Water Reuse in an Industrial Setting

Siemens Water Technologies

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Company Overview

- Siemens Water Technologies
  - Industrial wastewater treatment
  - On-site customer solutions, off-site treatment
  - Hazardous contaminants
  - Committed to efficient, sustainable use/reuse of water
Motivations for Change

- Reduce water usage in Roseville plant
  - Associated cost savings
  - Lessened environmental impact
  - Credibility of treatment solutions

- Project goal to reduce usage by 10-30% through reuse
Approach

• Identify sources of reusable water
  – Quality/quantity
  – Ease of collection

• Identify processes to accept reused water
  – Quantity
  – Limits on quality
Water Source: CWS

- Used to collect and treat various waters for discharge
- Effluent has:
  - High water purity (trace metals)
  - High volume (10,000 gpd)
- System includes holding tanks and discharge pump
Water Source: CWS

- sewer
- reuse
Reuse Potential

CLEANING / TRANSPORT
2,100 gpd

IX REGENS
3,000 gpd

DRYER SCRUBBERS
9,180 gpd
Reuse Area 1: Cleaning/Transport Tasks

- Floor rinsing
- Resin transfer
- Truck rinsing

Currently city/soft water used
No need for high purity water

Savings (per year):
- 525,000 gallons water
- Sewered CWS: $1,480
- Purchased water: $1,476
Reuse Area 2: IX Regenerations

• Remove metals from spent resins
• First step is backwash
  – Removes debris and loosens the bed
  – Lower limits on water purity

Savings (per year):
• 750,000 gallons water
• Sewered CWS: $2,115
• Purchased water: $2,107
Reuse Potential

CLEANING / TRANSPORT 2,100 gpd
IX REGENS 3,000 gpd
DRYER SCRUBBERS 9,180 gpd
Reuse Area 3: Dryer Scrubbers

- Evaporates water from waste sludge
- Scrubber removes particulates from effluent gas
- City water at 3 gpm

3 dryers = 2,295,000 gallons per year = 19% of plant usage
Reuse Area 3: Dryer Scrubbers

- Closed loop with CWS water
  - Collect effluent and return to holding tanks
  - Negligible accumulation of heat/particulates

Annual Savings:

- Sewered water: $6,472
- Purchased water: $5,990
- Treatment: $22,950
Successful Process Changes

• Currently installing first section
  - Includes IX regeneration backwashes, some cleaning/transport processes
  - Est. completion time: 1 month
  - Total water savings: 1,000,000 gallons
  - Total cost savings: $5,630
  - Payback period: 6 months
Personal Benefits

• Excellent learning experience

• Directly impacted facility

• Networking
QUESTIONS?