Overview

1. Introduction to the City of Santa Clara
2. Planning and Vision of Recycled Water Use
3. Surrounding Recycled Water Public Improvements
4. Stadium Design, Construction, and Inspections
5. Recycled Water Permitting and Regulatory Process
6. Testing and Operations Process
7. Conclusion and Questions
City of Santa Clara
Statistics

- Location: Silicon Valley
- Population: 118,830
- Area: 19.3 square miles

- Miles of RCW Pipeline: 34
- RCW Active Services: 230
- Avg. Annual RCW Use: 2.8 Million-Gallons per Day
- Recycled Water = 13% of Total Water Sales
Recycled Water Customers

- California Paperboard
- Great America Park
- New Commercial Dual Plumbed Buildings
- Santa Clara University
- DVR Energy Facility
- Rivermark Community
Stadium Overview

- Seating Capacity: 68,500
  - (increase to ~75k for Super Bowl 50)
- Total Cost: $1.3 Billion
- Completion: Summer 2014
Public Improvements

Recycled Water Pipelines:
• Replace ~2800’ Existing Pipeline with New ~3,000’ of 12” and 18” Ductile Iron Pipe
• New 30” Pipeline on Stars and Stripes Dr.

Recycled Water Services:
• 10” for Stadium Dual-Plumbing, Cooling Tower, Green Roof, and Playing Field
• 6” for Perimeter Stadium Landscaping
• 8” for Sewer Pump Station

New Sewer Pump Station:
• Recycled Water Usage for Washdown and Pig Launcher
Estimated Stadium Water Demand

PERCENTAGE OF DEMAND BY WATER TYPE

- Recycled Water
- Potable Water

Total Water for Stadium: 157.4 acre-ft/year
Total Recycled Water: 131.8 acre-ft/year

Source: 2009 49ers Stadium Water Supply Assessment
Planning/Vision

Goal: LEED Gold
“First for Stadium”

- Playing Field Irrigation
- Green Roof Irrigation
- Perimeter Landscape Irrigation
- Cooling Towers
- Toilet and Urinal Flushing
Stadium Design

Environmentally Sustainable:
- Solar Panels
- Green “Living Roof”
- Recycled Materials
- Water Conservative Plumbing Fixtures

Dual Plumbed:
- System Requires 2 Pressure Zones – High Zone and Low Zone
- Restrooms: Over **Twice** as Many Fixtures in Levi’s Stadium vs. Candlestick
Stadium Inspections

• Daily Inspections by City Staff
  • Pipe Clearance
  • Pipe Identification
  • Proper Pipe Material
• Monitoring Temporary Points of Connections
• Proper Tagging and Installation of Non-Tamper Seals
• Documentation of Inspections and Field Reports

RECYCLED WATER FOR TOILETS IN WOMEN'S BATHROOM

RECYCLED WATER BEING CONSTRUCTED FOR MEN'S URINALS
Permitting and Regulatory Approval Process

Challenges/Issues:

- Concession and Restaurant Issues
- Trap Primer Identification
- Signage Locations
  - “All Entryways to Playing Field”
- Sign Design
  - “No Ravens or Vikings Colors”
- Compliance Reporting and Monitoring
- Recycled Water Quality for Playing Field

RECYCLED WATER NOT TO BE USED FOR FOOD AREAS
Testing and Ongoing Operations

Cross-Connection Program:

- **Existing Cross-Connection Test for Dual-Plumbed Buildings:**
  2 Way Shut Down Test
- **Proposed Cross-Connection Test for Levi’s Stadium:**
  One Way Shutdown Test and Differential Test

Benefits:

- Conserves Water from Excessive Flushing and Draining
- Saves City and Stadium Staff Time
  - Staff would only test every water fixture once instead of twice
Testing and Ongoing Operations

“Fixture Verification Test”
- City and Stadium Staff will inspect and test every water fixture in the Stadium for presence and absence of Recycled Water and Potable Water

“Commissioning Plan”
- TDJV drafted QA/QC procedures and checklists

“Super Flush”
- Boy scouts, volunteers, and workers will flush every toilet and urinal and turn on every sink in the stadium for about half an hour to simulate halftime conditions

“Operations & Maintenance”
- Stadium Ops is developing Standard Operating Procedures (SOP) and CMMS
Questions?