

Water Quality Roundtable 2000

Wastewater Operations

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Revised 2005.



- PRETREATMENT REPORTING
- TERRA COTTA WWTP
- ICP FOR METALS
- MONTHLY TO EPA T.C. IND.



NPDES Permits

National Pollution Discharge Elimination System

- Honor System
- Minor vs Major
- Primacy



NPDES Permits

- Regulated pollutants
 - CBOD₅-5 Day Carbonaceous Demand
 - TSS-Total Suspended Solids
 - NH₃-Ammonia
 - PH
 - FC-Fecal Coliform
 - TRC-Total Residual Chlorine
 - Temperature
 - Phosphate

NPDES Permits

- Discharge Monitoring Reports/Excursions
- Primary Treatment
 - % removal of pollutants
- Secondary Treatment
 - 90% removal of pollutants
- Tertiary Treatment
 - 95% removal of pollutants



NPDES Permits

- Sample collection frequency
 - Quantity of samples collected is usually dictated by the NPDES Permit Rated Capacity
 - There are Federal Regulations that allow for reduced sample frequency for plants that are running well
 - Grab vs. Composite



NPDES Permits

- Operator Requirements
 - Class I - Activated Waste 1.0 MGD or higher-8 years experience
 - Class II - Activated Waste 1.0 MGD or less-6 years experience
 - Class III - Fixed Film and Imhoff 1.0 MGD or less -3 years experience
 - Class IV - Lagoons-1 year experience
 - Class K - Industrial



NPDES Permits

- Disinfection
 - Chlorine, Ultra-violet, Ozone
 - Seasonal Disinfection vs Year-Round Disinfection Exemption
 - Cryptosporidium
 - Viruses



NPDES Permits

- Sludge
 - USEPA 503 Regulations
 - Vector Attraction
 - Metals
 - Fecal Coliform
 - IEPA Regulations



Types of Sewage Treatment Plants

- Contact Stabilization
- Single Stage Nitrification
- Extended Aeration



Typical Unit Processes

- Preliminary-Grit Chamber, Screening, Pre-Chlorination
- Primary
- Secondary
- Tertiary
- Disinfection
- Sludge



Laboratory

- Codified Federal Register (CFR) governs not Standard Methods
- Wastewater Fecal Coliform holding time vs. Water Fecal Coliform holding time
- PH and TRC have to be immediately, Fecal Coliform has to be within 6 hours and CBOD₅, TSS and NH₃ can be preserved.
- Bio-Monitoring

Laboratory

- Effluent Metals
- Process vs NPDES



Operational Issues

- Odors
- Power Interruptions
- SCADA/CADAS
- Infiltration & Inflow (I & I)
- CSOs (Combined Sewer Overflows)



Future Regulations

- TMDLs-Total Maximum Daily Load
- Ammonia
- Anti-Backsliding



CHICAGO METRO CURRENT W.W. TREATMENT FACILITIES

- ARBURY .62 MGD
- CHICKASAW .70 MGD
- DERBY MEADOWS .9 MGD
- ESSINGTON .4 MGD
- NETTLE CREEK .088 MGD
- OAK VALLEY .75 MGD
- RIDGECREST .1 MGD
- RIVER GRANGE .008 MGD
- SANTA FE 1.0 MGD
- TERRA COTTA .1 MGD (1.0 MGD)
- VALLEY MARINA .25 MGD
- GILBERTS O&M 1.0 MGD (2.0 MGD)

TOXICITY TESTING

- SANTA FE ANALYTICAL LAB
- ACUTE & CHRONIC TESTING
- CERODAPHINA
- FATHEAD MINNOW
- SURVIVAL RATES LC50



ANNUAL SLUDGE 503 REPORT

- DUE BY FEBRUARY 19TH
- MAJOR WWTP AFFECTED:
- DERBY MEADOWS & SANTA FE
- METRIC TONS SLUDGE PRODUCTION
- METALS CONCENTRATIONS
- SYNAGRO & ARRO LABORATORY



VADARS +PLUS REPORT

- WWTP OPERATIONAL DATA
- LABORATORY DATA
- RAW & FINAL EFFLUENT
- NETWORKED TO FACILITIES
- RESULTS AVAILABLE DAILY
- EVOLUTIONARY DESIGN



ILAWC /CHICAGO METRO WASTEWATER OVERVIEW AND UPDATE 2005

- 2000 WATER QUALITY ROUNDTABLE
- MARVIN J. STRONG P.E.
- 2005 WASTEWATER OVERVIEW
- THOMAS W. CHINSKE W.Q. SPECIALIST
- UPDATES: PERMITS, ANALYTICAL TESTING, FACILITIES, COMPLIANCE REPORTING, SPECIAL CONDITIONS
- QUESTIONS? QUESTIONS?