INNOVATIVE EHRT FACILITY TO HELP ELIMINATE BYPASSES AT SPRINGFIELD'S WWTP

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AGENDA

• Project Background
• Compressible Media Filtration (CMF) Technology
• Design and Construction
• What’s Ahead
PLANNING AND STUDIES

- LTCP submitted to Ohio EPA
  - Collection system conveyance improvements
  - 100-mgd HRT facility at WWTP
- Compliance schedules in NPDES permit
- Advanced facility planning
  - Define wet-weather event characteristics
  - Develop HRT alternatives
  - Develop process design criteria and technical selection criteria (economic and non-economic factors)
  - Select HRT technology prior to final design

HRT technology selected by evaluated bid process
EVALUATED BID PROCESS

Same life-cycle costs (±7%)
Top 5 Differentiators
- No need to increase staffing
- Simplicity of process and operations
- No chemicals required
- Turndown capability
- Dual function potential during dry weather
CMF TECHNOLOGY
EXAMPLE LAYOUT AND CROSS SECTION

Compressible Media Bed

Compressible Media
TREATMENT PROCESS

Filtration process controlled by level and timers
DESIGN AND CONSTRUCTION
A Soggy Day at the Pilot Plant

Multiple wet-weather events. Freezing temperatures.
CMF EFFLUENT AMENABLE TO DISINFECTION

Pilot confirmed 10-minute contact time with low hypo dose
PROCESS FLOW DIAGRAM OF FULL-SCALE FACILITIES

- New Influent Screening
- Degritting
- Existing Primary Settling
- Trickling Filters
- Activated Sludge
- Existing and New Final Clarifiers
- Existing Dry and New Wet Weather Disinfection
- Intercept Up to 100 MGD of CSO Flow for HRT
- Backwash to Primary or Bio Treatment
- Future Tertiary Filtration of Dry Weather Flow
- New WWETCO FlexFilters
CONSTRUCTION OF NEW FACILITIES

Compressible Media Filter
Chlorine Contact Basin
Effluent Pump Station

Headworks
Primary Clarifiers
Trickling Filter
Activated Sludge Process
Disinfection

Wet-Weather Headworks
WET-WEATHER HEADWORKS
WET-WEATHER HEADWORKS (PLAN)

Horizontal raked bar screens, rock box and control gates
WET-WEATHER HEADWORKS (SECTION)
INSTALLATION OF FILTER INTERNALS - BLADDER
INSTALLATION OF FILTER INTERNALS – TOP PLATES
BACKWASH DESIGN

- Peak backwash return rate of 9 mgd
- 130,000 cf of backwash storage
- Backwash return to:
  - Primary effluent
  - CMAS basin influent
- Peak backwash return rate is solids based
INTERMITTENT OPERATION

- Freezing concerns
- Self draining
- Accessible for cleaning
- Disinfection for filter layup
TURNDOWN CAPABILITY

- Turndown only limited by minimum hypo feed rate, which can be compensated with bisulfite feed.
- Other HRT alternatives typically limited by coagulation chemical feed system turndown.
- Additional cells can be quickly brought on line.
REMOTE OPERATION

• Fully automated PLC based control system
• Integrated into existing plant SCADA system
• Limited amount of equipment
  • Blowers
  • Electrically operated gates and valves
  • Sodium hypochlorite and sodium bisulfite feed systems
  • Effluent pumps
• No coagulation and flocculation processes to optimize
WHAT’S AHEAD
NEARING COMPLETION OF CONSTRUCTION AND STARTUP IN SPRINGFIELD

- **August 2012**: Began Construction
- **December 2014**: Complete Startup
- **June 2015**: Meet Final Effluent Limits
RECENT DEVELOPMENTS OUTSIDE OF SPRINGFIELD

- March 2013 - Blending upheld by 8th Circuit Court in *Iowa League of Cities v. EPA*
- August 2013 - New WEF planning guidance
- June 2014 - USEPA Experts Forum on Public Health Impacts of Wet Weather Blending favorable toward EHRT
- July 2014 - NPDES permit with EHRT renewed for Lawrence, Kansas. Outside 8th Circuit.
- August 2014 - New WEF design guidance
- August 2014 – *Center for Regulatory Reasonableness v. USEPA* filed in DC Court of Appeals
THANK YOU!

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WWETCO
Simplified Wet Weather and Tertiary Treatment.

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