



Annual Operator School

August 5, 2016

Cathy Tucker-Vogel

Our Mission: To Protect and Improve the Health and Environment of all Kansans

Why Are We Here???



And The Answer Is.....

**Disease Prevention and
Public Health Protection
Environmental Protection**

Historical Snippet - DW

Chlorination & Typhoid Fever

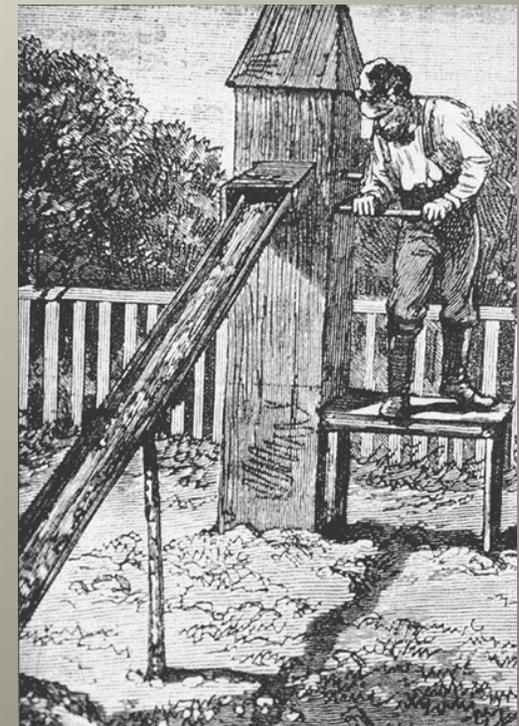
- 1900 – 100 Cases/100,000 People
- 1908 – Jersey City, NJ – 1st PWS to Chlorinate
- 1920 – 33.8 Cases/100,000 People
- 2006 – 0.1 Cases/100,000 People (353 Total)
 - 75% International Travelers

Chlorination – One of 10 Greatest Public Health Achievements of 20th Century



Historical Snippet- WW

- Early Disposal Methods
- River Thames



The First WW Operators

- Fleet River
- Tosher
- Sewer Flusher



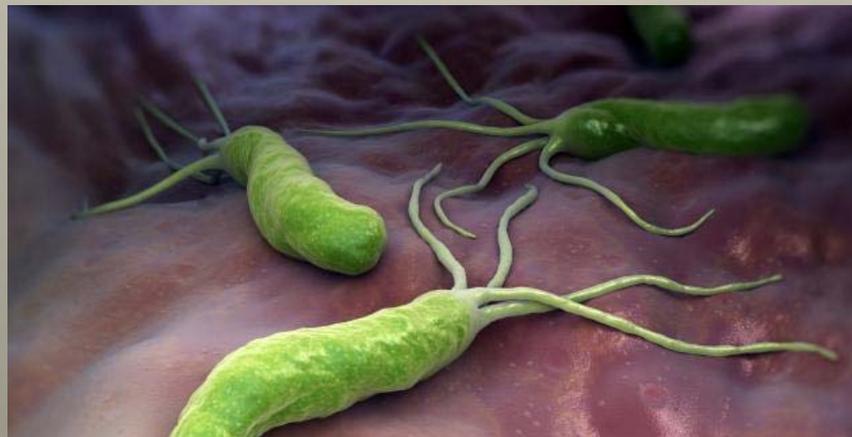
Salmonellosis

Salmonella enterica

Year	Location	Suspected	Confirmed	Deaths
1965	Riverside, CA	18,000	-	3
1993	Gideon, MO	-	650	7
2008	Alamosa, CO	1,300	122	7

Alamosa Case Study

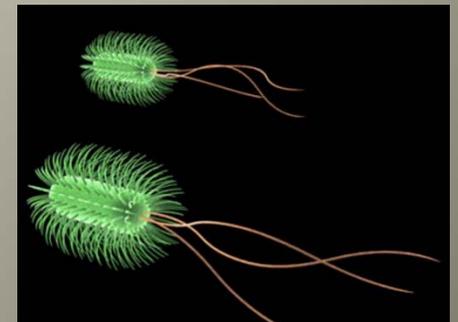
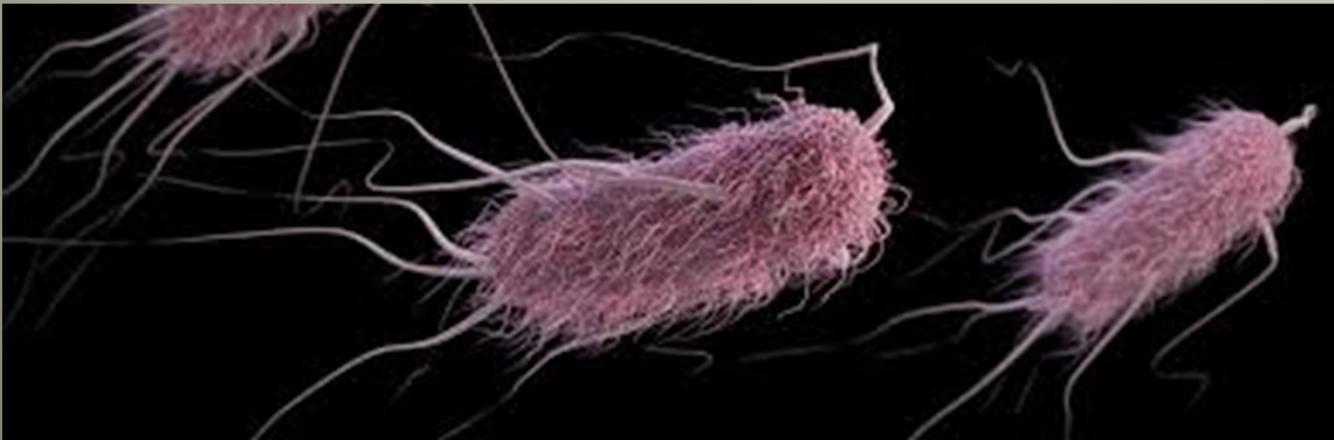
Treatment Failure: No Chlorination
Distribution Failure: Sanitary Deficiencies in Tanks Allowed to Persist
State Oversight Failure: Sanitary Surveys did not Include Tanks



Gastrointestinal Illness

E. coli 0157:H7

Year	Location	Suspected	Confirmed	Deaths
1999	Washington Co., NY	5,000	781	2
2000	Walkerton, Ontario	2,300	65	7



Walkerton Case Study

◆ Operator Failure

- Low Chlorine
- No Daily Chlorine Residual Monitoring
- Operators “Grandfathered In”
- Did Not Maintain CEUs
- Falsified Records
 - Chlorine Residual
 - Sample Locations



Walkerton Case Study

◆ Regulator Failure

- Failed Identification of Groundwater Under Direct Influence of Surface Water
- Failed to Identify and Require Correction of Monitoring Practices
- Failed to Enforce Operator Training Requirements



Walkerton Case Study

Governing Body Failure

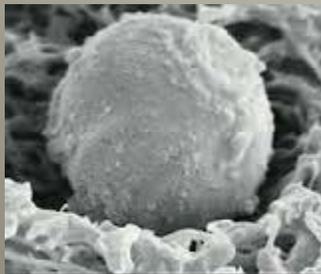
- ◆ Only Concerned With Meeting Attendance & Financial Matters
- ◆ Did Not Exercise Appropriate Oversight of General Manager
- ◆ Did Not Require General Manager to Address Deficiencies Identified By Ministry of Environment



Cryptosporidiosis

Cryptosporidium (protozoan)

Year	Location	Suspected	Confirmed	Deaths
1993	Milwaukie, WI	400,000	-	104
2001	North Battleford, Saskatchewan	7,000	275	0



Cryptosporidium Oocyst



Kansas History

- ◆ 1909 – KS Legislature Banned Common Drinking Water Cup
- ◆ 1912 – First National DW Regulation Banning Common Cup on Inter-State Carriers



Dr. Samuel Crumbine



History of Protecting Public Health



- ◆ 1920 – First Operator Training
- ◆ 1954 – Certification Exams
- ◆ 1975 – Operator Certification

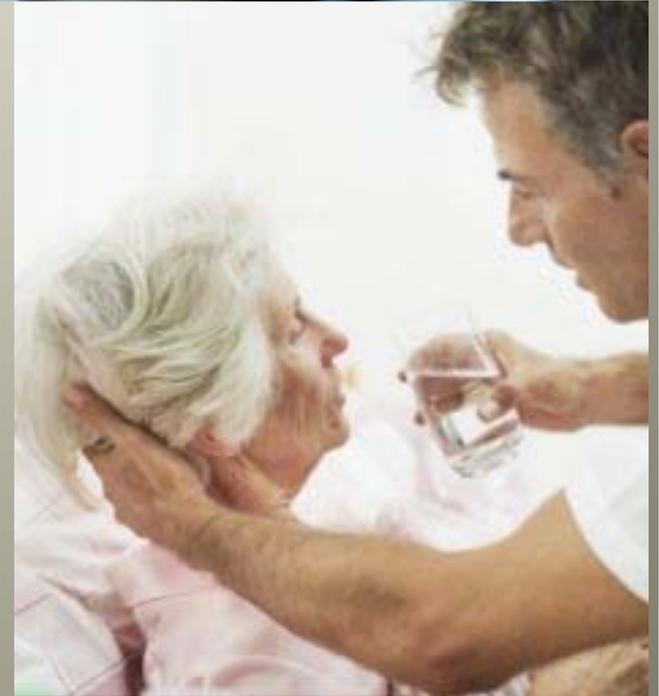


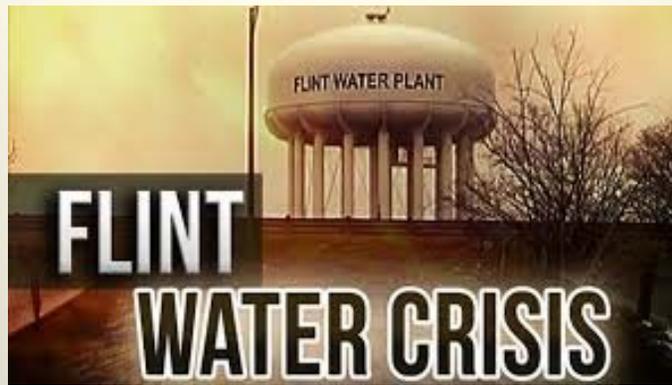
Looking Forward...



KDHE Priorities for DW & WW Operators

- ◆ Implementation of RTCR
- ◆ Implementation of Stage 2 Rule
- ◆ Implementation of Lead & Copper Rule
- ◆ Implementation of E-Reporting Rule
- ◆ Update Inspection Processes
- ◆ New Ammonia Criteria









kdheks.gov/water