	4-log
Bin 3	2-log	2.5 log	2-log	5-log
Bin 4	2.5-log	3-log	2.5-log	5.5-log

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Treatment Techniques

- Unfiltered Systems
 - 2-log inactivation
 - If mean Crypto level ≤ 0.01 oocysts/L
 - 3-log inactivation
 - If mean Crypto level is > 0.01 oocysts/L

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Treatment Techniques

- LCB Sections 9 (141.710 thru 141.713)
 - ◆ Bin Classification
 - Calculate and report according
 - Filtered—141.710
 - Unfiltered—141.712 (a)
 - ◆ System required to treat
 - Filtered—141.711
 - Unfiltered—141.712(b)
 - ◆ Comply on Schedule—141.713
 - ◆ No variance to provisions

3

LT2ESWTR Microbial Toolbox

- Range of treatment and control process options to meet bin requirements
- 5 Toolbox Components
 - ◆ Source protection and management—2
 - ◆ Prefiltration—3
 - ◆ Treatment performance—3
 - ◆ Additional filtration—5
 - ◆ **Inactivation***—3
- Offer *Crypto* treatment credits
- Monitoring requirements prescribed within each component

* Only option for unfiltered systems

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Microbial Toolbox

- Source Protection & Management Options (40 CFR §141.716)
 - Watershed Control Program
 - 0.5-log credit
 - Alternative source/intake management
 - No prescribed credit



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Microbial Toolbox

- Prefiltration Options
(40 CFR §141.717)
 - Presedimentation basin with coagulation
 - 0.5-log credit (based on turbidity)
 - Two-stage lime softening
 - 0.5-log credit
 - Bank Filtration
 - 0.5-log credit for 25 ft setback
 - 1.0-log credit for 50 ft setback

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Microbial Toolbox

- Treatment Performance Options (40 CFR §141.718)
 - Combined filter performance
 - 0.5-log credit (≤ 0.15 NTU, 95% of time)
 - Individual filter performance
 - 0.5-log credit (≤ 0.15 NTU, 95% of time)
 - Demonstration of performance
 - No specified credit
 - See revision to NAC
 - Granting of higher efficiencies for removal
 - Modification to LCB Section 29 (NAC 445A.522)

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Microbial Toolbox

- Additional Filtration Options (40 CFR §141.719)
 - Bag or cartridge filters (individual)
 - Up to 2-log credit (based on challenge test)
 - Bag or cartridge filters (in series)
 - Up to 2.5-log credit (based on challenge test)
 - Membrane filtration
 - No specified credit (based on challenge test)
 - Second stage filtration
 - 0.5-log credit
 - Slow sand filters
 - 2.5-log credit (as secondary step)
 - 3.0-log credit (as primary process)

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Microbial Toolbox

- Inactivation Options
(40 CFR §141.720)
 - Chlorine dioxide
 - Credit based on CT tables
 - Ozone
 - Credit based on CT tables
 - UV
 - Credit based on dose tables

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Microbial Toolbox

- LCB Sections 10 (141.716 thru 141.720), 27, 28, 29
- LCB Section 10—New
 - System required to treat for Cryptosporidium
 - Utilize Microbial Toolbox in accordance with 141.716 thru 141.720
 - Watershed Control Program Additional Requirements
 - Demonstrate before treatment 0.5-log reduction of Crypto
 - Reducing potential for contamination
 - Physical removal

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Microbial Toolbox

- LCB Section 10 continued
 - Demonstration of Performance Additional Requirements
 - Site specific study
 - Prior approval required unless before July 1, 2008
 - Include the entire treatment process
 - Modification to LCB Section 29 (NAC 445A.522)
 - Alternative CT Values Additional Requirements
 - Site specific study
 - Prior approval required unless before July 1, 2008
 - Include the entire treatment process
 - Measurement of Crypto inactivation
 - Study full range of water quality and operational conditions

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Microbial Toolbox

- LCB Section 10 continued
 - ◆ Ultraviolet Light
 - Alternative UV reactor validation
 - Test microorganism or surrogate must be approved
 - Document validation overseen by independent 3rd party
 - UV Guidance Manual

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Microbial Toolbox

- LCB Section 27—NAC 445A.520 (141.700)
General Requirements for Treatment
 - ◆ Added 141.700
 - ◆ Added LCB Section 10
- LCB Section 28—NAC 445A.521 (141.711)
Filtration: Methods of Treatment
 - ◆ Added 141.711

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Microbial Toolbox

- LCB Section 30—NAC 445A.524 (141.719)
Filtration: Use of alternative technology
 - ◆ Greater than 1-log removal of Crypto &
 - ◆ Use bag, cartridge or membrane filters
 - ◆ 40 CFR 141.719 (a) and (b)
 - Daily direct integrity test (DIT)
 - Indirect integrity parameter
 - If turbidity-0.15 NTU is trigger for DIT
 - ◆ Additional info found in Membrane Filtration Guidance Manual

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Microbial Toolbox

- LCB Section 36—NAC 445A.533
 - ◆ Standards for operation of facility for filtration
 - Membrane filtration unit
 - Must be subject to direct integrity test upon start-up

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Microbial Toolbox

- LCB Section 31—NAC 445A.525 (141.712)
Filtration: Avoidance of requirements
 - ◆ Modified language to be closer to original text for which SWTR primacy obtained.
 - Specific criteria for Lake Tahoe
 - ◆ Added 40 CFR 141.712
 - ◆ Authority to grant filtration avoidance unique
 - Division
 - District board of health may make determinations that a system is under the direct influence of surface water

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Microbial Toolbox

- LCB Section 32—NAC 445A.526
Standards for Disinfection
 - ◆ Must comply with applicable inactivation components of Microbial Toolbox—LCB Section 10 (141.720)
 - ◆ CT tables for Cryptosporidium Inactivation
 - Chlorine dioxide and Ozone
 - Site specific study (142.16(n)(5))
 - LCB Section 10 subsection 2(c)

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Microbial Toolbox

- LCB Section 32—NAC 445A.526
Standards for Disinfection Continued
 - ◆ Ultraviolet light
 - CT dose tables for Cryptosporidium, Giardia lamblia and virus inactivation
 - Reactor validation testing
 - Alternative approach to reactor validation—(142.16(n)(6))
 - LCB Section subsection 2(d)
 - Reactor monitoring

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Microbial Toolbox

- Ultraviolet Light
 - ◆ LCB Section 35—NAC 445A.531
 - Inclusion of features for reliability in design and construction of plant
 - Must include multiple UV reactors
 - ◆ LCB Section 37—NAC 445A.534
 - Equipment of facility for disinfection
 - Equipment for measuring & recording flow of each UV reactor
 - ◆ LCB Section 38—NAC 445A.535
 - Requirements for plan of operations
 - Procedure for lamp breakage and mercury spill

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Microbial Toolbox

- LCB Section 33—NAC 445A.527
(141.716-141.720)

Requirements for monitoring

- ◆ Must comply with monitoring requirements of
Microbial Toolbox

4

LT2ESWTR Implement Option(s)

- Install chosen treatment to meet bin requirements:
 - ◆ Schedule 1 – April 1, 2012
 - ◆ Schedule 2 – October 1, 2012
 - ◆ Schedule 3 – October 1, 2013
 - ◆ Schedule 4 – October 1, 2014
- State can allow up to 2 additional years (141.713(c))
- Apply Microbial Toolbox options
 - ◆ Receive credit towards Cryptosporidium treatment

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Implement Options

- LCB Section 9 (141.715)
 - ◆ subsection 4(a)
 - On prescribed schedule
 - ◆ subsection 4(b)
 - Utilize Microbial Toolbox Options listed in 141.715
 - ◆ No variance to provisions

5

LT2ESWTR Follow-Up Monitoring

- Subsequent source water monitoring
 - ◆ 2nd Round
 - 6 years after initial bin classification (filtered systems)
 - 6 years after determination of mean *Crypto* levels (unfiltered systems)
 - ◆ Changes in watershed, source conditions
 - ◆ Same requirements apply
- Can lead to bin reclassification

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Follow-Up Monitoring

- LCB Sections 9 (141.711(d) & 142.16(n)(2)), LCB Section 28—NAC 445A.521 (141.711)
- LCB Section 9 subsection 2—New
 - ◆ During Sanitary Survey or equivalent source water assessment
 - Source Water Monitoring—Additional Rounds
 - Additional rounds of Source Water Monitoring
 - Filtered Systems-based on sanitary survey of watershed required by NAC 445A.539
 - Unfiltered Systems-based on watershed control program or monitoring required by NAC 445A.525

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Profiling and Benchmarking

- Balance risks between microbial pathogens and DBPs
- Impact of Stage 2 DBPR and *Crypto* requirements
- Required when altering disinfection
 - ◆ Develop profile for *Giardia lamblia* and viruses
 - ◆ Calculate benchmark
- Requirements go into effect upon completion of initial monitoring



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Profiling and Benchmarking

- LCB Section 32—NAC 445A.526
Standards for Disinfection
 - ◆ Disinfection Profile and Benchmark
 - 40 CFR 141.172, .530-.544, .708 and .709
 - 141.172 and 141.530-544 previous regulations'
 - 141.708 and 141.709—LT2ESWTR
 - Broke apart from other Disinfection requirements to be more explicit on need
 - Authority given to Division or the appropriate district board of health
 - Prior to modify disinfection practices
 - Linked to Design & Construction

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Reporting & Recordkeeping

- LCB Section 40(141.721)—NAC 445A.537
 - ◆ Submission of monthly reports
 - Keep in accordance with 141.721
 - May not all be monthly depending on Toolbox option
- LCB Section 39 (141.722)—NAC 445A.536
 - ◆ Maintenance of Record
 - Keep in accordance with 141.722
 - Maintain records of treatment plant for 3 years
 - Filter Backwash Recycling info

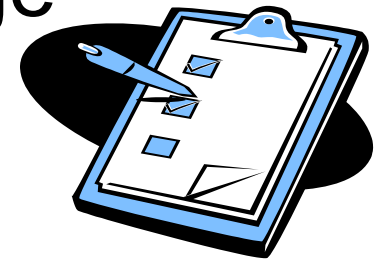
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Public Notification

- LCB Section 43—NAC 445A.540
 - ◆ Requirements for notification of persons served by system
 - Failure to comply with LCB section 10
 - Struck old PN language for SWTR
 - Superseded by new rule

Other System Requirements

- Reporting and Public Notification
- Uncovered finished water storage*
 - ◆ Cover or treat
- Recordkeeping*



* Not covered in today's training

Uncovered finished water reservoirs

- April 1, 2008
 - Systems must notify state of all uncovered finished water reservoirs
- April 1, 2009
 - Systems must cover all reservoirs or be under a state-approved schedule to cover
 - OR
 - Treat to achieve 4-log virus, 3-log *Giardia*, 2-log Crypto inactivation and/or removal using a protocol approved by state or be under a state-approved schedule to treat

State Issues

- Continue to meet primacy requirements of 40 CFR 142
- Additional primacy requirements
- Recordkeeping
- Reporting
- Training systems
- State = primacy agency!



General “Clean-up”

- Amendment to NAC 445A.4525 (LCB Section 17)
Adoption by reference of the National Primary Drinking Water Regulations (NPDWR)
- Amendment to NAC 445A.453 (LCB Section 18)
Primary standards: Requirements
 - ◆ *“and related federal regulations applicable to public water systems”.*
 - ◆ adds clarity that not only are PWS required to comply with the primary drinking water standards, but are also required to comply with other regulations included in the NPDWR.

General “Clean-up”

- Amendment to NAC 445A.485 Subsection 3 (c) (LCB Section 23)

Notification Requirements

- ◆ Clarifies notification for systems that fluoridate
 - If required concentrations not met, must report to the Health Division

General “Clean-up”

- LCB Section 20-Analytical Method Update
 - ◆ Turbidity, changed in 1994
 - ◆ Chlorine Residual, Stage 1 and Stage 2 DBPR

General “Clean-up”

- Incorporation of New Sections to NAC into existing “inclusive” portions. Throughout Regulations
 - ◆ Permits to Operate Privately Owned Systems
 - ◆ Account for the Revolving Fund and Account For Set-Aside Programs
- Removed the TTHM Rule
 - ◆ LCB Section 19, NAC 445A.4525
- Turbidity Analysis reference
 - ◆ old Turbidity Standard changed in 1994

Design, Construction, Operation & Maintenance (DCO&M)

Proposed Amendments to
NAC 445A.65505 to 445A.6731, inclusive

(Beginning at LCB Sec 46)

DCO&M General Cleanup

- Administrative Name Changes:
 - ◆ “Health Division” to “Division” or “Division of Environmental Protection”; or
 - ◆ “Health Authority” to “the Division or the appropriate district board of health”
 - Currently, the Washoe County Health District and the Southern Nevada Health District
 - ◆ LCB Section 134 repeals the definition of “Health Authority”

DCO&M General Cleanup

- Administrative Name Changes:
 - ◆ “Division of Environmental Protection” was clarified as necessary to specifically name the “Bureau of Water Pollution Control” in certain instances
 - i.e. discharge during pump testing of a well (LCB Sec 94) or for discharge of heavily chlorinated water (LCB Sec’s 109, 126 &128)

DCO&M General Cleanup

- Incorporation of additional defined terms:
 - ◆ “Commission” (LCB Sec 13)
 - ◆ “District board of health” (LCB Sec 14)
 - ◆ “State Board of Health” (LCB Sec 15)
- Where these terms fall in the range of the DCO&M regulations, additional references to the new “sections 13, 14 and 15 of this regulation” are added.

DCO&M General Cleanup

- Many engineering standards and other reference documents are adopted in NAC 445A.6663
 - ◆ i.e. AWWA, ANSI & ASTM Standards, construction standards, etc.
- Wherever such a document is identified, the LCB added a reference to NAC 445A.6663

DCO&M Amendment

- NAC 445A.6603 (LCB Sec 53): Defines “Groundwater under the direct influence of surface water”
 - ◆ Amendment permits the appropriate district board of health to also make a determination of GUDI
 - ◆ Intent is that County Health Departments are most familiar with their PWSs and their data; therefore, better able to make such a determination

DCO&M Amendment

- NAC 445A.66645 (LCB Sec 61): Procedures for persons aggrieved by decisions made under DCO&M Regulations
- Amendment adds decisions made by the “appropriate district board of health” to be included by this process
 - ◆ Intent is to promote consistency among NDEP and County Health Department decisions
- Amendment updates State Board of Health Appeal processes to the State Environmental Commission

DCO&M Amendment

- NAC 445A.6665 (LCB Sec 62): Special Exceptions
- Amendment adds the ability for an “appropriate district board of health” to grant special exceptions “with the concurrence of the Division”
 - ◆ Intent is to promote consistency among NDEP and County Health Department decisions

DCO&M Amendment

- NAC 445A.6682 (LCB Sec 86): Fluoridation
- The Safe Drinking Water Program resided under the Health Division until 2005
- Amendments address *clarification of current Roles and Responsibilities* between the NDEP and the Health Division's Oral Health Program
 - ◆ The NDEP regulates the Secondary MCL for Fluoride;
 - ◆ The Health Division regulates the therapeutic dose of fluoride in a county larger than 400,000 people (Clark)
- ***NO CHANGES TO THE CONTENT OF THE FLUORIDATION PROGRAM ARE PROPOSED***

DCO&M Amendment

- NAC 445A.6669 (LCB Sec 69): Requirement for submitting
 - ◆ Source water sampling data
 - ◆ Disinfection profile and benchmark
- NAC 445A.66825 (LCB Sec 87): Amendments to “Disinfection of Water: General requirements”
 - ◆ Conform with adoption of LT2
 - ◆ Cross-reference

Permits to Operate Privately Owned Systems

- NAC 445A.595-445A.614
- LCB Sections 44 and 45
 - ◆ Incorporate LCB Sections 13, 14, and 15
- Note: The BSDW recognizes that additional updates to these regulations are necessary for administrative name changing – this will be done in a future amendment

ACCOUNT FOR THE REVOLVING FUND AND ACCOUNT FOR SET-ASIDE PROGRAMS

- Preliminary Procedures for Financing Water Projects and Other Authorized Activities
 - ◆ NAC 445A.67561- 445A.67579
 - ◆ LCB Section 133
 - Incorporates LCB Sections 2 thru 12 and 13, 14, and 15

Questions?

