Massachusetts Water Resources Authority

Presentation to

MWRA Board of Directors

DITP Fire Alarm System Update

October 15, 2014
Fire Alarm System Overview

• System is 17-22 years old
• One of the largest systems in New England
• System is comprised of:
  – Graphic annunciation panels
  – 43 local Fire Alarm Control Panels
  – Over 3000 signaling devices (i.e. smoke and heat detectors, strobes horns, pull stations, etc.)
  – Over 6 miles of fiber optic cable
Project Specific Issues

- Parts are no longer available.
- Fiber optic communication highway 20 years old + may need to be replaced.
- Regularly scheduled meetings with Winthrop and Boston Fire Departments
- Replace existing Halon systems
- Eliminate some fire pumps?
- Upgraded to existing applicable codes
Graphic Annunciation Panel
Typical Halon Tank system
Fire Alarm Control Panel
Fire Alarm Control Panel (inside of panel)
Fire Alarm Pumping system
Next Steps

• Design to commence Spring 2015
• Construction to commence Spring 2017

• Original system construction cost (1992 dollars): $13M
• New system construction cost: $16M; Design and Construction oversight services $3.9M
Thermal/Power Plant Boiler Management System Upgrade

October 15, 2014
• Two high pressure boilers installed in 1995

• Produce steam for plant hot water system and electrical generation

• BMS controls gas, oil and combustion air to the boiler burners

• Control system parts are obsolete can no longer attain replacement parts
Gas Control Valves (Qty: 4)

- Existing 6” gas valves (green)
- New actuators will have better range ability at low flows
- Currently, low flow stability is an issue
- Existing damper drive (grey box)

- New dampers will be more precise control which will increase boiler performance
- Programmable logic controllers (PLC) and flame monitors

- The PLCs are obsolete and flame monitors are approaching end of life
Pandemic Preparedness Update

October 15, 2014
Ebola In West Africa

- >8300 cases, >4000 deaths in West Africa
  - large scale outbreaks in developed countries are still highly unlikely
  - Additional imported cases and occasional secondary cases are very likely
• Staff Safety
  – Wastewater flushed at BIDMC reaches Ward St in 20-30 minutes
  – From MGH even faster in wet weather

• Making sure we are prepared to continue to perform core functions
Raking The Screens
• “Sanitary sewers may be used for the safe disposal of patient waste.” – CDC

• “Although obviously very dangerous, Ebola is a very fragile virus that does not survive very long once shed into the environment. The virus would be unlikely to survive very long in sewage…”

• “Ebola virus ... is much more fragile in the environment than the usual non-enveloped viruses we know to be the enteric virus pathogens found in human fecal wastes and sewage.”
The number of **people** that **one sick person** will infect (on average) is called $R_0$. Here are the maximum $R_0$ values for a few viruses.
What We Are Doing

• Refreshed staff on safe wastewater practices
• Briefed transport staff and union leadership on what we know about the risk
• Maintaining warehouse supplies of PPE
• Reached out to DPH and outside experts to confirm that our approach is appropriate
• Working with hospitals to agree on sanitary waste disposal practices
• Continued monitoring of situation around the world
Questions?

Facts about Ebola in the U.S.

- You can’t get Ebola through air
- You can’t get Ebola through water
- You can’t get Ebola through food

You can only get Ebola from:
- Touching the blood or body fluids of a person who is sick with or has died from Ebola.
- Touching contaminated objects, like needles.
- Touching infected animals, their blood or other body fluids, or their meat.

Ebola poses no significant risk to the United States.
• **BAD NEWS**
  – There is a virus beginning to spread in the US
  – Expected to cause 20,000 – 50,000 deaths in the next 6 months

• **GOOD NEWS**
  – There is already a vaccine available

• It is the seasonal flu!
2009 Flu Pandemic - Timeline

- 3/17/2009 – earliest onset of a confirmed case
- June 2009 – 18,000 US cases, 73 other countries affected

Source: CDC/Wikipedia
Current Status - Emerging Flu Subtypes

- **H5N1 avian flu** - since 2003 - 667 cases across Asia
- **H7N9** - since 2012 - 454 cases, 126 deaths

- Other swine/avian flu strains have infected people
  - H3N2v, H7N7, H6N1, H10N8, H5N6
• MERS – coronavirus related to SARS
  – since 2012 - >850 cases, >300 deaths
Also In The News

• EV-D68 (Enterovirus)
  – one of ~100 known enteroviruses
  – usually <2% of those tested, 2014 ~50%
  – genetic change in last decade may allow more spread
In The News - Non-Human Vectors

- Chikungunya (that which bends up)
  - >700,000 cases in this hemisphere since December
  - Mosquito borne (human → mosquito → human)
  - Day-biting mosquito species – not common in MA
Staying Up To Date

• Monitor current events
  – Staff get e-mail alerts from CDC, MA DPH, CIDRAP
  – News alerts for terms like pandemic, influenza, MERS, H7N9, coronavirus, EV-D68

• Regularly brief a wide range of staff
  – as received when important
  – e-mail updates ~weekly
  – additional updates at monthly Security Task Force
FluView - www.cdc.gov/flu/weekly

Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), Weekly National Summary, 2013-14 and Selected Previous Seasons

Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2013-14

Pneumonia and Influenza Mortality for 122 U.S. Cities
Week Ending October 4, 2014
What We Are Doing

• Flu shots this month at all locations

• Review recently updated CDC guidance and update our plan as needed

• Include in community ERP training (9/25, 10/9, 10/23 and 11/23)

• Circulating and posting basic infection control reminders

• Refreshed staff on safe wastewater practices

• Monitoring warehouse supplies of PPE
MWRA Pandemic Emergency Action Plan

• Designed for
  – Any infectious disease with high morbidity and mortality
  – Peak absence of 40% of staff
  – 2 – 3 month primary duration

• Main components
  – Monitoring and triggering
  – Critical functions and staffing
  – Staff health
  – Interdependencies