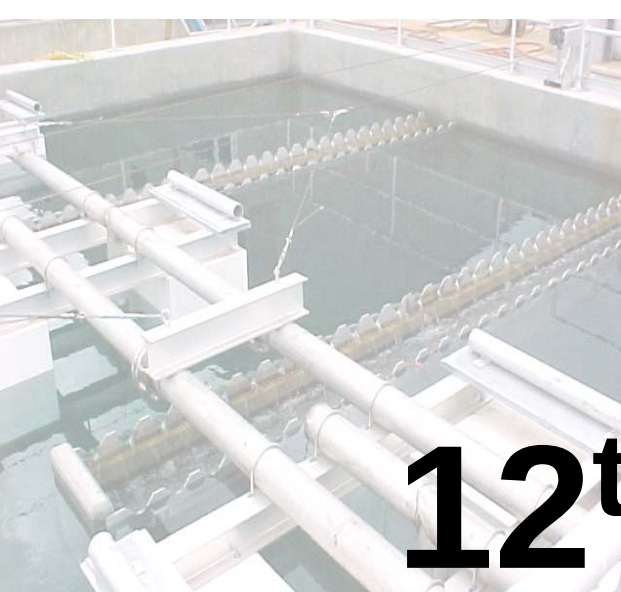
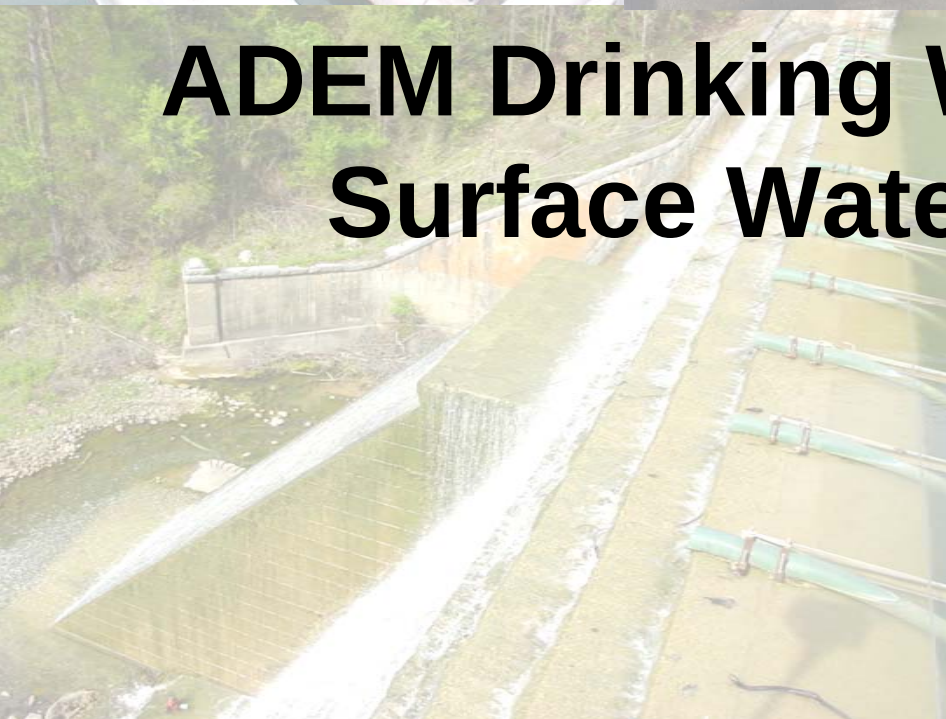




12th Annual



ADEM Drinking Water Branch Surface Water Meeting

12th ANNUAL SURFACE WATER MEETING AGENDA

OCTOBER 19-20, 2009

Auburn Montgomery / Taylor Center Rooms 221, 222 & 223

MONDAY OCTOBER 19, 2009

REGISTRATION 11:00 – 1:30

Welcome and Announcements William McClimans 1:00 – 1:05

Introduction/Drinking Water Update Jim Arnold 1:05 – 1:30

Operator Certification Update Tom Madigan, Op Cert. 1:30 – 2:00

The Proposed Revisions to the Total Coliform Rule and What It Means to You Amy Newbold, U.S.EPA-R4 2:00 – 2:30

Break 2:30 – 2:45

NPDES Keys to Compliance James Carlson, NPDES 2:45 – 3:15

Disposal of WTP Sludge Scott Story, ADEM Land Div. 3:15 – 3:45

Reducing Electric Power Consumption In Water Systems John Regnier, ARWA 3:45 – 4:15

Questions and Adjournment 4:15 – 4:30

TUESDAY OCTOBER 20, 2009

REGISTRATION 7:00 – 8:00

Welcome William McClimans 8:00 – 8:05

Risk Management/CCR Laura Taylor 8:05 – 8:30

Office of Water Resources Update Tom Littlepage, ADECA 8:30 – 9:00

Fluoridation Program Shellie Lyles, ADPH 9:00 – 9:30

Break 9:30 – 9:45

Stage 2 /LT2 Update William McClimans 9:45 – 10:30

Optimization For Disinfection and Disinfection

Byproduct (DBP) Control Jim Ramsey 10:30 – 11:00

AWOP Update and Awards Tom Garrett 11:00 – 11:45

Lunch Provided By AUM 11:45 – 12:30

Tuscaloosa's Flushing Program Bernard Cassidy, Tuscaloosa 12:30 – 1:00

Effects of pH on Disinfection By-

Product Formation Jess Burns, TTL 1:00 – 1:30

Maintaining Optimization While Changing Coagulants Joel Rhaly, Birmingham 1:30 – 2:00

Break 2:00 – 2:15

Lead and Copper Rule Changes Tom DeLoach 2:15 – 2:45

Tort Law and Operator Liability Dennis Harrison 2:45 – 3:15

Security Update and Review Claude McDonald 3:15 – 3:45

Evaluation/Certificates/Adjourn 3:45 – 4:00



Drinking Water Program Update

Presenter:

Jim Arnold, Chief
Surface Source Section – Drinking Water Branch
(334) 271-7777 jma@adem.state.al.us

GOAL:

Provide Up-to-Date Information on
Drinking Water Program



FY09 PERMITS

- OPERATE/RENEWAL
- CONSTRUCTION
- MODIFY



FY09 ON-SITE VISITS

- **SANITARY SURVEYS**
- **ANNUAL INSPECTIONS**
- **OTHER VISITS**



NEW REGULATIONS

- **STAGE 2 DBPR**
- **LT2 ESWTR**
- **GWR**
- **LCR CHANGES**
- **AUXILIARY POWER/LIGHTING**



ENFORCEMENT ISSUES

- **MORs**
- **CCRs**
- **BACTERIOLOGICAL SAMPLING**
- **CHEMICAL SAMPLING**



COMPLIANCE ASSISTANCE

- **AWOP**
- **CAPACITY DEVELOPMENT**
- **INFORMAL ADVICE**
- **PRESENTATIONS/TRAINING**

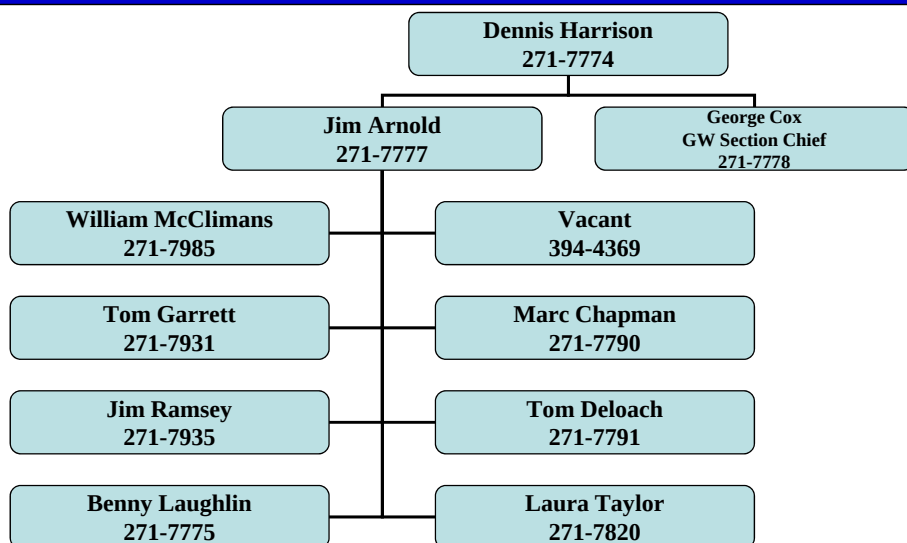


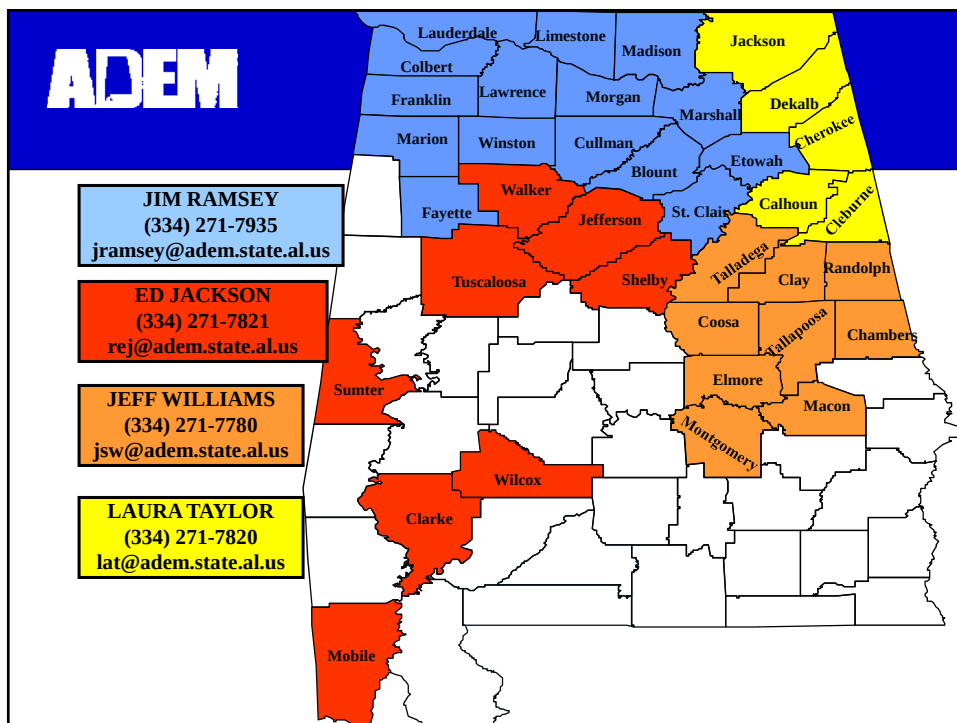
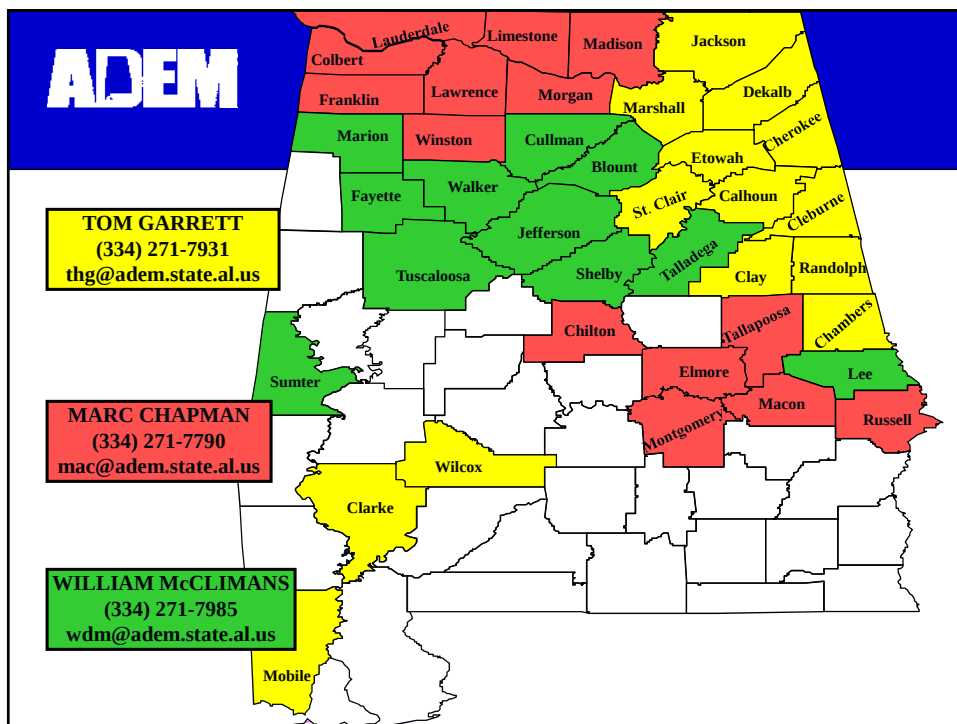
HOT ISSUES

- ECONOMIC
- FUTURE RULES
- WEATHER
- EMERGING CONTAMINANTS
- VANDALISM
- WATER WARS



TECHNICAL STAFF





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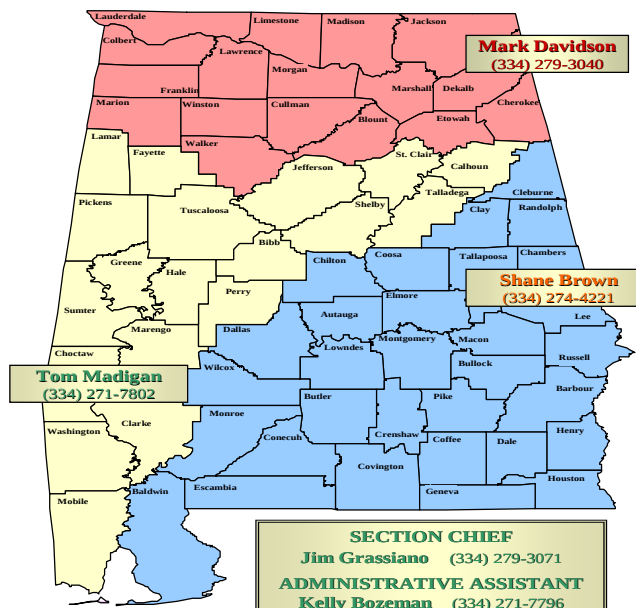
Operator Certification Update

Presented by **Thomas Madigan**

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OPERATOR CERTIFICATION SECTION OPERATOR CERTIFICATION DISTRICTS



September 1, 2009



ADEM Staff

- **Shane Brown**
- 334-274-4221
- sbrown@adem.state.al.us
- **Mark Davidson**
- 334-279-3040
- smdavidson@adem.state.al.us
- **Tom Madigan**
- 334-271-7802
- twm@adem.state.al.us

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Additional Responsibilities

1. Operator Certification Program
2. Alabama Water Well Standards Program
3. Landfill Operator Certification Program
4. Pollution Prevention Program (P²)
5. Compliance Assistance
6. Water Re-use Program

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Effective April 1, 2008

➤ “All high rate filtration water plants with a filtration rate in excess of two gallons per minute per square foot of filter area must have an unrestricted Grade IV operator present in the plant during all hours of operation”.



Operator Certification Fees

Effective Date: 10/1/09-9/30/2010

- | | |
|---|-----------------|
| • Form 505 (Computer Exams) | \$150.00 |
| • Form 506 (Experience Verification) | \$ 60.00 |
| • Form 507 (Reciprocal Application) | \$ 85.00 |
| • Form 508 (Multiple Systems Application) | [No charge] |
| • Form 435 (Renewal by Mail) | \$ 45.00 |
| • Renewal by Internet | \$ 35.00 |
| • Renewal Late Fee | \$100.00 |

ADEM's website/Operator Fees are subject to change at any time. If you need further assistance, contact our office at (334) 271-7796.

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Certified Operator Update

as of October 2, 2009

Wastewater Operators 1539

Water Operators 2498

Total # of Operators is 3416 with
Single or Dual Certificates

With Single Certificate 2,795

Dual Certificates 621



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Continuing Education

❖ Some things to remember:

- ADEM no longer pre-approves courses. We do approve instructors.
- Courses fall under "Approved Topics"
- "Approved Topics" are very general.

Call us if you have questions
(334) 271-7796.



adem.alabama.gov



Finding ADEM's Website For Operator Information

Find ADEM's website (adem.alabama.gov)

- ❖ Click on **Forms** (435, 505, 506, 507, 508)
- ❖ Click onto **Water Division**
- ❖ Click onto **Operator Certification**
 - Operator Training
 - Fees (number and description of each application)
 - Chapter 335-10-1 Regulation booklet
 - On-line Renewals (electronic renewal with technical assistance number)
 - Computer Based Exams

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Continuing Education Hours and Carry Over Hours

- ❖ Operators with one certificate must demonstrate 24 continuing education hours (CEHs) taken in the past three years.
- ❖ Dual certified operators must provide 15 CEHs for each certificate renewed.
- ❖ Carryover hours for renewal purposes will not exceed 10 CEHs for one renewed certificate.

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Update Your Address When You Move

- ✓ Allows your renewal notices to reach you in a timely manner.
- ✓ Regulatory changes are periodically sent to your home address.

An accurate database is only as helpful as the time spent updating the system.

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Certification Process

- The applicant studies and passes an exam. The applicant is now an intern. The intern has 5 years to get his or her experience.
- Experience is achieved by working in an ADEM permitted facility.
- Now the intern can apply for his or her license. The intern becomes a Certified Operator. The license is renewed every 3 years.

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ADEM Computerized Exams

- All exams are computer based (by appt. only).
- Applied Measurement Professionals (AMP) administers the exams. Tests are provided Mon-Saturday 9:00 am and 1:30 pm, Central Time.
- In Alabama, exams are provided in H&R Block business offices in Montgomery, Athens, Huntsville, Birmingham (2 locations) and in one location at ABS Tax Service in Mobile.
- Arrive 15 minutes early.

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ADEM

Water Grade IV Exam Results

<u>Fiscal Year</u>	<u>2008</u>	<u>2009</u>
Number Passing	287	279
Number Exams Taken	626	636
Passing Rate	<u>46%</u>	<u>44%</u>

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Renew by Internet

- Fee **\$35.00**
 - Log onto ADEM's Website. Find "On-Line Renewal"
 - Enter the information asked for
 - Pay with your credit card
 - Wait for confirmation
 - Print confirmation
 - Call 866-353-3468 for technical support.
- support@alabamainteractive.org



FORM 435 Renewal by Mail Application

- ❖ 90-120 days before your certificate expires, you will receive a renewal notice in your mailbox (Form 435).
- ❖ Your application must be received by our office on or before 30 days of your expiration date, or you will be charged an additional \$100.00 late renewal fee.
- ❖ All fees shall be made out to "ADEM". Personal, business, cashier checks and money orders are acceptable means of payment. No cash accepted.

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ADEM Staff Inspections

- Staffing Waiver inspections:
 - Grade III Wastewater Tr Plants.
 - Remotely monitored.
 - In compliance with ADEM's Municipal Branch.
 - Course inspections
 - Unannounced visits.
 - Curriculum
 - Unannounced facility inspections
 - Log books
- [Questions concerning staffing requirements and operator certification, please call our office at (334) 271-7796].



Careers in the Water & Wastewater Industries

- Develop a tabletop or floor display
- Provide various handouts and trinkets with eye catching slogans or logos (pens, frisbees, caribiners, flashlights etc.)
- Target the proper age group

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Tri-fold Tabletop Display Board



OPERATOR CERTIFICATION

COMPLIANCE AND ENFORCEMENT REPORT

	<u>FISCAL YEAR 2008</u>	<u>FISCAL YEAR 2009</u>
<u>Verbal Warnings</u>	4	2
<u>Warning Letters</u>	4	5
<u>Notices of Violation</u>	2	0

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Proposed Revisions to the Total Coliform Rule



Amy Newbold
Environmental Engineer
EPA Region 4
Newbold.amy@epa.gov



Background on the Current TCR

- ◆ Published 1989, effective 1990
- ◆ The only microbial drinking water regulation that applies to all public water systems (PWSs).
- ◆ MCLG (health goals) and MCL (legal limits) for Total Coliform (TC).
 - Monthly MCL TC (+) trigger (2 samples or 5%)
- ◆ Presence of fecal coliforms or *E. coli* with TC (+) samples determines acute MCL violations.



Why is EPA Revising the Rule?

- ◆ EPA evaluates regulated contaminants, based on available data, to determine possible rule revisions.

"The Administrator shall, not less than every 6 years, review and revise, as appropriate, each national primary drinking water regulation (NPDWR)..."

- ◆ EPA can utilize a Federal Advisory Committee (FAC) to develop an Agreement in Principle recommending revisions
- ◆ EPA holds Final Agency Review (FAR)
- ◆ Office of Management & Budget (OMB) reviews proposed revisions
- ◆ EPA proposes revisions in the Federal Register
- ◆ EPA reviews public comment and makes changes if necessary
- ◆ EPA publishes final rule



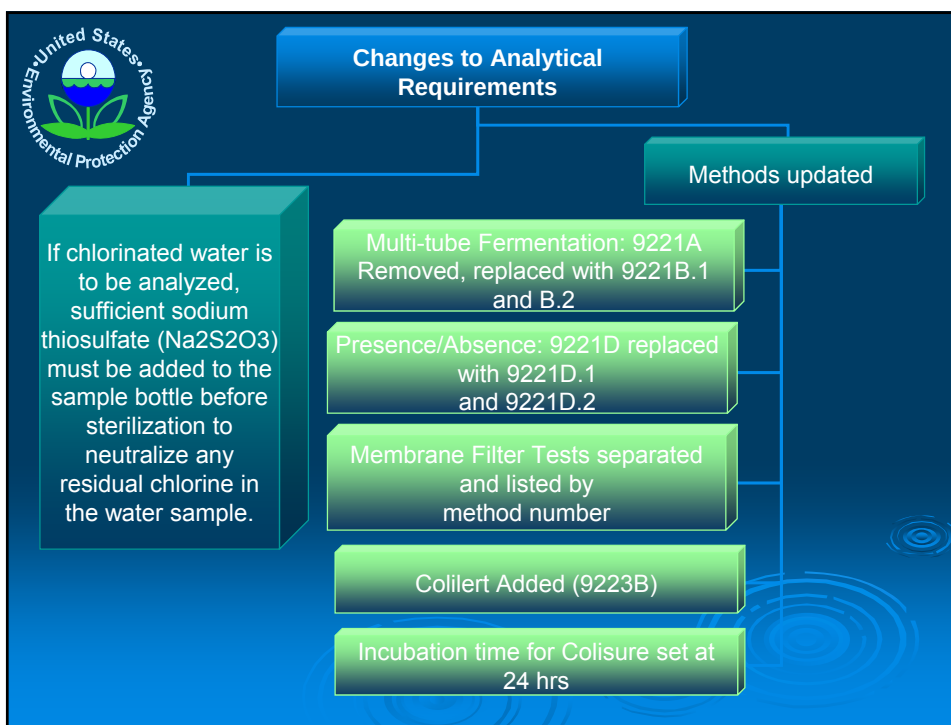
Timeline for Revision Process

Final Agency Review (FAR)	October 15, 2009
OMB review	Dec. 2009 – Mar. 2010
Proposed rule	August 2010
Final rule	October 2012



New Definitions

- ◆ **Clean compliance history** is a record of no MCL violations; no monitoring violations; and no treatment technique trigger exceedances or treatment technique violations
- ◆ **Sanitary defect** is a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.
- ◆ **Seasonal system** is a non-community water system that is operated three or fewer calendar quarters per calendar year.





Major Proposed Revisions to the TCR

- ◆ Fecal Coliforms no longer used to determine compliance, only E. coli
- ◆ Elimination of TC Monthly MCL, replaced with TC Treatment Technique (TT).
- ◆ No monitoring changes for systems collecting more than 5 samples per month (serving >4,100 people)
- ◆ More flexibility with sample siting plans
- ◆ Public Notification for TT violations instead of Monthly TC

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Total Coliform Treatment Technique Violation

		Current Rule	Proposed Revision
System	Trigger	Violation Type	Violation Type
A system collecting fewer than 40 samples per month ($\leq 33,000$)	Greater than 1 ROUTINE/REPEAT sample per month which is total coliform-positive.	Monthly MCL	No Violation , but triggers self-assessment (Level 1).
			Failure to complete self-assessment results in Treatment Technique
A system collecting at least 40 samples per month ($\geq 33,000$)	Greater than 5.0 percent of the ROUTINE/REPEAT samples in a month total coliform-positive.	Monthly MCL	No Violation , but triggers self-assessment (Level 1).
			Failure to complete self-assessment results in Treatment Technique

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What is a Level 1 Assessment?

- ◆ **Completed by PWS**
 - Can be completed by water system operator
 - Short Checklist (envisioned as 1-2 pages, but will vary by State and water system type)
- ◆ **Identifies:**
 - Sanitary defects detected
 - Corrective actions taken
 - Timetable for corrective actions that have not been completed
- ◆ **Reviewed by primacy agency to (due 30 days after exceedance):**
 - Establish that the problem has been corrected or gives a timeline for corrective action
 - Determine if the likely cause has been identified
- ◆ **Triggers:**
 - Sys taking ≥ 40 samples: 5.0% TC+
 - Sys taking < 40 samples: 2 or more TC+
 - Failure to take all required repeat samples

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Level 1 Assessment (Concept)

System Name:		Source Water:		PWQID #	
System Type:		System Size:			
Operator In Responsible Charge (ORC):		Phone:		PWS Address:	
City, State:					
County:					
Person that collected TC samples if different than ORC:		Phone:			
Address, City, State, Zip:					
Date Assessment Completed:					

Questions	Review	Applicable	Issue Identified	Issue Description	Corrective Action Taken (including Date)
1. Have any of the following occurred at relevant facilities prior to the collection of TC samples? (Any interruptions in the treatment process, any reported loss of pressure events (5 psi), operation and maintenance activities that could have introduced total coliform, reported vandalism and/or unauthorized access to facilities, visible indicators of unsanitary conditions reported, Has there been a fire fighting event, flushing operation, watershed incident, etc.)	☐	Y N	Y N		
2. Have there been any recent changes? (Sources introduced, treatment or operational changes, potential sources of contamination)	☐	Y N	Y N		
3. Evaluate sample site. (Condition or location of tap, regular use of connection)	☐		Y N		
4. Sample protocol followed. And reviewed (Flush tap, remove aerator, no swivel, fresh sample bottles, sample storage acceptable)	☐		Y N		



Level 1 Cont'd

Questions	Review	Applicable	Issue Identified	Issue Description	Corrective Action Taken (including Date)
5. Distribution System:	☐	Y N	Y N		
(System pressure, cross connection, pump station, air relief valves, fire hydrants or blow off, breaks, repairs)					
6. Storage Tank:	☐	Y N	Y N		
(Screens, security, access control, condition of tank, vent, drain, overflow, pressure tank, GPM)					
7. Treatment Process: (if applicable)	☐	Y N	Y N		
(Interruptions, POE/POU, softeners, GPM)					
8. Source - Well	☐	Y N	Y N		
(Sanitary seal, vent screen, air gap, cross connection, security, pump to waste line)					
9. Source - Spring	☐	Y N	Y N		
(Condition of spring development, condition of spring box, security)					
10. Source - Surface Water Supply		Y N	Y N		
(Heavy Rainfall, rapid snowmelt, flooding, changes in availability, power outages)					

Print name of person completing form: _____ Date: _____

Signature: _____

Reserved for State

1. Assessment has been successfully completed.	☐
2. Likely reason of total coliform positives occurred is established and the system	☐
3. Was a Reset Requested and/or Granted - Rationale	☐
4. Name of State Reviewer:	☐

Note: Form to be completed based on data and documents available to the PWS operator in charge, maintained on file and returned to the Primary Agency within 30 days.



Acute (E. coli) MCL & Monitoring & Reporting Violations

System	Current Rule		Proposed Revision	
	Trigger	Violation Type	Trigger	Violation Type
Any public water system . . .	Any fecal coliform- or E. coli-positive REPEAT sample or has a fecal coliform- or E. coli-positive ROUTINE sample followed by a total coliform-positive REPEAT sample.	Acute MCL	Same as current rule, except E. coli only	Acute MCL triggers Assessment (Level 2)
Any public water system . . .	Monitoring - failure to take every required routine or additional routine samples in a compliance period. Reporting - fails to submit monitoring results and/or Assessment Report by the required deadline	Routine M&R	Monitoring - failure to take every required routine or additional routine samples in a compliance period. Reporting - fails to submit monitoring results and/or Assessment Report by the required deadline	Routine M&R



What is a Level 2 Assessment?

- ◆ **Conducted by PWS, provided the system has:**
 - A certified operator with 2 years experience, or
 - Individuals with equivalent experience as approved by the primacy agency
- ◆ **More detailed and comprehensive than Level 1 Assessment & Identifies:**
- ◆ **Reviewed by primacy agency to (due 30 days after exceedance):**
- ◆ **Triggers:**
 - E.coli MCL violation
 - E.coli monitoring violation
 - Second Level 1 trigger within a rolling 12 months (unless primacy agency determines the system has corrected the initial problem)
 - Level 1 trigger in 2 consecutive years (sys on annual monitoring only)

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Level 2 (Concept – See Handout)

System Name:		System Type:		PWSID#	
System Source:		System Size:			
Operator in Responsible Charge (ORC):		Phone:		PWS Address:	
County:					
City, State:					
Person(s) that collected TC samples if different than ORC:		Phone:			
Address, City, State, Zip:					
Date Assessment Completed:					
Questions	Review	Issue Identified	Applicable	Issue Description	Corrective Action Taken (Date)
1. Have any of the following occurred prior to collection of TC samples at a relevant facility?	☐	Y N	Y N		
a. Were there any operation and maintenance activities that could have introduced total coliforms?	☐	Y N			
b. Have there been any interruptions in the treatment process?	☐	Y N			
c. Has the system lost pressure to less than 5 psi?	☐	Y N			
d. Have there been any vandalism and/or unauthorized access to facilities?	☐	Y N			
e. Are there any visible indicators of unsanitary conditions observed?	☐	Y N			
f. Have there been any analytical results or any additional samples collected, including source samples which were positive, not for compliance?	☐	Y N			
g. Have there been any community illness suspected of being waterborne (e.g., Does the community public health official indicate that an outbreak has occurred.)	☐	Y N			
h. Did the water system receive any TCR monitoring violations in the past 12 months? If yes, when?	☐	Y N			
i. What was the most recent date on which coliform/total coliform samples were taken?	☐	Y N			
j. Have there been a fire fighting event, flushing operation, shoredry/dredging, etc.	☐	Y N			
Other comments on records and maintenance?					



RECAP – Violation Triggers

- ◆ **E. coli Acute MCL Violation**
 - Any E. coli + Repeat sample
 - Any TC + Repeat following an E. coli + Routine sample
 - Failure to take all required Repeats following an E. coli + Routine
 - Failure to test for E. coli when any Repeat tests + for TC
- ◆ **Treatment Technique Violation**
 - System fails to conduct the required assessment or corrective actions
- ◆ **Monitoring Violation**
 - Failure to take every required routine or additional routine sample
 - Failure to analyze for *E. coli* following a TC routine sample
- ◆ **Reporting Violation**
 - Failure to notify the State following an E. coli-positive sample
 - Failure to submit completed assessment



Public Notice

Proposed Revisions to Rule						
Violation Type	System	Trigger	Additional Requirement	Notify Primacy Agency	PN Requirement	Increased Monitoring
E. coli MCL (Acute MCL)	Any public water system . . .	E. coli-positive REPEAT sample or E. coli-positive ROUTINE sample followed by a total coliform-positive REPEAT sample.	Conduct Level 2 Assessment, report to State within 30 days of MCL violation.	24 hrs	Tier 1 (24hrs)	No less than monthly
Treatment Technique	Any public water system . . .	After a system exceeds an action trigger, it then fails to conduct the required assessment or corrective actions. There is no violation associated solely with a system exceeding one or more action triggers.	Level 1 Assessment due to State within 30 days of meeting the trigger.	End of next business day	Tier 2 - 30 days, Repeat PN every 3 months as long as the violation or situation persists.	No less than monthly
		1) Failure to perform a Level 1 or 2 assessment if triggered				
		2) Failure to correct all sanitary defects identified in an assessment.				
		3) Failure to correct sanitary defects according to agreed upon schedule				
Routine M&R	Any public water system . . .	Monitoring - a system fails to take every required routine or additional routine samples in a compliance period. Reporting - fails to submit a monitoring or Assessment Report by the required deadline	Level 1 Assessment due to State within 30 days of failure to collect required repeat samples after a TC +	Within 10 days	Tier 3 - 1yr (OCR)	No less than monthly for quarterly systems with monitoring violations in 2 of 4 quarters, or misses its annual sample (for sys on annual monitoring)



Monitoring

Sys Type (CWS, NTCWS, TCWS, or Seasonal)	Source	Sys Size	Current Rule				Proposed Revisions (AIP)			
			Routine Monitoring	Reduced	Increased	Repeat Monitoring	Routine Monitoring	Reduced	Increased	Repeat Monitoring
CWS	GW	>1,000	Monthly	N/A	N/A	3	Monthly	N/A	N/A	3
CWS	SW	>1,000	Monthly	N/A	N/A	3	Monthly	N/A	N/A	3
NCWS	GW	>1,000	Monthly	N/A	N/A	3	Monthly	N/A	N/A	3
NCWS	SW	>1,000	Monthly	N/A	N/A	3	Monthly	N/A	N/A	3
CWS	GW	≤1,000	Monthly	Quarterly	N/A	4	Monthly	Quarterly	N/A	3
CWS	SW	≤1,000	Monthly	N/A	N/A	4	Monthly	N/A	N/A	3
NCWS	GW	≤1,000	Quarterly	Annually	N/A	4	Quarterly	Annually	Monthly	3
NCWS	SW	≤1,000	Monthly	N/A	N/A	4	Monthly	N/A	N/A	3
Seasonal NCWS	GW	≤1,000	Quarterly	Annually	N/A	4	Monthly	Quarterly or Annually	N/A	3

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Next Steps

Final Agency Review (FAR)	October 15, 2009
OMB Review	Dec. 2009 – Mar. 2010
Proposed Rule	August 2010
Final Rule	October 2012

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Questions?

APPENDIX Y

EXAMPLES OF SANITARY DEFECTS AND DEFECTS IN DISTRIBUTION SYSTEM COLIFORM MONITORING PRACTICES

Example Monitoring Conditions of Concern:

Sampling and Sample Site Issues

- Poor sample collection practices or technique
- Sample site not representative
- Bad sample tap
- Bad sample site – influence of premise plumbing, etc.

Inappropriate laboratory practices

- Poor sample handling practices
- Laboratory errors in sample processing

Example sanitary defects:

Cross Connection and Backflow Issues

- Required cross connection control devices not in place or not operating properly
- Unprotected cross connection found

Operator Issues

- Failure to follow SOPs that protect distribution system integrity and sanitary condition
- Inadequate disinfection during and after repair/replacement activities

Distribution System Issues

- Inadequate inspection and maintenance of distribution system
- Loss of distribution system integrity (i.e., Main breaks)
- Failure to maintain adequate pressure
- Improper flushing operations
- Improper construction of new, replaced, or renovated lines.

Storage Issues

- Overflow, vents, hatches and other penetrations not configured, screened, or sealed properly
- Inadequate inspection and maintenance of storage facilities
- Inadequate disinfection during and after repair/replacement activities

Disinfection Issues

- Inability to maintain required residual throughout the distribution system

APPENDIX X

CONCEPT EXAMPLE LEVEL 1 ASSESSMENT FORM

System Name:	Source Water:	PWSID #
System Type:	System Size:	
Operator in Responsible Charge (ORC):	Phone:	PWS Address:
City, State:		
County:		
Person that collected TC samples if different than ORC:	Phone:	
Address, City, State, Zip:		
Date Assessment Completed:		

Questions		Review	Applicable	Issue Identified	Issue Description	Corrective Action Taken (Including Date)
M A N A G E M E N T	1. Have any of the following occurred at relevant facilities prior to the collection of TC samples?	☐	Y N	Y N		
	(Any interruptions in the treatment process; any reported loss of pressure events (5 psi); operation and maintenance activities that could have introduced total coliform; reported vandalism and/or unauthorized access to facilities; visible indicators of unsanitary conditions reported; Has there been a fire fighting event, flushing operation, shared hydrant, etc.)					
	2. Have there been any recent changes?	☐	Y N	Y N		
	(Sources introduced, treatment or operational changes, potential sources of contamination)					
	3. Evaluate sample site.	☐		Y N		
	(Condition of location of tap, regular use of connection)					
	4. Sample protocol followed. And reviewed	☐		Y N		
	(Flush tap, remove aerator, no swivel, fresh sample bottles, sample storage acceptable)					

Questions	Review	Applicable	Issue Identified	Issue Description	Corrective Action Taken (including Date)
5. Distribution System. (System pressure, cross connection, pump station, air relief valves, fire hydrants, blow off, breaks, repairs)	☐	Y N	Y N		
6. Storage Tank. (Screens, security, access opening, condition of tank, vent, drain overflow, pressure tank, O&M)	☐	Y N	Y N		
7. Treatment Process. (If applicable) (Interruptions, POE/POU, softeners, O&M)	☐	Y N	Y N		
8. Source - Well (Sanitary seal, vent, screened, air gap, cross connection, security, pump to waste line)	☐	Y N	Y N		
9. Source - Spring (Condition of spring development, condition of spring box, security)	☐	Y N	Y N		
10. Source - Surface Water Supply (Heavy Rainfall, rapid snowmelt, flooding, changes in availability, power outages)		Y N	Y N		

Print name of person completing form: _____ Date: _____

Signature: _____

Reserved for State

- 1 Assessment has been successfully completed.
2 Likely reason of total coliform positives occurred is established and the system
3 Was a Reset Requested and/or Granted - Rationale
4 Name of State Reviewer:
-

Note: Form to be completed based on data and documents available to the PWS operator in charge, maintained on file and returned to the Primary Agency within XX days.

TCR Triggered Assessment Form - Level 2

CONCEPT EXAMPLE LEVEL 2 ASSESSMENT FORM

System Name:	System Type:	PWSID#
System Source:	System Size:	
Operator in Responsible Charge (ORC):	Phone:	PWS Address:
County:		
City, State:		
Person(s) that collected TC samples if different than ORC:	Phone:	
Address, City, State, Zip:		
Date Assessment Completed:		

Questions	Review	Issue Identified	Applicable	Issue Description	Corrective Action Taken (Date)
1. Have any of the following occurred prior to collection of TC samples at a relevant facility?	☐	Y N	Y N		
a. Were there any operation and maintenance activities that could have introduced total coliforms?	☐	Y N			
b. Have there been any interruptions in the treatment process?	☐	Y N			
c. Has the system lost pressure to less than 5 psi?	☐	Y N			
d. Have there been any vandalism and/or unauthorized access to facilities?	☐	Y N			
e. Are there any visible indicators of unsanitary conditions observed?	☐	Y N			
f. Have there been any analytical results or any additional samples collected, including source samples which were positive (not for compliance)?	☐	Y N			
g. Have there been any community illness suspected of being waterborne (e.g., Does the community public health official indicate that an outbreak has occurred.)	☐	Y N			
h. Did the water system receive any TCR monitoring violations in the past 12 months? If yes, when.	☐	Y N			
i. What was the most recent date on which satisfactory total coliform samples were taken?	☐	Y N			
j. Have there been a fire fighting event, flushing operation, sheared hydrant, etc.		Y N			
Other comments on records and maintenance?					

TCR Triggered Assessment Form - Level 2

2. Have there been any recent treatment or operational changes?		☐	☐ Y	☐ N	☐ Y	☐ N		
a. Have any inactive sources recently been introduced into the system (e.g. auxiliary systems)?		☐	☐ Y	☐ N				
b. Have there been any new sources introduced into the system?		☐	☐ Y	☐ N				
c. Is there evidence of any potential sources of contamination (main breaks, low pressure, high turbidity, loss of disinfection, etc.)?		☐	☐ Y	☐ N				
3. Evaluate sample site.		☐	☐ Y	☐ N	☐ Y	☐ N		
a. What is the condition of the tap?								
b. What is the location of the tap?								
c. What is the regular use of the connection?								
d. (if applicable) have there been any plumbing changes or construction? If yes, when and what was the repair or change?		☐	☐ Y	☐ N				
e. (if applicable) have there been any plumbing breaks or failure? If yes, when?		☐	☐ Y	☐ N				
f. (if applicable) List any identified cross connections after the service connection or in premise plumbing.								
g. (if applicable) Were all of the backflow prevention devices present, operational and maintained?		☐	☐ Y	☐ N				
h. (if applicable) Were there any low pressure events or changes in water pressure after the service connection or in the premise plumbing? If yes, when?		☐	☐ Y	☐ N				
i. Is there any treatment devices after the service connection or in premise?		☐ Point of Entry (POE)		Point of Use ☐ OU)				
Other comments on sample site?								
4. Sample protocol followed and reviewed			☐ Y	☐ N				
(Flush tap, remove aerator, no swivel, fresh sample bottles, sample storage acceptable)		☐						
5. Distribution System.		☐	☐ Y	☐ N	☐ Y	☐ N		
a. System pressure: Is there evidence that the system experienced low or negative pressure? If yes, when?		☐	☐ Y	☐ N				
b. List any identified cross connections.								
c. Pump station (if applicable): Are there any sanitary defects in the pump station? Are pump(s) operable?		☐	☐ Y	☐ N				

TCR Triggered Assessment Form - Level 2

d. Last pump maintenance/service date.	Date:			What was done?	
e. Air relief valves: Is the valve vault subject to flooding or does the vent terminate below grade?	☐	Y N			
f. Fire hydrant blow off: Are any located in an area with a high water table or leaks?	☐	Y N			
g. Is the distribution system secured to prevent unauthorized access?	☐	Y N			
h. Are the backflow prevention devices at high risk sites present, operational and maintained?	☐	Y N			
i. Have there been any water main repairs or additions? If yes when, and what was the repair or addition?	☐	Y N			
j. Have there been any water main breaks? If yes, when?	☐	Y N			
k. Was there any scheduled flushing of the distribution system? If yes, when?	☐	Y N			
l. Is there any evidence of intentional contamination in the distribution system?	☐	Y N			
Other comments on the distribution information.					
6. Storage Facilities					
a. Are the overflow and vents properly screened?	☐	Y N	Y N		
b. Is the facility secured to prevent unauthorized access?	☐	Y N			
c. Does the Access opening have the proper gasket and seal tightly?	☐	Y N			
d. Could the physical condition of tank be a source of contamination?	☐	Y N			
e. Is the Vent turned down and maintain an approved air gap at the termination point?	☐	Y N			
f. Does the Drain/overflow line terminate a minimum of 12" air gap?	☐	Y N			
g. If present, is the Pressure tank maintaining an appropriate minimum pressure?	☐	Y N			
h. Is proper O&M being performed?	☐	Y N			

TCR Triggered Assessment Form - Level 2

i.	Was there any observed physical deterioration of the tank?		☐	☐	Y	N				
j.	Were there any observed leaks?		☐	☐	Y	N				
k.	Is there any evidence of intentional contamination at the storage tank?		☐	☐	Y	N				
l.	Have there been any facility maintenance? (i.e., painting/coating) If yes, when?		☐	☐	Y	N				
m.	Is facility maintenance occurring per appropriate schedule?									
n.	Does the tank "float" on the distribution system or are there separate inlet and outlet lines?		☐	☐	Y	N				
o.	(If applicable) What is the measured chlorine residual (total/free) of the water exiting the storage tank today?	Residual:								
p.	Are there any unsealed openings in the storage facility such as access doors, vents or joints?		☐	☐	Y	N				
Other comments on the storage system										
7. Treatment Process. (If applicable)			☐	☐	Y	N	Y	N		
a.	Treatment devices operational and maintained?		☐	☐	Y	N				
b.	Is there any recent installation or repair of treatment equipment?									
c.	Were there any recent changes in the treatment process? If yes, when, what was the change?		☐	☐	Y	N				
d.	Were there any interruptions of treatment (lapses in chemical feed, turbidity excursions, disinfection)? If yes which part, when and for how long?		☐	☐	Y	N				
e.	What is the free chlorine residual measured immediately downstream from the point of application?	Residual:								
f.	Did a review of the filter turbidity profiles reveal any anomalies?			☐	Y	N				
g.	Were there any failures to meet the CxT calculations?			☐	Y	N				
h.	Were the flow rates above the rated capacity?			☐	Y	N				
i.	Were there any anomalies on the settled water turbidities?			☐	Y	N				
j.	Other comments on the treatment system.									
8. Source - Well										
					Y	N	Y	N		

TCR Triggered Assessment Form - Level 2

a. Is the sanitary seal intact?		Y	N			
b. Is the vent screened?		Y	N			
c. Does the vent and pump to waste terminate in an approved air gap?		Y	N			
d. Are there any unprotected cross connections at the wellhead?		Y	N			
e. How is the well used?	Primary	Backup	Emergency	Not a PWS	Not Drinking Water	
f. How far does the casing extend above grade?	Height: _____		Comments:			
g. Is the well cap vented?		Y	N			
h. Is there evidence of standing water near the wellhead?		Y	N			
i. Is the wellhead secured to prevent unauthorized access?		Y	N			
a. have there been any sewer spills, source water spills or other disturbances?		Y	N			
d. Other comments on the well system. (Are there aspects of well construction and operation that would bear on observed positives.)						
9. Source - Spring		Y	N	Y	N	
a. What is the condition of the spring development?						
b. What is the condition of the spring box?						
c. Is the spring secured to prevent unauthorized access?		Y	N			
d. Other comments on the spring system.						
11 Source - Surface Water Supply			Y	N		
a. have there been any sewer spills, source water spills or other disturbances?		Y	N			
b. have there been any Algal blooms?		Y	N			
c. Has source water turnover occurred?		Y	N			
d. Other source water comments						
11 Environmental Events		Y	N			

TCR Triggered Assessment Form - Level 2

a. Has there been heavy rainfall?		Y N		
b. Has there been any rapid snow melt or flooding?		Y N		
c. Have there been changes in available source water (e.g., significant drop in water table, well levels, reservoir capacity, etc.)				
d. have there been any interruptions to electrical power?		Y N		
e. have there been any extremes in heat or cold?		Y N		

Print name of person completing form: _____

Date: _____

Signature: _____

Reserved for State

1 Assessment has been successfully completed.

☐

Name of State Reviewer: _____



NPDES Keys to Compliance

October 19, 2009

James (Jimbo) Carlson

Chief, Wastewater and Mining Section
NPDES Enforcement Branch
Water Division
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Introduction

- NPDES Enforcement Branch
- NPDES Program Requirements
- What to Look For and Where to Find It
- How ADEM Monitors Compliance
- Common Compliance Issues
- Emerging/Other Issues

NPDES Enforcement Branch
Chip Crockett
Env. Engineer Manager

Wastewater & Mining Section
Jimbo Carlson
Env. Engineer Supervisor

General Permit / MS4 Section
Lee Warren
Env. Manager

Construction
Stormwater Section
Jennifer Klepec
Env. Manager





NPDES Program Requirements

- Effluent Limitations
- Monitoring Requirements
 - Sample Collection
 - Sample Analysis
- Record Keeping
- Reporting Requirements
 - DMRs
- Best Management Practices (BMPs)



What to Look For and Where to Find It

- Permit (Please Read!)
 - Cover Page
 - Issuance Date
 - Effective Date
 - Expiration Date
 - Outfalls

ADEM
Alabama Department of Environmental Management

**NATIONAL POLLUTANT
DISCHARGE ELIMINATION
SYSTEM PERMIT**

PERMITTEE:
FACILITY LOCATION:
PERMIT NUMBER: AL01
DISCHARGING FACILITY: SEWER

In accordance with and subject to the provisions of the National Water Pollution Control Act, as amended, by Public Law 92-500 (the "FWPCA"), the Alabama Water Pollution Control Act, as amended, Code of Alabama 1975, §§ 22-2-1 to 22-2-19 (the "AWPCA"), the National Pollutant Discharge Elimination System Act, as amended, Code of Alabama 1975, §§ 22-2-1 to 22-2-19, and the rules and regulations adopted hereunder and subject to the terms and conditions set forth in this permit, the Permittee is hereby authorized to discharge into the designated receiving water:

ISSUANCE DATE: MARCH 26, 2008
EFFECTIVE DATE: APRIL 1, 2008
EXPIRATION DATE: MARCH 31, 2011
MODIFICATION ISSUANCE DATE: MARCH 26, 2007
MODIFICATION EFFECTIVE DATE: MARCH 26, 2007

James E. McCall
Alabama Department of Environmental Management

What to Look For and Where to Find It

- Permit (continued)
 - Limits Page(s)
 - Discharge Description
 - Pollutants
 - Limitations (Seasonal, if applicable)
 - Monitoring Frequency
 - Sample Type
 - Sample Location
 - Footnotes

PART I DISCHARGE LIMITATIONS, CONDITIONS, AND REQUIREMENTS

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

Such discharge shall be limited and monitored by the permittee as specified below:

DSN0011: Treated process and sanitary wastewaters originating from chicken processing operations. ^{2/}

EFFLUENT CHARACTERISTIC	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS ^{1/}		
	Daily Maximum	Monthly Average	Daily Minimum	Daily Maximum	Monthly Average REPORT	Measurement Frequency	Sample Type
Oxygen, Dissolved (DO)	-	-	1.0 mg/l	-	-	2X Weekly	Grab
BOD, 5-Day (20 Deg. C)	-	-	-	26 mg/l	16 mg/l	2X Weekly	Composite
pH	-	-	6.0 S.U.	8.5 S.U.	-	Week Days	Grab
Solids, Total Suspended	-	-	-	30 mg/l	20 mg/l	2X Weekly	Composite
Nitrogen, Total (As N)	-	-	-	147 mg/l	103 mg/l	2X Weekly	Composite
Nitrogen, Ammonia Total (As N)	-	-	-	3 mg/l	4.0 mg/l	2X Weekly	Composite
Nitrogen, Ammonia Total (As N)	-	-	-	7.5 mg/l	4.0 mg/l	2X Weekly	Composite
Nitrogen, Kjeldahl Total (As N)	-	-	-	60 mg/l	40 mg/l	2X Weekly	Composite
Nitrogen, Kjeldahl Total (As N)	-	-	-	15 mg/l	10 mg/l	2X Weekly	Composite

**THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF
VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.**

^{1/} Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

^{2/} See Part IV.B. for Best Management Practices (BMP) Plan Requirements.



What to Look For and Where to Find It

- Permit (continued)
 - Part I
 - Monitoring and Record Keeping
 - Representative Sampling
 - Measurement Frequency
 - Testing Procedures
 - Recording Results
 - Record Retention
 - Reporting
 - Frequency
 - Provided DMRs
 - E-DMR
 - Non-compliance Notification



What to Look For and Where to Find It

- Permit (continued)
 - Part II
 - Bypass Provisions
 - Upset Provisions
 - Part III
 - Definitions
 - Part IV – Additional Requirements
 - Prohibitions
 - Sample and Analyses
 - Chlorine Test Methods
 - Total Residual Chlorine Requirements
 - Removed Substances
 - Exceptions



What to Look For and Where to Find It

- Federal Regulations (40 CFR)
- Self Developed Plans
 - Best Management Practices (BMPs)
 - Sludge Control
 - Spill Prevention, Control and Countermeasures (SPCC)
 - Pollution Abatement and/or Prevention (PAP)
 - Total Toxic Organics (TTO)



How ADEM Monitors Compliance

- Inspections
 - CEI
 - *Compliance Evaluation Inspection*
 - A Comprehensive Review of the Facility and On-Site Records
 - CSI
 - *Compliance Sampling Inspection*
 - A CEI with Sample Collection and Analysis
 - PAI
 - *Performance Audit Inspection*
 - A Comprehensive Review of Laboratory Procedures



How ADEM Monitors Compliance

- Records Review
 - DMRs
 - Annual Reports
 - Non-Compliance Notifications (Form 421)
 - Inspection Reports
 - Enforcement History
 - Compliance Schedule Reviews
 - Other



Common Compliance Issues

- Effluent Violations
- DMR Errors
- Failure to Submit/Late Submittals
- Unpermitted Discharges
- Best Management Practices
- Failure to Monitor Properly
- Failure to Respond
- Failure to Comply with Orders

 adem.alabama.gov	Common Compliance Issues														
DMR Errors	<table border="1"> <thead> <tr> <th>Code</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>NODI=B</td> <td>Below Detection Limit</td> </tr> <tr> <td>NODI=C</td> <td>No Discharge</td> </tr> <tr> <td>NODI=E</td> <td>Analysis Not Conducted</td> </tr> <tr> <td>NODI=G</td> <td>Sampling Equipment Failure</td> </tr> <tr> <td>NODI=H</td> <td>Invalid Test</td> </tr> <tr> <td>NODI=9</td> <td>Monitoring is Conditional/Not Required</td> </tr> </tbody> </table>	Code	Description	NODI=B	Below Detection Limit	NODI=C	No Discharge	NODI=E	Analysis Not Conducted	NODI=G	Sampling Equipment Failure	NODI=H	Invalid Test	NODI=9	Monitoring is Conditional/Not Required
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NODI=9	Monitoring is Conditional/Not Required														



Common Compliance Issues

- Failure to Submit/Late Submittals
 - DMRs
 - Complete Data
 - Reports
 - Application for Permit Reissuance
 - Non-Compliance Notifications (Form 421)



Common Compliance Issues

- Application for Permit Reissuance
 - Due 180 Days Prior to Current Permit Expiration
 - Application Received on Time – Permit is Administratively Extended
 - Discharges after the Permit's Expiration are Considered Unpermitted Discharges and Subject to Enforcement
 - Contact the NPDES Permit Branch for Applicable Forms and Fees

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION - INDUSTRIAL AND MUNICIPAL SECTIONS
NONCOMPLIANCE NOTIFICATION FORM

PERMITTEE NAME: _____ PERMIT NO: _____
FACILITY LOCATION: _____
NMR REPORTING PERIOD: May 2009

1. DESCRIPTION OF DISCHARGE: (Include outfall number(s))
D011- domestic wastewater

2. DESCRIPTION OF NONCOMPLIANCE: (Attach additional pages if necessary):

LIST EFFLUENT VIOLATIONS (if applicable)			
Outfall Number (s)	NONCOMPLIANCE PARAMETER(S)	Result Reported (include units)	Permit Limit (include units)
D011	TSS- Monthly Avg	27.9 mg/L	40 mg/L
	TSS- Weekly Avg	166.5 mg/L	45 mg/L
	EC- Daily Max	261.4 mg/L	2500

LIST MONITORING / REPORTING VIOLATIONS (if applicable)		
Outfall Number (s)	NONCOMPLIANCE PARAMETER(S)	Mon for sig / Reporting Violation (Provide description)

3. CAUSE OF NON-COMPLIANCE: (Attach additional pages if necessary):
TSS- excessive algae growth in the clarifier
EC- LW system malfunction, bulbs went out

4. PERIOD OF NONCOMPLIANCE: (Include exact date(s) and time(s) or, if not corrected, the anticipated time the noncompliance is expected to continue)
TSS- 2nd and 3rd weeks of May
EC- May 5th and 6th

5. DESCRIPTION OF STEPS TAKEN AND/OR BEING TAKEN TO REDUCE OR ELIMINATE THE NONCOMPLIANT DISCHARGE AND TO PREVENT ITS REOCCURRENCE (attach additional pages if necessary):
TSS- cleaned clarifier and will add cleanings to regular maintenance schedule
EC- ordered and replaced bulbs; will keep replacement bulbs on-site

I certify under penalty of law that this document and all attachments were prepared by me or under my direct supervision and that I am a duly qualified professional person or engineer and that the information contained herein is true and correct to the best of my knowledge and belief, and that I am not aware of any falsification of the information contained herein. If I am not a duly qualified professional person or engineer, I am not aware of any falsification of the information contained herein. If I am not a duly qualified professional person or engineer, I am not aware of any falsification of the information contained herein.

NAME AND TITLE OF RESPONSIBLE OFFICIAL: (type or print)
Jon Smith
SIGNATURE OF RESPONSIBLE OFFICIAL: Jon Smith DATE SIGNED: 6/20/09

ADEN Form 031-1107-02



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Common Compliance Issues

- Unpermitted Discharges
 - Discharging through Unpermitted Outfalls
 - Discharging without a Permit
 - Discharging an Unpermitted Pollutant of Concern



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Common Compliance Issues

- BMPs
 - Spill Prevention
 - Regular Maintenance
 - General Housekeeping



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Common Compliance Issues

- Failure to Monitor Properly
 - Frequency
 - Sample Type
- Failure to Respond
 - Warning Letter
 - NOV
 - Draft Orders
- Failure to Comply with Orders
 - Compliance Date
 - Stipulated Penalties
 - Engineering Report Implementation



Emerging/Other Issues

- 3rd Party Litigation
- EPA Oversight
- e-DMR



Electronic Discharge Monitoring Reporting Program (e-DMR)

- Internet application that allows regulated facilities to submit discharge monitoring reports (DMRs) on line
- Integrated with the NPDES database at ADEM
- Currently voluntary participation



e-DMR Questions?

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<https://e2.adem.alabama.gov/npdes>



Regulatory Update: NPDES Keys to Compliance

October 19, 2009

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Solid Waste Issues in Relation to Drinking Water Facilities

Scott Story, Chief
Solid Waste Engineering Section

12th Annual Surface Water Meeting
October 19, 2009

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Solid Waste Branch

- Program Description

Includes the permitting, compliance, and enforcement determinations related to initial issuances, re-issuances, and modifications of “public and private solid waste disposal facilities” and unauthorized dumps within the State.

- Section Description

Includes all permitting related to initial issuances, re-issuances, and modifications of “public and private solid waste disposal facilities” within the State.

- 178 Permitted Solid Waste Landfills
 - 31 Municipal Solid Waste Landfills
 - 53 Industrial Landfills
 - 94 Construction / Demolition Landfills



Recent Legislation

- The Solid Wastes & Recyclable Materials Management Act (SWRMMA) was signed into law by Gov. Riley April 2008.
- Provided stable funding for ADEM Solid Waste program by charging \$1.00/ton or \$0.25/cy fee for solid waste disposed in Alabama.
- Established a recycling grants program and recycling regulations for the State.

Pre-SWRMMA Solid Waste Resources

- Technical Staffing
 - 2 Environmental Scientists
 - 2 Permitting Engineers
 - 0.4 Geologist
- Administrative Staffing
 - 0.5 Branch Chief
 - 2 Attorneys

Current Solid Waste Resources

- Technical Staffing
 - 9 Environmental Scientists (+2 vacancies)
 - 4 Environmental Engineers (+1 vacancy)
 - 2 Geologists
 - 4 Field Office Landfill Inspectors
- Administrative Staffing
 - 1 Branch Chief
 - 1 Engineering Section Chief
 - 1 Enforcement/Remediation Section Chief
 - 2 Attorneys

Benefits to Date

- Decrease the time required to finalize a permit
- Increased number of inspections
- Increased enforcement
- Increased review of compliance documents

What does this mean to you?

“Alum Sludge”

- How alum sludge has been managed historically
- Current status of alum sludge management
- Potential options for future alum sludge management

Historical Management

- By 335-13-1-.03 definition:
 - “Solid Waste” – any garbage, or rubbish, construction/demolition debris, ash, sludge from a wastewater treatment facility, water supply treatment plant, or
 - However, not listed in the definition of “Industrial Solid Waste”, therefore, disposal is managed as a “Construction/Demolition Solid Waste”.

Historical Management (Continued)

Two basic options:

1. Manage as a solid waste that is disposed of in a permitted C/D landfill (or alternate daily cover)
2. Beneficial Re-use or “Recycle” – any process by which solid waste, or materials which would otherwise become solid waste are collected, separated, or processed and reused or returned to use...

Beneficial Re-use

****** Not regulated by Solid Waste Branch since product is not a “solid waste” by definition.

Options:

- ❑ Submit a nutrient management plan for approval thru the National Resources Conservation Service and a stormwater permit from ADEM's NPDES Program.
- ❑ Have the product labeled a fertilizer by the State Department of Agriculture.

Current Management

- The option of sending the waste to a landfill for disposal (or ADC) still exist.
- However,
 - The NRCS is no longer reviewing nutrient management plans.
 - The new recycling rule requires that 75% of material stored at the facility must be turned over in a year.
 - ADEM has some reservations about using the product as a fertilizer.

Current Management

- How do other Region IV states handle the “recycling” of alum sludge ?
 - University contracts to review uptake
 - State Department of Agriculture review
 - Permitted under Solid Waste Branch



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Future Management Options

- Continued management as a solid waste with disposal (or ADC) in Construction / Demolition landfills.
- New solid waste regulations governing land application (including local approval).
- Contract with State universities or Department of Agriculture to determine viability as fertilizer.



QUESTIONS??

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Solid Waste Engineering Section
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REDUCING ELECTRIC POWER CONSUMPTION IN WATER SYSTEMS



A MONEY ISSUE AND AN
ENERGY ISSUE AND A
GREEN ISSUE

WOULD YOU SPEND THE
EFFORT?





BASIS

- PAPER - *SMALL SYSTEM ELECTRIC POWER USE -- OPPORTUNITIES FOR SAVINGS*, John E. Regnier and Richard Winters
- ELECTRIC UTILITY RATE STRUCTURES
- DEMAND AND CONSUMPTION CONTROL



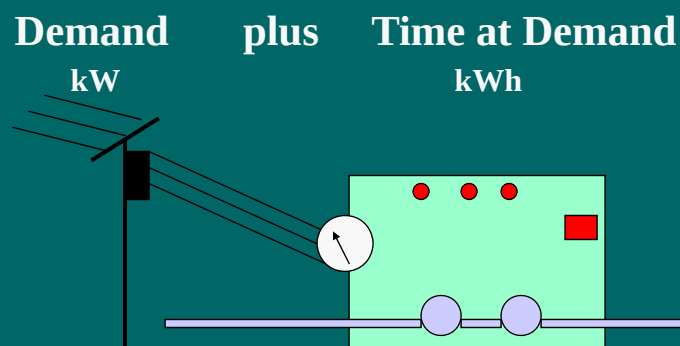
BASIS

- SMALL WATER SYTEMS SPEND MINIMUM OF \$300,000,000 TO \$500,000,000 PER YEAR ON ELECTRICITY !!!
- DEMONSTRATED SAVINGS OF 10 TO 20% AT NO COST TO SYSTEM
- CASE HISTORIES
 - 1000 CUSTOMERS - \$12,000
 - 1200 CUSTOMERS - \$18,000
 - 2500 CUSTOMERS - \$50,000

GREEN BENEFITS

- Each kilowatt-hour results in about 1.3 pounds of CO₂ produced
- Each \$1.00 saved saves about 10 kWh
- For projected annual savings of \$50,000,000, save 500,000,000 kWh
- This means avoiding production of 650,000,000 pounds of CO₂ per year

HOW POWER IS CHARGED





RATE STRUCTURES

- Procedures range from simple to highly complex
- Usually called structures, schedules or tariffs
- Common characteristics – next slide



RATE CHARACTERISTICS

- Penalties for excess demands especially in high use periods – ratchet clauses
- Lower off-peak rates
- Higher kWh amounts often lower price
- Demand costs \$ per kW
- kWh costs cents per kWh

IMMEDIATE SAVINGS OPPORTUNITIES

- Eliminate bad electric meters
- Identify most efficient pump(s)
- Demand Control
- Kilowatt-hour control

SAVINGS OPPORTUNITIES

Bad Electric Meter(s)

- Compare Billed kW and kilowatt-hours with what you know
 - ❖ Demand should be slightly less than horsepower
 - ❖ Kilowatt-hours divided by demand should be a reasonable time based on your knowledge

SAVINGS OPPORTUNITIES

Pumping Efficiency



Well A



Well B



Well C



Well D



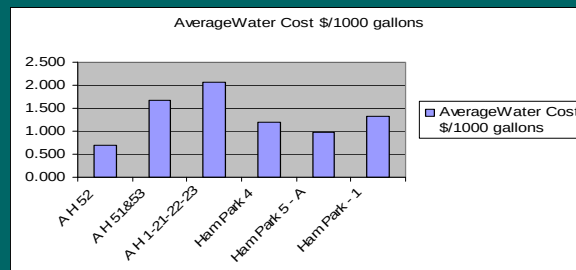
Well E



Well F

PUMPING EFFICIENCY

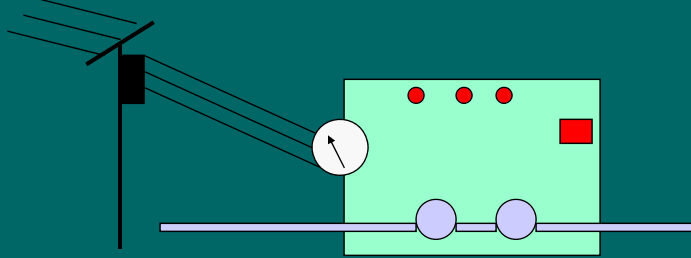
- For each well chart water cost per 1000 gallons



- Concentrate production on most efficient wells

DEMAND CONTROL

Demand plus Time at Demand
kW kWh



- Minimize simultaneous pump operation
- Extra 50 hp pump for 2 hours – cost \$400
- Ratchet clause can make that \$4000/yr

KILOWATT-HOUR MANAGEMENT Situation

- Power rates usually offer price breaks at higher kilowatt-hour usages, and
- Price is usually lower in off-peak times (nights and weekends/holidays)
- Savings can be extreme – see next slide



Well A



Well B



Well C



Well D



Well E

CASE HISTORIES

- System 1 – shift from 2 wells to 1 – savings = \$12,000/year
- System 2 – concentrate production on one well of 3 – savings = \$18,000/year
- System 3 – shift to off-peak and load production on one well – savings \$50,000/year



Well A



Well B



Well C



Well D



Well E

CONCLUSIONS AND RECOMMENDATIONS

- Electric use audits like water loss audits can be very cost effective
- Audits can be easily performed on system specific or statewide basis using information readily obtained from electrical bills and operating records
- Small systems spend \$300,000,000 to \$500,000,000 annually on electric power. Savings potential is very significant.
- Pilot studies in Alabama have demonstrated potential savings of \$12,000 to \$50,000/year



REFERENCES

- White Paper – Small System Electric Power Use – Opportunities For Savings --- NRWA Web Site
nrwa.org click on white papers
- Newsletter – Ergs, Joules & Such
Want on the mailing list ?– it's free
email me – John Regnier –
highpnt@mindspring.com

RMP and CCR UPDATE

Laura A. Taylor
(334) 271-7820
lat@adem.state.al.us



Outline

- RMP
 - History
 - Prevention Program Elements
 - Audit Program
 - Resubmitting RMP's
 - Correcting a RMP
 - De-Registering Your WTP
 - The New Reporting for 2009
 - For More Information

RM Program Mandated by CAA, Section 112 (r), 40 CFR Part 68

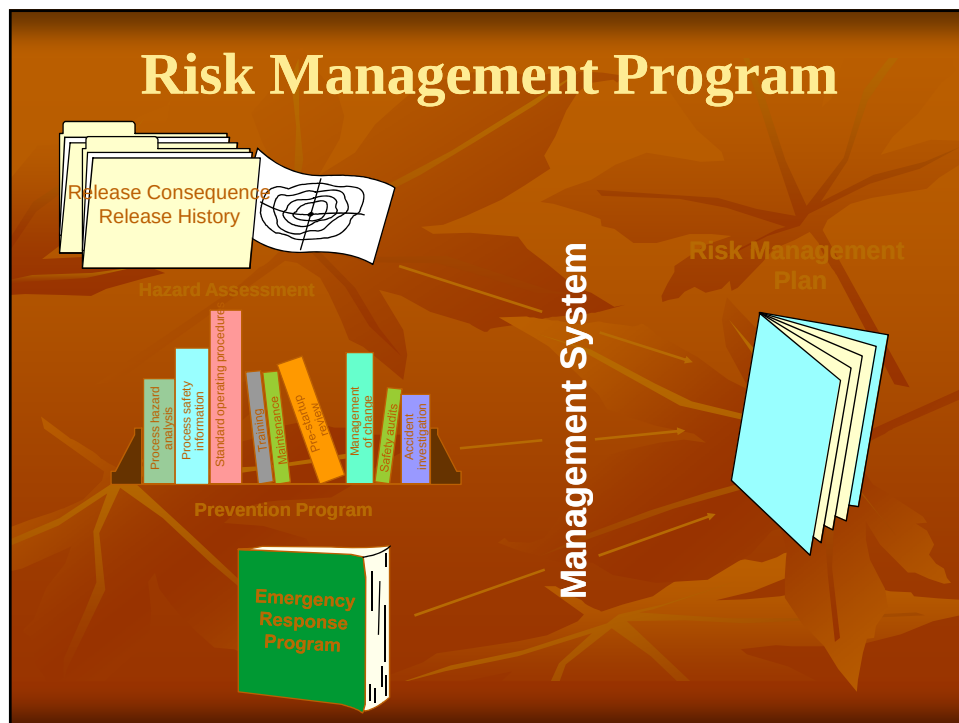
- Became effective on June 21, 1999
- Designed to help reduce risk of accidental release of hazardous substances
- More than 16,000 facilities affected
Nationally, ~ 2600 in R4

Risk Management Program General Requirements (continued)

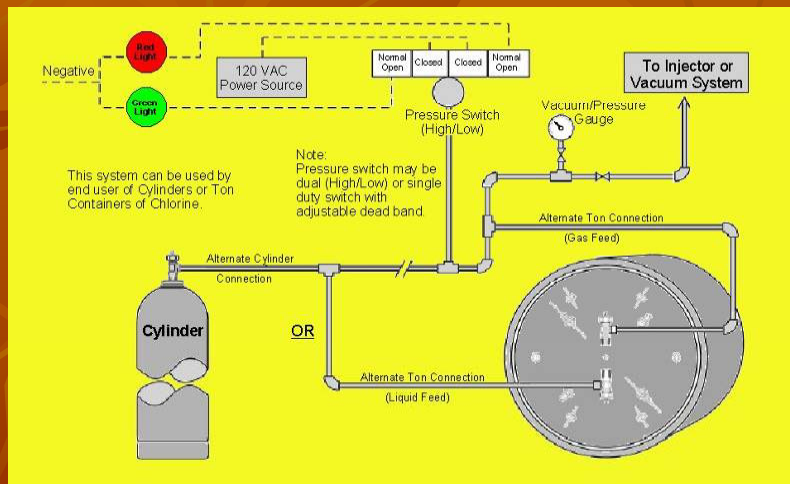
- Affects owners of a stationary source with regulated substances above a threshold quantity (TQ):
 - Chlorine (TQ = 2,500 pounds)
 - Anhydrous Sulfur Dioxide (TQ = 5,000 pounds)

The Risk Management Program (RMP) Goal...

- is to prevent accidental releases of toxic and flammable substances that can cause serious harm to the public and the environment, and to mitigate the effects of releases that do occur.



Typical Chlorine Flow Diagram



Source: The Chlorine Institute

7

Typical Chlorine Processes

The Threshold Quantity (TQ) for chlorine is 2500 lbs.



The 1 ton cylinders in series will exceed the chlorine TQ.

RMP Plan Requirements must include the following information...

- Hazard Assessment:
 - Worse case scenario
 - Alternative release scenario
 - 5 year accident history
- Prevention program
- Emergency response program

Prevention Program 2 Elements

- Safety Information
- Hazard Review
- Operating Procedures
- Training
- Maintenance Procedures
- Compliance Audits
- Incident Investigation

Safety Information...

- Water systems are required to compile and maintain:
 - material safety data sheets
 - maximum intended inventory
 - safe upper and lower limits for temperatures, pressures, flows, and compositions
 - equipment specifications

Hazard Review must be completed...

- Review hazards associated with:
 - process chemicals
 - process piping and equipment
 - process operating procedures

Operating Procedures...

- Prepare written procedures and updates for :
 - initial startup
 - normal operations
 - temporary operations
 - emergency shutdowns
 - normal shutdowns
 - startups following shutdowns
 - equipment inspections

Training...

- Employees must be trained (tested) in all job related operating procedures
- Refresher training required at least every three years
- The water system must maintain records of employee training

Audit Program

- USEPA Region 4 uses a third party to complete audits of RMP facilities.
- There are now 2 inspectors. So audits may be more frequent.
- Auditors should follow “*Guidance on Auditing Risk Management Plans/Programs under Clean Air Act 112(r)*” issued by EPA.
- After the audit, the water system should receive an audit report and must respond within 90 days.
- ADEM conducting spot check of RMP for EPA during Sanitary Surveys.

Resubmitting RMP's

- RMP's must be updated at least once every 5 years.
- RMP's must be updated earlier if any of the following occur:
 - Any change that alters the program level (i.e. going to or from contract operations)
 - Any change that revises off-site consequence analysis.
 - Going above the 2,500 lb limit of chlorine or other regulated chemical
- To resubmit, you must review and update all nine sections of the RMP.
- Resubmit according to latest EPA approved methods.

Correcting RMP's

- Correcting an RMP refers to changing only a part of the RMP.
- Changes may include
 - New contact person, phone, address, ect.
 - Revisions to only one or more sections and not the whole RMP.
- Follow chapter 6 of "RMP*Submit 2004 User's Manual" or latest edition on how to generate the correction.
- Some limited corrections can be made using EPA's RMP*WebRC. For more information contact Reporting Center @ (301-429-5018).

De-Registering Your WTP

- Can only be done if you drop below the 2,500 lb limit for chlorine gas permanently.
- Hypochlorite does not require an RMP.
- The de-registering letter can be generated using the RMP*Submit 2004 or latest program.
- Must be signed by owner (Chairman, President, Manager, ect.)
- Must include EPA's 12 digit ID number.
- Must include date of when the facility was no longer subject to RMP requirements.
- De-registered facilities will remain in EPA's database for 15 years.

The New Reporting for 2009

- Reporting
 - Submit RMP's online via EPA's secure website
 - Use **RMP*eSubmit**, was available 2009
 - Can access RMP online at any time after electronic submittal.
 - EPA sent letters out about using **RMP*eSubmit**.

RMPlan

- **The RMPlan Summarizes key elements of the RMProgram**
 - Hazards at the site
 - Accident history
 - Potential offsite consequences
 - Population estimate
 - Public and environmental receptors
 - Release mitigation systems
 - Emergency response program

Checklist Questions

- Causes of accidents
 - Is process equipment properly supported?
 - Is equipment identified properly?
 - Are the procedures complete?
 - Is the system designed to withstand hurricane winds?
- Facility Functions
 - Is it possible to distinguish between different alarms?
 - Is pressure relief provided?
 - Is the vessel free from external corrosion?
 - Are sources of ignition controlled?

For More Information

- Water & Wastewater Operators Chlorine Handbook
The Chlorine Institute (<http://www.cl2.com>)
Guidance
- Website
www.epa.gov/emergencies/rmp
- List Server
www.epa.gov/emergencies/newsroom.htm#listservs
- EPA Region 4
[Victor Weeks](mailto:Victor.Weeks@epa.gov)
(404) 562-9189 weeks.victor@epa.gov

CONSUMER CONFIDENCE REPORTS

Outline

- Required Elements
- New Regulations changes
 - Lead Language Change
 - Ground Water Rule
- Common Mistakes
- CCR Delivery
- Reporting
- Enforcement

Required Elements

- The following elements must be included:
 - Water System Information
 - Contact Person
 - Time and Place of Board Meetings
 - Sources of Water
 - Common names and general location
 - Treatment Provided
 - Source Water Assessment Information

Required Elements (Cont.)

- Definitions
- Detected Contaminates Table
- Table of all contaminants
- Health Information
- Violations

Lead Language Change

- The required lead language has changed to:

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. [NAME OF WATER SYSTEM] is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Ground Water Rule

- Ground Water Rule

- Applies to any water system that receives ground water that has not gone through a surface water treatment plant
- Any groundwater system that receives notice from the Department of a significant deficiency or notice from a laboratory of a fecal indicator-positive groundwater source sample that is not invalidated by the Department must inform its customers of any significant deficiency that is uncorrected at the time of the next CCR report.

Ground Water Rule (Cont.)

- Each CCR report must include the following elements.
 - Nature and date of the significant deficiency that was identified by the Department.
 - When and if the fecal contamination in the groundwater has been addressed and date of the action or an approved plan and schedule for correction to be completed.
 - The system receives notice of a fecal indicator-positive in a groundwater source sample that is not invalidated by the Department must use the health effect language in Appendix C.
 - If the deficiencies have been corrected before the next CCR is issued, you must inform the customers on how and date the correction was completed.

Common Mistakes

- Using the incorrect year. Calendar year 2009 should be reported as:
 - 2010 Consumer Confidence Report
 - 2010 Water Quality Report
- Not listing board meeting times and place
- Not including table of all contaminants
- Not including source water information, especially in purchase systems.
- Late submittal of report or certification form.
- Small systems not notifying customers of publication date in newspaper.
- No contact information
- Using incorrect units

CCR Delivery

- Systems serving a population $> 10,000$ (3,333 meters) must mail to each customer (over 100,000 post on internet).
- Systems serving $< 10,000$ but > 500 can publish in newspaper or mail.
- Systems < 500 can notify customers in writing that CCR is available or one of the above two.

Reporting

- All systems must submit a copy of their CCR along with the certification form by:

July 1st

Enforcement

- Late submittal of CCR and/or Certification Form is currently being handled by Consent Order.
- 2009 orders are including up-front fines.
- Strongly recommend sending both the CCR and Certification Form by certified mail in enough time to be received by ADEM before July 1.

Summary

- RMP
 - Submit RMP's every 5 years
 - Conduct audits at least every 3 years
 - Maintain last 2 audits on file
 - Update SOP's as needed
 - Keep training records
- CCR
 - Use correct year on report
 - Include all required elements
 - Make sure to use new Lead language
 - Submit CCR and certification to ADEM before July 1 by registered mail.

Questions

Laura A. Taylor

Drinking Water Branch

(334) 271-7820

lat@adem.state.al.us

Water Resources Planning

2009 ADEM Surface Water Meeting

October 21, 2009

Tom Littlepage
Chief, Water Management Branch
Office of Water Resources



Mission Statement

“The Office of Water Resources will plan, coordinate, develop, and manage Alabama’s water resources, both ground and surface water in a manner that is in the best interest of the State of Alabama. This includes recommending policies and legislation, conducting technical studies, implementing and participating in programs and projects, and actively representing Alabama’s intra and interstate water resource interests.”



To Accomplish This

We must:

- Assess how we currently use water, where and how much
- Analyze the capacity of Alabama's surface and ground water resources
- Forecast growth in future demands
- Identify where problems may occur and recommend solutions
- Work with a wide range of local, state, and federal agencies, stakeholders, and water users



Current Issues

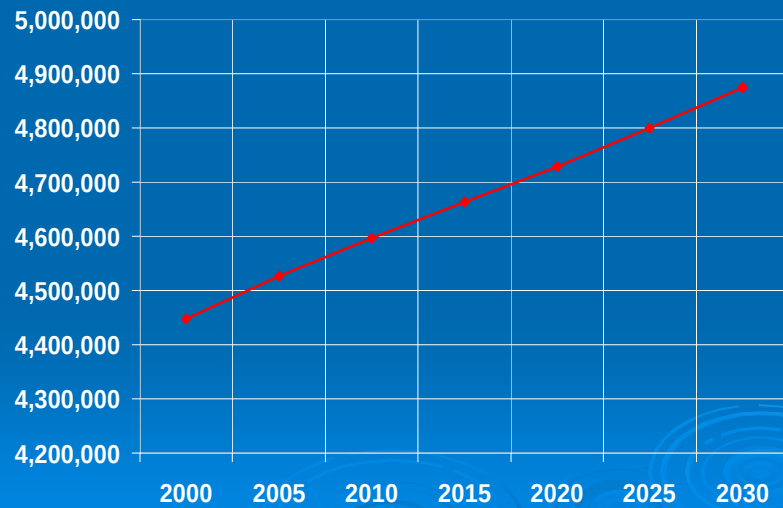
- Interstate litigation (Water Wars)



The map shows the Southeastern United States, specifically Alabama, Georgia, and Florida. The ACT (Atlantic Coastal Tidal) region is highlighted in blue and includes parts of Alabama, Georgia, and Florida. The AGP (Atlantic Gulf of Mexico) region is highlighted in red and includes parts of Alabama, Georgia, and Florida. The map shows major cities, rivers, and lakes. The ACT region is labeled 'ACT' and the AGP region is labeled 'AGP'.

- **Interstate litigation (Water Wars)**
- **Drought Impacts (1986-88, 1998-2000, 2006-09)**
- **Interbasin Transfer Legislation**
 - **Enacted 2005 – 2007**
 - **Colbert, Jackson, Madison, Marshall, Morgan, Lauderdale, Lawrence, Limestone Counties**
- **Permanent Joint Legislative Committee on Water Policy and Management established in 2008**
 - **Submitted interim report in 2009**
 - **Formulating 2010 objectives**
- **Future growth and economic development**

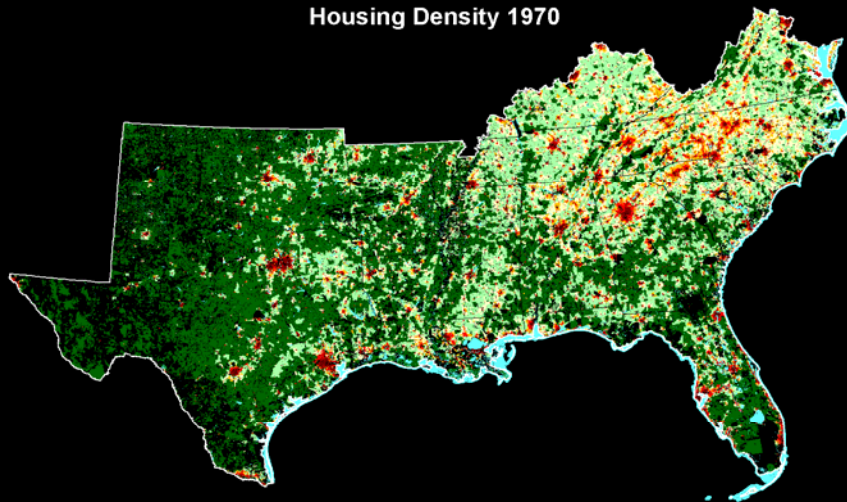
Alabama Population Growth



Source: US Census, 2005



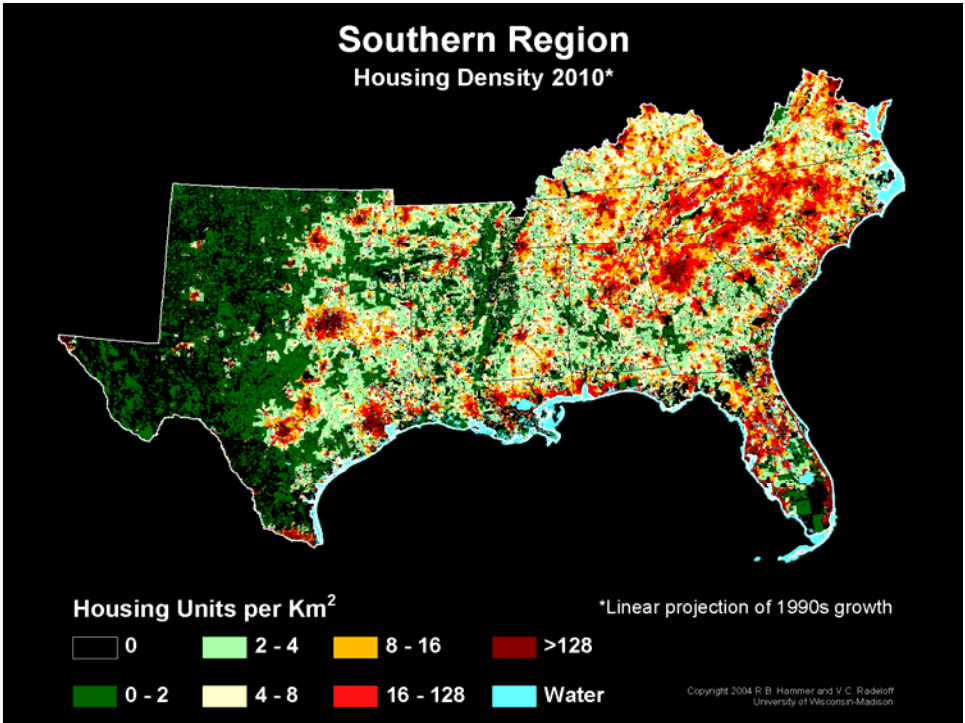
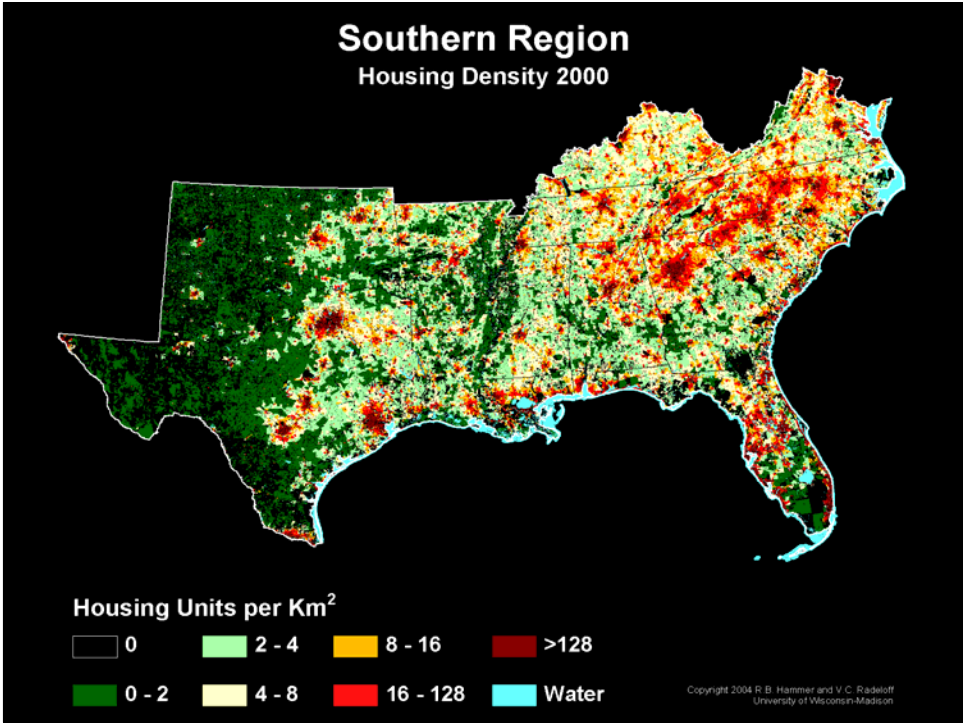
Southern Region Housing Density 1970



Housing Units per Km²

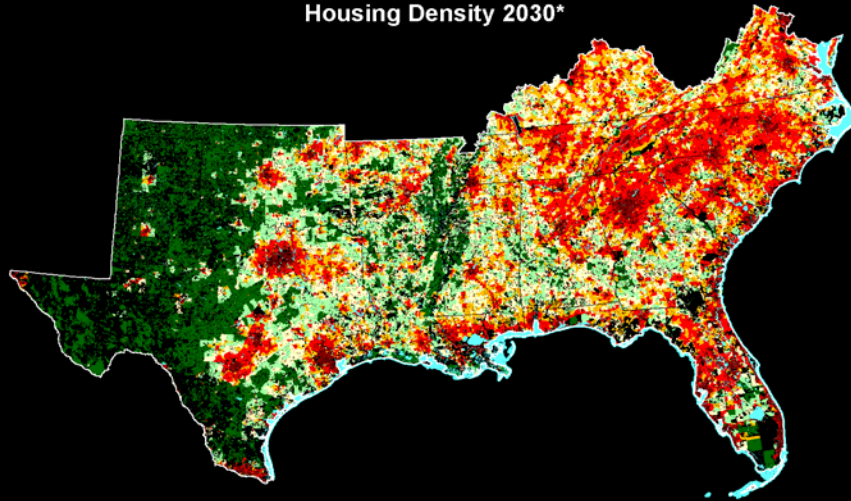


Copyright 2004 R.B. Hammer and V.C. Radloff
University of Wisconsin-Madison



Southern Region

Housing Density 2030*



Housing Units per Km²

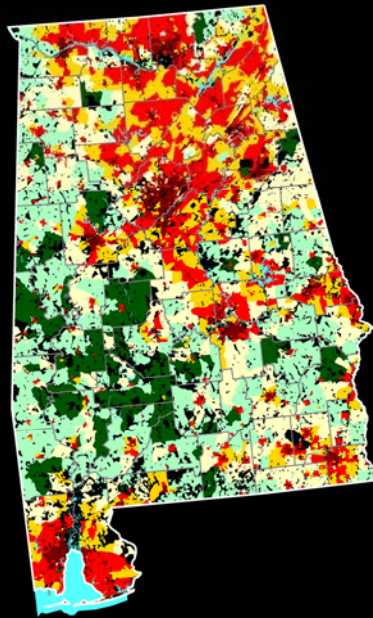


*Linear projection of 1990s growth

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University of Wisconsin-Madison

Alabama

2030 Housing density Census partial block groups

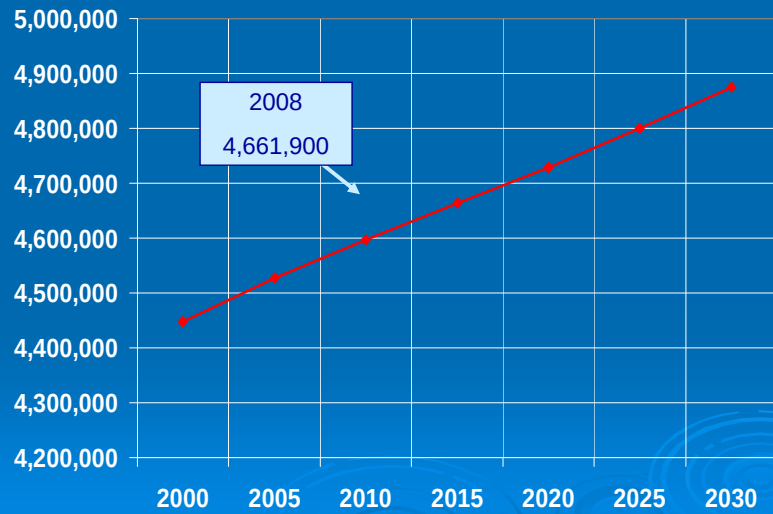


Housing units / km²



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rhammer@oregonstate.edu and radeloff@wisc.edu
With support from the USDA Forest Service Northern Research Station

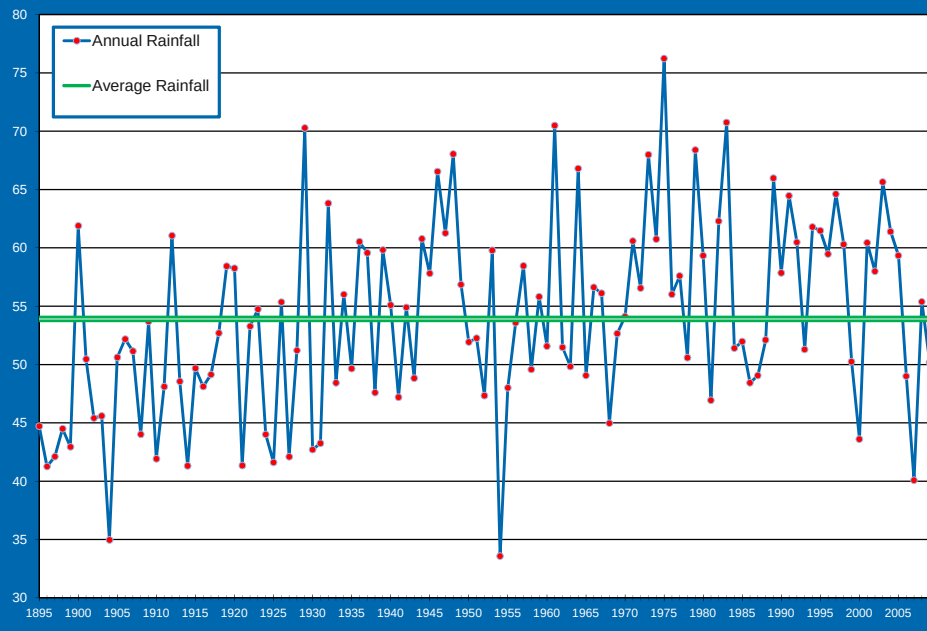
Alabama Population Growth



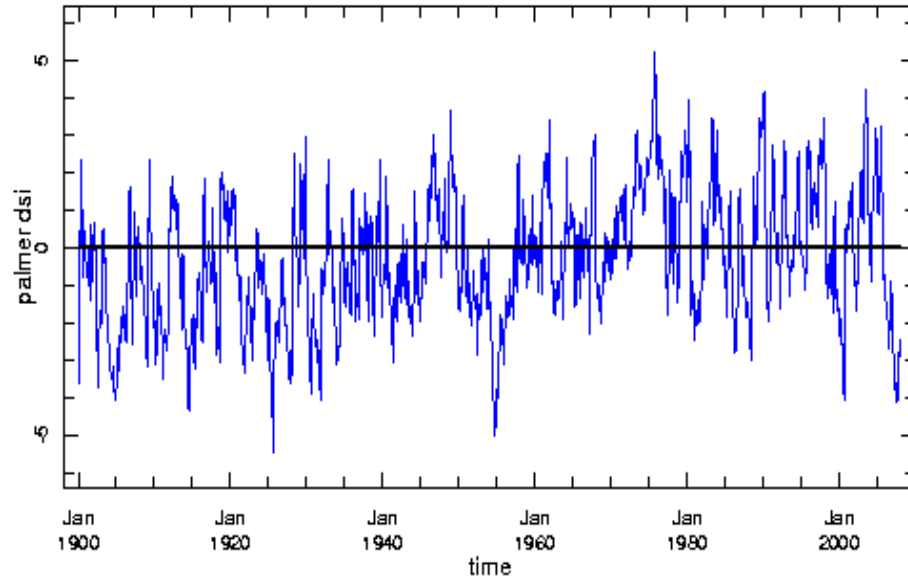
Source: US Census, 2005



Alabama Average Rainfall (1895-2009)



Alabama Droughts



U.S. Drought Monitor Alabama

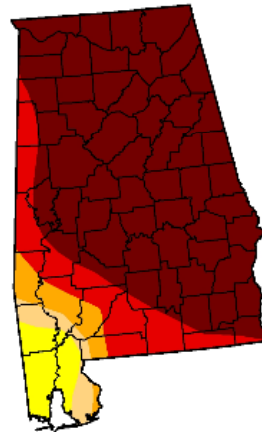
August 28, 2007
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.0	100.0	94.5	91.5	87.2	73.4
Last Week (08/21/2007 map)	0.0	100.0	96.0	91.7	87.5	74.4
3 Months Ago (06/05/2007 map)	0.0	100.0	100.0	76.4	62.7	21.9
Start of Calendar Year (01/02/2007 map)	51.9	48.1	0.0	0.0	0.0	0.0
Start of Water Year (10/03/2006 map)	0.0	100.0	73.3	0.0	0.0	0.0
One Year Ago (08/29/2006 map)	0.0	100.0	100.0	89.9	5.9	0.0

Intensity:

 D0 Abnormally Dry	 D3 Drought - Extreme
 D1 Drought - Moderate	 D4 Drought - Exceptional
 D2 Drought - Severe	

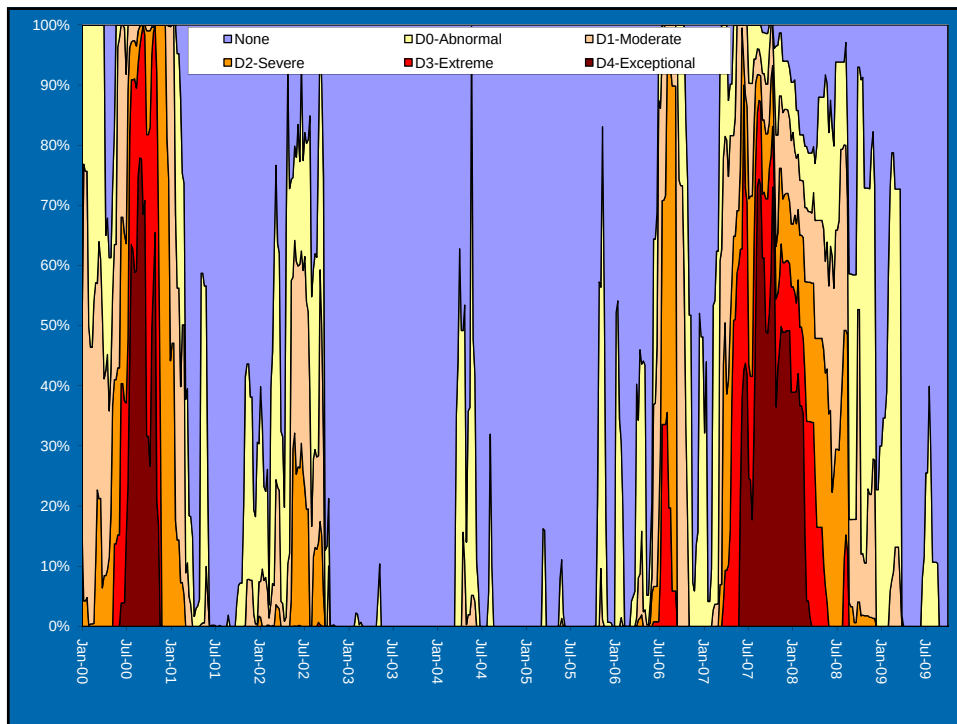


The Drought Monitor focuses on broad-scale conditions.
Local conditions may vary. See accompanying text summary
for forecast statements

<http://drought.unl.edu/dm>



Released Thursday, August 30, 2007
Author: Thomas Heddinghaus, CPC/NOAA



Bottom Line

- Based on any number of issues including:
 - Population growth
 - Drought conditions
 - Economic and industrial recruiting
 - External pressures
- We know that:
 - Competition for water will increase and intensify the need for adequate water resource planning and flexible water management policies
 - We need to understand both the capabilities and limits on our water resources to meet these needs

How Do We Get There?

Estimate Use of
Water



Water Use Reporting Program

- Who is required to register with OWR?
 - All public water systems
 - All non-public users and
 - Irrigation water users with a capacity to withdraw 100,000 gal/day or more
- OWR issues Certificates of Use to registered users
- Data is collected annually
- Only program in Alabama that collects water withdrawal data from all users



- Contact info
- Site specific system information
- Legal status documentation
- Certification statement

Page 1 of 2

Certificate No.

Declaration of Beneficial Use

Advocate Water Use Reporting Program
(AN APPLICATION IS REQUIRED FOR EACH WETLAND, OR DIVERSION)

Primary Water Use (check one) ☐ Public ☐ Non-Public ☐ Irrigation Estimated Date of Diversion
Company Name: _____ Owner/Contact Person: _____

Mailing Address			Title		
City	State	Zip	City	State	Zip
Phone			Phone		
Email			Email		

APPLICATION FOR:

Type of Water Source: (check one) ☐ Well ☐ Surface Water ☐ Combination ☐ Public - Bulk Purchase (see Note)
The withdrawal of water source is in: _____ from Basin: _____

If the Application is for a WETLAND, complete this section:

If your facility has multiple wetlands, enter the _____ Date of Pump/Wall Installation _____
 Pump Capacity _____ gallons per minute Lateral and Length: _____ / _____
 Well Depth _____ feet Depth of Pump Intake below Ground Surface _____ feet
 Depth of Well Casing _____ feet Avenue Withdrawal _____ million gallons per year
 Aquifer _____ Maximum Wetland Capacity _____ million gallons per year
 Estimation Method ☐ Metered ☐ Worksheet ☐ Other _____

If the Application is for SURFACE WATER, complete this section:

If your facility has multiple surface water withdrawals, attach Form DSR-100-01 _____ Date of Pump Installation _____
 Wetland(s) ID _____ Lateral and Length: _____
 Pump capacity _____ gallons per minute Lateral and Depth: _____
 Critical Inlets Elevation _____ feet Avenue Withdrawal _____ million gallons per year
 Water Source _____ Maximum Wetland Capacity _____ million gallons per year
 Estimation Method ☐ Metered ☐ Worksheet ☐ Other _____

If the Application includes OTHER WATER SOURCES complete this section:

Your facility takes water from a water source to make another use the following quantity and attach Form DSR-100-01 _____
 No. of Other Water Consumers: _____ 100,000 gallons per day _____ (Complete Form DSR-100-01)
 No. of Bulk Purchase Customers: _____ 100,000 gallons per day _____ (Complete Form DSR-100-01)
 If the application is for a Public system that purchases all of the water supply from another system, answer the following:
 Water System(s) you purchase from: _____ Avenue Purchased _____

If the Application includes DITCHES TO SURFACE WATER complete this section:

Your facility has multiple ditch withdrawals, attach Form DSR-100-01 _____
 Ditch(es) ID _____ Lateral and Length: _____
 Receiving Stream _____ Avenue Discharge _____ million gallons per year
 River Basin _____ Maximum Wetland Capacity _____ million gallons per year

BASIS FOR LEGAL USE OF WATER

The Declaration of Beneficial Use states that the applicant, owner, or holder of the proposed water use considers the water legal, beneficial and essential to the business or industry, consistent with the public interest and with the water of the state of New York. The Declaration of Beneficial Use is a statement of the user's intent to use the water for the purposes stated in the Declaration of Beneficial Use. It is not a guarantee of the water use. The water use is subject to the approval of the State of New York Department of Environmental Conservation. (EN 100-0-1 through EN 100-0-12)

This form is to be accompanied by a map showing the location of the water source and its proximity to the state or local water, or, in the case of a stream, river, or lake, indicate whether the water is available on the stream, river, or lake, and whether the location of the water source is not associated with any present future dredging plan or other.

CERTIFICATION

To the best of my knowledge and belief, the information provided by this Declaration of Beneficial Use is true, accurate and complete.

Signature of Owner or Representative _____ Date _____

Name (Type or Print) _____ Title _____

ADDECA / Office of Water Resources / Attn: Bill Nason / 611 Adams Avenue / Montgomery, AL 36103-5000 / (334) 242-6700 / Fax (334) 242-6778

Certificates are valid up to 10 year terms depending on size of total withdrawals

- Less than 0.5 MGD
– 10 year term
- 0.5 MGD < 1.0 MGD
– 9 year term
- 1.0 MGD < 5.0 MGD
– 8 year term
- 5.0 MGD < 25.0 MGD
– 7 year term
- 25.0 MGD and greater
– 6 year term



STATE OF ALABAMA
CERTIFICATE OF USE
Alabama Water Use Reporting Program
Certificate Number: 1173A



Title#			
Owner			
170 Main street			
Address			
Municipality	AL	10110A	
City	State	Zip Code	
Classification	Public		
Estimated System Withdrawal Capacity:			
Estimated System Average Daily Withdrawal:		1000.000	Million Gallons /Day (MGD)
Peak Rate		100.000	Million Gallons /Day (MGD)
		Yes	

Water Use Reporting Requirements:

As a condition of the Certificate of Use, water use reports shall be submitted to the Office of Water Resources no later than March 31st of each year. The annual water use reporting form(s) shall contain water withdrawn, diverted, or consumed, in gallons, and tabulated for average daily use per month and peak day for the previous calendar year, and other data as deemed appropriate by the Office of Water Resources. The reporting forms shall be provided by the Office of Water Resources to the holder (or representative) of this Certificate of Use. Alternate reporting options must be reviewed and approved by the Office of Water Resources for appropriateness prior to submission.

Issued by the Office of Water Resources in accordance with the Alabama Water Resources Act, Code of Alabama 1975, Section 9-108-19 and the Administrative Rules implementing the Alabama Water Use Reporting Program.

By: J. Brian Aikens, P.E., Division Director Office of Water Resources Alabama Department of Economic and Community Affairs	Issued on: _____ Last Revised on: _____ Certificate of Use EXPIRATION DATE: _____
	January 01, 2000
	May 16, 2000

THE ISSUANCE OF THIS CERTIFICATE OF USE SHALL NOT COVER OR MODIFY ANY PRESENT INTERESTS OR RIGHTS IN THE HOLDER THEREOF TO THE CONTINUED USE OF THE WATERS OF THE STATE OF ALABAMA.

ADPCA • Office of Water Resources • P.O. Box 3050 • 4501 Adams Avenue • Montgomery, AL 36103-0500 • (334) 242-5499 • Fax (334) 242-0745

ADPCA • Office of Water Resources • P.O. Box 3050 • 4501 Adams Avenue • Montgomery, AL 36103-0500 • (334) 242-5499 • Fax (334) 242-0745

Certificate Renewal

- When a Certificate is up for renewal
 - Letter typically mailed in July and gives 30 days for application to be returned
 - Customized DBU forms are included with letter for convenience of user
 - Included is all information that is currently on file with OWR
 - Makes the process for renewal easier for user



Annual Reporting Process

- Customized forms based on information in our system sent out in December
- Due back to the Office of Water Resources by March 31st of the following year
- Process designed to make it as easy as possible
- On-Line Reporting will make it even easier
- Best of all – no fees required



Annual Reporting

Annual Water Use Report for 2003
Alabama Water Use Reporting Program

Certificate Number: 0238

Owner: East World Nursery

Gross Water Withdrawal: 111,111 gals. Net Water Applied: _____

Calendar Year 2003	Average Withdrawal (gals/d)	Peak Withdrawal (gals/d)
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

CERTIFICATION: To the best of my knowledge and belief, the information contained in this report is true, accurate and complete.

Certified by: _____

Date: _____

These returns completed form is ADECA - Office of Water Resources.
ADECA • Office of Water Resources • 617 West 10th • 400 Adams Avenue • Montgomery, AL 36103-3001 • (205) 242-5889 • Fax: (205) 242-6770

Annual Water Use Report for 2003
Alabama Water Use Reporting Program

Certificate Number: 0239

Owner: Plant World Nursery

Gross Water Withdrawal: 111,111 gals. Net Water Applied: _____

Calendar Year 2003	Average Withdrawal (gals/d)	Peak Withdrawal (gals/d)
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

CERTIFICATION: To the best of my knowledge and belief, the information contained in this report is true, accurate and complete.

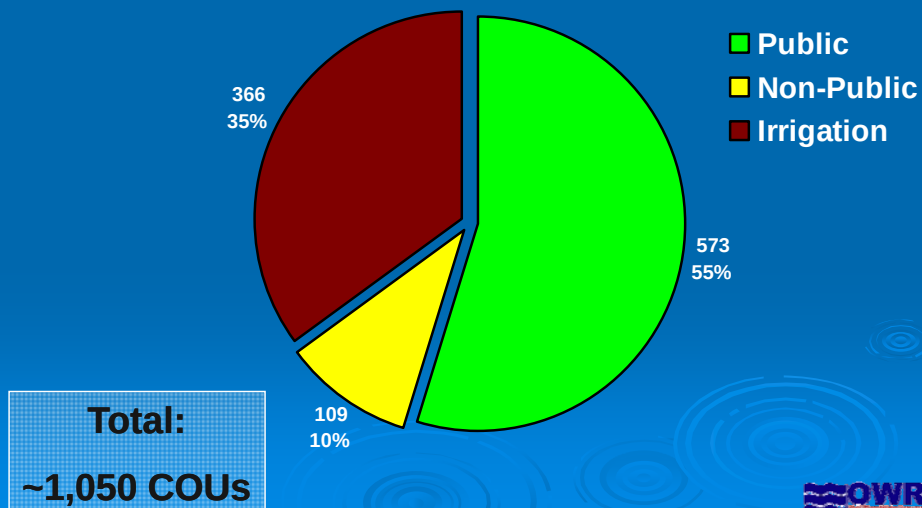
Certified by: _____

Date: _____

These returns completed form is ADECA - Office of Water Resources.
ADECA • Office of Water Resources • 617 West 10th • 400 Adams Avenue • Montgomery, AL 36103-3001 • (205) 242-5889 • Fax: (205) 242-6770



Alabama Certificates of Use



2005 Water Withdrawal Assessment

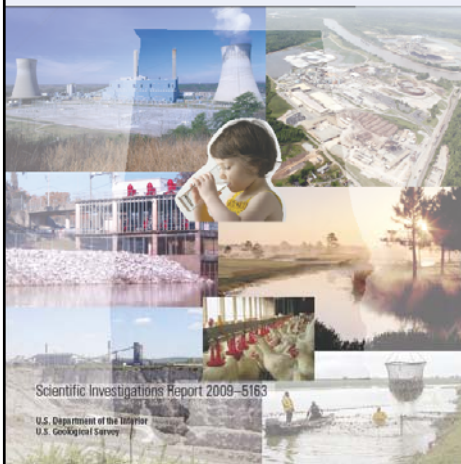


2005 Alabama Water Use Report



Prepared in cooperation with the Alabama Department of Economic and Community Affairs
Office of Water Resources

Estimated Use of Water in Alabama in 2005



Scientific Investigations Report 2008-5163

U.S. Department of the Interior
U.S. Geological Survey

Available at:

<http://al.water.usgs.gov/>



Total 2005 Water Withdrawals

- Total withdrawals were 9,942 Mgal/d (almost 10 Billion gallons per day)
 - By source
 - 95% (9,450 Mgal/d) Surface water
 - 5% (492 Mgal/d) Ground water
- Eight categories of use
 - Public, self supplied residential, industrial, mining, thermo-cooling, irrigation, livestock, and aquaculture
- Analysis at County and Subbasin level for all categories except self supplied, mining, and aquaculture



2005 Water Withdrawals

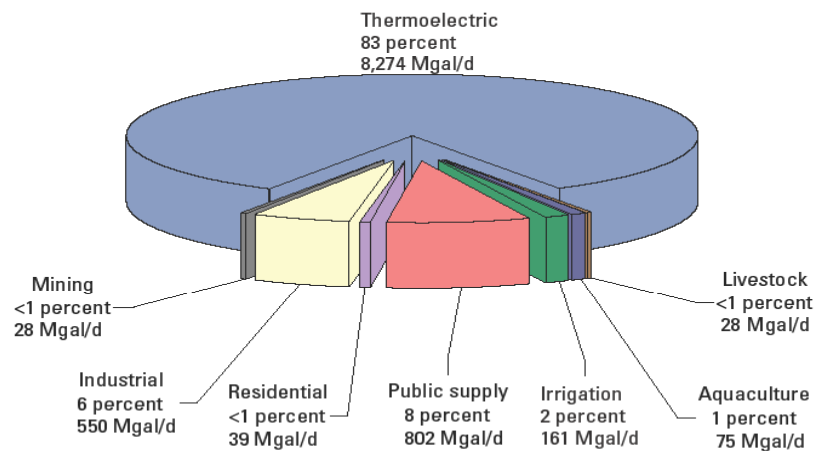


Figure 9. Comparison of freshwater withdrawals by category of use in Alabama, 2005.

2005 Water Withdrawals

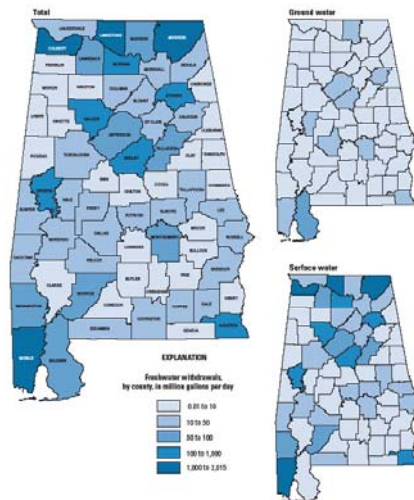


Figure 10. Total freshwater withdrawals by source and county in Alabama, 2005.

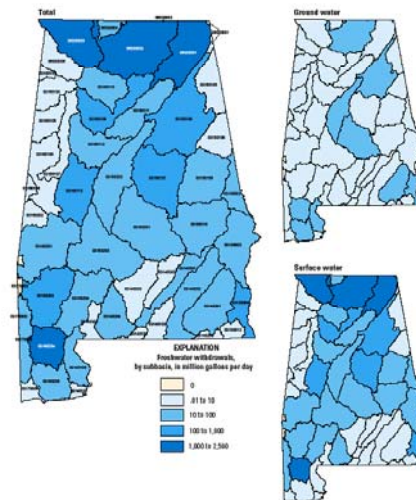


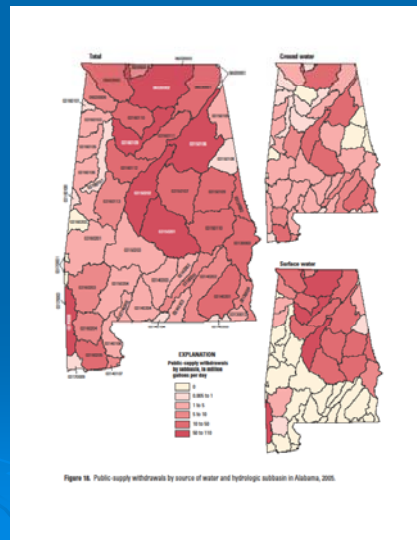
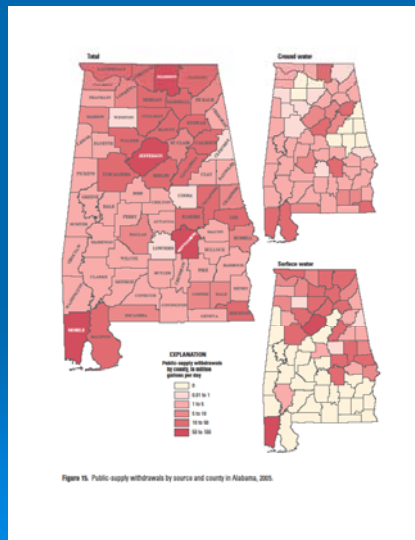
Figure 11. Total freshwater withdrawals by source and hydrologic subbasin in Alabama, 2005.

Public Supply

- 8 percent (802 Mgal/d) of total water withdrawals
 - By Source
 - 65% (524 Mgal/d) Surface water
 - 35% (277 Mgal/d) Ground water
 - Uses of public supplied water
 - Residential deliveries
 - 41% (326 Mgal/d)
 - Commercial/Industrial deliveries
 - 44% (355 Mgal/d)
 - In-system uses and loses
 - 15% (120 Mgal/d)
 - 89 percent of population (4.04 Million people) served by public supply

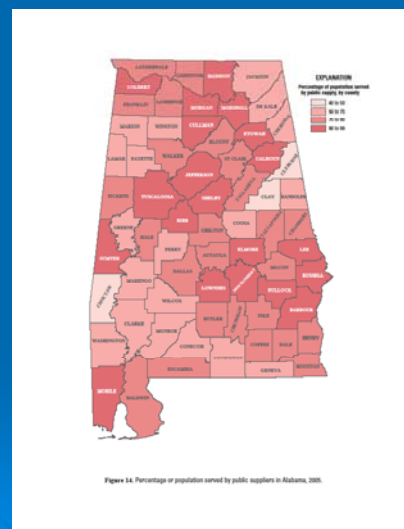


Public Supply withdrawals by County and by Basin



Public Supply

- Percent Population served by Public Supply
 - Ranged from about 40% of county to 99% of county
 - 20 Counties serve at least 90% of their populations with public water
 - 3 counties serve less than 50% of the population with public water



How Do We Get There?

Estimate Use of
Water

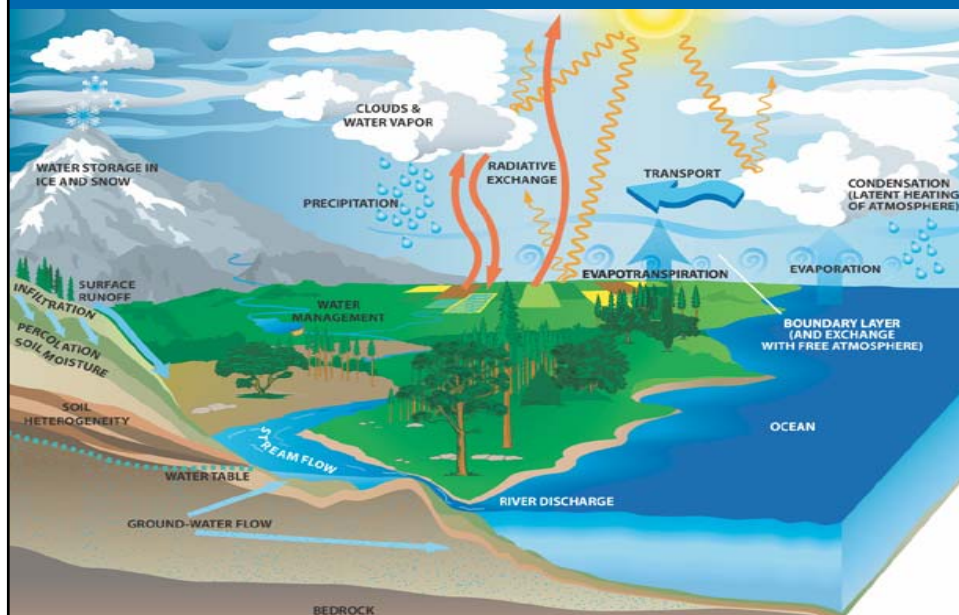
Watershed
Assessment
Tools



Watershed Modeling

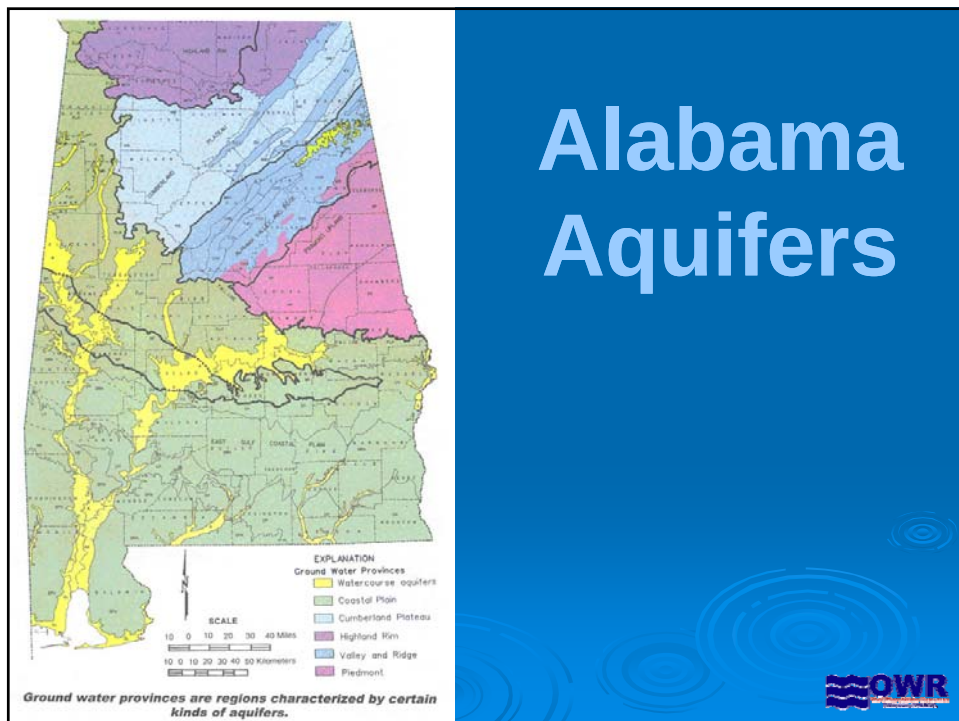


Hydrologic Cycle



Water Assessments Tools That Can:

- Assess the amount of water available individual watersheds in partnership with the USGS and other appropriate agencies
- Assess the water availability under a variety of different hydrologic conditions including:
 - Climate variability
 - Water use
 - Land-use changes
- Utilize watershed modeling approaches to develop computerized water budgets
- Incorporate demand growth scenarios



How Do We Get There?

Estimate Use of
Water

Watershed
Assessment
Tools

Water
Availability and
Sustainability

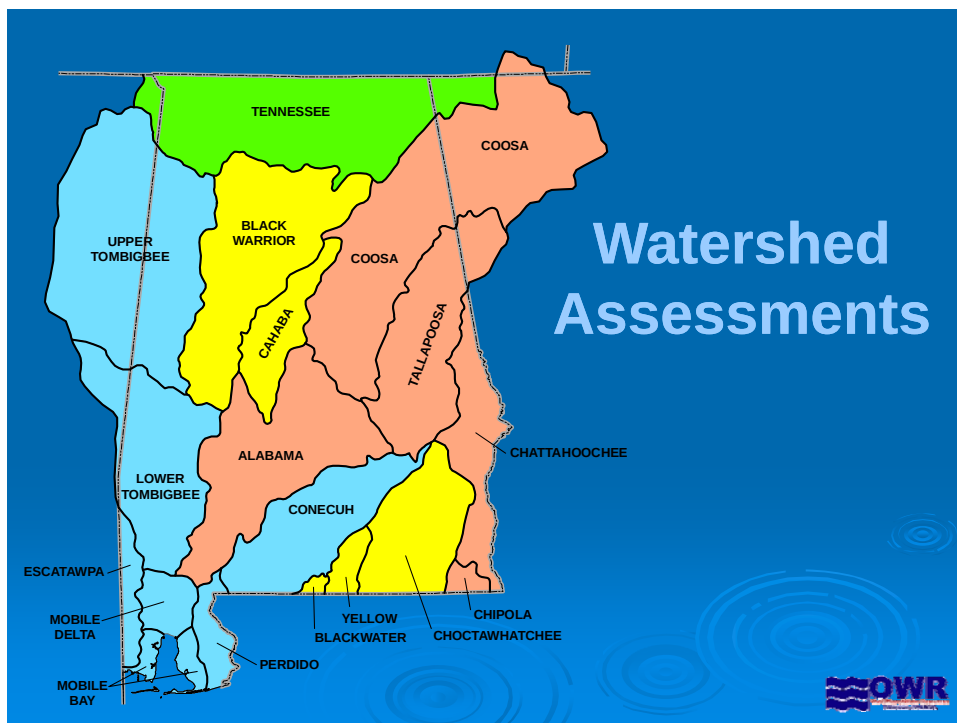


Regional Water Assessments



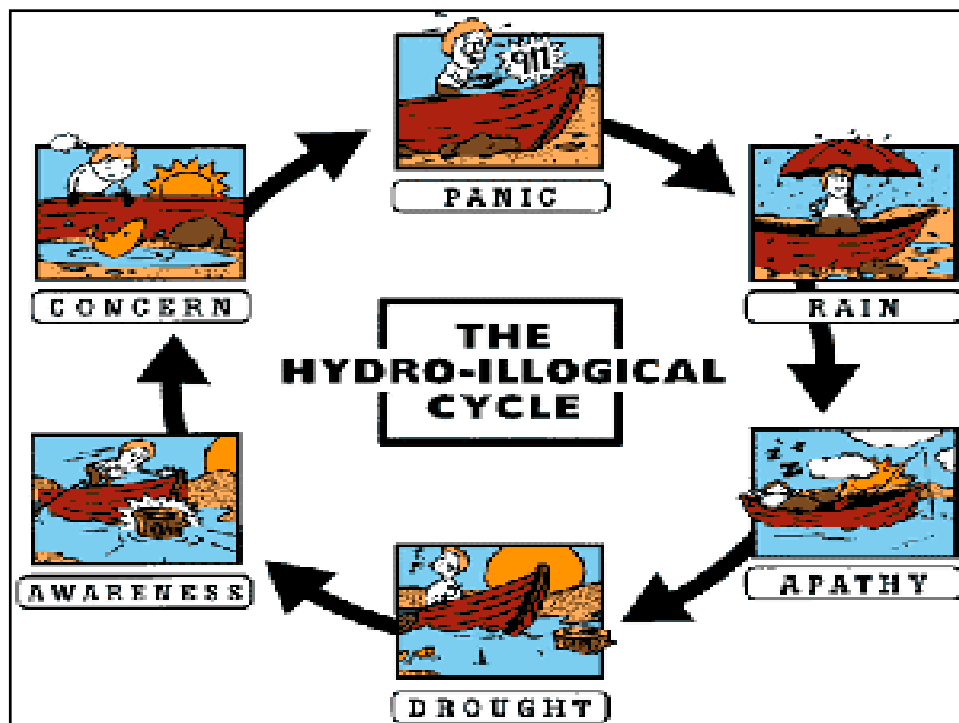
Water Availability Assessments

- Initial focus will provide a broad based (high level) review of water resource availabilities and demand estimates and forecasts
 - OWR to lead surface water assessments while GSA to lead groundwater assessments
 - Coordinated with other state and federal agencies to leverage efficiencies and minimize costs
- These studies will provide direction for more detailed water assessments of smaller areas



Leading to a Better Future...

- Ensuring water supply needs are understood and anticipated
- Water quality impacts are avoided
- Overall environmental needs and habitat are protected
- And most importantly, breaking the Hydro-Illogical Cycle!



Water Conservation and Efficiency

A graphic of several concentric circles representing water ripples, located in the bottom right corner of the slide.

Goals

- Encourage local and regional water supply planning and development
- Help provide assessment tools, rate structures, and shared opportunities to improve system efficiency
- Encourage Alabama residents and businesses to use water wisely and efficiently

EPA WaterSense Program

- OWR is partnering with EPA to promote water efficiency
- New home construction
- Older home renovations/upgrades
- Resources for public water systems



Not The Water Conservation Teamwork Envisioned



Water Audits

- AWWA Manual M-36, "Water Audits and Loss Control Manual" (Released 2009)
- Key aspects:
 - Water Audit Worksheet
 - Water Balance
 - Revenue Protection Plan to Control Apparent Losses
 - Revenue Protection Plan to Control Real Losses
 - Leak Detection Survey Daily Report
 - Leak Repair Report
 - Leak Management Program – Cost Effectiveness Summary



AWWA Water Audit Tool

AWWA WLCC Water Audit Software: Reporting Worksheet
Copyright © 2006, American Water Works Association. All Rights Reserved. v10.0(1.0) [Back to Instructions](#)

[Click to access definition](#) **Water Audit Report for: Sutter County**
Reporting Year: 2008

Please enter data in the white cells below. When possible, metered values should be used; if metered values are unavailable please estimate a value. Indicate this by selecting a choice from the gray box to the left, where E = measured (or accurately known value) and E = estimated.

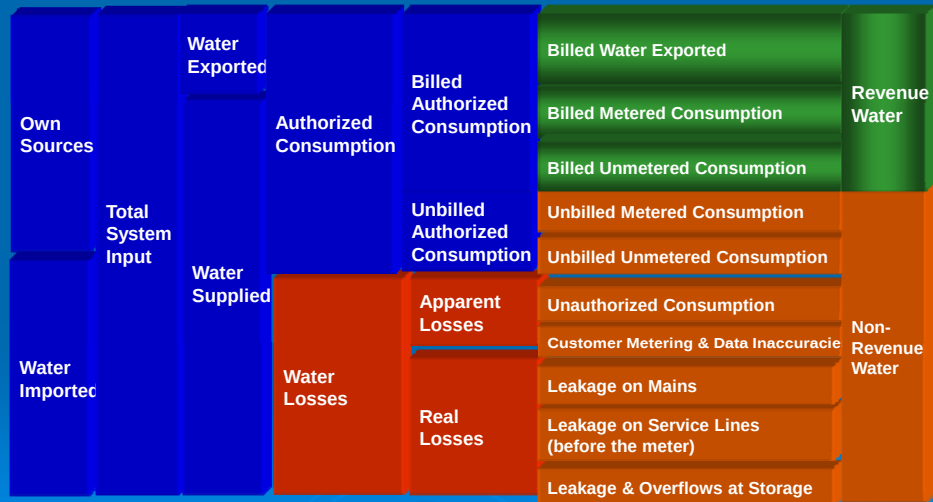
All volumes to be entered as: MILLION GALLONS (MG) PER YEAR

WATER SUPPLIED	
Volume from own sources:	4,024.300 Billion gallons (BG)/yr. (MG/Tx)
Water meter error adjustment:	0.000 MG/Tx
Water imported:	0.000 MG/Tx
Water exported:	0.000 MG/Tx
WATER SUPPLIED:	4,024.300 MG/Tx
AUTHORIZED CONSUMPTION	
Billed metered:	2,971.900 MG/Tx
Billed unmetered:	29.700 MG/Tx
Unbilled metered:	18.800 MG/Tx
Unbilled unmetered:	50.204 MG/Tx
AUTHORIZED CONSUMPTION:	3,070.704 MG/Tx
WATER LOSSES (Water Supplied - Authorized Consumption)	
Apparent Losses	953.396 MG/Tx
Unauthorized consumption:	10.061 MG/Tx
Customer metering inaccuracies:	92.496 MG/Tx
Systematic data handling errors:	60.000 MG/Tx
Apparent Losses:	162.957 MG/Tx
Real Losses	791.040 MG/Tx
Real Losses = (Water Losses - Apparent Losses):	791.040 MG/Tx
WATER LOSSES:	953.396 MG/Tx
NON-REVENUE WATER	
NON-REVENUE WATER:	1,022.700 MG/Tx
SYSTEM DATA	
Length of mains:	597.0 miles
Number of active AND inactive service connections:	21,025
Connection density:	35 conn./mile main
Average length of customer service line:	40.0 ft

(pipe length between curbstop and customer meter or property boundary)



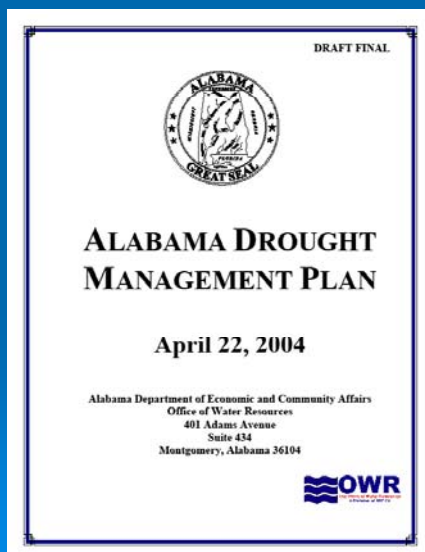
Water Audit Components



Standard Water Balance Diagram Provided by the IWA/AWWA



Drought Management Planning

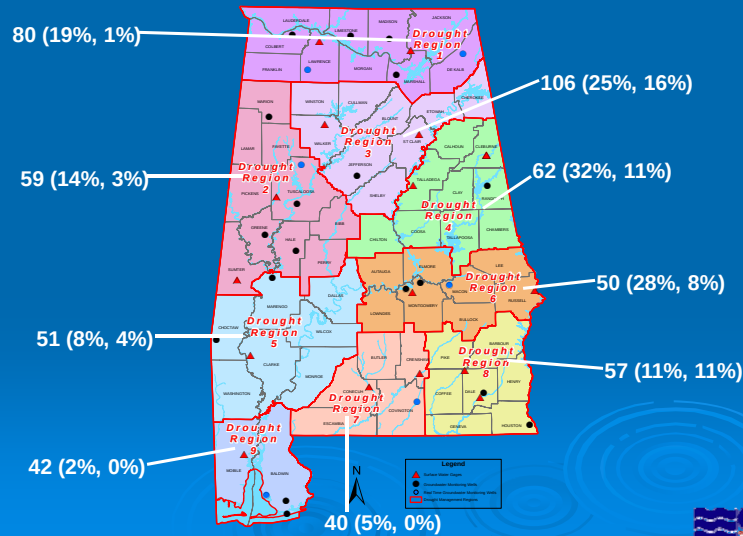


- First statewide Drought Plan issued on April 22, 2004
- Resulted from significant stakeholder input
- Establishes structure
- Focus of efforts:
 - Assessment
 - Forecast
 - Coordination
 - Cooperation
- Reviewing lessons from recent drought



Public Water System Restrictions

Number of systems (% Voluntary, %Mandatory)



Summary

- We must make sure we understand where water is used and how
- The water use data will then be used to make regional assessments that will help pinpoint problems
- Lastly, we have to continue to monitor drought conditions and ensure water is used as efficiently as possible and that plans are in place should conditions worsen

Contact Information

Web: www.adeca.alabama.gov

E-mail: water@adeca.alabama.gov

**Phone: Toll Free 1-877-ALAWATER
(252-9283)
or (334) 242-5499**

FAX: (334) 242-0776



ALABAMA CERTIFICATE OF APPRECIATION

Association of State and Territorial Dental Directors

Centers for Disease Control and Prevention

CERTIFICATE OF APPRECIATION

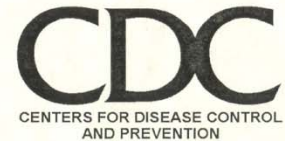
2008 State Fluoridation Quality Award

Alabama

*for contributions made
on behalf of
community water fluoridation*



American Dental Association
www.ada.org



ALABAMA STATE OF EXCELLENCE AWARD



2008

Documented Optimized Water Systems State of Excellence

The Centers for Disease Control and Prevention commends this water system for its consistent and professional adjustment of the water fluoride content to the optimum level for oral health for 12 consistent months. Consistent, high-quality water fluoridation practice, as demonstrated by this water system, is a safe and effective method to prevent tooth decay, improving the oral health of community residents of all ages.

Presented by the
Centers for Disease Control and Prevention
United States Department of Health & Human Services

A handwritten signature in blue ink, reading "K. J. Dedmon".

National Fluoridation Engineer, Division of Oral Health
National Center for Chronic Disease Prevention
and Health Promotion



**CERTIFICATES OF APPRECIATION
2007-2008**

Chattahoochee Valley Water Supply District	Fayette Water Works Board
Russellville Water Works	Albertville Utilities Board
US Army Aviation Redstone Arsenal	North Baldwin Utilities
Mobile Area Water Services Systems	

Total - 7

SURFACE WATER FLUORIDATION QUALITY AWARDS RECIPIENTS- 2008

Albertville Utilities Board	Madison Water Works & Sewer
Arab Water Works	Mobile Area Water Service System
Auburn Water Works	Montgomery Water Works
Birmingham Water Board	Moulton Water Works Board
Central Elmore Water Authority	Northport Water Treatment Fac.
Chattahoochee Valley Water Supply Dist.	Phenix City Utilities
Clanton Water Department	Piedmont Utilities Board
Colbert County Rural Water System	Pine Hill Water Department
Cullman Utilities Board	Scottsboro Water Works
Fayette Water Works Board	Section – Dutton Water System
Five Star Water	Smiths Water and Sewer Authority
Florence Water/ Waste Water Department	Talladega Water & Sewer Board
Fort Payne Water Works Board	Talladega – Shelby Water Treatment Plant
Gadsden Water Works	Tuscaloosa Water & Sewer
Guntersville Water Works & Sewer Board	Tuscumbia Water Works
Harvest – Monrovia Water System	Tuskegee Utilities Board
Heflin Water Works	Upper Bear Creek Water Authority
Huntsville Utilities	Water Works Board of the Town of Grant
Jackson Water Works & Sewer Board	Wedowee Water, Sewer, & Gas Board
Jacksonville Utilities	Winfield Water Works & Sewer Board
Jasper Water Works & Sewer Board Inc.	York Water System/City of York
Lafayette Water Works	

Total Surface Award Recipients - 43

GROUND WATER FLUORIDATION QUALITY AWARDS RECIPIENTS – 2008

Atmore Utility Board	Helena Utility Board
Belforest Water System	Holtville Water System
Butler Water Works	Livingston Water Works
Childersburg Water & Sewer Board	Loxley Water Department
Daleville Water & Sewer Board	Luverne Water & Sewer Department
Daphne Utilities Board	Marion Water Department
Dothan Water Department	North Baldwin Utilities
Evergreen Water Works	Odenville Utilities Board
Eufaula Water Works	Orange Beach Water System
Fairhope Water Department	Ozark Utilities Board
Flomaton Water Works	Pell City Water Works
Foley – Rivera Utilities	Perdido Bay Water System
Fort Deposit Water & Sewer Board	Selma Water Works & Sewer Board
Grand Bay Water Works Board	Summerdale Water Works
Gordo Water, Gas & Sewer Board	Tri-Community Water System
Gulf Shores Utilities Board	Vernon Water Works
Headland Water Works	Water Works Board of Prattville

Total Ground Water Award Recipients - 34

Operational Evaluation Levels

Stage 2 Disinfection Byproduct Rule

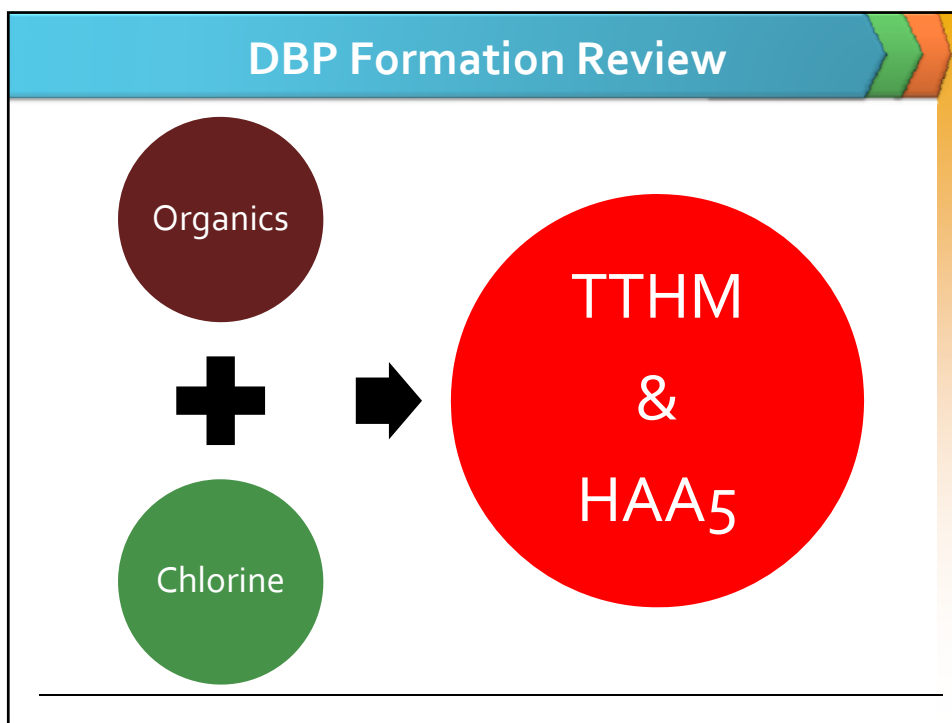
William McClimans
Surface Source Section
Drinking Water Branch
(334) 271-7985
wdm@adem.state.al.us

Information from Sept 2007 Draft Manual



Contents

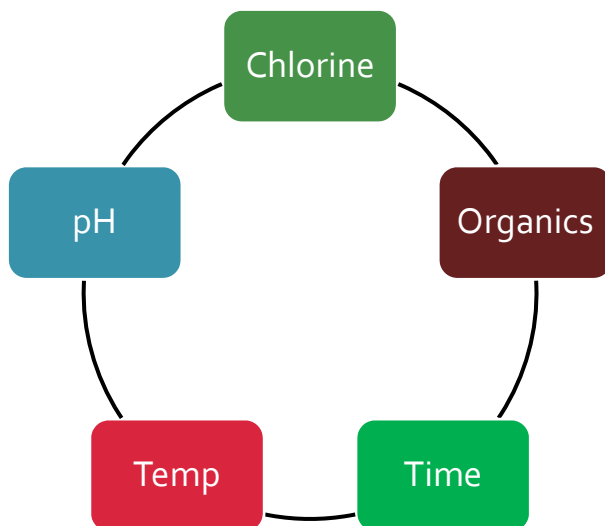
- 1 DBP Formation Review
- 2 What Constitutes An OEL
- 3 6 Step OEL Process
- 4 Long Term 2 Update
- 5 Summary



Major DBPs Formed During Chlorination

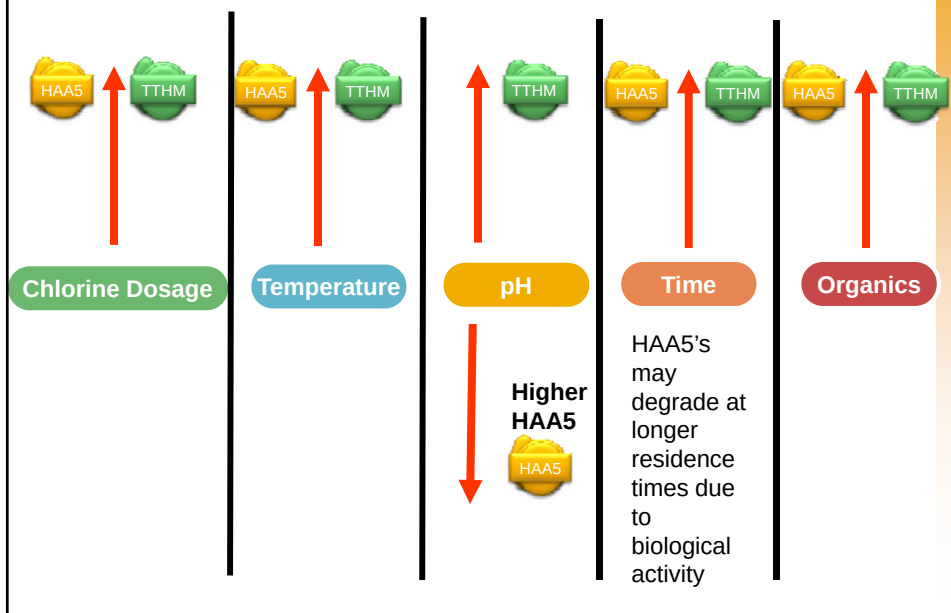
DBP Class	Individual DBP Species	Chemical Formula
Trihalomethanes *	Chloroform	CHCl_3
	Bromodichloromethane	CHCl_2Br
	Dibromochloromethane	CHClBr_2
	Bromoform	CHBr_3
Haloacetic acids*	Monochloroacetic acid	CH_2ClCOOH
	Dichloroacetic acid	CHCl_2COOH
	Trichloroacetic acid	CCl_3COOH
	Monobromoacetic acid	CH_2BrCOOH
	Dibromoacetic acid	CHBr_2COOH
* Other DBPs: Haloacetonitriles, haloketones, chloral hydrate, cyanogen halides Regulated		

What Affects DBP Formation?



Bromide If Present

TTHM and HAA₅ Trends



What Constitutes An OEL

- ◆ An Operational Evaluation Level (OEL) is an attempt by EPA to avoid possible MCL violations under the Stage 2 Disinfection Byproduct Rule.
- ◆ An OEL is determined by taking the current quarter result for each sample location and multiplying it by 2 then adding the previous 2 quarters to it. Then dividing this sum by 4.
- ◆ If this number is above 80 ppb for TTHM or 60 ppb for HAA₅, the water system has triggered an OEL Exceedance.

OEL Calculation

◆ TTHM

- Site 1
 $(88 + 110 + 2 \times 135)/4 = 117$
 Site Exceeded 80 ppb
- Site 2
 $(30 + 52 + 2 \times 43)/4 = 42$
- Site 3
 $(42 + 60 + 2 \times 77)/4 = 64$
- Site 4
 $(55 + 65 + 2 \times 106)/4 = 83$
 Site Exceeded 80 ppb

◆ HAA₅

- Site 1
 $(130 + 0 + 2 \times 8)/4 = 37$
- Site 2
 $(18 + 24 + 2 \times 24)/4 = 23$
- Site 3
 $(43 + 49 + 2 \times 44)/4 = 45$
- Site 4
 $(48 + 48 + 2 \times 60)/4 = 54$

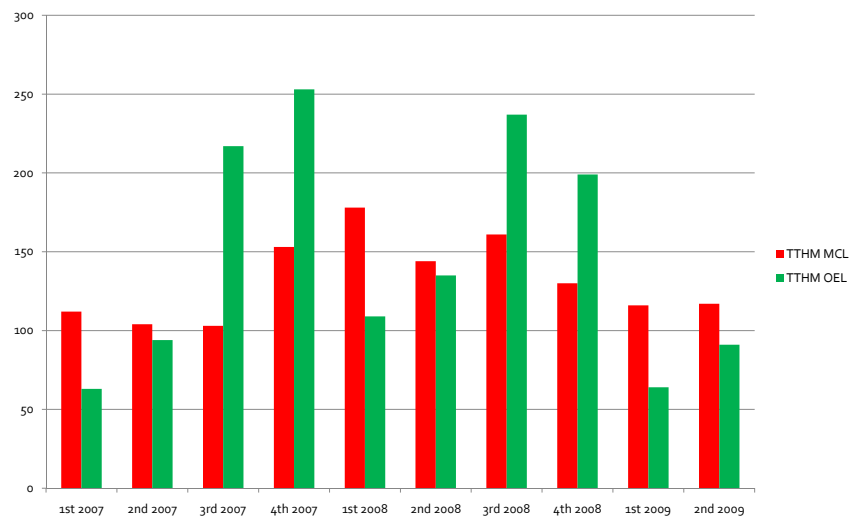
OEL Deadline

- ◆ If you trigger an OEL, you have 90 days from when you, the water system, receive the results to complete the OEL Report.

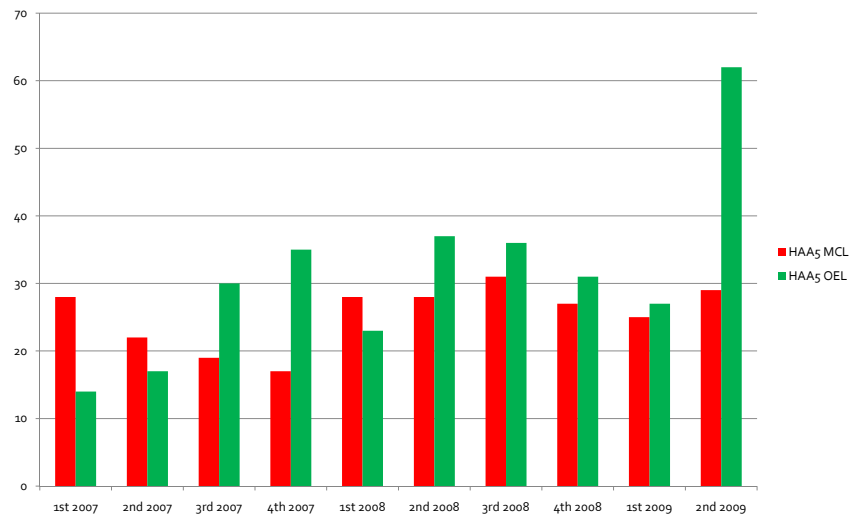
www.themegallery.com

Company Logo

2012 TTHM MCL and OEL Projections



2012 HAA5 MCL and OEL Projections

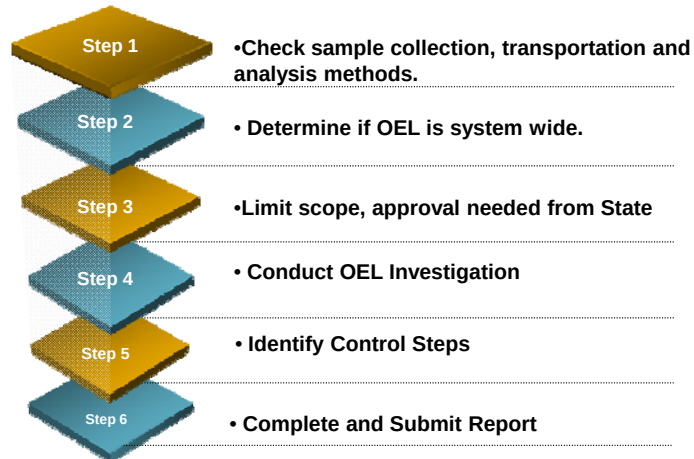


Operational Evaluation Examination

Must include an examination of:

- Sample collection and analysis
- Storage Tank Operations
- Excess Storage Capacity
- Distribution Flushing
- Sources of Supply
- Source Water Quality
- Treatment Process and Finished Water Quality
- Steps to minimize DBP formation

6 Step OEL Process



Step 1 – Sample Collection and Analysis

- ◆ Did personnel from the water system or laboratory collect the samples?
- ◆ Was the preservatives added properly?
- ◆ Were samples kept cool at about 4°C at all times?
- ◆ Was the correct method used for analysis?

Step 2 – Is OEL System Wide

- ◆ Did an OEL occur at more than one location?
- ◆ If only one site caused an OEL, did the other sites also show and increase in TTHM and HAA5 levels?
- ◆ The AWOP DBP Spreadsheet may be useful to determine any trends that may be occurring.
- ◆ AWOP DBP Spreadsheet can be obtained from your system inspector.

Step 3 – Limit Scope if Applicable

- ◆ If cause of OEL is known, a request to limit the scope of the investigation must be submitted to the Department.
- ◆ The request must be made in writing and does not extend the 90 day window for the submittal of the report to the Department.
- ◆ Make the request early as possible to allow time to prepare the report.

Step 4 – Conduct OEL Investigation

Source

Evaluation of raw water data to determine if change has occurred

Treatment

Evaluation of treatment to determine if it was affective

Distribution

Evaluation of distribution operations

Source Assessment

Elements to Evaluate

- Source Temperature and Travel Time
- TOC, DOC, SUVA, COLOR & THM Formation Potential Data
- Bromide Data
- Turbidity and Particle Count Data
- pH and Alkalinity Data

Temperature and Time

- ◆ Did the source water temperature increase above historical levels
- ◆ Did the water level drop below normal conditions?
- ◆ Was water drawn from a different level than in past years
- ◆ Drought? Rain? Hurricane

TOC, DOC, SUVA, Color and THM Formation

- ◆ Heavy rain fall
- ◆ Drought
- ◆ Uncontrolled storm water runoff
- ◆ Erosion
- ◆ Intake level change
- ◆ Algae
- ◆ Taste and Odor problem

Bromide Data

- ◆ Do you have bromide data?
- ◆ No? No problem. Check individual TTHM species.
 - Bromoform
 - Bromodichlormethane
 - Dibromochloromethane
- ◆ Did the bromide of TTHM speciation change from previous years?
- ◆ Saltwater intrusion (near coast)

Turbidity and Particle Count Data

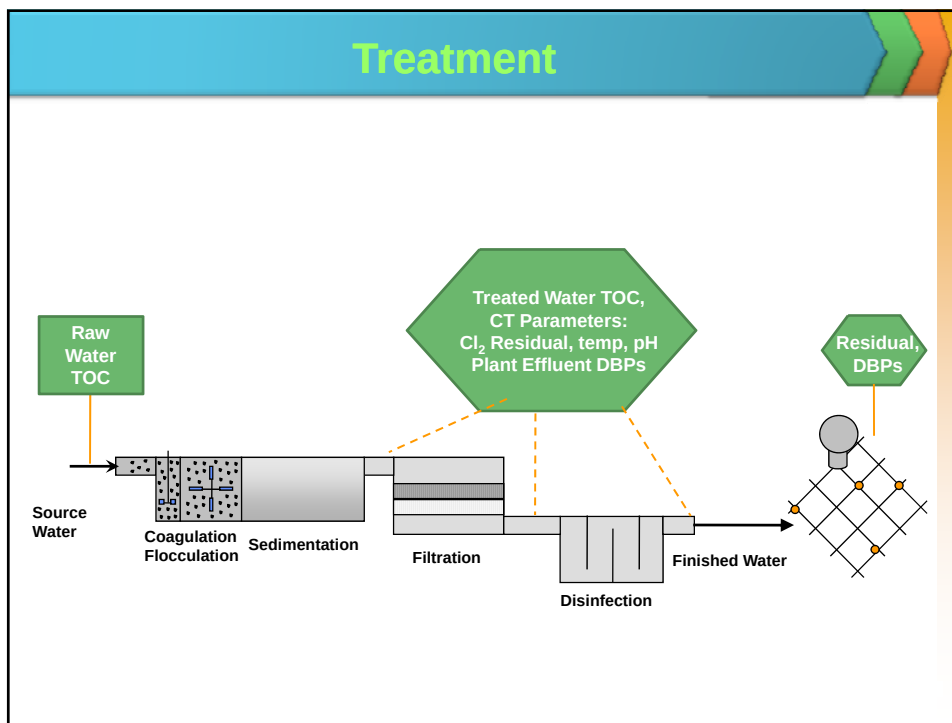
- ◆ Did a reservoir turnover occur?
- ◆ Heavy rainfall?
- ◆ Logging, uncontrolled storm water or other turbidity event occur?
- ◆ Flow rates in source (higher, lower, none?)

pH and Alkalinity

Did pH or Alkalinity change?

- Higher
- Lower
- Causes?
 - Rainfall
 - Drought
 - Algae blooms

Treatment



Treatment Processes

- ◆ Change in coagulant
- ◆ Did not adjust coagulant to raw water characteristics
- ◆ Coagulation (sedimentation) pH
- ◆ 1st Point of Chlorination pH
- ◆ 2nd Point of Chlorination pH
- ◆ Finished Water pH
- ◆ Corrosion Control
- ◆ Pre-chlorination
- ◆ Plant flow rates
- ◆ Sludge build-up in basins
- ◆ Filtered Turbidities
- ◆ Finished Water Chlorine Residual

Distribution

- ◆ TTHM and HAA₅ Locations
- ◆ Water Quality
- ◆ Water Usage
- ◆ Storage Tanks
- ◆ Booster Chlorination
- ◆ Flushing

Distribution Water Quality

◆ Master Meter or WTP Effluent Data

- Did anything change at the entry point?
- Big hint, if you don't know what's coming in your missing a lot of information.

◆ Chlorine, temperature and pH data

- Did any of these change at any sample site?
- Big hint, if you are not collecting this data, you probably should be.

◆ Maintenance Records

- Line Breaks
- Flushing
- Customer Complaints

Distribution Operation

◆ Storage Tanks

- Change in water levels
- High water age in storage tank
- Lower demand
- Mixing

◆ Booster Chlorination

◆ Maintenance Records

- Correct flushing after line break
- Valve operation

◆ Water Purchases

- Change in purchase amounts
- New source of water

Step 5 - Identify Control Steps

The report must contain correct steps that could be taken to reduce the disinfection byproduct levels to below the OEL trigger.

You do not have to implement these steps, however, if you have a MCL violation in the future, the Department may require you to implement them as part of a corrective action plan.

Step 6 - Complete and Submit Report

The completed OEL report is due to the Department within 90 days of when you received the results that would trigger an OEL exceedance.

Long Term 2 Update



Long Term 2 Update

- ◆ Schedule 1 – Complete
- ◆ Schedule 2 – Report were due October 1
- ◆ Schedule 3 – Report due October 2010
- ◆ Schedule 4
 - E-Coli Monitoring reports due by April 2010
 - Crypto Monitoring
 - Systems that started early, the report is due within 6-months of completion of monitoring
 - Required crypto monitoring (E-coli systems) must start in April 2010

Long Term 2 Update

◆Cryptosporidium Update

- Cryptosporidium has been detected in most rivers and lakes.
- A few systems have been classified into Bin 2. Bin 2 requires 1-log of additional treatment for the removal of cryptosporidium.

◆Round 2 Monitoring

- Schedule 1 begins April 2015
- Schedule 2 begins October 2015
- Schedule 3 begins October 2016
- Schedule 4 begins October 2017

Summary

◆Operational Evaluation Levels

- They will cause a problem for a lot of systems.
- Don't ignore the possibility of them occurring
- The reports will be fairly long and time consuming

◆Long Term 2

- Cryptosporidium is present in most sources.
- A few systems have been classified into Bin 2 already
- Repeat monitoring in 2015 to 2017

Thank You !

Stage 2 Disinfection Byproduct Rule

William McClimans
Surface Source Section
Drinking Water Branch
(334) 271-7985
wdm@adem.state.al.us



Optimization for Disinfection and Disinfection Byproduct (DBP) Control

Jim Ramsey

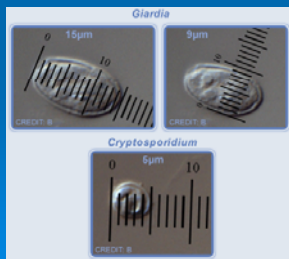


Overview

- ◆ Optimization background and history
- ◆ Challenges related to optimizing water treatment

Optimization is About Public Health Protection

- Initial focus of optimization was prevention of waterborne disease outbreaks related to microbial contaminants
- Giardia* and *Cryptosporidium* routinely detected in water supplies and confirmed source of outbreaks
- Meeting existing compliance levels was not always effective for preventing outbreaks



Optimization Experience

- Surface water treatment optimization (1988 to present)
 - Approximately 200 plants, 25 states, and two provinces (includes CPEs, Technical Assistance, etc)
- For Comprehensive Performance Evaluations (CPEs) , approximately 50 Performance Limiting Factors in four categories (Administration, Design, Operation, Maintenance)

Optimization is About Making Decisions Based on Data

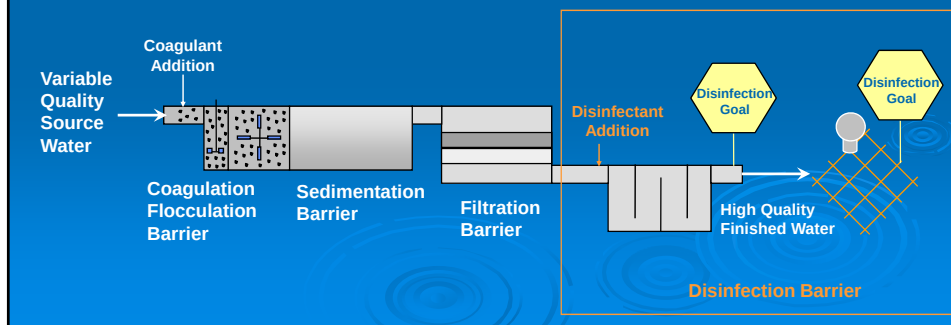
- ◆ Extra data needs to be collected and organized by using electronic spreadsheets
- ◆ Graphs can be drawn to visually present the data
- ◆ Decisions can then be made based on data instead of “gut feelings”

Optimization is NOT About Throwing Money at a Problem

- ◆ Water Systems are encouraged to collect data to clearly define a problem
- ◆ Data can be interpreted to design a Special Study (change in operation preferred)
- ◆ Data can be collected during the Special Study to determine the effect of the change in operations
- ◆ Data can be evaluated to determine if the change improved performance

Optimized Performance Reduces Risk

- Optimization focuses on multiple barrier approach to enhance public health protection
 - Disinfection is one of these “barriers”
 - In-plant and distribution system disinfection goals help ensure public health protection

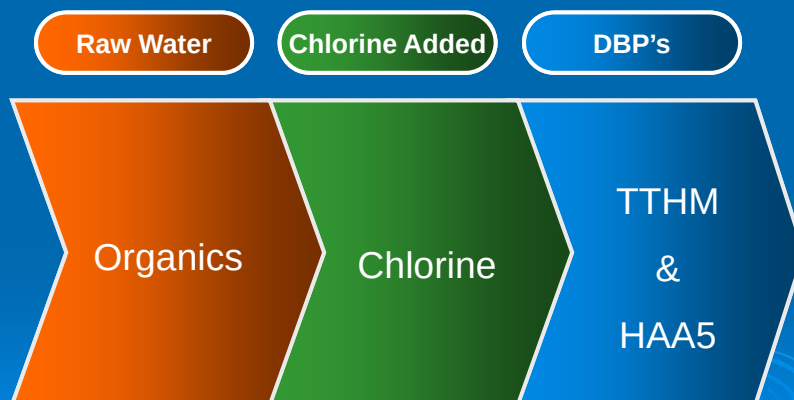


More Recently, Other Health Risks Have Come Into the Picture

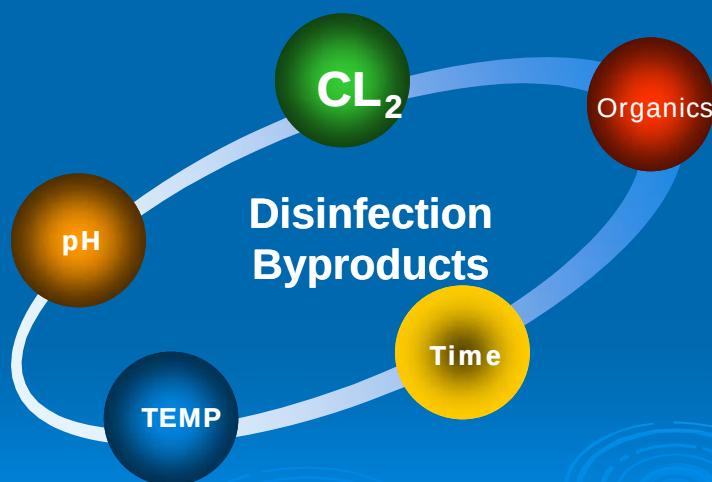
- Stage 1 Disinfectants/Disinfection Byproduct Rule (Stage 1 DBPR)
 - Limits based on system-wide running annual average
- Stage 2 Disinfectant/Disinfection Byproduct Rule (Stage 2 DBPR)
 - Limits based on running annual average at specific sample sites
- New challenge to achieve microbial optimization goals while minimizing DBP formation



The Challenge To Disinfection Optimization is Disinfection Byproduct Formation



What Affects DBP Formation?



Regulatory Requirements

💧 WTP's

- Minimum of 1.0 mg/L free chlorine or minimum from system permit must be maintained at all times entering the distribution system.



💧 Distribution

- Minimum of 0.2 mg/L free chlorine at all locations in the distribution system.

💧 TOC

- Maintain TOC removal ratio

Water Optimization Challenges

Changing Attitudes and Perceptions



Challenge #1 - Quantifying The Knowing-Doing Gap

- ◆ Top-ranking factor limiting optimization
 - Classroom versus application (i.e., knowing versus doing)
- ◆ Why does the Knowing-Doing Gap exist?

Challenge #2 – Defining Process Control



Typical Responses:

- ◆ Laboratory analysis
- ◆ Chlorine Testing
- ◆ Turbidity Readings
- ◆ Sampling & data monitoring
- ◆ Coagulation control

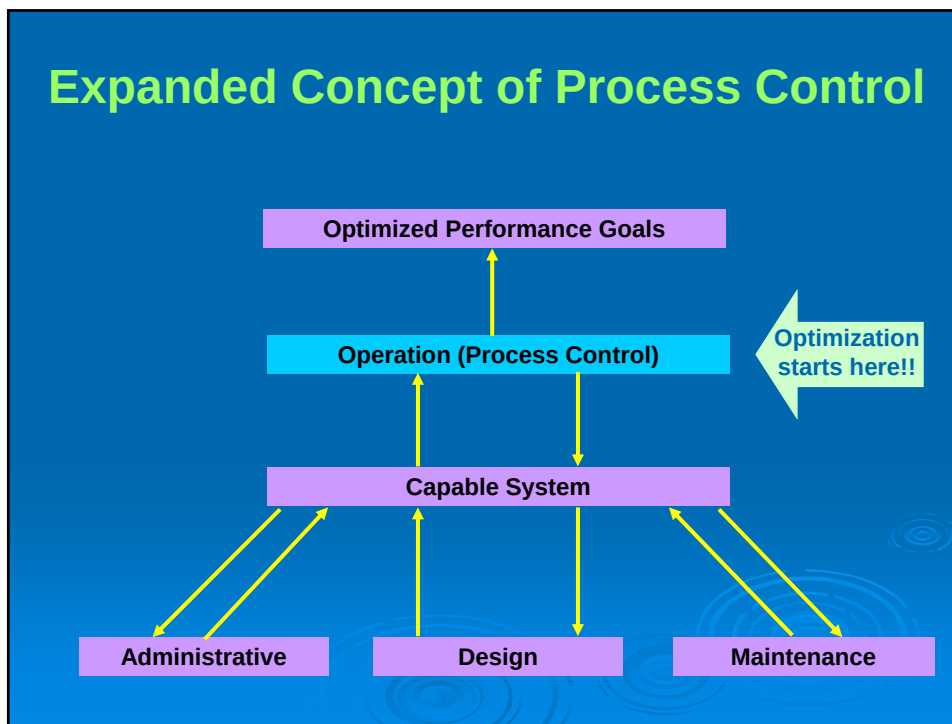
Challenge #3 – That's The Way We've Always Done it



Challenge #4 – Defining Obstacles to Optimization

- ◆ Myth: There is one big issue limiting my system from achieving optimization
 - If we stop feeding chlorine to the rapid mix, we'll lower DBPs, but our settled water turbidity will increase...
 - We could lower DBPs if we monitored more, but the cost is too high...
- ◆ Reality: There are many issues limiting a system from achieving optimization (most are operational)
 - Most are small and addressed over time (2 – 5 years)
 - Required modifications justified through optimization

Expanded Concept of Process Control



Expanded Definition of Process Control

- ◆ “Process control” is any activity required to develop a capable water system and take it to the desired level of performance
 - **Data collection** (beyond regulatory requirements)
 - **Data interpretation** (what is all this data telling me?)
 - **Questioning current operating procedures** (“Because that’s how we’ve always done it” is not a good enough answer)

Steps to Optimization

- ◆ Adopt a Performance Goal
- ◆ Assess Your Standing in Relation to Your Goals
- ◆ Define Problems with Meeting the Goal
- ◆ Devise and Implement a Plan of Attack
- ◆ Assess the Results of the Plan

Steps to Optimization

- ◆ Adopt Performance Goals
 - Maintain Compliance and Optimization
 - Regulations – Goals
 - Realistic – Achievable
 - Must be supported by Management

Steps to Optimization

- ◆ Assess Your Standing in Relation to Your Goals
 - Spreadsheets are tools provided to aid in accessing where you are.
 - Populate and maintain these spreadsheets

Spreadsheets Available

- ◆ CL₂-CT (Version 4)
- ◆ DBP Goals (Version 4)
- ◆ DBP-TOC (Version 4)
- ◆ Tank Mixing & Turnover (Version 6)

Steps to Optimization

- ◆ Define Problems with Meeting the Goal
 - Determine what data is needed and/or missing
 - Evaluate the data to find out what part of your plant's operation needs improvement

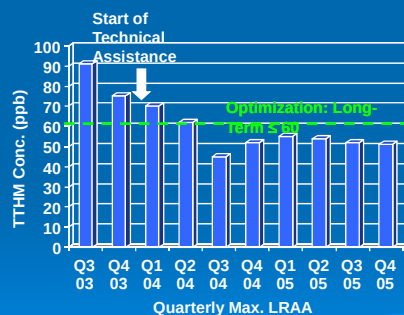
Steps to Optimization

- ◆ Devise and Implement a Plan of Attack
 - Plan Special Studies that will try new ways of running your plant or distribution system.
 - Implement the special studies and collect data to evaluate the results.

Steps to Optimization

- ◆ Assess the Results of the Plan
 - Evaluate the data to see if you improved the performance of the plant in relation to the goals

Summary



- ◆ Optimization protects public health
- ◆ PBT is designed to assist water systems in pursuing optimization
- ◆ Bottom line: Demonstrated improved performance!



Area-wide Optimization Program (AWOP) Update

Tom Garrett
334/271-7931
thg@adem.state.al.us



adem.alabama.gov



Microbial (Turbidity Goals)

Annual Average Raw Water Turbidity	≤ 10.0 NTU	> 10.0 NTU
Settled Water (95% of readings)	≤ 1.0	≤ 2.0
Each Filter (95% of readings)	≤ 0.1 NTU	≤ 0.1 NTU



Microbial Plants Optimized

Year	Meeting Settled Goal	Meeting Filtered Goal	Optimized WTPs
2007	69.0%	62.1%	50.6%
2008	70.1%	66.7%	48.3%



Disinfection Byproducts

Short Term Goal

- Each site LRAA ≤ 0.080 ppm TTHM
 ≤ 0.060 ppm HAA5



Disinfection Byproducts

Long Term Goal

Calculations based on HIGHEST SITE LRAA
for each quarter (one LRAA per quarter)

Calculations based on 8 quarters of LRAA
(need 11 quarters of data)

- $\text{TTHM} \leq 0.060 \text{ ppm}$
- $\text{HAA5} \leq 0.040 \text{ ppm}$



Long Term Goal Calculation (TTHM)

Sample	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Qtr 7	Qtr 8	Qtr 9	Qtr 10	Qtr 11
Site 1	55	57	70	58	56	110	80	31	52	43	47
Site 2	65	45	86	45	36	46	33	24	27	43	35
Site 3	55	85	54	42	73	90	55	21	55	80	3
Site 4	20	36	42	32	59	55	80	100	33	65	90
Site 1 LRAA				60	60	74	76	69	68	52	43
Site 2 LRAA				60	53	53	40	35	33	32	32
Site 3 LRAA				59	64	65	65	60	55	53	40
Site 4 LRAA				33	42	47	57	74	67	70	72
Max LRAA				60	64	74	76	74	68	70	72

(All sites meet Short Term Goal)



Long Term Goal Calculation (TTHM)

$$\frac{60 + 64 + 74 + 76 + 74 + 68 + 70 + 72}{8} =$$

69.8

(System does not meet Long Term Goal)



Plant Effluent Targets

- TOC: 1.7 ppm RAA
- TTHM: 20 ppb RAA
- HAA5: 15 ppb RAA



Stage 2 and AWOP: A New Way of Doing Business

- Stage 2 has caused water systems to do business in a whole new way
- Previously, the treatment plant was the only way to affect water quality as regulated by the Department
- Now, the distribution system has an impact on regulated water quality



Stage 2 and AWOP: A New Way of Doing Business

- AWOP is not only a set of goals, it's a new way of approaching water quality.
- For Instance.....

ADEM

- Scenario: A Parent System has a water treatment plant, a distribution system consisting of 150 miles of pipe, 2 storage tanks, and one connection to sell to another system (Purchase System)
- Purchase System consists of one master meter, 75 miles of pipe, and one storage tank.

ADEM

- One day, Purchase System receives a Notice of Violation from ADEM for an exceedance of the TTHM MCL.
- The Notice of Violation requires the system to come back into compliance
- What do they do?



- Options (water age)
 - Flush
 - Tank Turnover
 - Tank Mixing



How AWOP Can Help

- Secondary Impacts
 - Flushing – “money down the drain”, public image during times of drought, potential discharge issues
 - Tank Turnover – adequate pressure, adequate fire protection, demand, ability to fill tanks (adequate pumping)
 - Tank Mixing – ability to fill tanks (adequate pumping), tank design (inlet/ outlet)

ADEM

- The tools of AWOP can help develop your flushing program and tank operating program
- Spreadsheets
 - Chlorine
 - Tank Turnover
 - Tank Mixing
- Chlorine Map

ADEM

- Now imagine that Purchase system has “optimized” their distribution system by developing a flushing program and a tank management program (Good Job!!)

ADEM



ADEM

- Time passes while Purchase System is working to improve their water quality
- Sadly, Second Quarter of sampling results in another Violation within 12 months.

ADEM

- Purchase System is now considered a “Significant Non-Complier” (SNC – pronounced “Snick”)
- Discussions for the Consent Order with a time table for coming into compliance begin....

ADEM

- WHAT NOW?!

ADEM

- Best interest, etc

ADEM

Tuscaloosa's Flushing Program



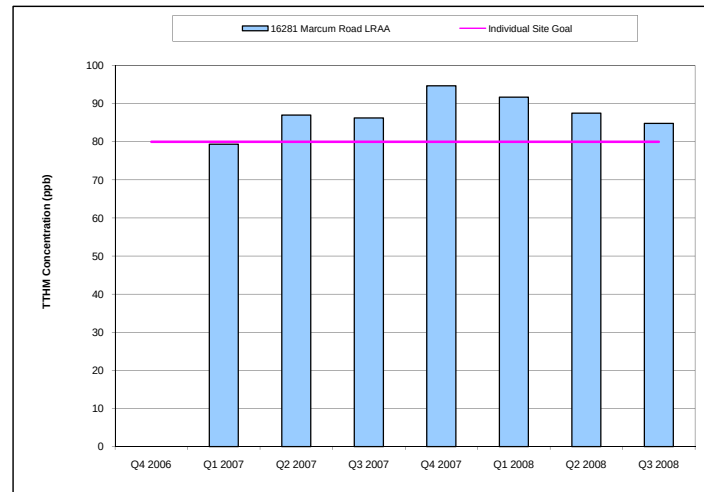
The Why, The How, The What!

Why Flush

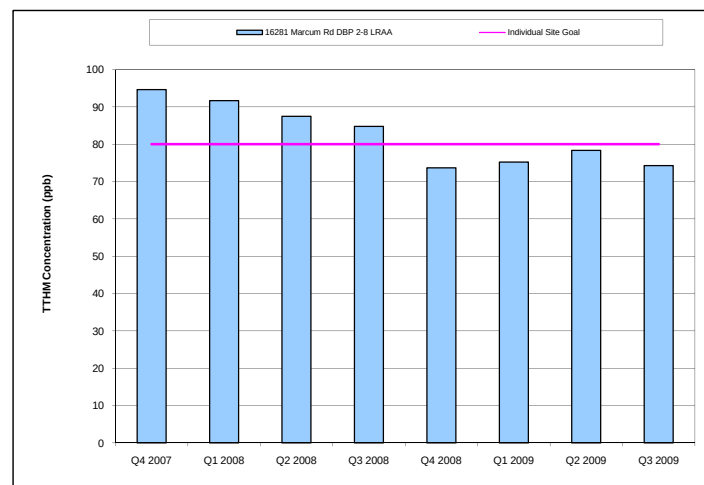
- Reduce water age
- Improve chlorine residual
- Decreases temperature
- Decrease DBPs
- Achieve compliance

Flushing is the one component that a system has the most control over

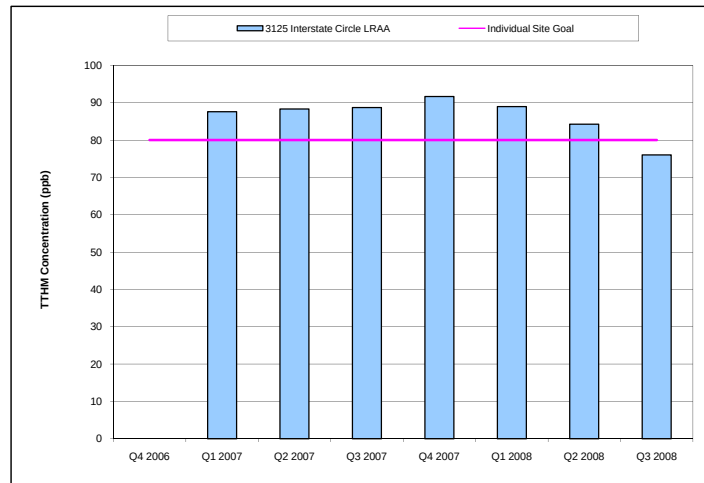
16281 Marcum Road LRAA Q3 2008



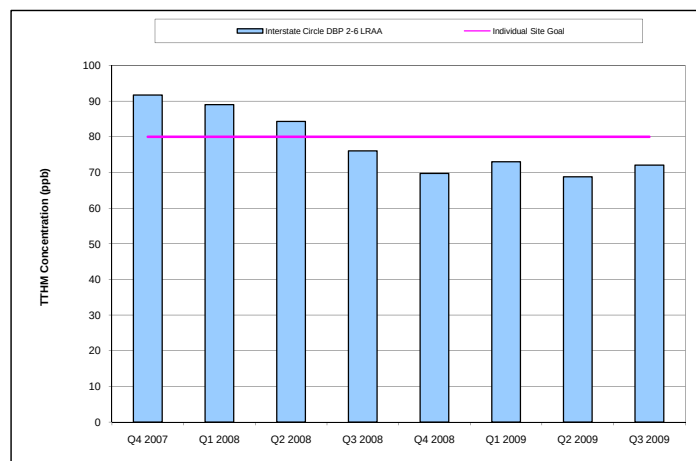
16281 Marcum Road LRAA Q3 2009



3125 Interstate Circle Q3 2008



3125 Interstate Circle Q3 2009



How Flush



Commercial Flushers

- Proven
- Rugged
- Tamper resistant
- Costly
- Visible

• Lockable
• UV Resistant

Flow Adjustment
Airgap
6" Sewer Pipe

Double Valve Sampler

Digital Controller
• No Hand Held Remote Needed!

Valve and controller below frost-line
2" Brass FIP Inlet
Self-Draining, Non-Freezing

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Kupferle 9800 Eclipse



Home Made Flushers



Our First Attempt

Price

Visibility

Reliability?



Our Second Attempt



Preferred Configuration

Price

Visibility

Reliability

Rugged



Rugged

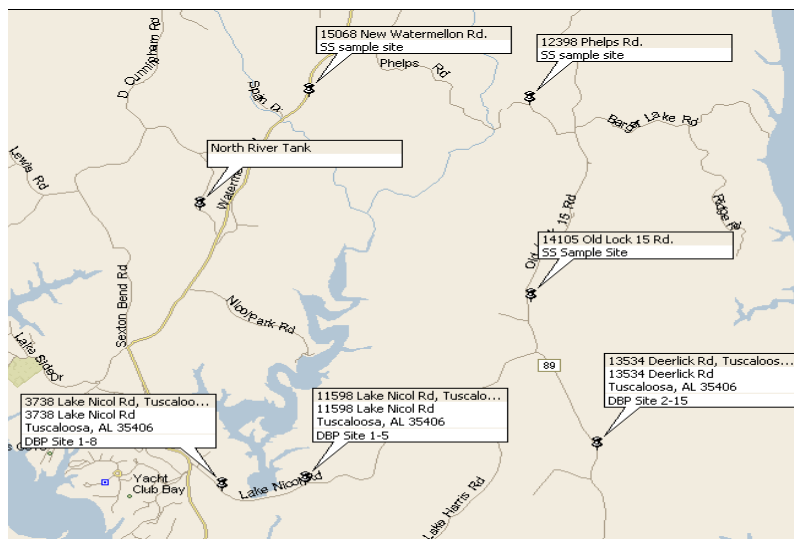


Controller totally under water



Pop the cover and it works

Deerlick and Lake Nicol Sites



7/17/2009

Site Name	Temp °C	Cl ₂ mg/L	pH	Miles from Y	Gallons in Pipe	TTHM µg/L	Present Flush Vol.	Est. Time Days
11598 Lake Nicol Road	27.0	0.8	8.70	-1.9	14734	93.6	9200	1.6
Deerlick Sample Site	27.0	1.1	8.7	-0.9	6979	108	4000	1.7
13886 Lake Nicol Road @ Y	25.0	1.4	8.40	0	0	x		0.0
14105 Old lock 15 Road	26.6	1.4	8.2	0.6	4653	70.9		0.4
12398 Phelps Road	26.0	1.5	7.9	2.4	18611	58.3		1.4
15068 New Watermelon Road	22.6	2.0	7.6	5.2	40324	x		3.1
North River Tank	22.8	1.7	7.6	7.1	55058	67.4		4.2

Indicates data taken on 07-08-09

Travel Time from North River Tank to Lake Nicol Road Site 5.8
Travel Time from North River Tank to Deerlick Road Site 6.0

8/14/2009

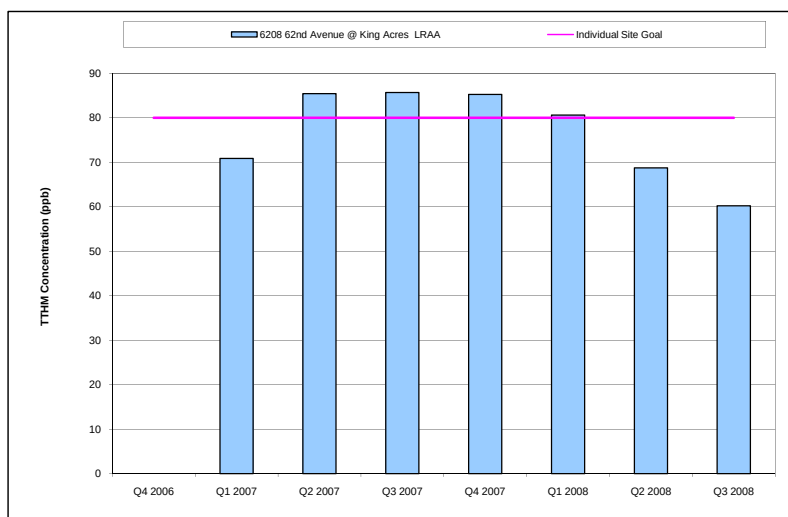
Site Name	Temp °C	Cl ₂ mg/L	pH	Miles from Y	Gallons in Pipe	TTHM µg/L	Present Flush Vol.	Est. Time Days
11598 Lake Nicol Road	27.3	0.9	8.5		14734		11514	1.3
Deerlick Sample Site	27.2	0.8	8.5		6979		5436	1.3
13886 Lake Nicol Road @ Y	25.7	1.0	8.2		0			0.0
14105 Old lock 15 Road	26.4	1.1	7.9		4653			0.3
12398 Phelps Road	28.0	1.4	7.9		18611			1.1
15068 New Watermelon Road					40324			2.4
North River Tank					55058			3.3

Travel Time from North River Tank to Lake Nicol Road Site 4.5
Travel Time from North River Tank to Deerlick Road Site 4.5

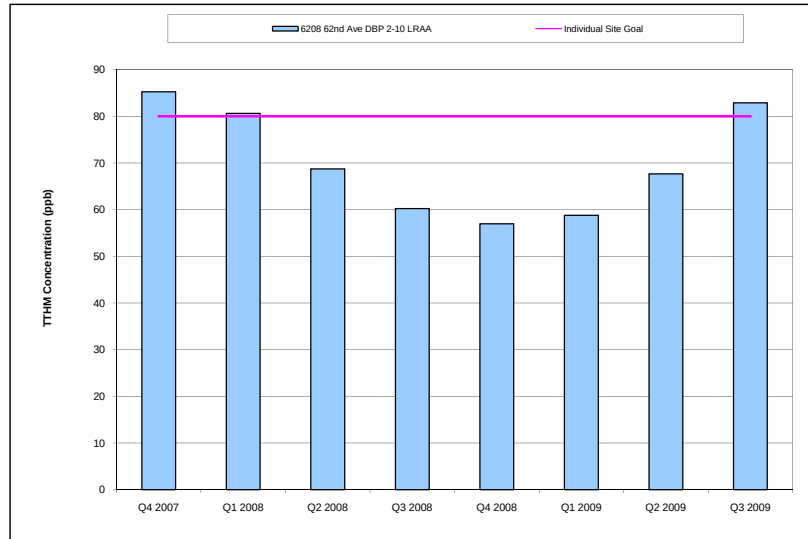
What (a) Flush



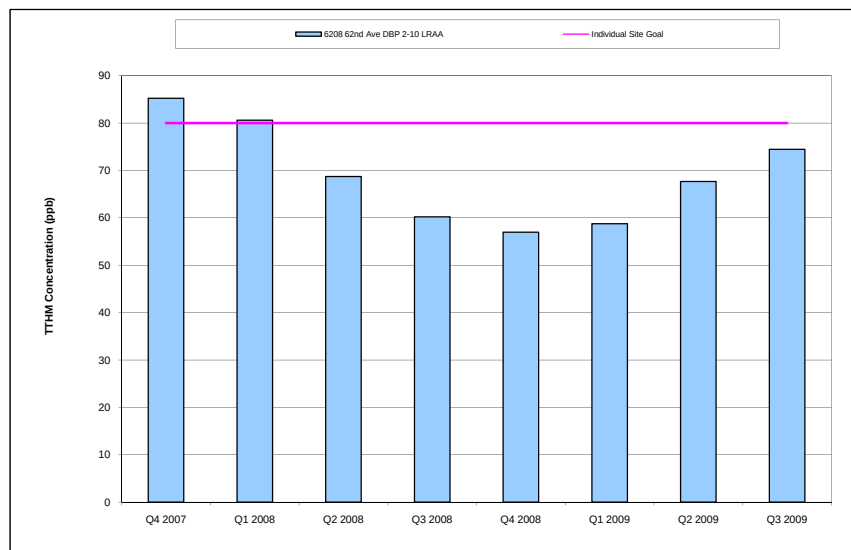
6208 62nd Ave. King Acres LRAA Q3 2008



6208 62nd Ave. King Acres LRAA Q3 2009



6208 62nd Ave. King Acres LRAA Q3 2009



What have we learned?

Flushing is vital

Reliability is critical

Diligence is a must

Monitoring for
adjustments

Compliance is not easy



Finally!



Effects of pH on Disinfection By-Product Formation



Jess Burns
Fall 2009

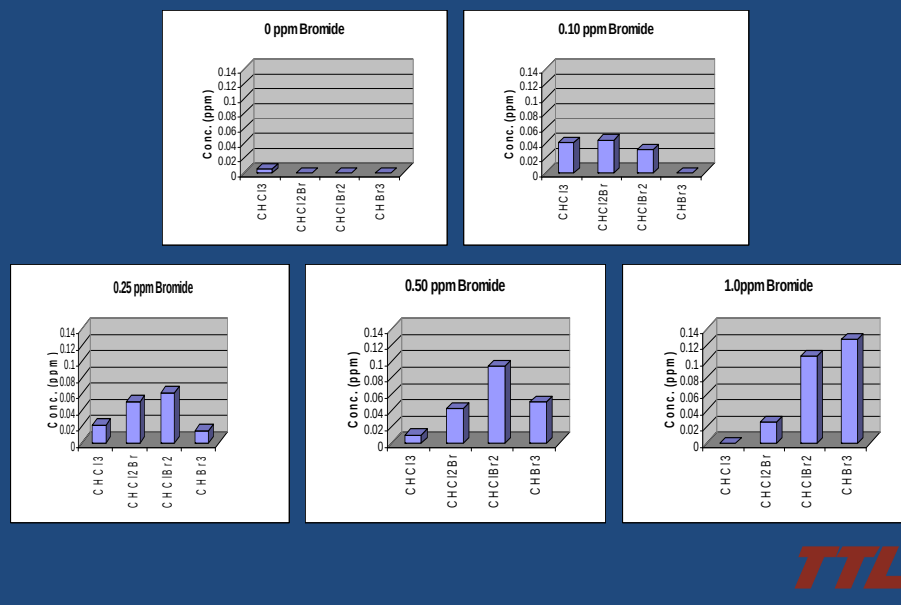
Note: This presentation is not a substitute for State or Federal regulations.

General Facts about Disinfection By-Products (DBPs)

- DBP levels tend to be higher in chlorinated surface water than in chlorinated ground water.
- Chloroform is typically the most abundant Trihalomethane (THM) species—in some cases 90% of total.
- If bromide is present, brominated DBPs (especially TTHMs) may be dominant in presence of Chlorine.
- Removal of DBPs difficult after formation—Activated Carbon or Aeration.



Speciation vs. Bromide Ion Concentration



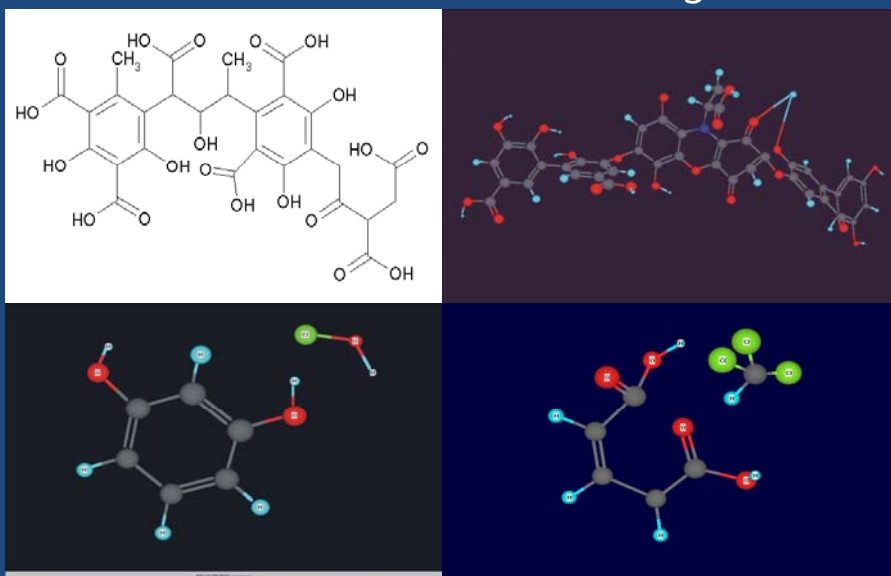
Factors that affect DBP Formation- Trihalomethane and Haloacetic Acids

- Nature of precursors-type and concentration of natural organic matter
- Water temperature
- Chlorine dose and residual
- Contact time
- Bromide ion concentration
- DBP concentrations may increase during storage after exhaustion of residual chlorine or dechlorination¹
- pH
- Combination of above factors

For this presentation, we're concerned with pH.

TTL

Formation of CHCl_3



TTL

General pH information

- In General, pH is a measure of Hydrogen Ion $[\text{H}^+]$, or more correctly, Hydronium Ion $[\text{H}_3\text{O}^+]$ activity or concentration.
- The pH scale ranges from 0 to 14.
- The pH of a solution of pure water is 7— $[\text{H}_3\text{O}^+] = [\text{OH}^-]$.
- The pH of a solution that is less than 7 is considered acidic— $[\text{H}_3\text{O}^+] > [\text{OH}^-]$.
- The pH of a solution that is greater than 7 is considered basic— $[\text{H}_3\text{O}^+] < [\text{OH}^-]$.
- When written, think of H as acidic and OH as basic. For example, HNO_3 is Nitric Acid and NaOH is Sodium Hydroxide.

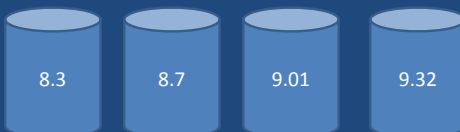
TTL

Laboratory Study of effects of pH on Disinfection By-Product Formation

A coagulated, un-
chlorinated sample
was collected from
Ed Love Water
Treatment Plant—
Tuscaloosa
TOC=1.447ppm

**TTL**

The Lake sample is subdivided into 500ml samples, and the pH is adjusted for eleven different pH levels ranging from 6.07 to 9.32. Samples adjusted to a pH above 8 were buffered with borate buffer, and samples adjusted to a pH of 8 and below were buffered with a phosphate buffer. Buffers serve two purposes for us here—they drop the pH below 6 and they help maintain a pH level, that is, they make the pH resistant to change during incubation. The pH for each sample is then adjusted to the desired level (higher pH) with 1N Sodium Hydroxide (NaOH).

**TTL**

Addition of Buffer and pH adjustment

Potassium phosphate monobasic (KH_2PO_4) is added for desired pH values of 8 and lower. Anhydrous boric acid (H_3BO_3) is added for desired pH values above 8.

pH is adjusted to desired level with 1N NaOH

**TTL**

Addition of Chlorine and Incubation

All samples were spiked with 5ppm chlorine. This level was selected because of past experience. We are trying to achieve a residual chlorine level of at least 1ppm after a seven day incubation period at 25°C.

**TTL**

Preparation Data

TTHM/HAA5 DATA SHEET
CHLORINE DOSE SOLUTION

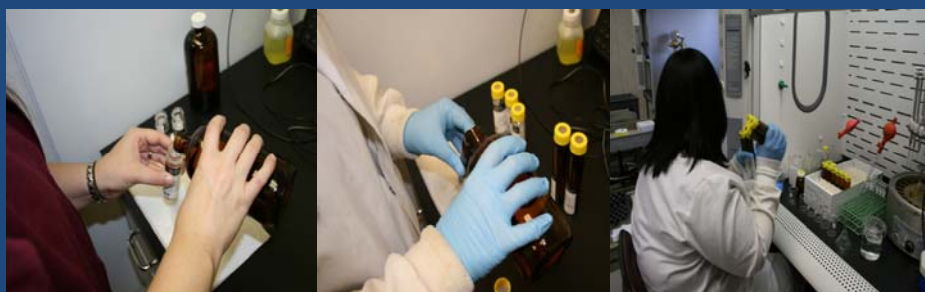
DATE: 14 August 2009 DATE PREPARED: 14 Aug 2009
 TIME: 7:30 CONCENTRATION: 500ppm +/- 25ppm
 ANALYST: LA/MP PREPARED BY: MP

BLANK AND QC DATA									
	DH ₂ O pH	Sample amount (mL)	KIO ₃ Added (g)	Cl ₂ Solution Added (mL)	Initial Cl ₂ Conc. (ppm)	Date/Time in Incubator	Date/Time out Incubator	Final Cl ₂ Conc. (ppm)	Final pH
BLANK	<u>3.73</u>	500	0.68	0.5	5.0	<u>8-14/10:25</u>	<u>8-24/10:00</u>	<u><3.0</u>	
59.5 PPB QC	<u>7.2m</u>	500	0.68	0.5	5.0			<u><3.0</u>	

SAMPLE DATA									
Sample pH	Sample Amount (mL)	KIO ₃ Added (g)	Cl ₂ Solution Added (mL)	Initial Cl ₂ Conc. (ppm)	Date/Time in Incubator	Date/Time out Incubator	Final Cl ₂ Conc. (ppm)	Final pH	
<u>6.07</u>	500	✓	0.50	5.0	<u>8-14/10:25</u>	<u>8-24/10:00</u>	>1.0	<u>6.07</u>	<u>5.85</u>
<u>6.46</u>	500	✓	0.50	5.0			>1.0		<u>6.19</u>
<u>6.75</u>	500	✓	0.50	5.0			>1.0		<u>6.47</u>
<u>7.00</u>	500	✓	0.50	5.0			>1.0		<u>6.84</u>
<u>7.33</u>	500	✓	0.50	5.0			>1.0		<u>7.10</u>
<u>7.71</u>	500	✓	0.50	5.0			>1.0		<u>7.40</u>
<u>8.00</u>	500	✓	0.50	5.0			>1.0		<u>7.85</u>
<u>8.30</u>	500	✓	0.50	5.0			>1.0		<u>8.10</u>
<u>8.70</u>	500	✓	0.50	5.0			>1.0		<u>8.38</u>
<u>9.01</u>	500	✓	0.50	5.0			>1.0		<u>8.71</u>
<u>9.32</u>		✓						<u>9.37</u>	<u>9.14</u>

TTL

After seven days samples are collected and preserved for THM analysis and HAA extraction.



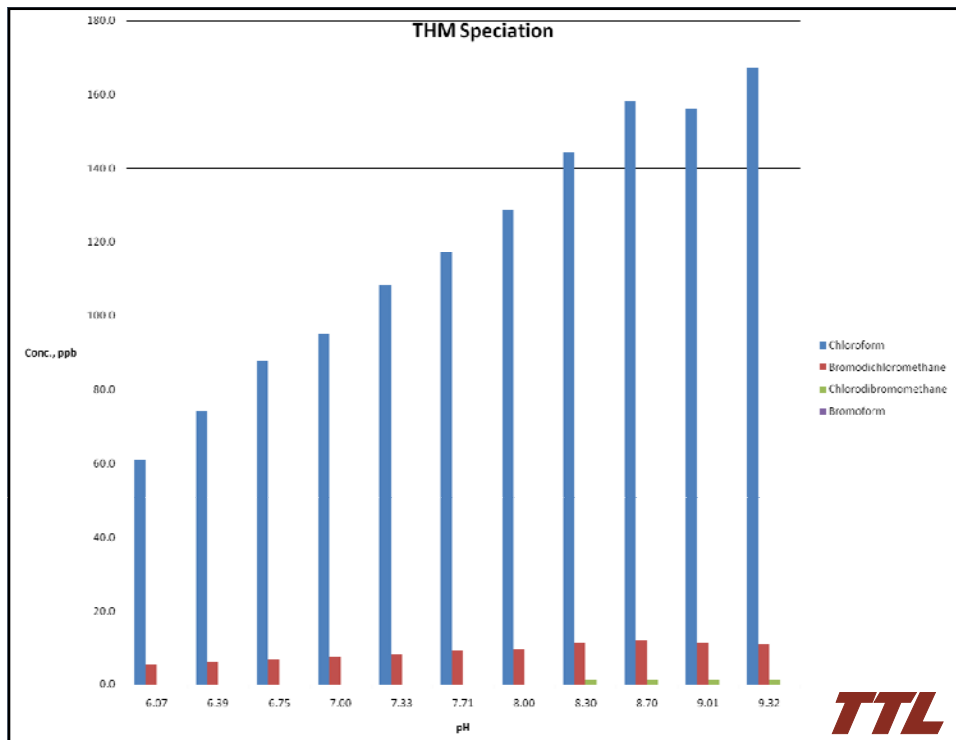
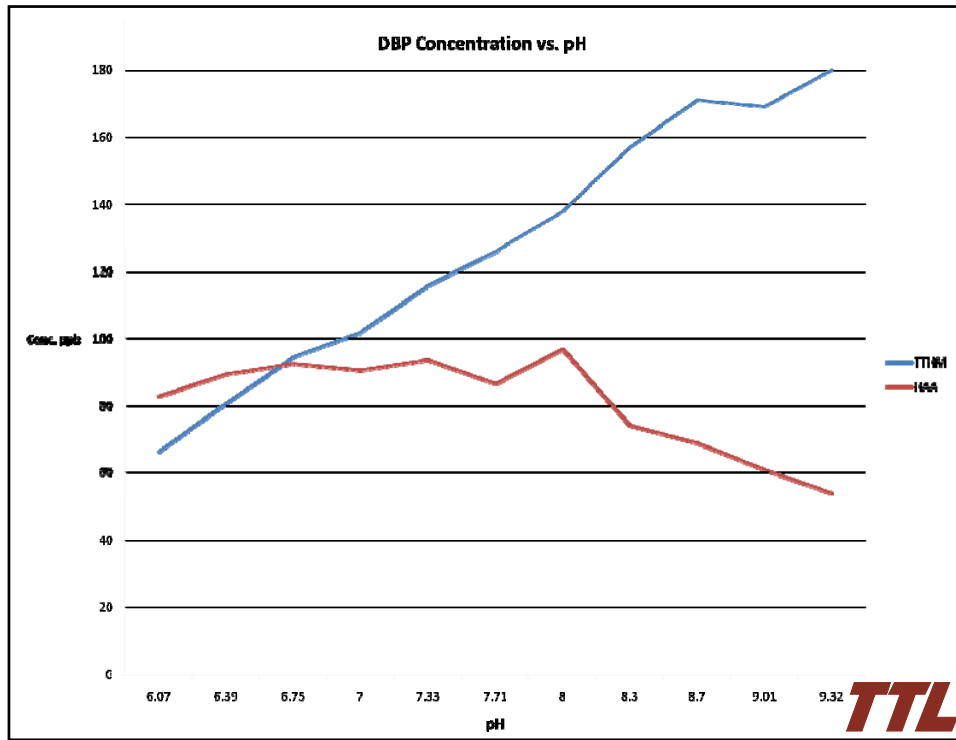
TTL

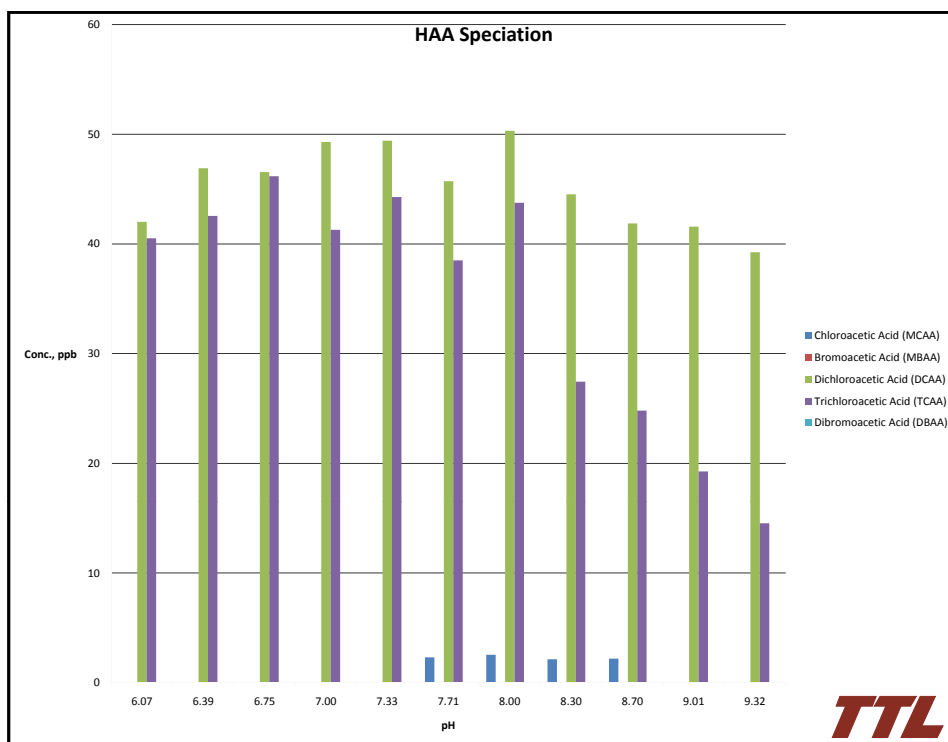
Analysis of THMs by EPA method 524.2 and HAAs by EPA method 552.2



TTL

pH	Results										
	<u>6.07</u>	<u>6.39</u>	<u>6.75</u>	<u>7.00</u>	<u>7.33</u>	<u>7.71</u>	<u>8.00</u>	<u>8.30</u>	<u>8.70</u>	<u>9.01</u>	<u>9.32</u>
Chloroacetic Acid (MCAA)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	2.31	2.54	2.13	2.19	< 2.0	< 2.0
Bromoacetic Acid (MBAA)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloroacetic Acid (DCAA)	42.0	46.9	46.5	49.3	49.4	45.7	50.3	44.5	41.9	41.6	39.2
Trichloroacetic Acid (TCAA)	40.5	42.5	46.2	41.3	44.3	38.5	43.8	27.4	24.8	19.3	14.5
Dibromoacetic Acid (DBAA)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total HAA	82.5	89.5	92.7	90.6	93.7	86.5	96.6	74.1	68.9	60.8	53.8
Chloroform	61.0	74.0	87.7	94.9	108	117	129	144	158	156	167
Bromodichloromethane	5.31	6.12	6.83	7.35	8.26	9.19	9.69	11.4	12.1	11.3	11.1
Chlorodibromomethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.31	1.08	1.13	1.18
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Trihalomethane	66.3	80.1	94.5	102	116	126	139	157	171	168	179

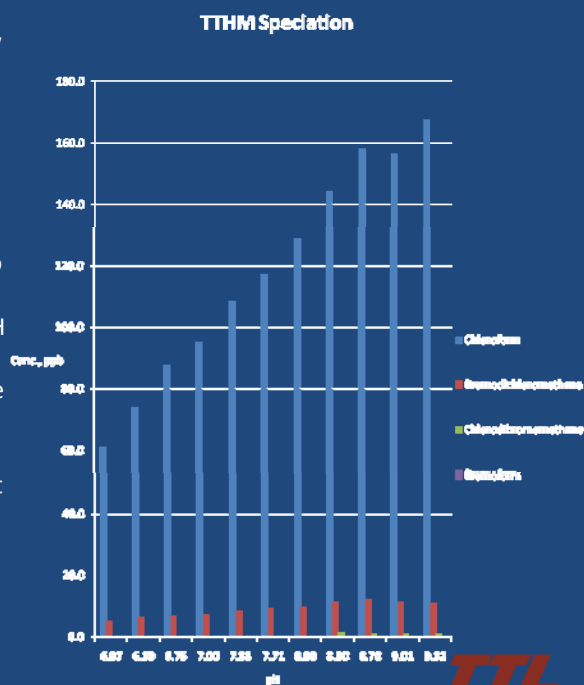




What we think we know about pH and DBP formation vs. study

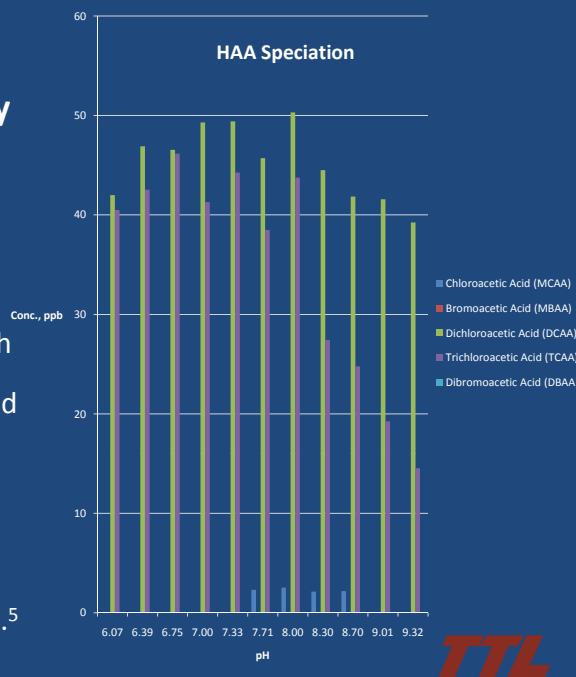
•Some studies have shown an increase in Total Trihalomethane (TTHM) concentration from 20 to 240 percent associated with increasing pH from 7 to 10.² A pH increase from 6.07 to 9.32 in this study resulted in a 170% increase in TTHM.

•Other studies show that a 2-unit pH increase led to an increase in TTHM concentration of 50 to 60 percent (mainly Chloroform).³ From 7.0 to 9.01 Chloroform increased by 64.4% and TTHM increased by 64.7%.



What we think we know about pH and DBP formation vs. study (cont.)

- Haloacetic Acid (HAA) studies show that their concentration decreases with increasing pH and that some HAA species such as X_2AA and Cl_3AA were relatively insensitive to pH change.⁴
- Other studies showed that X_3AA decreases with increasing pH whereas, the formation of X_2AA was relatively independent of pH.⁵



pH in the Distribution System—complications

- A pilot distribution, made of cement-lined cast iron pipe, holding water for three days, showed a pH increase from 7.5 to 8.1. The point of entry chlorine level was 1.6mg/L and the temperature was 16.5°C.⁶
- Another study showed no significant pH variation with water age in cement or cast iron pipes.⁷
- Another study observed decreases in pH with increasing water age in two New Hampshire systems.⁸
- Still another study showed higher pH values in the distribution than at the water plant effluent with little differences in pH between various sampling points in the distribution.⁹

TTL

pH variation in Water Distributions

- pH increases may be attributed to following:
 - oxidation of iron into Fe^{2+} and hydroxide ion OH^- .¹⁰
 - dissolution of pipe cement leading to Ca^{2+} and OH^- .¹¹
 - denitrification—transforming nitrate into nitrogen gas and carbon dioxide.¹²
- pH decreases may be associated with:
 - increase in carbon dioxide concentration.¹³
 - nitrification—transforming ammonia into nitrate and/or nitrate with hydrogen ion.¹⁴
- Build-up of lime in water lines and storage tanks?



Credits

¹World Health Organization: Disinfectants and Disinfection By-Products. Seminar for Drinking water Quality. [Internet Web Site].

www.who.int/water_sanitation_health/dwg/en/S04.pdf

²⁻¹⁴Jointly Sponsored AWWA Research Foundation and U.S. Environmental Protection Agency. (2006). Formation and Decay of Disinfection By-Products in the Distribution System. Denver, Co: AWWA Research Foundation.





**MAINTAINING
OPTIMIZATION
WHILE
CHANGING
COAGULANTS**

JOEL RHALY
MANAGER
WATER TREATMENT &
SECURITY



THE BIRMINGHAM
WATER WORKS BOARD



**WHY WOULD ANYONE THAT IS HAPPY
WITH ALUM CHANGE COAGULANTS?**



2012 IS COMING



THE WORLD IS CHANGING



1900



PRESENT DAY

**THIS INSTRUMENT HAS A NEW
PARTNER**



TURBIDIMETER

**THIS INSTRUMENT HAS A NEW
PARTNER**



TURBIDIMETER

&



TOC ANALYZER

THE EQUATION

**TOC + CHLORINE + TIME + pH + TEMPERATURE =
DISINFECTION BY-PRODUCTS**

VARIABLES IN AN EQUATION

**ALL OF THESE ADD UP TO REGULATORY
CHALLENGES!**

LET'S ELIMINATE THE PROBLEMS

- ✓ CHLORINE

WE CAN'T ELIMINATE CHLORINE

LET'S ELIMINATE THE PROBLEMS

- ✓ CHLORINE (**NO**)
- ✓ TEMPERATURE

WE CAN'T CHANGE THE TEMPERATURE!

LET'S ELIMINATE THE PROBLEMS

- ✓ CHLORINE (**NO**)
- ✓ TEMPERATURE (**NO**)
- ✓ TIME

***WE CAN'T STOP TIME;
BUT WE CAN SPEED IT UP!***

SPEED UP TIME?

- SPEED UP TIME.....YES/MAYBE
- TIME OF TRAVEL AND WATER AGE CAN CHANGE
- I HAVE THE EQUATION

IF DISTANCE = RATE * TIME

THEN TIME= $\frac{\text{DISTANCE}}{\text{RATE}}$

INCREASE THE RATE OF FLOW IN PROBLEM AREAS OF THE DISTRIBUTION SYSTEM



**BIRMINGHAM WATER IS FACED WITH THE
PROBLEMS ASSOCIATED WITH APPROXIMATELY
4000 MILES OF PIPE IN OUR DISTRIBUTION
SYSTEM, ROUGHLY EQUIVALENT TO
PHILADELPHIA, PA. BUT WITH FEWER
CUSTOMERS PER MILE AND A HIGHER RESIDENCE
TIME IN THE DISTRIBUTION SYSTEM.**

50+ STORAGE TANKS DOES NOT HELP

**STORAGE TANKS ARE TTHM GENERATORS
STRATEGICALLY PLACED THROUGHOUT THE
DISTRIBUTION SYSTEM TO HELP FEED TTHM'S INTO
YOUR SYSTEM AT THE MOST INAPPROPRIATE TIME**

HOW DID WE MINIMIZE THE PROBLEMS ASSOCIATED WITH OUR DISTRIBUTION TANKS?

- **DAILY FLUCTUATION OF THE TANKS HAS HELPED TO ELIMINATE SOME PROBLEM AREAS IN THE DISTRIBUTION SYSTEM**
- **SOME TANKS HAVE NEW OPERATING LIMITS**
- **REDUNDENT TANKS REMOVED FROM SERVICE IN RESPONSE TO DECREASED DEMAND**
- **MIXING TO PREVENT STRATIFICATION MAY HELP**





THIS LEAVES TOC AS THE ONLY PART
OF THE FORMULA THAT NEEDS
ATTENTION



WHAT IF WE COULD
BIOLOGICALLY REMOVE TOC?

PRELIMINARY WORK IN THE PILOT PLANT SAID "YES"



OUR PARTNERS IN BIOLOGICAL TOC REMOVAL RESEARCH





THE ANSWER AFTER A YEAR OF RESEARCH
WAS YES, BIOLOGICAL GAC FILTER CAPS
WILL REMOVE APPROXIMATLY 10% OF TOC
IN SETTLED WATER AT THE SHADES
MOUNTAIN FILTER PLANT



THIS WAS SOME VERY EXPENSIVE TOC
REMOVAL

HAVE WE OVER LOOKED SOMETHING?

START WITH THE EASY SOLUTIONS

H_2SO_4 ADDITION IN THE RAPID MIX TO LOWER THE pH AND INCREASE THE ORGANIC REMOVAL RATE



SHADES MOUNTAIN IS 120 YEARS OLD
AND THERE ARE SIGNIFICANT
PROBLEMS ADDING ENOUGH LIME
PRE-FILTER TO RAISE THE pH TO THE
DESIRED LEVEL

NH₂CL (CHLORAMINES)?

TEMPTING BUT NO!

FERRIC??

NO!



WE TRIED TO CONVERT SHADES MOUNTAIN TO
FERRIC SEVERAL YEARS AGO WITH WEEKS OF
GOOD RESULTS.

WE STARTED FEEDING FERRIC SULFATE AT THE
SAME TIME WE STARTED MAKING OTHER
CHANGES TO THE TREATMENT PROCESS. A GOOD
EXAMPLE OF THIS IS WE CUT OFF THE RAW
CHLORINE.



WHAT WERE WE THINKING?

**WE WERE THINKING ABOUT REDUCING
OUR TTHM FORMATION SO WE CUT BACK
ON RAW CHLORINE**

WHAT DID WE GET?

- **THIS WORKED AND WE WERE SEEING LOWER TTHM FORMATION ACROSS THE SETTLING BASIN BUT THE PLANT WAS SENDING US SOME CLUES**
- **THE WATER WAS LOOKING GOOD.**
- **FROM A DISTANCE IT WAS A BEAUTIFUL BLUE GREEN**

LISTEN

- **TURBIDITY ACROSS THE BASIN WAS INCREASING AND FILTERABILITY WAS DECREASING**
- **SOMETIMES YOU FORGET IT IS BEST TO LISTEN TO WHAT THE PLANT IS TRYING TO TELL YOU**

SOLUTION.....ADD FILTER AID

- **SHADES MOUNTAIN FILTER PLANT HAS THE ABILITY TO ADD A POLYMER PRE-FILTER TO ACT AS A FILTER AID.**
- **THE POLYMER FEED WAS STARTED AND RAN FOR SEVRAL WEEKS.**
- **WE THOUGHT THE FILTER AID WAS THE ANSWER TO OUR PROBLEMS.**
- **BASIN TURBIDITY IS INCREASING, BUT THE FILTERABILITY IS IMPROVING.**
- **THE BEAST HAD BEEN TAMED!**

DISASTER STRIKES

- **THE LOSS OF HEAD STARTS TO INCREASE.**
- **THIS IS APPARENT ON ALL 46 FILTERS**
- **BACKWASH STARTED**
- **MORE FILTERS PASSING THE 0.15 NTU POINT**
- **TOO MANY FILTERS NEED TO BE BACKWASHED TO KEEP UP.**
- **FILTERS TAKEN OUT OF SERVICE AT 0.15**

DISASTER STRIKES CONT.

- **BACK WASHED FILTERS WILL NOT GO BACK INTO SERVICE**
- **AFTER BACKWASH THE FILTERS ARE FILTERED TO WASTE UNTIL THEY BELOW 0.1 NTU.**
- **THEY WOULD NOT GO BELOW 0.6 – 0.8.**
- **SOME FILTERS WERE IN FILTER TO WASTE FOR OVER 8 HOURS**
- **OPTIMIZATION?**

AT THIS POINT LESS THAN 10 FILTERS WERE OPERATING PROPERLY AND THE OTHER 36 WERE EITHER FILTERING TO WASTE OR SHUT DOWN

WHAT ELSE CAN GO WRONG?

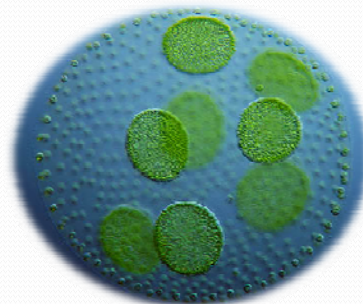
ALGAE BLOOM

- **SOMETIMES THE COLOR OF YOUR WATER CAN BE A CLUE***
- **OUR OPERATORS NOTICED THE SETTLED WATER HAD A GREEN COLOR**
- **MEMBRANE FILTRATION OF THE SETTLED WATER CONFIRMED THAT WE HAD AN ALGAE BLOOM IN THE SETTLING BASIN.**

***REFER BACK TO "LISTEN SLIDE"**

ALGAE BLOOM

**SUNLIGHT + NUTRIENTS + NO CHLORINE
= ALGAE BLOOM**



CHLORINE ON

**WE HAD TO WAIT FOR ALMOST 6 HOURS TO
SEE IF THE CHLORINE HELPED**



**SO WHY DID WE IMMEDIATELY GO
BACK TO ALUM?**

**LONG NIGHT OF FILTER PROBLEMS FOLLOWED
BY SEVRAL DAYS OF FILTER PROBLEMS**

DISASTER BENEFIT

**ONE OF THE POSITIVE SELLING POINTS THAT
CAME OUT OF THIS EXPERIENCE WAS YOU DON'T
NEED TO USE A FULL SIZE PLANT TO
"EXPERIMENT".**

**WE WERE ABLE TO CONVINCE OUR BOARD TO
AUTHORIZE FUNDS TO BUILD A PILOT PLANT**

FERRIC

- JAR TESTING WITH FERRIC WAS PROMISING
- OUR EXPERIENCE AT PUTNAM HAS BEEN EXCELLENT
- PILOT PLANT TESTING USING FILTER MEDIA TAKEN FROM SEVERAL FILTERS AT THE PLANT HAD BEEN PROMISING WITH NO EVIDENCE OF FILTER SHEDDING
- SOME OF THE TOC RESULTS WERE SHOWING >20% REMOVAL RATES
- EVERYTHING POINTED TO FERRIC





REMOVAL RATE AT OUR PUTNAM FILTER
PLANT INCREASED BY >15% WITH FERRIC
AND ANY FINISHED WATER ALUMINUM
PROBLEMS HAVE BEEN ELIMINATED

**OUR LARGE CUSTOMERS IN THE
PUTNAM SERVICE AREA ARE
HAPPY!**



THE CLOCK IS STILL TICKING

TWO YEARS AND A FEW MONTHS LEFT



THE DECISION WAS MADE TO
TRY FERRIC AGAIN





NEW PHILOSOPHY

**REMEMBER: YOU ARE THE OPERATOR, FEED IT IF
YOU NEED IT!**

**THIS IS AN IMPORTANT PROCESS CHANGE AND WE
ARE DOING EVERYTHING WITHOUT ANY OUTSIDE
HELP OR INTERFERENCE**



**WE ARE NOW SIX MONTHS INTO THE
CONVERSION WITHOUT ANY
PROBLEMS**

BENEFITS

- **STOPPED FEEDING POLYMER TO THE RAW WATER DURING HIGH TURBIDITY EVENTS**
- **ADDITIONAL 15 – 20% TOC REMOVAL**
- **THE SETTLING BASIN AT THE PLANT IS LARGE AND WHEN THE WIND BLOWS THE WATER STARTS TO CIRCULATE.**
- **THIS CAUSES ALUM SLUDGE TO LIFT OFF THE BOTTOM OF THE SETTLING BASIN AND BE RESUSPENDED**

BENEFITS CONT.

- **THE RESULT IS THAT OUR NUMBERS ARE NOT GOOD ENOUGH TO BE AN OPTIMIZED PLANT**
- **FERRIC SLUDGE IS HEAVY AND LAYS DOWN ON THE BOTTOM**
- **THIS YEAR FOR THE FIRST TIME IN MEMORY WE DID NOT GET THE ROLLING ACTION AND WE DID NOT HAVE PROBLEMS WITH BASIN TURBIDITY**

FERRIC SLUDGE DRIES QUICKLY WITHOUT ADDITIONAL CHEMICALS



THE EQUATION

**TOC↓ + CHLORINE + TIME↓ + pH +
TEMPERATURE = LRAA COMPLIANCE**

QUESTIONS?

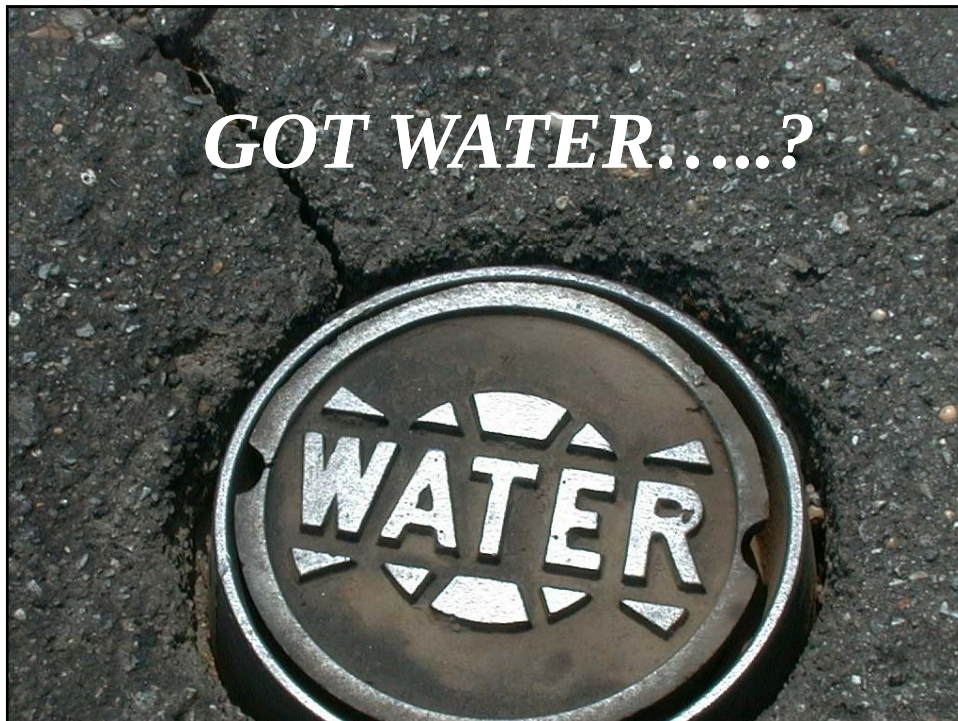
JOEL RHALY

205-244-4371

JRHALY@BWWSB.COM



GOT WATER.....?





Lead and Copper Rule Changes



Purpose

To ensure that treatment changes do not effect the amount of lead and copper in the drinking water and to better inform the customers of the water systems of lead and copper levels in their water system.

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What Are The Major Changes

- **Lead and Copper Evaluation for New Sources and Treatment Changes**
- **Customer Notification of Lead and Copper Results**



What Will I Have To Do If I Add A New Source

- **Changes The Predominant Source of Water**
 - **Return to Collecting the Original Number of Samples for Two Six-Month Monitoring Period**
- **Does Not Change The Predominant Source of Water**
 - **Submit a written report**



What Will I Have To Do If I Change Treatment

- **Changes Include New Treatment Process and Modification of an Existing Treatment Process**
 - Submit a written report



What Do I Include in the Report

- **Type of Change**
 - New Source
 - Change in Treatment
- **Affects**
 - Lead and Copper Compliance
 - Water Quality Compliance



What Changes in Treatment Would Require Submittal of a Report

- **New Treatment Process**
- **Switching Secondary Disinfectants**
- **Switching Coagulants**
- **Switching Corrosion Inhibitors**
- **Chemical Dosage Changes that Would Create Long Term Changes in the Finished Water PH or in the Residual Inhibitor Concentration**



What Changes in Treatment Would Not Require Submittal of a Report

- **Chemical Dosage Changes in Response to Daily Fluctuations in Raw Water quality**



Who Will I Have to Notify and When

- **All Customers That Were Sampled**
- **Customers Who Do Not Receive a Water Bill**
- **Thirty Days After Receipt of the Results**
- **Proof of Notification Must be Submitted to the Department Within Three Months After the End of the Monitoring Period and Must Include**
 - **Sample Copy of the Notice**
 - **Certification Form**



What Must I Include In The Notice

- **Analytical Results For Lead and Copper**
- **Health Effects of Lead**
- **Steps Consumers Can take to Reduce Exposure to Lead**
- **Maximum Contaminant Level Goal (MCLG)**
- **Action Level (AL) for Lead**
- **Definition of AL and MCLG**



Tort Law and Operator Liability

12th Annual Surface Water Meeting
October 20, 2009

Dennis D. Harrison



Introduction

Presenter: Dennis D. Harrison

Goal: Provide overview of basic tort law
as related to the operation of a
public water system.



Overview

Statutory Law vs. Common Law

- Criminal Law
- Civil Law
 - Contracts
 - Property
 - Torts



Torts Defined

A civil wrong for which the law provides a remedy.

Essential Elements of All Torts:

- A legal duty
- Owed to someone
- Breach of that duty
- A causal relationship between the breach and the resulting damage



Tortious Harms

- Personal Injury
- Property Damage
- Invasion of an Interest



Basis of Tort Liability

- Intent
- Negligence
- Strict Liability



Intentional Torts

Torts to the Person

- Battery
- Assault
- False Imprisonment
- Intentional Infliction of Emotional Distress

Torts to Property

- Trespass to Land
- Trespass to Chattels
- Conversion of Chattels



Battery

Elements of a Battery

- A volitional act by the defendant
- With intent to inflict
- Harmful or offensive touching
- Causation of the touching
- Damages

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Assault

Elements of an Assault

- A volitional act by the defendant
- With intent to inflict
- A harmful or offensive touching or the apprehension of one
- Causation of the apprehension
- Damages

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Trespass

Elements of Trespass

- A volitional act by the defendant
- With intent to enter the land of another
- Intrusion on the land
- Causation of the intrusion
- Damages

ADEM Intentional Tort Defenses

- Consent
- Self Defense
- Defense of Others
- Defense of Property
- Recapture of Chattels
- Privilege of Arrest
- Necessity

ADEM Negligence

Elements of the Tort of Negligence

- Duty
- Breach of Duty
- Proximate Cause
- Injury



Defenses to Negligence

- Contributory Negligence
- Comparative Negligence
- Assumption of Risk
- Immunity



Summary

Dennis D. Harrison
Chief Drinking Water Branch
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334-271-7774

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**12th ANNUAL SURFACE WATER
MEETING**

**DRINKING WATER
SECURITY
UPDATE & REVIEW**

**Claude E. McDonald, Jr.
Vulnerability Assessment
Coordinator
Drinking Water Branch**

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**Alabama's Drinking Water
Universe**

- There are approximately 155,000 public water systems in the United States
- There are approximately 280+ public water systems in Alabama.
 - There are approximately seven systems in Alabama that serve populations greater than 100,000.
 - Approximately five systems that serve a populations of 50,000 to 100,000.
 - That leaves approx. 268+ systems serving populations of 3,300 to 50,000.

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9-11 Terrorist Attack

CAN YOU BELIEVE IT HAS BEEN 8 YEARS



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REVIEW

Bioterrorism Act

- On May 2002, the 107th Congress enacted the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Public Law 107-188). On June 12, 2002 the President signed the bill into law.
- The statute is divided into four titles
 - **Title I:** National Preparedness for Bioterrorism and Other Public Health Emergencies
 - **Title II:** Enhancing Controls on Dangerous Biological Agents and Toxins
 - **Title III:** Protecting Safety and Security of Food and Drug Supply
 - **Title IV:** Drinking Water Security and Safety

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ADEM Bioterrorism Act: Title IV

- Amended the Safe Drinking Water Act and required all community water systems serving a population greater than 3,300 to conduct:
 - Vulnerability assessments
 - to address bioterrorism and other intentional acts that could disrupt or compromise the safety and reliability of drinking water supplies.
 - Emergency response plans
 - EPA research studies
 - Support to water systems

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ADEM Vulnerability Assessments

- Pipes and constructed conveyances
- Physical barriers
- Collection, pretreatment, treatment, distribution, and storage facilities
- Electronic and computer systems
- Chemical use, storage, and handling
- Operation and maintenance

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Emergency Response

When system emergencies arise, *and they will*, what do we do?



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TYPES OF EMERGENCIES

- INTENTIONAL EMERGENCIES

- Terrorist
- Vandals
- Disgruntled employees

- NATURAL DISASTERS

- Tornadoes
- Hurricanes
- Etc.....

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Emergency Response Plan (ERP)

- Emergency response or contingency plan available, workable and up to date.
- ERP is accessible to all system personnel and appropriate local officials.

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Enhanced Security Concerns

- Utility management
- Water sources
- Pumping facilities
- Treatment processes
- Storage facilities
- Distribution systems
- Cross connections
- Data Security



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Gas Chlorination Systems

- Is chlorine gas kept in a locked area? Is access restricted?
- Has the system discussed security with its supplier of gas chlorine?

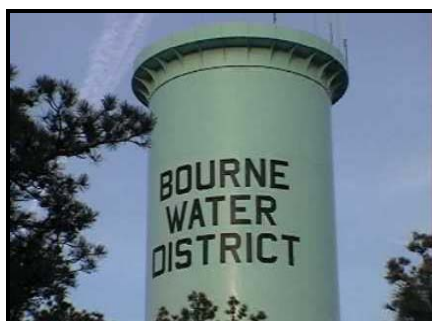


Chlorine Cylinders

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Storage Facilities



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Fire Hydrants

- Is there a program to control the use of fire hydrants?
- Is there a program to secure fire hydrants?



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Repair and Response

- Are adequate equipment and materials kept on hand to facilitate repairs?
 - As-built plans
 - Excavation equipment
 - Pipe repair tools and materials
 - Line location equipment
 - Valve and hydrant keys
 - Tools and spare parts for repairing pumps, motors, controls, chemical feeders
 - Portable disinfection equipment
 - Monitoring equipment (portable test kits)



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Back-up Sources of Supply

- Is there a back-up source in the event that the primary source is contaminated or shut down?
 - Interconnection with a neighboring system
 - Back-up well
 - Tanker trucks or bottled water
 - Back-up intake for surface water systems
 - Back-up transmission line
 - Minimum source to support fire flow

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Auxiliary Power Unit (APU)

- Does the system have auxiliary power?
- If not, is a APU available to the system?
- If so, is the facility outfitted to handle a APU?



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FLUORIDE

- Fluoride Shortage
- Discontinue Fluoride
 - Contact District Engineer/Inspector
 - Contact Local Officials and Dentist
 - Contact :
Shellie Foster-Lyles
State Sr. Environmentalist /Fluoridation Coordinator
Bureau of Family Health Services
Phone (1-334-206-3896)
Fax (1-334-206-2950)

ADEM

Drinking Water Security Funding

**Drinking Water Security
Funding To Be Cut
From The 2010 Budget**

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Drinking Water Security Funding

WHAT NEXT????



ADEM

PROPOSED ACTS

DEPARTMENT OF HOMELAND SECURITY

- H.R. 2868, the Chemical Facility Anti-Terrorism Act of 2009

EPA (STATE)

- H.R. 3258, the Drinking Water System Security Act of 2009



Drinking Water Security Funding

“This important legislation will better help us protect and secure our nation from potential acts of terrorism against our nation’s drinking water facilities”. “We must protect workers and neighbors of drinking water facilities and ensure a safe and reliable drinking water supply”.

Chairman Waxman



Drinking Water Security Funding

“The consensus is clear: We must upgrade security at drinking water systems to ensure that a terrorist can’t poison the water or turn the chemicals used to disinfect our drinking water into a weapon of mass destruction.”

Rep. Markey



MAJOR CONCERNS

- Drinking water facilities often use or store chemicals that, if released, can form toxic clouds that endanger surrounding communities.
- Terrorists could also potentially steal chemicals from these facilities to create an improvised weapon of mass destruction.
- Drinking water facilities also face the unique threat of terrorists contaminating the drinking water supply, endangering the health of thousands or millions of people.



Proposed Drinking Water Security Act 2009

- **LEGISLATION | Detail**

H.R. 3258: Drinking Water System Security Act of 2009

Sponsor: Waxman (D - CA)

Official Title: A bill to amend the Safe Drinking Water Act to enhance the security of the public water systems of the United States.

Status:

7/20/2009: Introduced

7/20/2009: Referred to House Energy and Commerce Committee

Commentary:

This bill would require the federal government to audit water systems for compliance with federal standards. It would prohibit the improper use or disclosure of information obtained during an audit. Violations would be punishable by criminal fines and imprisonment of up to 1 year.

ADEM **Proposed**
Drinking Water Security Act
2009

- This bill would require EPA to establish risk-based performance standards for community water systems serving more than 3,300 people and certain other public water systems with security risks.

ADEM **Proposed**
Drinking Water Security Act
2009

- The legislation would:
 - Require EPA to assign covered water systems to one of four risk-based tiers, ranging from tier 1, the highest-risk systems, to tier 4, the lowest-risk of the covered water systems.
 - Require covered water systems to identify vulnerabilities and develop site security plans to addresses those vulnerabilities and meet risk-based security standards, which vary by tier.



Proposed **Drinking Water Security Act** **2009**

- Require all covered water systems with dangerous chemicals in amounts higher than federal thresholds to assess whether they can switch to safer chemicals or processes to reduce the consequences of an act of terrorism. Since the states implement the Safe Drinking Water Act everywhere but Wyoming and Washington, D.C., states have authority to require facilities in the two highest-risk tiers to switch to safer chemicals or processes if technologically and economically feasible, and if doing so will not result in unsafe drinking water.



Proposed **Drinking Water Security Act** **2009**

- Require that covered water systems include employees in the development of security vulnerability assessments and site security plans and that they receive the training necessary to perform their duties under the plans.
- Require EPA to develop standards to protect security-related information while encouraging the proper sharing of this information among those with an official need to know. The bill would set criminal penalties for purposeful, unlawful disclosure of this protected information.

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Proposed
Drinking Water Security Act
2009

**REMEMBER THIS IS
ONLY A PROPOSED
BILL
IT'S FATE IS
UNCERTIAN**

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**ADEM EMERGENECY
CONTACT**

- Remember anytime there is a system outage due to bad weather conditions, that it be reported to the Drinking Water Branch immediately giving the status of the utility and any corrective actions taken. *This information should be reported **daily**, until the system is brought back on line. *** **It is imperative that this information be reported as soon as possible.**



ADEM EMERGENCY CONTACT

The following are office and Southern Link numbers that can be used to report such outages.

(334)271-7773 - Office (8 am – 5 pm)

-
(334)239-5122-Southern Link (After hours-emergencies only)

635*4261 – Link

***Remember, it is very important that any drinking water system outages be reported as soon as possible.



Be Prepared!

“Remember it’s always better to be prepared to react to a possible emergency than reacting to get prepared during one”!

Claude McDonald Jr.



IMPORTANT REMINDER

- DO NOT TAKE THE SECURITY OF YOUR UTILITY FOR GRANTED!!!

To report any security incidents or unusual activity at any community water system in the State, please contact:

Claude McDonald Jr.
Vulnerability Assessment Coordinator
334-271-7793 or 334-271-7773
cem@adem.state.al.us

adem.alabama.gov

.....
(Original Signature of Member)

111TH CONGRESS
1ST SESSION

H. R. _____

To amend the Safe Drinking Water Act to enhance the security of the
public water systems of the United States.

IN THE HOUSE OF REPRESENTATIVES

Mr. WAXMAN (for himself, Mr. MARKEY of Massachusetts, Mr. PALLONE, Mr.
SARBANES, Ms. SCHAKOWSKY, and Mrs. CAPPS) introduced the following
bill; which was referred to the Committee on

A BILL

To amend the Safe Drinking Water Act to enhance the
security of the public water systems of the United States.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Drinking Water Sys-
5 tem Security Act of 2009”.

1 **SEC. 2. INTENTIONAL ACTS AFFECTING THE SECURITY OF**
2 **COVERED WATER SYSTEMS.**

3 (a) AMENDMENT OF SAFE DRINKING WATER ACT.—
4 Section 1433 of the Safe Drinking Water Act (42 U.S.C.
5 300i–2) is amended to read as follows:

6 **“SEC. 1433. INTENTIONAL ACTS.**

7 “(a) RISK-BASED PERFORMANCE STANDARDS; VUL-
8 NERABILITY ASSESSMENTS; SITE SECURITY PLANS;
9 EMERGENCY RESPONSE PLANS.—

10 “(1) IN GENERAL.—The Administrator shall
11 issue regulations—

12 “(A) establishing risk-based performance
13 standards for the security of covered water sys-
14 tems; and

15 “(B) establishing requirements and dead-
16 lines for each covered water system—

17 “(i) to conduct a vulnerability assess-
18 ment or, if the system already has a vul-
19 nerability assessment, to revise the assess-
20 ment to be in accordance with this section;

21 “(ii) to update the vulnerability as-
22 sessment not less than every 5 years and
23 promptly after any change at the system
24 that could cause the reassignment of the
25 system to a different risk-based tier under
26 subsection (d);

1 “(iii) to develop, implement, and, as
2 appropriate, revise a site security plan not
3 less than every 5 years and promptly after
4 a revision to the vulnerability assessment;

5 “(iv) to develop an emergency re-
6 sponse plan (or, if the system has already
7 developed an emergency response plan, to
8 revise the plan to be in accordance with
9 this section) and revise the plan not less
10 than every 5 years thereafter; and

11 “(v) to provide annual training to em-
12 ployees and contractor employees of cov-
13 ered water systems on implementing site
14 security plans and emergency response
15 plans.

16 “(2) COVERED WATER SYSTEMS.—For purposes
17 of this section, the term ‘covered water system’
18 means a public water system that—

19 “(A) is a community water system serving
20 a population greater than 3,300; or

21 “(B) in the discretion of the Adminis-
22 trator, presents a security risk making regula-
23 tion under this section appropriate.

24 “(3) CONSULTATION WITH STATE AUTHORI-
25 TIES.—In developing and carrying out the regula-

1 tions under paragraph (1), the Administrator shall
2 consult with States exercising primary enforcement
3 responsibility for public water systems.

4 “(4) CONSULTATION WITH OTHER PERSONS.—
5 In developing and carrying out the regulations under
6 paragraph (1), the Administrator shall consult with
7 the Secretary of Homeland Security, and, as appro-
8 priate, other persons regarding—

9 “(A) provision of threat-related and other
10 baseline information to covered water systems;

11 “(B) designation of substances of concern;

12 “(C) development of risk-based perform-
13 ance standards;

14 “(D) establishment of risk-based tiers and
15 process for the assignment of covered water
16 systems to risk-based tiers;

17 “(E) process for the development and eval-
18 uation of vulnerability assessments, site security
19 plans, and emergency response plans;

20 “(F) treatment of protected information;

21 “(G) security at co-managed drinking
22 water and wastewater facilities; and

23 “(H) such other matters as the Adminis-
24 trator determines necessary.

1 “(5) SUBSTANCES OF CONCERN.—For purposes
2 of this section, the Administrator, in consultation
3 with the Secretary of Homeland Security—

4 “(A) may designate any chemical sub-
5 stance as a substance of concern;

6 “(B) at the time any substance is des-
7 ignated pursuant to subparagraph (A), shall es-
8 tablish by rule a threshold quantity for the re-
9 lease or theft of the substance, taking into ac-
10 count the toxicity, reactivity, volatility,
11 dispersability, combustibility, and flammability
12 of the substance and the amount of the sub-
13 stance that, as a result of a release, is known
14 to cause or may be reasonably anticipated to
15 cause death, injury, or serious adverse effects to
16 human health or the environment; and

17 “(C) in making such a designation, shall
18 take into account Appendix A to part 27 of title
19 6, Code of Federal Regulations (or any suc-
20 cessor regulations).

21 “(6) BASELINE INFORMATION.—The Adminis-
22 trator, after consultation with appropriate depart-
23 ments and agencies of the Federal Government and
24 with State, local, and tribal governments, shall, for
25 purposes of facilitating compliance with the require-

1 ments of this section, promptly after the effective
2 date of the regulations under subsection (a)(1) and
3 as appropriate thereafter, provide baseline informa-
4 tion to covered water systems regarding which kinds
5 of intentional acts are the probable threats to—

6 “(A) substantially disrupt the ability of the
7 system to provide a safe and reliable supply of
8 drinking water;

9 “(B) cause the release of a substance of
10 concern at the covered water system; or

11 “(C) cause the theft, misuse, or misappro-
12 priation of a substance of concern.

13 “(b) RISK-BASED PERFORMANCE STANDARDS.—The
14 regulations under subsection (a)(1) shall set forth risk-
15 based performance standards for site security plans re-
16 quired by this section. The standards shall be separate
17 and, as appropriate, increasingly stringent based on the
18 level of risk associated with the covered water system’s
19 risk-based tier assignment under subsection (d). In devel-
20 oping such standards, the Administrator shall take into
21 account section 27.230 of title 6, Code of Federal Regula-
22 tions (or any successor regulations).

23 “(c) VULNERABILITY ASSESSMENT.—The regula-
24 tions under subsection (a)(1) shall require each covered
25 water system to assess the system’s vulnerability to a

1 range of intentional acts, including an intentional act that
2 results in a release of a substance of concern that is known
3 to cause or may be reasonably anticipated to cause death,
4 injury, or serious adverse effects to human health or the
5 environment. At a minimum, the vulnerability assessment
6 shall include a review of—

7 “(1) pipes and constructed conveyances;

8 “(2) physical barriers;

9 “(3) water collection, pretreatment, treatment,
10 storage, and distribution facilities;

11 “(4) electronic, computer, and other automated
12 systems that are used by the covered water system;

13 “(5) the use, storage, or handling of various
14 chemicals, including substances of concern;

15 “(6) the operation and maintenance of the cov-
16 ered water system; and

17 “(7) the covered water system’s resiliency and
18 ability to ensure continuity of operations in the
19 event of a disruption caused by an intentional act.

20 “(d) RISK-BASED TIERS.—The regulations under
21 subsection (a)(1) shall provide for 4 risk-based tiers appli-
22 cable to covered water systems, with tier one representing
23 the highest degree of security risk.

24 “(1) ASSIGNMENT OF RISK-BASED TIERS.—

1 “(A) SUBMISSION OF INFORMATION.—The
2 Administrator may require a covered water sys-
3 tem to submit information in order to deter-
4 mine the appropriate risk-based tier for the cov-
5 ered water system.

6 “(B) FACTORS TO CONSIDER.—The Ad-
7 ministrator shall assign (and reassign when ap-
8 propriate) each covered water system to one of
9 the risk-based tiers established pursuant to this
10 subsection. In assigning a covered water system
11 to a risk-based tier, the Administrator shall
12 consider the potential consequences (such as
13 death, injury, or serious adverse effects to
14 human health, the environment, critical infra-
15 structure, national security, and the national
16 economy) from—

17 “(i) an intentional act to cause a re-
18 lease, including a worst-case release, of a
19 substance of concern at the covered water
20 system;

21 “(ii) an intentional act to introduce a
22 contaminant into the drinking water sup-
23 ply or disrupt the safe and reliable supply
24 of drinking water; and

1 “(iii) an intentional act to steal, mis-
2 appropriate, or misuse substances of con-
3 cern.

4 “(2) EXPLANATION FOR RISK-BASED TIER AS-
5 SIGNMENT.—The Administrator shall provide each
6 covered water system assigned to a risk-based tier
7 with the reasons for the tier assignment and whether
8 such system is required to submit an assessment
9 under subsection (g)(2).

10 “(e) DEVELOPMENT AND IMPLEMENTATION OF SITE
11 SECURITY PLANS.—The regulations under subsection
12 (a)(1) shall permit each covered water system, in devel-
13 oping and implementing its site security plan required by
14 this section, to select layered security and preparedness
15 measures that, in combination, appropriately—

16 “(1) address the security risks identified in its
17 vulnerability assessment; and

18 “(2) comply with the applicable risk-based per-
19 formance standards required under this section.

20 “(f) ROLE OF EMPLOYEES.—

21 “(1) DESCRIPTION OF ROLE.—Site security
22 plans and emergency response plans required under
23 this section shall describe the appropriate roles or
24 responsibilities that employees and contractor em-
25 ployees are expected to perform to deter or respond

1 to the intentional acts described in subsection
2 (d)(1)(B).

3 “(2) TRAINING FOR EMPLOYEES.—Each cov-
4 ered water system shall annually provide employees
5 and contractor employees with roles or responsibil-
6 ities described in paragraph (1) with a minimum of
7 8 hours of training on carrying out those roles or re-
8 sponsibilities.

9 “(3) EMPLOYEE PARTICIPATION.—In devel-
10 oping, revising, or updating a vulnerability assess-
11 ment, site security plan, and emergency response
12 plan required under this section, a covered water
13 system shall include—

14 “(A) at least one supervisory and at least
15 one non-supervisory employee of the covered
16 water system; and

17 “(B) at least one representative of each
18 certified or recognized bargaining agent rep-
19 resenting facility employees or contractor em-
20 ployees with roles or responsibilities described
21 in paragraph (1), if any, in a collective bar-
22 gaining relationship with the private or public
23 owner or operator of the system or with a con-
24 tractor to that system.

1 “(g) METHODS TO REDUCE THE CONSEQUENCES OF
2 A CHEMICAL RELEASE FROM AN INTENTIONAL ACT.—

3 “(1) DEFINITION.—In this section, the term
4 ‘method to reduce the consequences of a chemical re-
5 lease from an intentional act’ means a measure at
6 a covered water system that reduces or eliminates
7 the potential consequences of a release of a sub-
8 stance of concern from an intentional act such as—

9 “(A) the elimination or reduction in the
10 amount of a substance of concern possessed or
11 planned to be possessed by a covered water sys-
12 tem through the use of alternate substances,
13 formulations, or processes;

14 “(B) the modification of pressures, tem-
15 peratures, or concentrations of a substance of
16 concern; and

17 “(C) the reduction or elimination of onsite
18 handling of a substance of concern through im-
19 provement of inventory control or chemical use
20 efficiency.

21 “(2) ASSESSMENT.—For each covered water
22 system that possesses or plans to possess a sub-
23 stance of concern in excess of the release threshold
24 quantity set by the Administrator under subsection
25 (a)(5), the regulations under subsection (a)(1) shall

1 require the covered water system to include in its
2 site security plan an assessment of methods to re-
3 duce the consequences of a chemical release from an
4 intentional act at the covered water system. The cov-
5 ered water system shall provide such assessment to
6 the Administrator and the State exercising primary
7 enforcement responsibility for the covered water sys-
8 tem, if any. The regulations under subsection (a)(1)
9 shall require the system, in preparing the assess-
10 ment, to consider factors appropriate to the system's
11 security, public health, or environmental mission,
12 and include—

13 “(A) a description of the methods to re-
14 duce the consequences of a chemical release
15 from an intentional act;

16 “(B) how each described method to reduce
17 the consequences of a chemical release from an
18 intentional act could, if applied, reduce the po-
19 tential extent of death, injury, or serious ad-
20 verse effects to human health resulting from a
21 chemical release;

22 “(C) how each described method to reduce
23 the consequences of a chemical release from an
24 intentional act could, if applied, affect the pres-

1 ence of contaminants in treated water, human
2 health, or the environment;

3 “(D) whether each described method to re-
4 duce the consequences of a chemical release
5 from an intentional act at the covered water
6 system is feasible, as defined in section
7 1412(b)(4)(D), but not including cost calcula-
8 tions under subparagraph (E);

9 “(E) the costs (including capital and oper-
10 ational costs) and avoided costs (including sav-
11 ings and liabilities) associated with applying
12 each described method to reduce the con-
13 sequences of a chemical release from an inten-
14 tional act at the covered water system;

15 “(F) any other relevant information that
16 the covered water system relied on in con-
17 ducting the assessment; and

18 “(G) a statement of whether the covered
19 water system has implemented or plans to im-
20 plement one or more methods to reduce the
21 consequences of a chemical release from an in-
22 tentional act, a description of any such meth-
23 ods, and, in the case of a covered water system
24 described in paragraph (3)(A), an explanation

1 of the reasons for any decision not to imple-
2 ment any such methods.

3 “(3) REQUIRED METHODS.—

4 “(A) APPLICATION.—This paragraph ap-
5 plies to a covered water system—

6 “(i) that is assigned to one of the two
7 highest risk-based tiers under subsection
8 (d); and

9 “(ii) that possesses or plans to possess
10 a substance of concern in excess of the re-
11 lease threshold quantity set by the Admin-
12 istrator under subsection (a)(5).

13 “(B) HIGHEST-RISK SYSTEMS.—If, on the
14 basis of its assessment under paragraph (2), a
15 covered water system described in subparagraph
16 (A) decides not to implement methods to reduce
17 the consequences of a chemical release from an
18 intentional act, the State exercising primary en-
19 forcement responsibility for the covered water
20 system, if the system is located in such a State,
21 or the Administrator, if the covered water sys-
22 tem is not located in such a State, shall, in ac-
23 cordance with a timeline set by the Adminis-
24 trator—

1 “(i) determine whether to require the
2 covered water system to implement the
3 methods; and

4 “(ii) for States exercising primary en-
5 forcement responsibility, report such deter-
6 mination to the Administrator.

7 “(C) STATE OR ADMINISTRATOR’S CONSID-
8 ERATIONS.—Before requiring, pursuant to sub-
9 paragraph (B), the implementation of a method
10 to reduce the consequences of a chemical re-
11 lease from an intentional act, the State exer-
12 cising primary enforcement responsibility for
13 the covered water system, if the system is lo-
14 cated in such a State, or the Administrator, if
15 the covered water system is not located in such
16 a State, shall consider factors appropriate to
17 the security, public health, and environmental
18 missions of covered water systems, including an
19 examination of whether the method—

20 “(i) would significantly reduce the
21 risk of death, injury, or serious adverse ef-
22 fects to human health resulting directly
23 from a chemical release from an inten-
24 tional act at the covered water system;

1 “(ii) would not increase the interim
2 storage of a substance of concern by the
3 covered water system;

4 “(iii) would not render the covered
5 water system unable to comply with other
6 requirements of this Act or drinking water
7 standards established by the State or polit-
8 ical subdivision in which the system is lo-
9 cated; and

10 “(iv) is feasible, as defined in section
11 1412(b)(4)(D), to be incorporated into the
12 operation of the covered water system.

13 “(4) INCOMPLETE OR LATE ASSESSMENTS.—

14 “(A) INCOMPLETE ASSESSMENTS.—If the
15 Administrator finds that the covered water sys-
16 tem, in conducting its assessment under para-
17 graph (2), did not meet the requirements of
18 paragraph (2) and the applicable regulations,
19 the Administrator shall, after notifying the cov-
20 ered water system and the State exercising pri-
21 mary enforcement responsibility for that sys-
22 tem, if any, require the covered water system to
23 submit a revised assessment not later than 60
24 days after the Administrator notifies such sys-
25 tem. The Administrator may require such addi-

1 tional revisions as are necessary to ensure that
2 the system meets the requirements of para-
3 graph (2) and the applicable regulations.

4 “(B) LATE ASSESSMENTS.—If the Admin-
5 istrator finds that a covered water system, in
6 conducting its assessment pursuant to para-
7 graph (2), did not complete such assessment in
8 accordance with the deadline set by the Admin-
9 istrator, the Administrator may, after notifying
10 the covered water system and the State exer-
11 cising primary enforcement responsibility for
12 that system, if any, take appropriate enforce-
13 ment action under subsection (o).

14 “(C) REVIEW.—The State exercising pri-
15 mary enforcement responsibility for the covered
16 water system, if the system is located in such
17 a State, or the Administrator, if the system is
18 not located in such a State, shall review a re-
19 vised assessment that meets the requirements
20 of paragraph (2) and applicable regulations to
21 determine whether the covered water system
22 will be required to implement methods to reduce
23 the consequences of an intentional act pursuant
24 to paragraph (3).

25 “(5) ENFORCEMENT.—

1 “(A) FAILURE BY STATE TO MAKE DETER-
2 MINATION.—Whenever the Administrator finds
3 that a State exercising primary enforcement re-
4 sponsibility for a covered water system has
5 failed to determine whether to require the cov-
6 ered water system to implement methods to re-
7 duce the consequences of a chemical release
8 from an intentional act, as required by para-
9 graph (3)(B), the Administrator shall so notify
10 the State and covered water system. If, beyond
11 the thirtieth day after the Administrator’s noti-
12 fication under the preceding sentence, the State
13 has failed to make the determination described
14 in such sentence, the Administrator shall so no-
15 tify the State and covered water system and
16 shall determine whether to require the covered
17 water system to implement methods to reduce
18 the consequences of a chemical release from an
19 intentional act based on the factors described in
20 paragraph (3)(C).

21 “(B) FAILURE BY STATE TO BRING EN-
22 FORCEMENT ACTION.—If the Administrator
23 finds, with respect to a period in which a State
24 has primary enforcement responsibility for a
25 covered water system, that the system has

1 failed to implement methods to reduce the con-
2 sequences of a chemical release from an inten-
3 tional act (as required by the State or the Ad-
4 ministrator under paragraph (3)(B) or the Ad-
5 ministrator under subparagraph (A)), the Ad-
6 ministrator shall so notify the State and the
7 covered water system. If, beyond the thirtieth
8 day after the Administrator's notification under
9 the preceding sentence, the State has not com-
10 menced appropriate enforcement action, the Ad-
11 ministrator shall so notify the State and may
12 commence an enforcement action against the
13 system, including by seeking or imposing civil
14 penalties under subsection (o), to require imple-
15 mentation of such methods.

16 “(C) CONSIDERATION OF CONTINUED PRI-
17 MARY ENFORCEMENT RESPONSIBILITY.—For a
18 State with primary enforcement responsibility
19 for a covered water system, the Administrator
20 may consider the failure of such State to make
21 a determination as described under subpara-
22 graph (A) or to bring enforcement action as de-
23 scribed under subparagraph (B) when deter-
24 mining whether a State may retain primary en-
25 forcement responsibility under this Act.

1 “(h) REVIEW BY ADMINISTRATOR.—

2 “(1) IN GENERAL.—The regulations under sub-
3 section (a)(1) shall require each covered water sys-
4 tem to submit its vulnerability assessment and site
5 security plan to the Administrator for review accord-
6 ing to deadlines set by the Administrator. The Ad-
7 ministrator shall review each vulnerability assess-
8 ment and site security plan submitted under this
9 section and—

10 “(A) if the assessment or plan has any sig-
11 nificant deficiency described in paragraph (2),
12 require the covered water system to correct the
13 deficiency; or

14 “(B) approve such assessment or plan.

15 “(2) SIGNIFICANT DEFICIENCIES.—A vulner-
16 ability assessment or site security plan of a covered
17 water system has a significant deficiency under this
18 subsection if the Administrator, in consultation, as
19 appropriate, with the State exercising primary en-
20 forcement responsibility for such system, if any, de-
21 termines that—

22 “(A) such assessment does not comply with
23 the regulations established under section (a)(1);
24 or

25 “(B) such plan—

1 “(i) fails to address vulnerabilities
2 identified in a vulnerability assessment; or
3 “(ii) fails to meet applicable risk-
4 based performance standards.

5 “(3) STATE, REGIONAL, OR LOCAL GOVERN-
6 MENTAL ENTITIES.—No covered water system shall
7 be required under State, local, or tribal law to pro-
8 vide a vulnerability assessment or site security plan
9 described in this section to any State, regional, local,
10 or tribal governmental entity solely by reason of the
11 requirement set forth in paragraph (1) that the sys-
12 tem submit such an assessment and plan to the Ad-
13 ministrator.

14 “(i) EMERGENCY RESPONSE PLAN.—

15 “(1) IN GENERAL.—Each covered water system
16 shall prepare or revise, as appropriate, an emergency
17 response plan that incorporates the results of the
18 system’s most current vulnerability assessment and
19 site security plan.

20 “(2) CERTIFICATION.—Each covered water sys-
21 tem shall certify to the Administrator that the sys-
22 tem has completed an emergency response plan. The
23 system shall submit such certification to the Admin-
24 istrator not later than 6 months after the system’s
25 first completion or revision of a vulnerability assess-

1 ment under this section and shall submit an addi-
2 tional certification following any update of the emer-
3 gency response plan.

4 “(3) CONTENTS.—A covered water system’s
5 emergency response plan shall include—

6 “(A) plans, procedures, and identification
7 of equipment that can be implemented or used
8 in the event of an intentional act at the covered
9 water system; and

10 “(B) actions, procedures, and identification
11 of equipment that can obviate or significantly
12 lessen the impact of intentional acts on public
13 health and the safety and supply of drinking
14 water provided to communities and individuals.

15 “(4) COORDINATION.—As part of its emergency
16 response plan, each covered water system shall pro-
17 vide appropriate information to any local emergency
18 planning committee, local law enforcement officials,
19 and local emergency response providers to ensure an
20 effective, collective response.

21 “(j) MAINTENANCE OF RECORDS.—Each covered
22 water system shall maintain an updated copy of its vulner-
23 ability assessment, site security plan, and emergency re-
24 sponse plan.

25 “(k) AUDIT; INSPECTION.—

1 “(1) IN GENERAL.—Notwithstanding section
2 1445(b)(2), the Administrator, or duly designated
3 representatives of the Administrator, shall audit and
4 inspect covered water systems, as necessary, for pur-
5 poses of determining compliance with this section.

6 “(2) ACCESS.—In conducting an audit or in-
7 spection of a covered water system, the Adminis-
8 trator or duly designated representatives of the Ad-
9 ministrator, as appropriate, shall have access to the
10 owners, operators, employees and contractor employ-
11 ees, and employee representatives, if any, of such
12 covered water system.

13 “(l) PROTECTION OF INFORMATION.—

14 “(1) PROHIBITION OF PUBLIC DISCLOSURE OF
15 PROTECTED INFORMATION.—Protected information
16 shall—

17 “(A) be exempt from disclosure under sec-
18 tion 552 of title 5, United States Code; and

19 “(B) not be made available pursuant to
20 any State, local, or tribal law requiring disclo-
21 sure of information or records.

22 “(2) INFORMATION SHARING.—

23 “(A) SHARING OF PROTECTED INFORMA-
24 TION.—The Administrator shall provide stand-
25 ards for and facilitate the appropriate sharing

1 of protected information with and between Fed-
2 eral, State, local, and tribal authorities, first re-
3 sponders, law enforcement officials, designated
4 supervisory and non-supervisory covered water
5 system personnel with security, operational, or
6 fiduciary responsibility for the system, and des-
7 ignated facility employee representatives, if any.
8 Such standards shall include procedures for the
9 sharing of all portions of a covered water sys-
10 tem's vulnerability assessment and site security
11 plan relating to the roles and responsibilities of
12 system employees or contractor employees
13 under subsection (f)(1) with a representative of
14 each certified or recognized bargaining agent
15 representing such employees, if any, or, if none,
16 with at least one supervisory and at least one
17 non-supervisory employee with roles and re-
18 sponsibilities under subsection (f)(1).

19 “(B) PENALTIES.—Protected information,
20 as described in paragraph (7), shall not be
21 shared except in accordance with the standards
22 created under subparagraph (A). Any person
23 who purposefully publishes, divulges, discloses,
24 or makes known protected information in any
25 manner or to any extent not authorized by the

1 standards set by the Administrator under sub-
2 paragraph (A), shall, upon conviction, be im-
3 prisoned for not more than one year or fined in
4 accordance with the provisions of chapter 227
5 of title 18, United States Code, applicable to
6 class A misdemeanors, or both, and, in the case
7 of Federal employees or officeholders, shall be
8 removed from Federal office or employment.

9 “(3) TREATMENT OF INFORMATION IN ADJU-
10 DICATIVE PROCEEDINGS.—In any judicial or admin-
11 istrative proceeding, protected information, as de-
12 scribed in paragraph (7), shall be treated in a man-
13 ner consistent with the treatment of Sensitive Secu-
14 rity Information under section 525 of the Depart-
15 ment of Homeland Security Appropriations Act,
16 2007 (Public Law 109–295; 120 Stat. 1381).

17 “(4) OTHER OBLIGATIONS UNAFFECTED.—
18 Nothing in this section amends or affects an obliga-
19 tion of a covered water system—

20 “(A) to submit or make available informa-
21 tion to system employees, employee organiza-
22 tions, or a Federal, State, tribal, or local gov-
23 ernment agency under any other law; or

24 “(B) to comply with any other law.

1 “(5) CONGRESSIONAL OVERSIGHT.—Nothing in
2 this section permits or authorizes the withholding of
3 information from Congress or any committee or sub-
4 committee thereof.

5 “(6) DISCLOSURE OF INDEPENDENTLY FUR-
6 NISHED INFORMATION.—Nothing in this section
7 amends or affects any authority or obligation of a
8 Federal, State, local, or tribal agency to protect or
9 disclose any record or information that the Federal,
10 State, local, or tribal agency obtains from a covered
11 water system or the Administrator under any other
12 law except as provided in subsection (h)(3).

13 “(7) PROTECTED INFORMATION.—

14 “(A) IN GENERAL.—For purposes of this
15 section, protected information is any of the fol-
16 lowing:

17 “(i) Vulnerability assessments and
18 site security plans under this section, in-
19 cluding any assessment developed pursuant
20 to subsection (g)(2).

21 “(ii) Documents directly related to the
22 Administrator’s review of assessments and
23 plans described in clause (i) and, as appli-
24 cable, the State’s review of an assessment
25 prepared under subsection (g)(2).

1 “(iii) Documents directly related to
2 inspections and audits under this section.

3 “(iv) Orders, notices, or letters re-
4 garding the compliance of a covered water
5 system with the requirements of this sec-
6 tion.

7 “(v) Information required to be pro-
8 vided to, or documents and records created
9 by, the Administrator under subsection
10 (d).

11 “(vi) Other documents and records
12 developed exclusively for the purposes of
13 this section that the Administrator deter-
14 mines would be detrimental to the security
15 of one or more covered water systems if
16 disclosed.

17 “(B) DETRIMENT REQUIREMENT.—For
18 purposes of clauses (ii), (iii), (iv), and (v) of
19 subparagraph (A), the only portions of docu-
20 ments, records, orders, notices, and letters that
21 shall be considered protected information are
22 those portions that—

23 “(i) would be detrimental to the secu-
24 rity of one or more covered water systems
25 if disclosed; and

1 “(ii) are developed by the Adminis-
2 trator, the State, or the covered water sys-
3 tem exclusively for the purposes of this
4 section.

5 “(C) EXCLUSIONS.—For purposes of this
6 section, protected information does not in-
7 clude—

8 “(i) information that is otherwise pub-
9 licly available, including information that is
10 required to be made publicly available
11 under any law;

12 “(ii) information that a covered water
13 system has lawfully disclosed other than in
14 accordance with this section; and

15 “(iii) information that, if disclosed,
16 would not be detrimental to the security of
17 one or more covered water systems, includ-
18 ing aggregate regulatory data that the Ad-
19 ministrator determines appropriate to de-
20 scribe system compliance with the require-
21 ments of this section and the Administra-
22 tor’s implementation of such requirements.

23 “(m) RELATION TO CHEMICAL FACILITY SECURITY
24 REQUIREMENTS.—The following provisions (and any reg-

1 ulations promulgated thereunder) shall not apply to any
2 public water system subject to this Act:

3 “(1) Title XXI of the Homeland Security Act
4 of 2002 (as proposed to be added by H.R. 2868, the
5 Chemical Facility Anti-Terrorism Act of 2009).

6 “(2) Section 550 of the Department of Home-
7 land Security Appropriations Act, 2007 (Public Law
8 109–295).

9 “(3) The Chemical Facility Anti-Terrorism Act
10 of 2009.

11 “(n) PREEMPTION.—This section does not preclude
12 or deny the right of any State or political subdivision
13 thereof to adopt or enforce any regulation, requirement,
14 or standard of performance with respect to a covered
15 water system that is more stringent than a regulation, re-
16 quirement, or standard of performance under this section.

17 “(o) VIOLATIONS.—

18 “(1) IN GENERAL.—A covered water system
19 that violates any requirement of this section, includ-
20 ing by not implementing all or part of its site secu-
21 rity plan by such date as the Administrator requires,
22 shall be liable for a civil penalty of not more than
23 \$25,000 for each day on which the violation oc-
24 curs.

1 “(2) PROCEDURE.—When the Administrator
2 determines that a covered water system is subject to
3 a civil penalty under paragraph (1), the Adminis-
4 trator, after consultation with the State, for covered
5 water systems located in a State exercising primary
6 responsibility for the covered water system, and,
7 after considering the severity of the violation or defi-
8 ciency and the record of the covered water system in
9 carrying out the requirements of this section, may—

10 “(A) after notice and an opportunity for
11 the covered water system to be heard, issue an
12 order assessing a civil penalty under such para-
13 graph for any past or current violation, requir-
14 ing compliance immediately or within a speci-
15 fied time period; or

16 “(B) commence a civil action in the United
17 States district court in the district in which the
18 violation occurred for appropriate relief, includ-
19 ing temporary or permanent injunction.

20 “(3) METHODS TO REDUCE THE CON-
21 SEQUENCES OF A CHEMICAL RELEASE FROM AN IN-
22 TENTIONAL ACT.—Except as provided in subsections
23 (g)(4) and (g)(5), if a covered water system is lo-
24 cated in a State exercising primary enforcement re-
25 sponsibility for the system, the Administrator may

1 not issue an order or commence a civil action under
2 this section for any deficiency in the content or im-
3 plementation of the portion of the system's site secu-
4 rity plan relating to methods to reduce the con-
5 sequences of a chemical release from an intentional
6 act (as defined in subsection (g)(1)).

7 “(p) REPORT TO CONGRESS.—

8 “(1) PERIODIC REPORT.—Not later than 3
9 years after the effective date of the regulations
10 under subsection (a)(1), and every 3 years there-
11 after, the Administrator shall transmit to the Com-
12 mittee on Energy and Commerce of the House of
13 Representatives and the Committee on Environment
14 and Public Works of the Senate a report on progress
15 in achieving compliance with this section. Each such
16 report shall include, at a minimum, the following:

17 “(A) A generalized summary of measures
18 implemented by covered water systems in order
19 to meet each risk-based performance standard
20 established by this section.

21 “(B) A summary of how the covered water
22 systems, differentiated by risk-based tier as-
23 signment, are complying with the requirements
24 of this section during the period covered by the
25 report and how the Administrator is imple-

1 menting and enforcing such requirements dur-
2 ing such period including—

3 “(i) the number of public water sys-
4 tems that provided the Administrator with
5 information pursuant to subsection (d)(1);

6 “(ii) the number of covered water sys-
7 tems assigned to each risk-based tier;

8 “(iii) the number of vulnerability as-
9 sessments and site security plans sub-
10 mitted by covered water systems;

11 “(iv) the number of vulnerability as-
12 sessments and site security plans approved
13 and disapproved by the Administrator;

14 “(v) the number of covered water sys-
15 tems without approved vulnerability assess-
16 ments or site security plans;

17 “(vi) the number of covered water sys-
18 tems that have been assigned to a different
19 risk-based tier due to implementation of a
20 method to reduce the consequences of a
21 chemical release from an intentional act
22 and a description of the types of such im-
23 plemented methods;

24 “(vii) the number of audits and in-
25 spections conducted by the Administrator

1 or duly designated representatives of the
2 Administrator;

3 “(viii) the number of orders for com-
4 pliance issued by the Administrator;

5 “(ix) the administrative penalties as-
6 sessed by the Administrator for non-com-
7 pliance with the requirements of this sec-
8 tion;

9 “(x) the civil penalties assessed by
10 courts for non-compliance with the require-
11 ments of this section; and

12 “(xi) any other regulatory data the
13 Administrator determines appropriate to
14 describe covered water system compliance
15 with the requirements of this section and
16 the Administrator’s implementation of
17 such requirements.

18 “(2) PUBLIC AVAILABILITY.—A report sub-
19 mitted under this section shall be made publicly
20 available.

21 “(q) GRANT PROGRAMS.—

22 “(1) IMPLEMENTATION GRANTS TO STATES.—
23 The Administrator may award grants to, or enter
24 into cooperative agreements with, States, based on
25 an allocation formula established by the Adminis-

1 trator, to assist the States in implementing this sec-
2 tion.

3 “(2) RESEARCH, TRAINING, AND TECHNICAL
4 ASSISTANCE GRANTS.—The Administrator may
5 award grants to, or enter into cooperative agree-
6 ments with, non-profit organizations to provide re-
7 search, training, and technical assistance to covered
8 water systems to assist them in carrying out their
9 responsibilities under this section.

10 “(3) PREPARATION GRANTS.—The Adminis-
11 trator may award grants to, or enter into coopera-
12 tive agreements with, covered water systems to as-
13 sist such systems in—

14 “(A) preparing and updating vulnerability
15 assessments, site security plans, and emergency
16 response plans;

17 “(B) assessing and implementing methods
18 to reduce the consequences of a release of a
19 substance of concern from an intentional act;
20 and

21 “(C) implementing any other security re-
22 views and enhancements necessary to comply
23 with this section.

24 “(4) WORKER TRAINING GRANTS PROGRAM AU-
25 THORITY.—

1 “(A) IN GENERAL.—The Administrator
2 shall establish a grant program to award grants
3 to eligible entities to provide for training and
4 education of employees and contractor employ-
5 ees with roles or responsibilities described in
6 subsection (f)(1) and first responders and emer-
7 gency response providers who would respond to
8 an intentional act at a covered water system.

9 “(B) ADMINISTRATION.—The Adminis-
10 trator shall enter into an agreement with the
11 National Institute of Environmental Health
12 Sciences to make and administer grants under
13 this paragraph.

14 “(C) USE OF FUNDS.—The recipient of a
15 grant under this paragraph shall use the grant
16 to provide for—

17 “(i) training and education of employ-
18 ees and contractor employees with roles or
19 responsibilities described in subsection
20 (f)(1), including the annual mandatory
21 training specified in subsection (f)(2) or
22 training for first responders in protecting
23 nearby persons, property, or the environ-
24 ment from the effects of a release of a sub-
25 stance of concern at the covered water sys-

1 tem, with priority given to covered water
2 systems assigned to tier one or tier two
3 under subsection (d); and

4 “(ii) appropriate training for first re-
5 sponders and emergency response pro-
6 viders who would respond to an intentional
7 act at a covered water system.

8 “(D) ELIGIBLE ENTITIES.—For purposes
9 of this paragraph, an eligible entity is a non-
10 profit organization with demonstrated experi-
11 ence in implementing and operating successful
12 worker or first responder health and safety or
13 security training programs.

14 “(r) AUTHORIZATION OF APPROPRIATIONS.—To
15 carry out this section, there are authorized to be appro-
16 priated—

17 “(1) \$315,000,000 for fiscal year 2011, of
18 which up to—

19 “(A) \$30,000,000 may be used for admin-
20 istrative costs incurred by the Administrator or
21 the States, as appropriate; and

22 “(B) \$125,000,000 may be used to imple-
23 ment methods to reduce the consequences of a
24 chemical release from an intentional act at cov-
25 ered water systems with priority given to cov-

1 ered water systems assigned to tier one or tier
2 two under subsection (d); and

3 “(2) such sums as may be necessary for fiscal
4 years 2012 through 2015.”.

5 (b) REGULATIONS; TRANSITION.—

6 (1) REGULATIONS.—Not later than 2 years
7 after the date of the enactment of this Act, the Ad-
8 ministrator of the Environmental Protection Agency
9 shall promulgate final regulations to carry out sec-
10 tion 1433 of the Safe Drinking Water Act, as
11 amended by subsection (a).

12 (2) EFFECTIVE DATE.—Until the effective date
13 of the regulations promulgated under paragraph (1),
14 section 1433 of the Safe Drinking Water Act, as in
15 effect on the day before the date of the enactment
16 of this title, shall continue to apply.

17 (3) SAVINGS PROVISION.—Nothing in this sec-
18 tion or the amendment made by this section shall af-
19 fect the application of section 1433 of the Safe
20 Drinking Water Act, as in effect before the effective
21 date of the regulations promulgated under para-
22 graph (1), to any violation of such section 1433 oc-
23 curring before such effective date, and the require-
24 ments of such section 1433 shall remain in force and
25 effect with respect to such violation until the viola-

- 1 tion has been corrected or enforcement proceedings
- 2 completed, whichever is later.

2009 Pre Registered Personnel

System/Company

Last Name	First Name	Title	Phone	Email Address
Hughes	Edgar		(334) 315-5887	
Lang	Elvin		(334) 467-2243	alej@bellsouth.net

ADEM

Dailey	James		(334) 271-7805	
Elliott	Marilyn	Deputy Director		
Hutchinson	David	Chief, Information Systems	(334) 271-7921	dah@adem.state.al.us
Kelly	Russell A.	Chief, Permits & Services Division	(334) 271-7715	rak@adem.state.al.us

ADEM - Drinking Water Branch

Arnold	Jim	Chief, Surface Source Section	(334) 271-7777	jma@adem.state.al.us
Chapman	Marc	District Engineer	(334) 271-7790	mac@adem.state.al.us
Crawford	Loren	District Engineer	(334) 271-7788	
Garrett	Tom	District Engineer	(334) 271-7931	thg@adem.state.al.us
Harrison	Dennis	Chief	(334) 271-7774	ddh@adem.state.al.us
Laughlin	Benny	Chemical Monitoring Coordinator	(334) 271-7775	bal@adem.state.al.us
McClimans	William	District Engineer	(334) 271-7985	wdm@adem.state.al.us
McDonald	Claude	District (Purchase) Inspector	(334) 271-7793	cem@adem.state.al.us
McNeil	Chavon	District Engineer	(334) 271-7957	cmcneil@adem.state.al.us
Ramsey	Jim	District (Purchase) Inspector	(334) 271-7935	jramsey@adem.state.al.us
Sowell	Jo Ellen	Secretary - Surface Source Sectio	(334) 271-7702	jsowell@adem.state.al.us
Taylor	Laura	CCR & L/C Coordinator	(334) 271-7820	lat@adem.state.al.us
White	Aimee	District Engineer	(334) 271-7779	
Williams	Louise	Branch Secretary	(334) 271-7773	lwilliams@adem.state.al.us

ADEM - Land Division

Story	Scott	Chief of Solid Waste Engineering	(334) 271-7764	sss@adem.state.al.us
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ADEM - NPDES

Carlson	Jimbo	Chief, Wastewater & Mining Secti	(334) 271-7975	jhc@adem.state.al.us
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ADEM - Operator Certification

Madigan	Tom		(334) 271-7802	twm@adem.state.al.us
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ADEM - SRF

ADEM - SRF

Lott	William A.	Sr. Engineer	(334) 271-7817	wal@adem.state.al.us
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ADEM -Operator Certification

Brown	Shane		(334) 274-4221	BSM@adem.state.al.us
Davidson	Mark		(334) 279-3040	smdavidson@adem.state.al.us

AL Department of Public Health

Foster-Lyles	Shellie	Sr. Environmentalist/Fluoridation	(334) 206-3896	Shellie.Lyles@adph.state.al.us
Williamson M.D.	Dr. Donald E.	State Health Officer	(334) 206-5300	

Alabama Rural Water Association

Buzbee	Franklin	Circuit Rider	(334) 396-5511	jwebb@alruralwater.com
Byrd	Gary	Training Coordinator	(334) 396-5511	jwebb@alruralwater.com
Horne	Kathy	Executive Director	(334) 396-5511	jwebb@alruralwater.com
Lovelace	Chris	Training Specialist	(334) 396-5511	jwebb@alruralwater.com
Marodis	George	USDA Source Water Specialist	(334) 396-5511	jwebb@alruralwater.com

Alabaster Water Board

Denley	Gary	Plant Operator	(205) 663-6155	alabasterwater02@bellsouth.net
Lucas	Pete	Manager	(205) 663-6155	plucas@alabasterwater.com

Albertville Utilities

Chumley	Elden	General Manager/CEO	(256) 878-3761	echumley@mub-albertville.com
Hawkins	John	Water/Waste Water Engineer	(256) 878-3761	jhawkins@mub-albertville.com
Matthews	Larry	Assistant Plant Manager	(256) 582-3780	albwtp@mub-albertville.com
McCullars	Ronnie	Water Superintendent	(256) 878-3761	rmccullars@mub-albertville.com

Alexander City (City of)

Meadows	John A.	Superintendent	(256) 409-2035	alexwater@alexandercityal.gov
Wyckoff	Jackie F.	Plant Operator	(256) 409-2035	

AME Engineers, Inc.

Eichelberg	Joe	Senior Engineer	(334) 277-2866	joe@ame-engineers.com
Robinson	Russ	Engineer	(334) 277-2866	russ@ame-engineers.com
Thompson	Greg	Engineer	(334) 277-2866	greg@ame-engineers.com

Anniston Water Works

Burgett	Phillip T	Manager Engineering Services	(256) 236-3429	dbailey@awwsb.org
Junior	Barry	Plant Operations Supervisor	(256) 236-3429	dbailey@awwsb.org
Miller	James D	General Manager	(256) 236-3429	dbailey@awwsb.org
Newman	Walter	Plant Operations Supervisor	(256) 236-3429	dbailey@awwsb.org

Arab Water Works

Arab Water Works

Mann	Mike	Chief Operator	(256) 582-3633
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Arley Water

Waldrep	Wendy	Superintendent	(205) 300-3119 usfilters2003@yahoo.com
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Athens Utilities Water Services

Shelton	Charles	Superintendent	(256) 233-8773 cshelton@athens-utilities.com or bkiep
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Auburn (City of)

Howard	Alan	Chief Operator	(334) 502-7005 ahoward@auburnalabama.org
Koon	Laura A.	Water Resource Management Dir	(334) 501-3060 lkoon@auburnalabama.org
Lagergren	Tonya	Principal Utility Engineer	(334) 501-7369 tlagergren@auburnalabama.org
McCarty	Tony F.	Water Plant Manager	(334) 502-7005 rmccarty@auburnalabama.org

Berry Water Works

Taylor	Walter	Chief Operator	(205) 689-4562 townof berry@centurytel.net
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Bessemer Filtration Facility

Key	Joe	Senior Operator	(205) 436-4010 waterboyjoe@hughes.net
Parkin	Pat	Facility Manager	(205) 436-4010 patparkin@hughes.net

Bessemer Water Service

Fairris	Jim	Environmental Coordinator	(205) 565-0217 jfairris@bessemerutilities.com
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Birmingham Water Works Board

Barron	Patty	Principal Engineer	(205) 244-4199 pbarron@bwwsb.com
Brown	Lori	Regulatory Compliance Coordinat	(205) 244-4206 lbrown@bwwsb.com
Chaney	Alexander	Superintendent	(205) 841-2775 achaney@bwwsb.com
Core	Isaiah	Plant Superintendent	(205) 870-1445 icore@bwwsb.com
Cox	Wendell	Chief Operator	(205) 590-0602 wcox@bwwsb.com
Harris	Jonathan	Senior Operator	(205) 251-8655 jharris@bwwsb.com
Hollingsworth	James	Senior Operator	(205) 681-2393 jhollingsworth@bwwsb.com
Horncastle	Jerry	Chief Chemist	(205) 244-4463 jhorncastle@bwwsb.com
Hudson	Drusilla	QA/QC Supervisor	(205) 244-4466 dhudson@bwwsb.com
Jones, Sr.	Anton	Manager - EnviroLab/Water Qualit	(205) 244-4464 ajones@bwwsb.com
Mayfield	Johnnie	Industrial & Commercial Account	(205) 288-0888 jmayfield@bwwsb.com
Moore	Will	Superintendent of Water Quality	(205) 244-4373 wmoore@bwwsb.com
Morris	Michael	Sr. Operator	(205) 841-2775 mmorris@bwwsb.com
Posey	Guy	Plant Superintendent	(205) 251-8655 gposey@bwwsb.com
Rhaly	Joel	Manager, Water Treatment & Sec	(205) 244-4371 jrhaly@bwwsb.com
Shotts	Jarrold	Project Coordinator	(205) 244-4372 jshotts@bwwsb.com

Birmingham Water Works Board

Stephens	Floyd	Plant Superintendent	(205) 681-2393	fstephens@bwwsb.com
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Blount County Water Authority

Faulkner	Tim D.	Superintendent	(205) 625-5100	carolbcwa@yahoo.com
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Bridgeport Utilities

Coates	Gary	Chief Operator	(256) 495-2594	bridgeport@bellsouth.net
Hill	Jason	Operations Manager	(256) 495-2471	jhill@bridgeportutilities.com
Hughes	Jim	General Manager	(256) 495-2471	jhughes@bridgeportutilities.com
Johnson	Larry	Operator	(256) 495-2594	bridgeport@bellsouth.net

Brookside Waterworks

Bensko	Terry	Water Board/ Councilman	(205) 674-9275	debbiekeedy@att.net
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Calera Water System

Broadhead	Allen	Operator	(205) 389-1113	
Darling	Daniel E.	Water Production & Treatment Su	(205) 668-7222	ddarling@calera.org
Easterling	Kevin	Operator	(205) 389-1113	

CDG Engineer and Associates

McKee	Clay	Project Engineer	(256) 891-3458	cmckee@cdge.com
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CedarChem, LLC

Pendergrass	Jeff	Sales & Technical Service	(256) 996-1038	jeffpendergrass@cedarchem.com
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Central Elmore Water

Hill	Rebecca	Operator	(334) 512-0481	lhill1134@charter.net
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Central Elmore Water & Sewer

Brown	James	Maintenance Operator	(334) 512-0481	jamesifeelgoodbrown@yahoo.com
Morgan	Patrick	Plant Manager	(334) 512-0480	pmorgan@cewsa.com

CH2M Hill

Griffin	Chris	Project Manager	(334) 215-9025	chris.griffin@ch2m.com
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Cherokee Water & Gas Dept.

Hester	Curtis	Supervisor	(256) 359-6684	cherokeewtp@aol.com
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Chugach Management Services

Moore	Robert	Environmental Engineering	(256) 876-2716	
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Clanton (City of)

Easterling	Danny	Superintendent	(205) 755-4178	clantonwatertp@tridigitalbroadband.co
Mims	Brian D.	Water Plant Operator	(205) 755-4178	clantonwatertp@tridigitalbroadband.co
Taylor	Robert	Operator	(205) 755-4178	

Clearwater Solutions, LLC

Clearwater Solutions, LLC

Ailiff	Rick	President	(334) 364-0057	rick.ailiff@clearwatersol.com
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Cobert County Water Dept.

Howard	Larry		(256) 386-8504	jobrien@colbertco.org
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CTC Engineering

Chapman	George	Project Manager	(334) 244-1435	george.ctc@charter.net
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Cullman (City of Cullman)

Britton	Tom	Operator	(256) 739-0266	cwtp@hiwaay.net
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Cullman Utilities Board

Freeman	David	Superintendent	(256) 739-0266	cwtp@hiwaay.net
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Decatur Utilities

Cleveland	Tom	Water Plant Manager	(256) 301-4605	tcleveland@decaturutilities.com
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McCreless	Bryce	Water Plant Superintendent	(256) 552-1482	bmccreless@decaturutilities.com
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Dekalb-Jackson WSD

Bryant Jr.	Tommy	Manager	(256) 632-2254	tommybryant@farmerstel.com
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Rose	Christopher	Chief Plant Operator	(256) 632-2254	glinfreeman@farmerstel.com
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Donald Smith Company

Senn	Mack	Sales	(334) 798-0814	mack@dsch20.com
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Douglas Water System

Foshee	Bill	General Manager		
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Enersolv Corporation

Sutton	Karen	Vice-President of Client Services	(256) 350-0846	ksutton@enersolv.com
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Environmental Resource Analysts

Freda	Joseph	Lab Director	(334) 502-3444	jfreda@eralab.com
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Hickman	Staci	Lab Manager	(334) 502-3444	shickman@eralab.com
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Fayette Water Works Board

Bobo	Joel	Treatment Manager	(205) 932-5913	fwp@centurytel.net
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Moore	Scotty	General Manager	(205) 932-5344	fwwb@centurytel.net
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Porter	Dru	Operator Trainee	(205) 932-5913	cwp@centurytel.net
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Five Star Water Supply District

Brewer	David	Operator	(334) 567-1366	
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Popham	David	Plant Superintendent	(334) 567-1366	dpopham@fivestardistrict.com
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Scarborough	Tony	Operator	(334) 567-1366	
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Florence Water Department

Doyle	Michael	Manager	(256) 718-5100	mdoyle@florenceal.org
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Florence Water Department

Hall	Gina	Administrative Assistant	(256) 718-5101	rhall@florenceal.org
Hipps	Michael	Plant Superintendent	(256) 335-1653	mhipps@florenceal.org

Fort Payne Water Board

Light	Brandon	Water Treatment Plant Manager	(256) 845-4661	brandon@fpwater.com
Smith	Jim	Engineer	(256) 845-4661	jsmith@adles.com

Gadsden Water Works

Davis	Jack	Superintendent of Production & Tr	(256) 543-2884	jdavis@gadsdenwater.org
Lankford	Mike	Asst. Supt. Of Production & Treat	(256) 543-2884	mlankford@gadsdenwater.org
Wise	Joel	Water Plant Chief Operator	(256) 543-2884	jwise@gadsdenwater.org

Garver Engineers

Pride	Robert	Consultant	(256) 718-3247	REPride@GarverUSA.com
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Gary L Owens and Associates, Inc

Owen	Gary L.	President	(205) 982-9806	gowens@garylowen.com
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Goodwyn, Mills and Cawood, Inc

Crook	Wheeler	EIT	(334) 271-3200	wheeler.crook@gmcnetwork.com
McClure	Bobby		(334) 271-3200	bobby.mcclure@gmcnetwork.com

Gresham, Smith & Partners

Harris	Reg	Principal	(205) 298-9234	reg_harris@gspnet.com
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Guin Water Department

Black	Dewayne	Chief Operator	(205) 468-2555	guinwater2@centurytel.net
Webb	Lyle	Operator	(205) 468-2555	guinwater2@centurytel.net

Guntersville Water & Sewer

Redington	Mitchell	System Operator	(256) 582-5931	anita@gvillewater.com
Starnes	Coy	Plant Operator	(256) 583-5931	anita@gvillewater.com
Swann	Jack	Manager	(256) 582-5931	anita@gvillewater.com

Haleyville Water Works

Bates	Lane	Superintendent	(205) 269-0056	laneB@centurytel.net
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Hamilton Water & Sewer Dept.

Williams	Rodney	Chief Operator	(205) 921-4215	hamwater@sonet.net
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Hamilton Water Department

Cox	Steve	Manager	(205) 921-7484	stevecox@sonet.net
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Harcos Chemicals Inc

Stevens	Joe		(662) 275-0365	jstevens@harcos.com
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Harcros Chemicals, Inc

Harcros Chemicals, Inc

Salemi	Debra	Senior Account Manager	(205) 424-6126	dsalemi@harcros.com
Wiman	Cheryl	Account Manager	(256) 431-7965	cwiman@harcros.com

Hartselle Utilities

Terry	Stephen M.	Water System Operator	(256) 773-3365	sterry@hartselleutilities.org
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Hatch Mott MacDonald

Hughes	Anthony	Project Manager	(205) 949-5031	anthony.hughes@hatchmott.com
Yarbrough	Andy	Project Manager	(205) 949-5031	andrew.yarbrough@hatchmott.com

Heflin Water & Sewer Board

Dewberry	Donald	Manager	(256) 463-2011	
Holmes	Michael	Asst. Manager/WTP Operator	(256) 463-2011	

High Point, Inc

Regnier	John E.	President	(334) 462-1541	highpnt@mindspring.com
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Huntsville Utilities

Bailey	Gary	Water Supply Superintendent	(256) 881-6281	gary.bailey@hsvutil.org
Benson	Jason	Engineer II	(256) 881-6281	jason.benson.@hsvutil.org
Brakefield	Kevin	Water Plant Supervisor	(256) 881-6281	kevin.brakefield@hsvutil.org
Reynolds	Jim	Water Lab Chemist	(256) 881-6281	jim.reynold@hsvutil.org
Swinford	Andy	Water Plant Supervisor	(256) 881-6281	andy.swinford@hsvutil.org
Whisante	Harless	Water Plant Supervisor	(256) 881-6281	harless.whisante@hsvutil.org

InSite Engineering

Pate	Bryan	Managing Member	(205) 733-9696	bryan@insiteengineering.org
Shannon	Brian		(205) 733-9696	Brian@insiteengineering.org

Jackson Water & Sewer

Clarke	Chris	Operator	(251) 246-2900	jacksonwaterdept@yahoo.com
Dungan	Tommy	Assistant Manager	(251) 246-2900	jacksonwaterdept@yahoo.com
Thomas	Paul	Manager	(251) 246-2900	jacksonwaterdept@yahoo.com

Jasper Waterworks Board

Cunningham	Danny Joe	General Manager	(205) 221-2141	djcunningham@jwwsb.org
Lacoste	David	Chief Operator	(205) 221-2141	djcunningham@jwwsb.org

Jones, Blair, Waldrup and Tucker

Crane	Rebecca Blair	President	(256) 547-6379	rcrane@jbwt.com
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Joppa, Hulaco, & Ryan Water

Barnard	Brett	System Manager	(256) 264-3733	brettjhr@otelco.net
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Ladd Environmental Consultants

Ladd Environmental Consultants

Lea	Adam	Engineer	(256) 845-5315	adam.lea@laddenv.com
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LaFayette (City of)

Callahan	Thomas	Water Filter Plant	(334) 864-9363	lafwtp@mindspring.com
Landers	Joel G.	Superintendent	(334) 864-9363	lafwtp@mindspring.com
Turner	Michael	Operator Trainee	(334) 864-9363	lafwtp@mindspring.com

Limestone County Water System

Collins	James	Plants Manager	(256) 233-6448	jcollins@lcwsa.com
Cook	Robert	Lab Coordinator	(256) 233-6448	rcook@lcwsa.com
Grubbs	Ricky	Operations Manager	(256) 233-6448	rgrubbs@lcwsa.com

Madison Water & Wastewater

Pounders	Ricky	General Manager	(256) 461-0844	
Taylor	Jeff	Plants Superintendent	(256) 461-0845	jtaylor@madisonutilities.org

Marion County Public Water

Cummings	Jan	Manager	(205) 921-2092	janmcwa@sonet.net
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Mobile Area Water & Sewer

Anderson	Derik L.	TPO III	(251) 378-3487	danderson@mawss.com
Fisher	Tony	Regulatory Compliance Officer	(251) 378-3506	afisher@mawss.com
Jimmerson	Bonnie	Treatment Plant Operator II	(251) 378-3497	bjimmerson@mawss.com
Jordan	John	TPO II	(251) 378-3487	jjordan@mawss.com
McDonald	Gerald	TPO II	(251) 378-3487	gmcdonald@mawss.com
Pickett	Ricky	Treatment Plant Operator III	(251) 378-3490	rpickett@mawss.com
Pipkins	Gerald	TPO II	(251) 378-3487	gpipkins@mawss.com
Sullivan	Larry R.	TPO II	(251) 378-3487	lsullivan@mawss.com

Montgomery Water Works

Adams	Paul	Plant Operator II	(334) 206-3488	
Baranowski	Jeff	Plant Operator II	(334) 206-3488	
Bryant	Dave	Plant OperatorII	(334) 206-3488	
Segrest	James	Plant Supervisor	(334) 206-3484	jsegrest@mwwssb.com
Shelton	Brian	Project Engineer	(334) 206-3476	bshelton@mwwssb.com
Yarbrough	Keith	Water Director	(334) 206-3483	kyarbrou@mwwssb.com

Montgomery Water Works & sewer Board

Henderson	William R.	Assistant General Manager	(334) 206-3425	bhenders@mwwssb.com
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Muscle Shoals Utilities Board

Barton	Brian	Chief Operator	(256) 386-9260	mswtp@comcast.net
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Muscle Shoals Utilities Board

Vance	James	Manager	(256) 386-9260	jvancemsub@comcast.net
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N. E. Morgan Co Water

Bevel	Joel	Operator	(256) 778-8915	wayne.reed@earthlink.net
Reed	Wayne	Operations Manager	(256) 778-8915	wayne.reed@earthlink.net
Taylor	Bob	General Manager	(256) 778-8915	wayne.reed@earthlink.net

North Marshall Utilities

Bates	Danny M.	Manager	(256) 728-4116	danny@nmutilities.com
Baugh	Rodney	Operator	(256) 728-4116	
Parkhill	Larry	Chief Operator	(256) 728-4116	gwwplant@nehp.net

Northeast Alabama Water District

Dickerson	Charles	Plant Superintendent	(256) 845-6186	cdickerson@neawater.com
Jordan	Johnny	General Manager	(256) 845-6186	johnjordan@neawater.com
O'Daniel	Curt		(256) 845-6186	
Richards	Mark	Assistant Manager	(256) 845-6186	mrichards@neawater.com
Smith	Michael	Compliance Operator	(256) 845-6186	msmith@neawater.com

Northport (City of)

McKinney	James	Manager	(205) 333-3003	nportwtp@charterinternet.com
Pickens	Christopher	Superintendent	(205) 333-3017	nportwtp@charterinternet.com

Office of Water Resources

Littlepage	Tom	Chief, Water Management Branch	(334) 242-5697	tom.littlepage@adeca.alabama.gov
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Oneonta Utilities

Dickie	Bruce	Superintendent	(205) 274-2159	bdickie@oneontautilities.com
McCain	Rodney	General Manager	(205) 274-2159	rmccain@oneontautilities.com

Opelika Utilities

Owen	Eddie	Operations Manager	(334) 705-5500	eowen@owwb.com
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Oxford Water Works Board

Butler	John	Operator	(256) 831-5618	mholzer@oxfordwater.com
Holzer	Meredith	Engineer	(256) 831-5618	mholzer@oxfordwater.com

Phenix City Utilities

Cavazos	Maemi		(334) 291-4736	
Smisek	Mike	Maintenance Supervisor	(334) 291-4736	
Smith	Susie		(334) 291-4736	
Taylor	William "Bill"		(334) 291-4736	
Woody II	Charles D.	Grade IV Operator	(334) 291-4736	

Phenix City Utilities

Young	Matthew	(334) 291-4736
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Piedmont (City of)

Young	Lee	General Manager	(256) 447-3569	lee.young@piedmontcity.org
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Pine Hill Water System

McDanal	Dusty	Superintendent	(334) 963-4351	utilities@pinebelt.net
Morgan	Eddie	Chief Operator	(334) 963-4351	
Swanner Jr.	James	Operator	(334) 963-4351	

Prattville Water Works

Bradley	William	Administrative Asst.	(334) 365-6783	william@pwwb.com
Buckner	Jasper N	Director	(334) 365-6783	bbuckner@pwwb.com

Redstone Arsenal

Daniels	Eugene	Environmental Engineer	(256) 955-7591	gene.daniels@us.army.mil
Fincher	R. Terry	Supervisor Utilities Water	(256) 876-1739	rfincher@chugach-ak.com
Masters, Jr.	George	Laboratory Supervisor	(256) 876-4062	gmasters@chugach-ak.com

Remlap-Pine Mountain W.A.

Gilbert	Dean	Operator	(205) 681-1711	deangilbert@att.net
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Roanoke Utilities Board

Suggs	Fredric W.	Manager/Operator	(334) 863-4055	hop919@teleclipse.net
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Russellville Water & Sewer Board

Barber	Tony	Chief Operator	(256) 332-3850	
Clement	Doug	Manager	(256) 332-3850	dgclement@charterinternet.com
Godsey	Scott	Maintance Crew	(256) 332-3850	

Scottsboro Water Board

Chandler	Bradley	Plants Superintendent	(256) 574-1515	bradley@scottsboro.org
Darwin	Robb	Business & Plants Manager	(256) 574-1515	robb@scottsboro.org
Light	Roy E.	Manager	(256) 574-1515	roy@scottsboro.org

Sheffield Utilities

Barnes	Tommy	Civil Operations Manager	(256) 248-2742	tbarnes@sheffieldutilities.org
Hughes	Allen	General Manager	(256) 248-2706	Ahughes@sheffieldutilities.org
Nunley	Kenny	Chief Operator	(256) 389-2480	waterplt@comcast.net

Shelby County Water Services

Barbin	Robert	Superintendent, Water Services	(205) 670-6540	rbarbin@shelbyal.com
Cain	Michael	Senior Civil Engineer	(205) 670-6540	mcain@shelbyal.com
Henson	Joseph	Plant Manager	(205) 789-7315	jhenson@swwc.com

Shelby County Water Services

Lay	Charles	Water Services Manager	(205) 670-6540	clay@shelbyal.com
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Smiths Water And Sewer

Blair	Jamen	Superintendent	(334) 297-8362	jblair@smithswater.com
Lansdon	Eric	Utilities Director	(334) 298-6342	erlansdon@smithswater.com

Southern Water

Leonard	Jim	Consultant/Sales	(256) 757-2121	jamesaleonard@bellsouth.net
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Southwest Water Company

Chandler	Harry	Operations Manager	(205) 987-8352	hchandler@swwc.com
Deese	M. Ray	Utility Engineer	(205) 444-3652	rdeese@swwc.com

Sylacauga Utilities

Cates	Kenneth	Water Quality Supervisor	(256) 401-2537	kcates@sylacauga.net
Russell	Darol W.	Operations Director	(256) 401-2536	drussell@sylacauga.net

Sylacauga Utility Board

McGinnis	Michael	Formen	(256) 249-0372	mmcginnis@sylacauga.net
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Talladega Water & Sewer

Blankenship	Josh	Chief Operator, Water	(256) 362-2425	talladegawater@bellsouth.net
Brasher	James	Director of Operations	(256) 362-6211	james_brasher@bellsouth.net
Curry	Andrew	Operations Technician	(256) 362-6211	twinfo@bellsouth.net
Green	John	Water Plant Operator	(256) 362-2425	talladegawater@bellsouth.net

Talladega-Shelby WTP

De Bardelaben	Leon	Manager	(256) 378-5962	1GSC@Bellsouth.net
Prater	Beverly	Administrative Assistant	(256) 378-5962	bevp2@bellsouth.net

Tallassee Water System

Eaton	Michael	Opertor	(334) 283-2347	cotfilterplant@elmore.rr.com
Oswalt	Steve	Supervisor	(334) 283-2347	cotfilterplant@elmore.rr.com

Thornton, Musso & Bellemin

Bush	Randy	Consultant	(205) 678-7981	randy@tmbwater.com
Foreman	Danny	Consultant	(225) 776-5034	dforeman@tmbwater.com
Thornton	David	CEO	(800) 762-9104	david@tmbwater.com

TTL, Inc

Burns	Jess	Chemist	(205) 345-0816	jburns@ttlusa.com
Rickman	Vicky	Client Consultant	(205) 345-0816	vrickman@ttlusa.com
Shaw	Micheal R.	Business Development & Operator	(205) 345-0816	mshaw@ttlinc.com

Tuscaloosa (City of)

Tuscaloosa (City of)

Barnett	Kevin	Water Treatment Operator	(205) 349-0247	amerriweather@tuscaloosa.com
Cassity, Jr	Bernard J.	Water Treatment Biologist	(205) 349-0247	bcassity@tuscaloosa.com
Merriweather	Anissa	Water Treatment Biologist	(205) 349-0247	amerriweather@tuscaloosa.com

Tuscumbia

Bickley	Lile	Superintendent	(256) 386-5668	lbickley@tuscutilities.com
Malone	Jack	Assistant Superintendent	(256) 386-5668	jmalone@tuscutilities.com

Tuskegee Utilities Board

Champion	Melandie	Administrative Operator		
Chisolm	Eucllyde	Operator		
Newbolt	Rickie	Chief Operator		
Swanson	Amir	Operator		
Tate	John	Plant Manager		jvtate@aim.com

Upper Bear Creek

Hill	Barry	Manager	(205) 486-5930	upper@centurytel.net
Loden	James	Assistant Manager	(205) 486-5930	upper@centurytel.net

US EPA - R4

Newbold	Amy	Environmental Engineer	(404) 562-9482	newbold.amy@epa.gov
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Utility Engineering Consultants

Bechtel	Dave	Engineer	(205) 853-6020	dbechtel@uecllc.com
Hawkins	Rod	Engineer	(205) 853-6020	rhawkins@uecllc.com
Knobloch	Sharon	Wastewater/Water Trainer	(256) 351-7224	kshc@dishmail.net
Nelson	Drew	Project Engineer	(205) 853-6020	dnelson@uecllc.com

VAW Water System

Whittle	Shawn K.	Superintendent	(256) 734-2413	whittle_vaw@bellsouth.net
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Warrior River Water Authority

Brock	Stan	Manager	(205) 477-5791	wrwa@bellsouth.net
Hicks	Todd	Chief Operator	(205) 436-3532	wrwaplt@bellsouth.net
Kelley	Lee	Senior Operator	(205) 436-3532	lee@warriorriverwater.com
Sellers	Craig	Operator	(205) 436-3532	

Wedowee Water Board

Suggs	William L.	Plant Manager	(256) 357-2448	wwp01@centurytel.net
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West Morgan-East Lawrence

Self	Stanley	Plant Supervisor	(256) 637-2969	wmelwtp@hiwaay.net
Slater	Jeaniece	Operator/Compliance Officer	(256) 637-2969	wmelwtp@hiwaay.net

Wise Alloys LLC

Belue	Jeff	Environmental Engineer	(256) 386-6622	jobelue@wisealloys.com
Johnson	Paul	Environmental Department Manag	(256) 762-0609	pjohnso@wisealloys.com