Santa Clara Valley Water District recycled water purification facility – completed in early 2014

• 8 million gallons per day of purified water

• Built in partnership – Santa Clara Valley Water District & the City of San Jose

• Serves Silicon Valley
Incoming TDS = 800 ppm
Silicon Valley Advanced Water Purification Center

REVERSE OSMOSIS

0.0001 micron

Outgoing TDS= <60 ppm
Ultraviolet light disinfection
Outgoing TDS = 40 ppm
Lessons Learned From Start-Up and Operations

**Start-up issues**

- **Membranes (Micro filtration, Reverse Osmosis)**
  - Limitations
  - Integration with SCADA
  - Problems
- **Auto Strainers**
  - Backwashing frequency
  - Program changes
- **RO System – Piloting**
- **Limited staffing**

**Long Term Issues**

- MF System – SDI , HMI
- RO fouling
- CIP System
- Material Compatibility
- Spare parts
Start-Up Issues
Micro Filtration

Limitations
- Flux volume
- SCADA compatibility

Integration
- Tags
- Accessibility

Problems
- Set point – Global and individual rack
Start-Up Issues
Reverse Osmosis

- Start-up rejection rate 85%
- Current rejection rate 80%
- Increased Rejection flow requires supply increase from MF.
- MF increase in supply requires Flux increase.
- Unremoved orifice plate on flush line
Long Term Issue MF/RO

• After 5 years of operation we are experiencing failures related to material incompatibility.
  • Influent pump shafting
  • Valves (Sulfuric Acid and Antiscalant)
  • Gaskets (EPDM)
Questions!