



• August 15-18, 2010 • Dallas, Texas •  
• Dallas Convention Center •



Energy & Water Savings  
Opportunities in Hospitals

# Warm-Up

1. In one of your newly acquired notebooks:  
Write down what you believe your Number one opportunity is for saving:
  - (a) Energy
  - (b) Water
2. Beside each, write your perception of the biggest obstacle in accomplishing each.

# Energy Opportunities/Obstacles

1.

# Water Opportunities/Obstacles

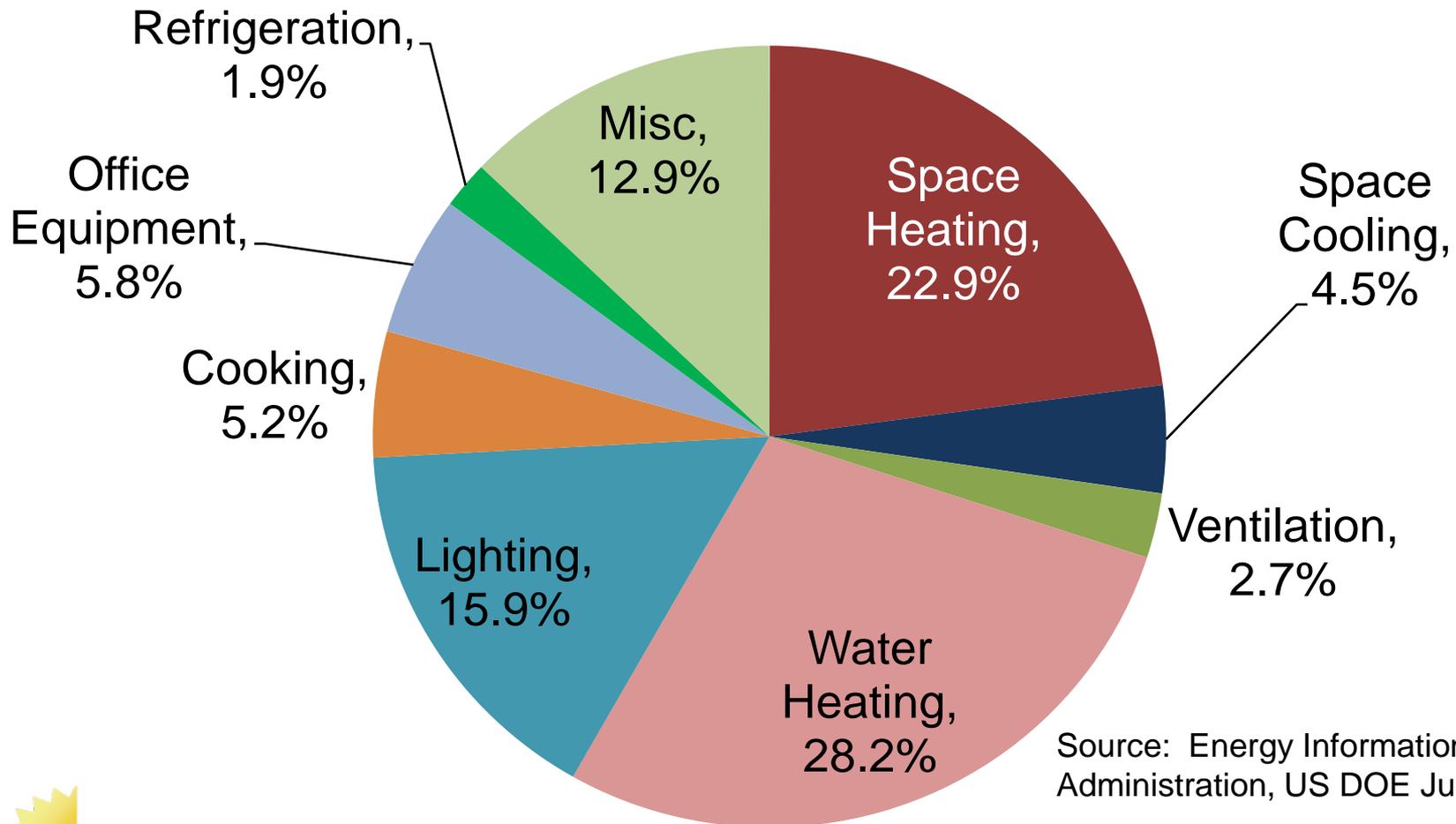
1.

# Overcoming Obstacles – Build Relationships

- Plant Operations
- IRM
- Security
- Maintenance
- Housekeeping (Environmental Services)
- Nursing
- Purchasing
- Any Others?

# Typical Hospital Energy Use

## Where to Start



Source: Energy Information Administration, US DOE July 1998

# Typical Hospital Statistics

(Courtesy of ASHRAE Fundamentals 2007)

## 1. Cost of Utilities for Inpatient Hospital

(a) High: \$3.55/SF

(b) Low: \$1.37/SF



\$2.70/SF (Mean)

## 2. Energy Utilization

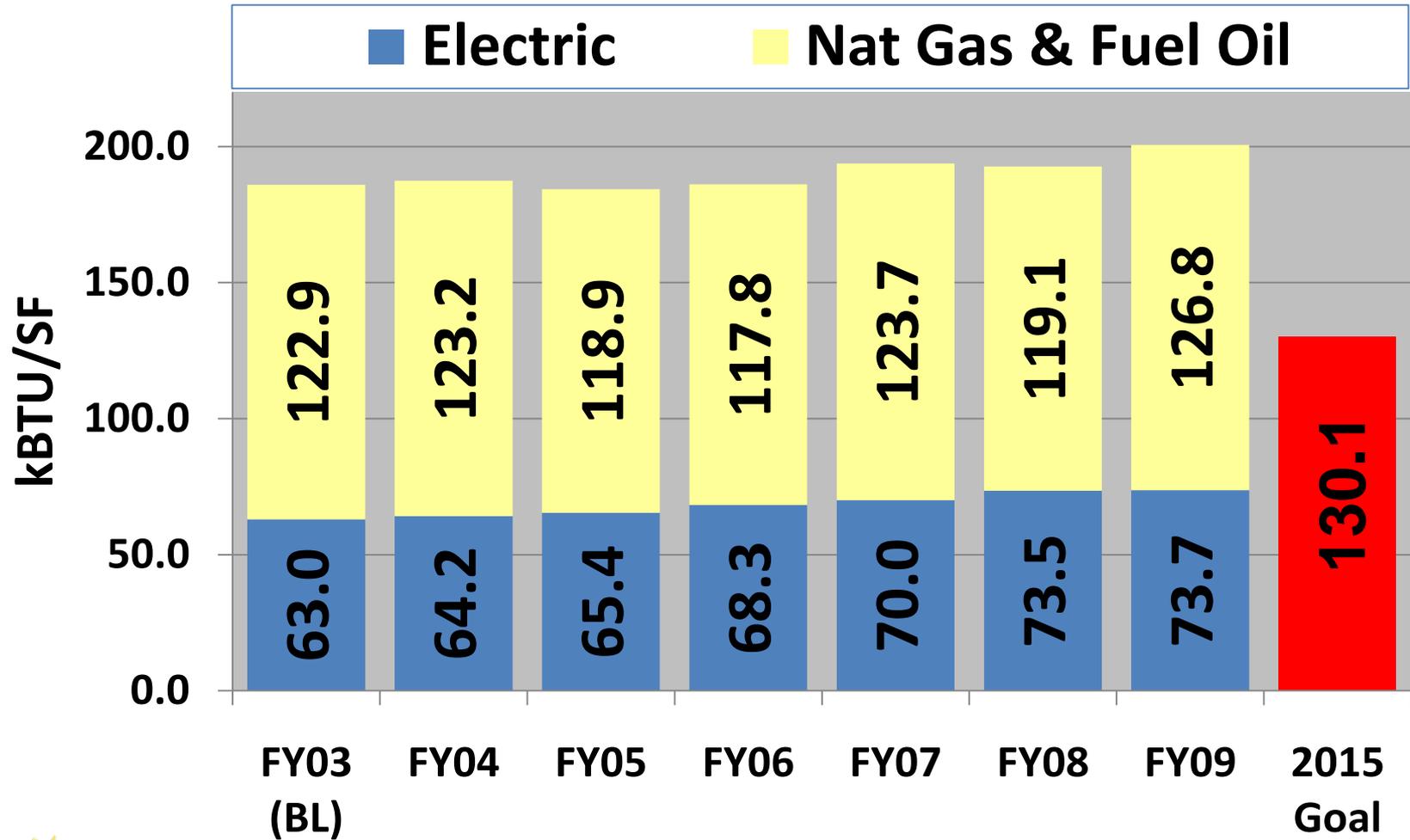
(a) High: 355 kBtu/SF

(b) Low: 108 kBtu/SF



227 kBtu/SF  
(Mean)

# Hampton VAMC Energy



# Energy ECMs

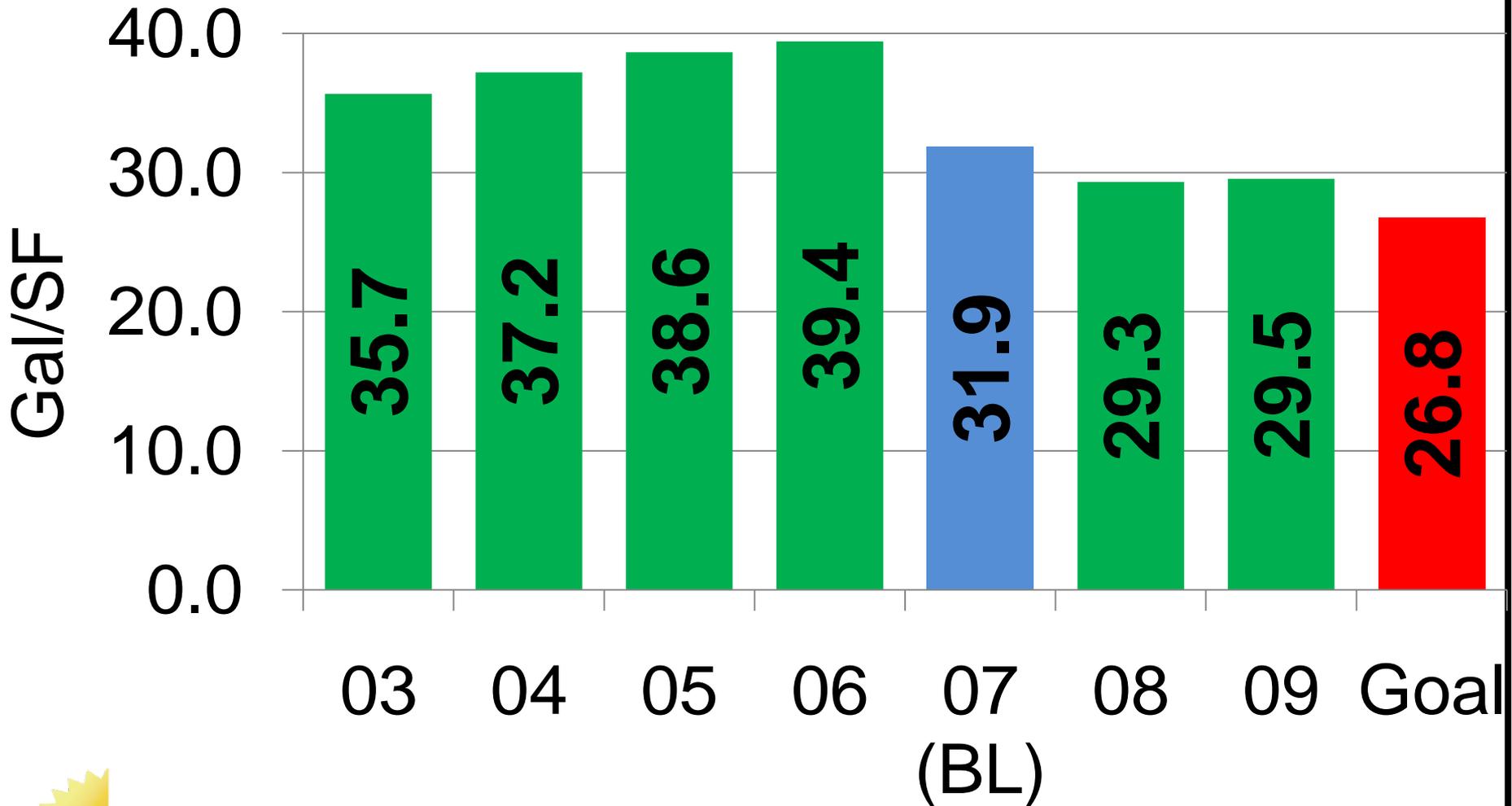
- OA (Dampers, ORs, Pharmacy, Lab, Unocc.)
- Steam (“2-for,” Water & Energy)
- LED Exterior Lighting
- “Emergency Lighting”
- Equipment (Water vs Air-Cooled CT Scans)
- Code Enforcement (ASHRAE Standards 90.1 & 189)
- Build Relationships (Friends or Enemies)

# Steam Pays

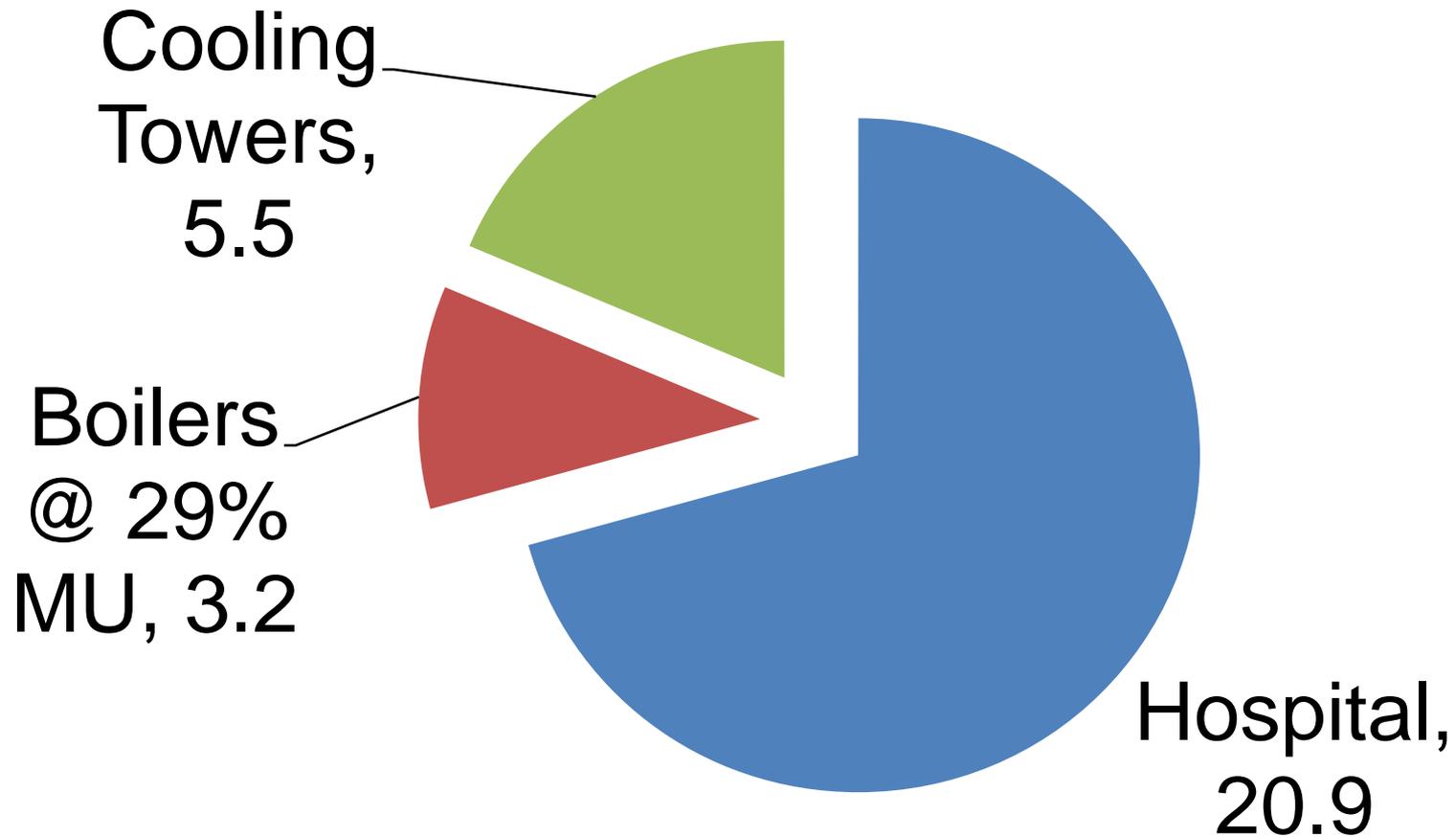
Venting Steam can cost \$100 per day or more; Report all steam and water leaks



# Hampton VAMC Water



# Hampton VAMC Water



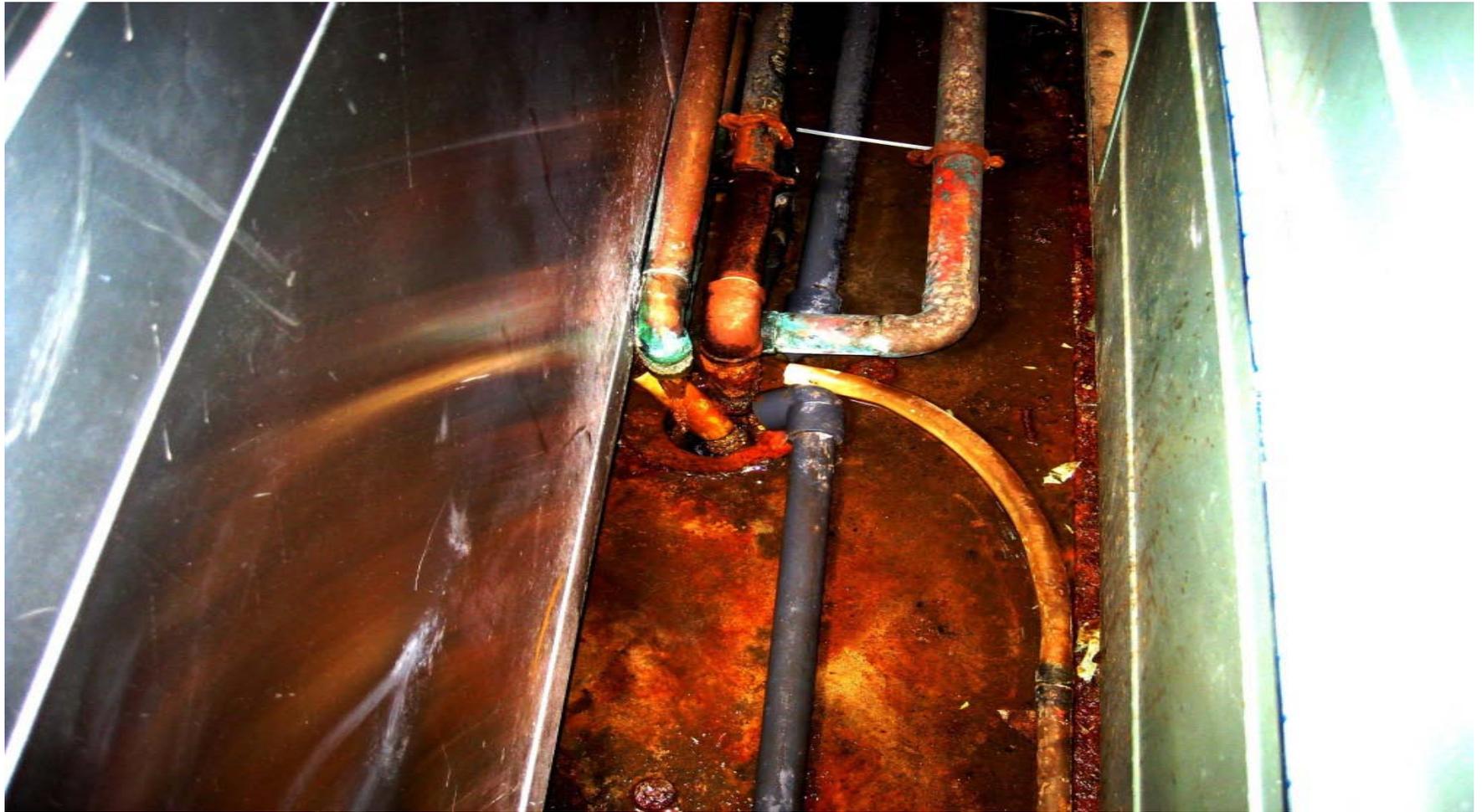
# Water Opportunities

- Water Closets  $\leq$  1.6 GPF
- Urinals 1 pint/Flush (not quite waterless)
- 2.5 GPM Shower Head
- Lavatories Nonclinical Laminar flow
- Hidden Nuggets: Dewatering, Roof Drains, Once through domestic water cooling for equipment, Elevation & Landscaping, MRI RO Waste.
- GSHP – Off Cooling Tower & Boiler

# Once Through Cooling X-Ray Shown



# X-Ray, Kitchen, MRI, Med Gas, Etc



# Energy & Water Savings Opportunities in Hospitals

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