

## Continuing Education for Water Operators



Mariana Islands  
Water Operator Association

November 9, 2011  
Pacific Islands Club, Saipan

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## Today's Agenda

- About Continuing Education
- Current Events
  - Radionuclide Rule Update
  - New CDC stats on waterborne diseases
  - A current "local" epidemic
- Main Events
  - Leak Detection – CUC
  - Archived webcasts on leak detection
  - Leak detection video
- Association Announcements

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## Continuing Education for Water Operators



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Is THIS training required?

➤ NO

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## Why have continuing education?

- DEQ Regulations require certified operators to have 10 contact hours of continuing education per year (30 contact hours in 3 years) to maintain certification.
- DEQ is not required to offer training (and no longer offers training – no \$\$\$)
- Where would operators get training?

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## Other training options

- Professional training provided by your employer (safety, pump maintenance, lab procedures, etc.)
- College classes
- Conferences or workshops by professional organizations or agencies
- Correspondence courses
- On-line opportunities

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### NOT continuing education

- Meetings with DEQ or EPA
- Surveys or inspections by DEQ or EPA
- Reading journal articles or textbooks by yourself
- Googling water operator stuff on the internet

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### When should training be offered?

- DEQ surveyed all certified operators
- Results
  - One 3 hour session every 3 months
  - In morning
  - On a Wednesday
- First session September 6, 2006

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### 2006 – 2008 (DEQ)

- September 6, 2006: Chlorination
- November 8, 2006: Using a Pump Curve
- February 7, 2007: Cross Connection
- May 9, 2007: Regulations - CCR, PNR
- August 8, 2007: Sizing Pressure Tanks
- November 26, 2007: PWS workshop
- February 20, 2008: Fluoridation
- May 2008: Process Controls (Robert Brokate)
- August 2008: Slow Sand Filters
- November 12, 2008: TCR and Control Valves

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### 2009 MIWOA

- March 25, 2009: Security and Filters
- May 13, 2009: Alt. Energy, CCR, Compliance
- August 5, 2009: Geology of Saipan, GWR
- October 9, 2009: GWR Workshop
- December 2, 2009: Valves, Spills, Walkerton

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### 2010 MIWOA

- February 3, 2010: Safety, Haz Materials
- May 5, 2010: BEH & DEQ, Cross Connections
- August 11, 2010: Waste Water Collection/Treatment
- November 3, 2010: Response to disease outbreak

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### 2011 MIWOA

- February 2011: Chemical Injection Pumps (HRWA)
- May 2011: Radiation, Radionuclide Rule
- July 2011: Utility Policies & Procedures; Standard Operating Procedures (HRWA)
- November 2011: Leak detection

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## THIS TRAINING IS FOR YOU!

We'll do what we can to make it  
what YOU want it to be!

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## Suggestions for training

- Possible topics for upcoming sessions:
  - Backflow prevention device testing
  - Rainwater
  - Local Water System
  - How Reverse Osmosis Works
  - Energy efficiency
- Storm water and erosion control
- Introduction to waste water treatment
- Field trip
- Cleaning and handling bottles
- Leak detection

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## Announcements

- Next session will be in February 2012
- Pay annual dues of \$10 for 2012 then
- No certificates from July yet
  - Will print soon and e-mail to attendees (along with certificates from today)

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## Current Events

November 2011

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## RADIONUCLIDE RULE UPDATE

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## Monitoring Requirements

### Gross Alpha; Combined Radium 226/228, Uranium

- Initial Monitoring
  - 4 consecutive quarters

### Beta Particle and Photon Radioactivity

- Initial Monitoring
  - No monitoring for most CWSs
  - Vulnerable CWSs
    - Gross Beta quarterly samples
    - Tritium, Strontium-90 annual samples



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## Monitoring Requirements

### Gross Alpha; Combined Radium 226/228, Uranium

- Reduced Monitoring
  - Average < DL
    - Once in 9 years
  - DL < Average < ½ MCL
    - Once in 6 years
  - ½ MCL < Average < MCL
    - Once in 3 years

### Beta Particle and Photon Radioactivity

- Reduced Monitoring
  - RAA of gross beta – naturally occurring potassium 40 < 50 pCi/L
    - Once in 3 years

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## Monitoring Results in CNMI

### Gross Alpha

- Excludes radon & U
- MCL = 15 pCi/L
- 31 detects of 82 samples
- High 13 pCi/L
- 19 samples < 2 pCi/L
- 9 samples 2 – 10
- 3 samples above 10
- Taken in 2000-2002

### Combined Radium

- MCL = 5 pCi/L
- 16 detects of 27 samples
- High = 4.08 pCi/L
- Taken in 2001

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## Next Round of Sampling

- Many systems on 9 year cycle
- If samples were collected 2000 – 2002, you may have samples due
- If did not do Radium 228 – may need to do at least 2 quarters

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## Haiti Cholera Update

1 year since outbreak



Distribution of oral rehydration salts

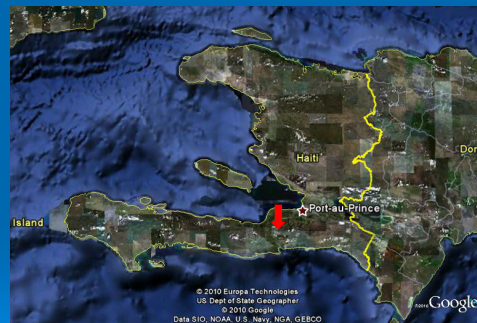
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## Earthquake Rocks Haiti

- Tuesday January 12, 2010
- 7.0 magnitude, 8.1 miles deep
- 15 miles WSW of capital



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### Cholera outbreak in Haiti

- Outbreak first confirmed October 21, 2010
- Probably from UN workers from Asia
- Latest News
  - As of October 25, 2011: epidemic still continues; will probably get worse as rainy season progresses; about 3,000 hospitalizations per week.
  - New vaccine Jan 2012

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### Cholera outbreak in Haiti

- Since beginning of outbreak (of 9/2011)
  - 452,189 cumulative cases
  - 240,323 hospitalizations
  - 6,334 deaths
- Overall mortality rate is 61.1 per 100,000

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Surveillance for waterborne disease outbreaks associated with drinking water – United States 2007-2009

### CDC SURVEILLANCE SUMMARY SEP 2011

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### Disease Outbreaks: 2007-2008

- Report issued September 23, 2011
- 48 outbreaks in 24 states & PR
- 70 previously unreported outbreaks (Legionella cases from 1973-2001)

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### Water Source

- Of the 48 outbreaks
  - 36 were associated with drinking water
  - 8 with WNID (water not intended for drinking)
  - 4 with WUI (water of unknown intent)

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### Drinking Water

- The 36 drinking water outbreaks caused
  - Illness in 4,128 people
  - 3 deaths

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### Etiological agents

- 32 agents identified of 36 outbreaks
  - 21 bacteria
  - 5 viruses
  - 3 parasites
  - 1 chemical
  - 1 bacteria + viruses
  - 1 bacteria + parasites
  - (4 unidentified etiology)



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### Illnesses

- Of 36 drinking water outbreaks
  - 22 acute gastrointestinal illness (AGI)
  - 12 acute respiratory illness (ARI)
  - 1 skin irritation
  - 1 hepatitis
- All ARI were caused by Legionella

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### Deficiencies

- 37 deficiencies identified in 36 outbreaks
  - 22 contamination at/in source water, treatment facility, or distribution
  - 13 occurred at points not under jurisdiction of a water utility
  - 2 unknown/insufficient deficiency info

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### Contamination Location

- Of 21 outbreaks w/ contamination at source water, treatment facility or distribution
  - 13 untreated groundwater
  - 6 treatment deficiencies
  - 1 distribution system deficiency
  - 1 both treatment + distribution
  - 0 untreated surface water

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### PWS vs non-PWS

- Of the 21 outbreaks
  - 16 were in PWS
  - 5 individual systems (using untreated GW)

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### Interpretation

- More than half of drinking water outbreaks in 2007-2008 were from inadequately treated ground water
- Contamination of GW remains a public health problem
- Majority of outbreaks occurred in PWS subject to GWR – just went into effect

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### Select Cases

- March 2008 in Colorado
- 1,300 ill + 1 death
- PWS contaminated with *Salmonella* Typhimurium
- Used untreated ground water
- Storage tank had holes
- Took three weeks to disinfect
- NG delivered drinking water

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### Select Cases

- April 2008 Puerto Rico
- 82 ill, 7 hospitalized
- *Cyclospora cayetanensis*
- (food related) source of cont. unknown
- Interruptions in water service, and quality over several months
- Water system considered source of transmission

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### Select Cases

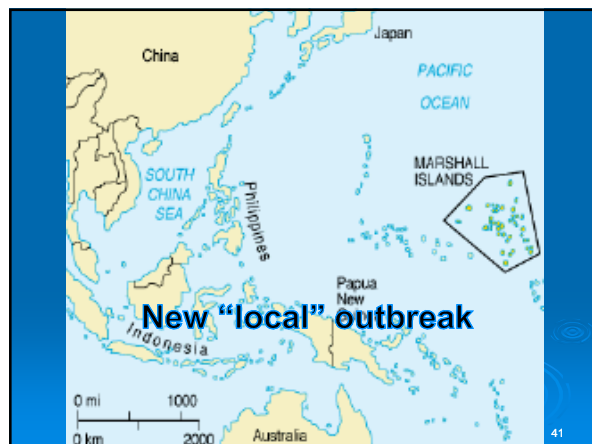
- April 2007 Massachusetts
- 145 people experience chemical burns
- Sodium hydroxide overfeed altered the pH balance of water passing through a water treatment facility
- Occurred overnight
- Alarm activated, but no off-site notification
- Noticed the following morning

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## End CDC water borne diseases

2007-2008

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### Dengue Fever

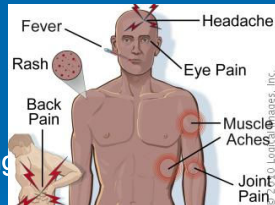
- Marshall Islands declared a "state of emergency" November 3
- Since October 21 – more than 150 cases of dengue fever in Majuro
- Spread by mosquitoes
- Dengue has also been reported in Yap

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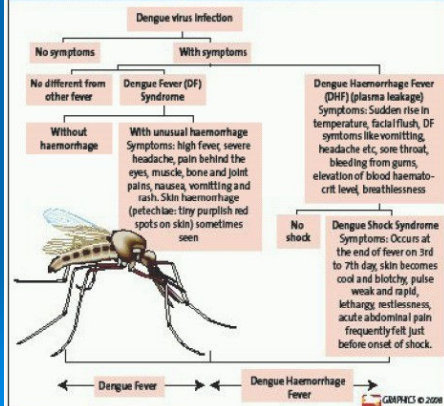
## Symptoms

- High fever
- Severe headache
- Backache
- Joint pains
- Nausea and vomiting
- Eye pain & rash



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## Manifestations of dengue virus infection



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## Treatment/Prevention

- No vaccine
- No specific treatment
- Avoid mosquito bites (use repellent)
- Reduce mosquito populations in and around home
  - Eliminate places mosquitoes might lay eggs

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## Break -10 minutes



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## Main Event

Leak Detection

Travis Spaeth – CUC Engineer

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## Leak Detection Webcasts

- <http://www.virtualh2oevent.com>
- Leak detection at Clayton County Water Authority
- Leak detection: how modeling can help
- Non-invasive, non-contact leak and external erosion void detection on water distribution systems

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## Leak Detection Videos

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## Break -10 minutes



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## Association Business

HRWA news  
Lending Library  
Treasurer's Report (2010)  
Board Elections

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## Association Lending Library

- List is on the website
- Stan Goode donated lots of wastewater operator books

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## Board Member Terms

- Chair: Derek Chambers – May 2013
- Vice chair: Bernard Keremius – May 2013
- Secretary: Mariano Iglecias – May 2014
- Treas: Cecilio Raiukiulipiy – May 2012

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## Contact Information

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