UCLA Water Reclamation System

UCLA
FACILITIES
MANAGEMENT

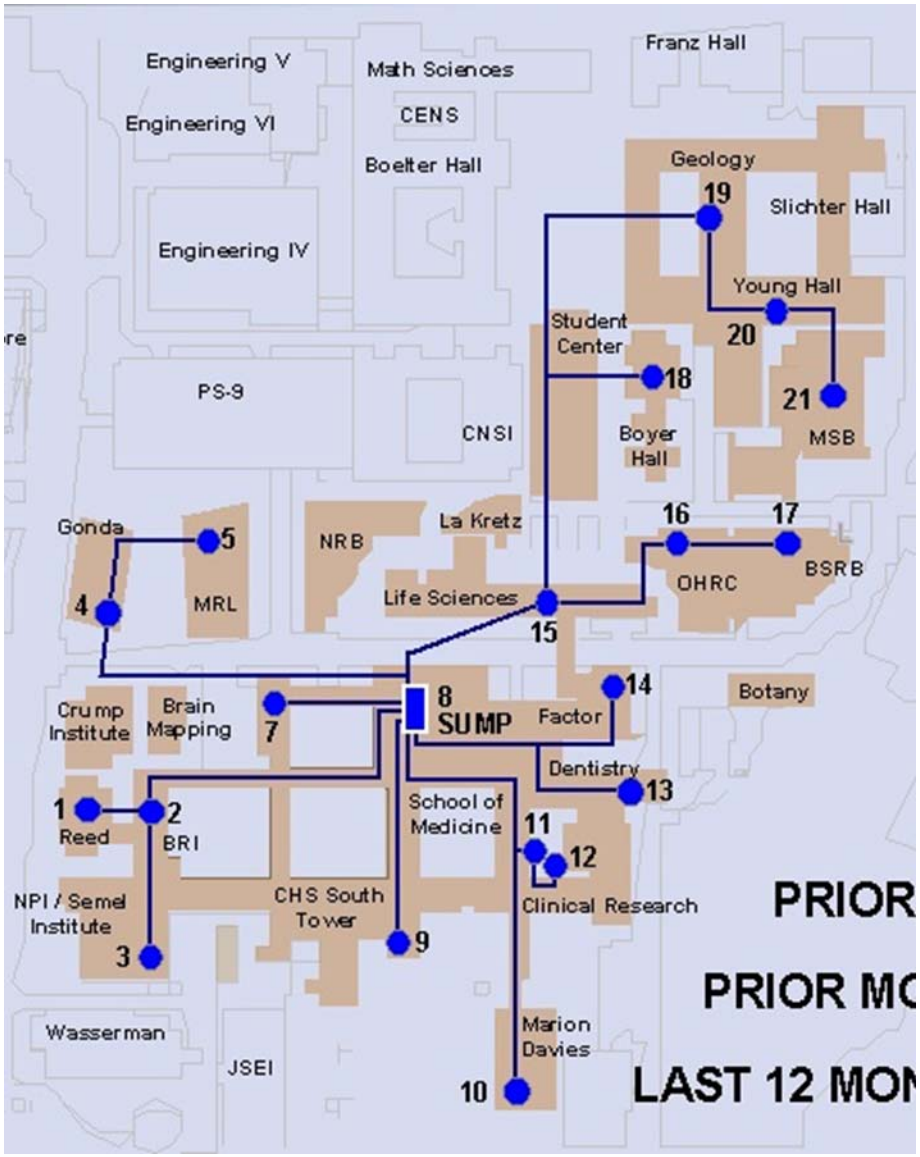
Kelly Schmader
Assistant Vice Chancellor
Facilities Management
UCLA
310-206-4181
kschmader@facnet.ucla.edu

UCLA Water Demand & Mandates

- 419-acre campus with 207 buildings & 25 million GSF
- 31% of buildings are >60 years old
- Daily campus census of 70,000+
- Residential Student Population of 14,000
- Annual Water Consumption = 1 Billion Gallons/Year
- 42 MW Co-Gen Plant accounts for 35% of Water Consumption
- 2011 UC Goal: Cut Water Consumption 20% per capita by 2020
- 2015: CA Water Board revised goal to 36% reduction by 2025

Latest Water Saving Initiative: Expanded Reclamation

- Collection system currently extends to 21 buildings
- Captures water from:
  - Air handlers
  - Vacuum pumps
  - Autoclaves (rinse cycle)



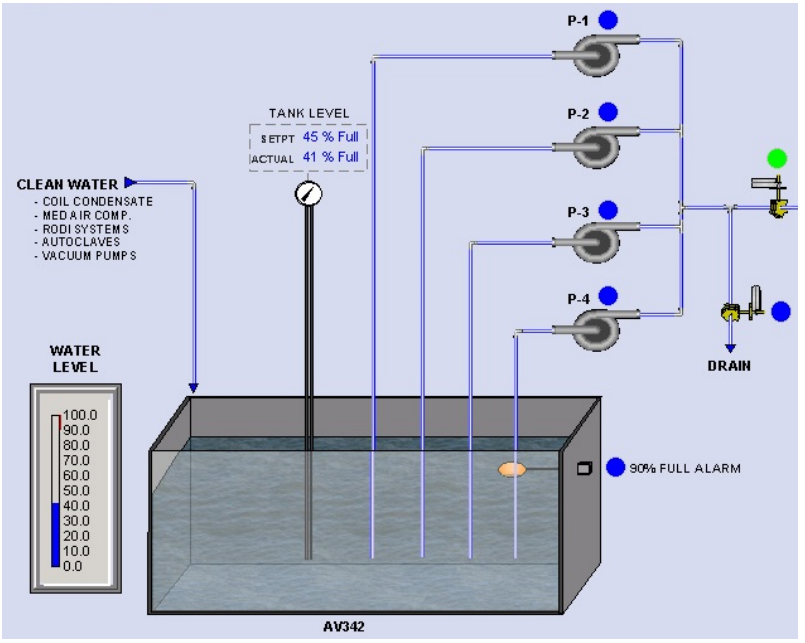
Buildings on water reclaim system

- Gravity fed distribution to centralized receiver tanks.
- 21 receiver tanks @ 100 gallon capacity each.

Typical receiver tank

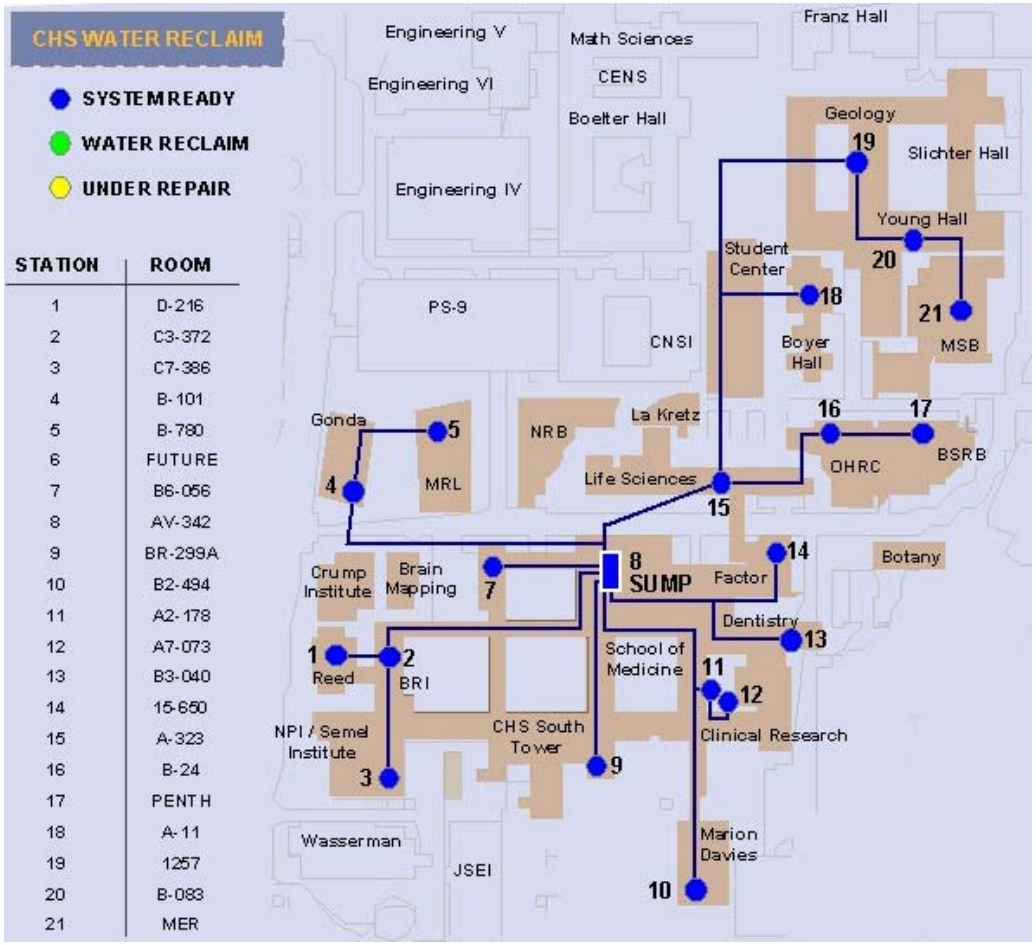
- Receiver tanks pump to a central 63,000 gallon sump.
- Sump pumps to Co-Gen Plant to augment daily water consumption.

Sump tank pumps



Sump tank monitoring system

- Tanks & sump have redundant pumps
- Water in tanks and sump automatically divert to drain if pumps malfunction
- Entire system is monitored via building automation



Receiver tank monitoring system

Water Reclamation Daily Yield

- Current
  - 92,000 gallons/day - low humidity
  - 114,000 gallons/day - high humidity

- Anticipated at Full Build-Out
  - 124,000 gallons/day - low humidity (45 Million Gal/Yr)
  - 150,000 gallons/day - high humidity (55 Million Gal/Yr)

Benefit/Cost Analysis

- $952K expensed to construct current system
- DWP Water purchased @ ~$0.01/gallon ($6.79/HCF)
- Using an avg. of 92,000 gallons/day: 3.1 year payback
- Annual savings after payback >$300K

Other Water Saving Initiatives

Intramural Field Artificial Turf

- Replaced 7.5 acre intramural field with artificial turf
- Water savings = 6.4 million gallons/year

Murphy School/Law School Sustainable Landscape

- Replaced 46K SF of grass panels with drought tolerant plants.
- Water savings = 3 million gal/year

Powell/Humanities Sustainable Landscape

- Replaced 12K SF of grass panels with drought tolerant landscape
- Water savings = 770,000 gal/year

Ronald Reagan Medical Center Dewatering

- Dewatering has been in place since RRMC was built in 2007-2008
- Water processed through RO unit and yields 55,000 gallons/day
- Water savings = 20 million gallons/year

Co-Gen Blowdown Recovery

- Installing RO unit to capture Co-Gen cooling tower blowdown
- Complete by mid-August
- Will recover 50,000 gallons/day
- Water savings = 18.3M gal/year

CNSI RO Water System

- Replaced RO water softener system at California Nano Systems Institute (CNSI) with more efficient chemical injection system.
- Water Savings = 2.2 million gallons/year
- Project cost ~$60,000
- Payback = 2.7 Years.

Questions?