20th Annual New England Pretreatment Coordinators Workshop
October 24-25, 2018

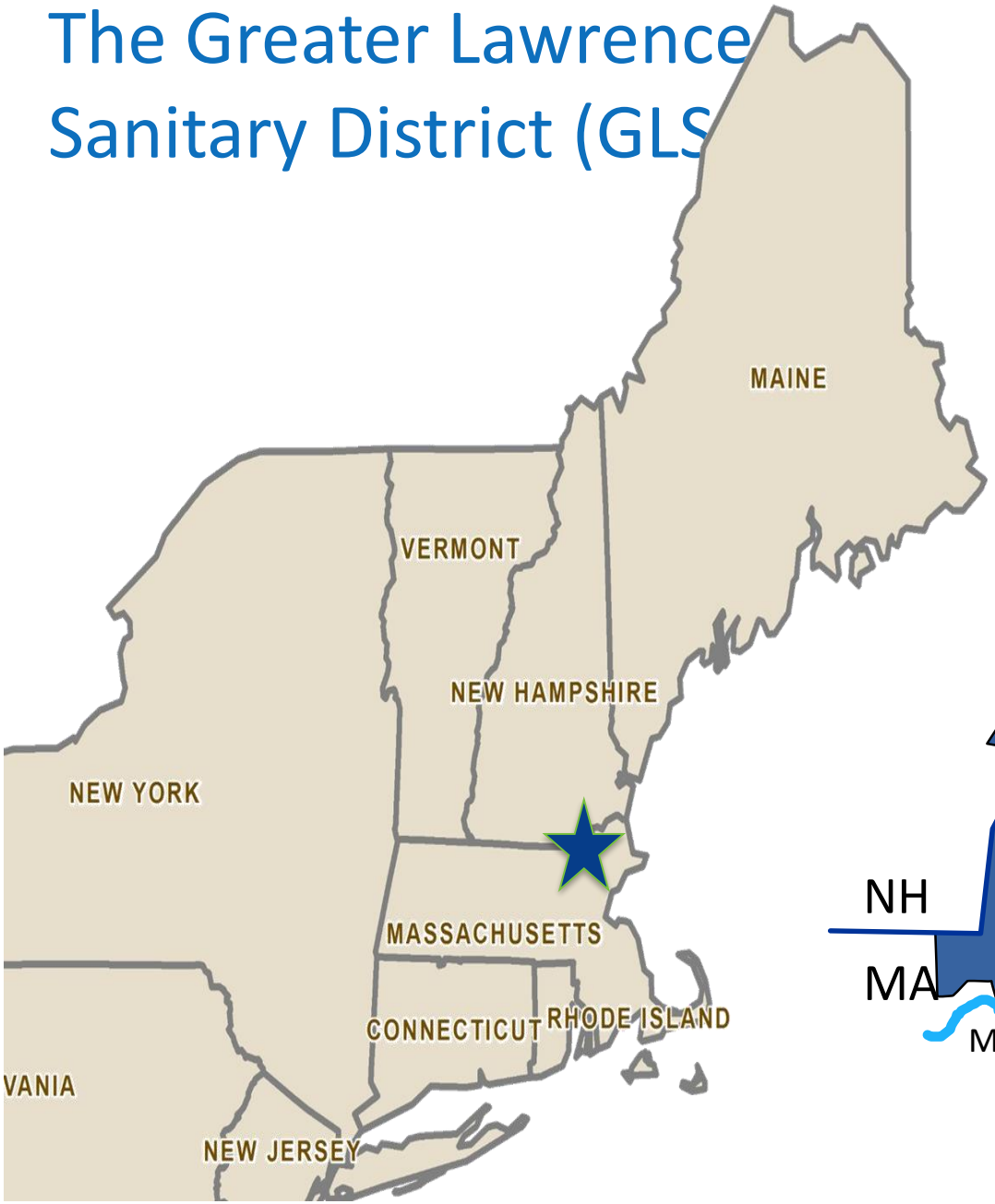
Industrial Pretreatment Inspections

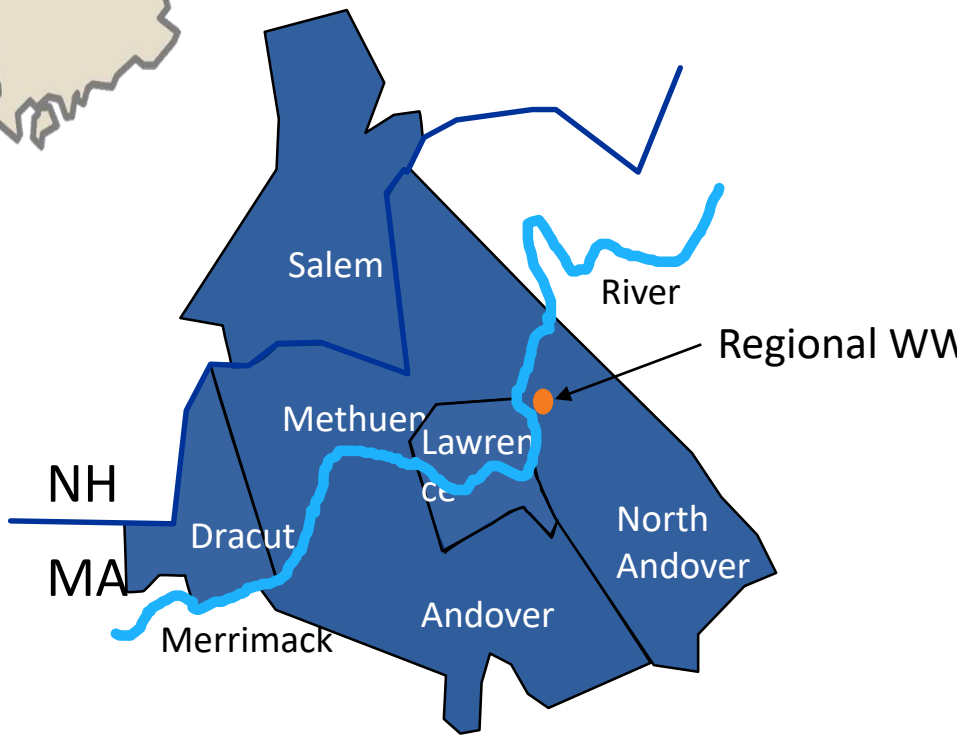
GREATER LAWRENCE SANITARY DISTRICT
August 9, 2018

BACKGROUND

- Established by Massachusetts Legislation in 1968
- Operational Since April 1977
- Governed by a Board of Commissioners
- Second largest WWTP in Massachusetts (52 MGD design / 135 MGD peak design)
- Interceptors along Merrimack & Spicket Rivers
  - 9 Miles
  - 24” through 108”
- Riverside Pump Station
  - 2 - 800 HP pumps
  - 2 - 1,250 HP pumps

The Greater Lawrence Sanitary District (GLS





Industrial Users

- 33 total

- 12 SIU's
- 11 CIU's
- 7 ZD/ CIU's
- 2 ZD/SIU's
- 1 GW

Types of Industries

- Bakeries
- Metal Finishers
- Medical Device Manufacturers
- Drug Manufacturers
- Commercial Laundries
- Personal Hygiene Products
- FOG Processor
- Defense Contractors
- Hospitals
- Drinking Water Treatment Plants

Inspections

Relevant Information

- Inspector: Gadget
- Company: XYZ Metal Finishing
- 387 Industrial Ave
- North Andover, MA 01845
- Contacts: Mike Roberts 888-111-7777, Jim Calhoun
- Phone: 888-111-9999
- Email: XYZMetal@gmail.com
- 40 CFR #: 433
- Date of Last Inspection: 3-2-18 Type: Unannounced Site Visit
- Owner of Property: Industrial Ave Realty
- Primary Concern of Business: Metal Finishing

Permit #’s, Flows, Number of Employees

- Industrial Discharge Permit # 433-17
- Date Permit Issued: 6-22-18 Date Permit Expires: 6-21-20
- Max Permitted Flow (GPD): 18,000   Monthly Avg: 16,050
- Number of Employees: 25 Shifts/Day: 1.5 Days/Week: 5-6
- Vacation or Maintenance Shutdowns: Xmas and July 4 week
- Average Recent Flow Rate (GPD): 15,000
- Is the Facility Operating at Full or Partial Production: Partial
- Water Source(s): Well and Public both are metered. Well is for wash-downs and public is for production and sanitary uses.
- Billing Authority: Industrial Ave Realty

Safety and Environmental Control Permits

- Safety shoes, eye protection and gloves are required to tour facility

- Permits:
- NA Fire Dept. Flammable Storage #3871
- EPA Waste Generator # MA 0000 0382

Process Descriptions

- Total # of Processes: 4
- Total Flow Rate: 18,000 GPD
- Overall Percentage: 75% Wet, 25% Dry

- Process #1: Wet: X Dry: Flow Rate: 5,000
  - Copper Plating: Electrodeposition of copper onto metal and alloy parts
- Process #2 Wet: X Dry: Flow Rate: 5,000
  - Nickel Plating: Electrodeposition of nickel onto metal and alloy parts

Process Continued

- Process #3: Wet: X Dry: Flow: 5,000
  - Zinc Plating – Immersion and Electrodeposition of zinc onto metal and alloy parts
- Process #4: Wet: Dry: X Flow: 0
  - Painting – Parts are painted

Major Chemicals into Process

- Process #1: Copper Plating

  - Process Description: Wet
  - Chemicals into Product: Copper, Cyanide, Sulfuric Acid
  - Product Produced: Yes: X No: Type: Plated Parts
  - Hazardous Waste Produced: Metal Hydroxide Sludge, Filters
  - Non Haz Waste Produced: Rinse Water (Treated)

Major Chemicals into Process

- Process #2: Nickel Plating

  - Process Description: Wet
  - Chemicals into Product: Nickel Chloride, Sulfamate Nickel
  - Product Produced: Yes: X No: Type: Plated Parts
  - Hazardous Waste Produced: Metal Hydroxide Sludge, Filters
  - Non Haz Waste Produced: Rinse Water (Treated)

Major Chemicals into Process

- Process #3: Zinc Plating

  - Process Description: Wet
  - Chemicals into Product: Zinc, Sodium Hydroxide
  - Product Produced: Yes: X No: Type: Plated Parts
  - Hazardous Waste Produced: Metal Hydroxide Sludge, Filters
  - Non Haz Waste Produced: Rinse Water (Treated)

Major Chemicals into Process

- Process #4: Painting

  - Process Description: Dry
  - Chemicals into Product: Paint
  - Product Produced: Yes: X No: Type: Painted Parts
  - Hazardous Waste Produced: None
  - Non Haz Waste Produced: Filters, Wipes, Excess Paint

Monitoring Devices

- Type of Flow Monitoring Device: Paddle Wheel
  - Are Flow Logs in Order: Yes: X No:
  - Is Flow Monitor Functioning Properly: Yes: X No:
  - Calibration Frequency: Yearly Date: 6-28-18
  - Is Flow Chart Installed: Yes: X No:
  - Is Bypass Present: Yes: No: X
  - Flow is Reported In: GPM
  - Conversion Factor to Yield GPD: Totalizer

pH Monitoring

- Process/First Stage
  - Is Device Installed? Yes: X No:
  - Is it Functioning? Yes: X No:
  - Calibration Frequency: Weekly Date: 10-22-18
  - Alarm Set Points: High 10.5 Low 6.5
  - Alarm Systems Operating Correctly: Yes: X No:
  - Comments: Audible and Visual alarms

pH Monitoring

- Final Effluent Monitoring
  - Is Device Operating Correctly: Yes: X No:
  - Calibration Frequency: Weekly Date: 10-22-18
  - Alarm Set Points: High: 9.5 Low: 6.5
  - pH Alarms Operating Correctly: Yes: X No:
  - Is pH Recording Chart Installed: Yes: X No:

  - Comments: Audible and visual alarms with automatic shut off valve if pH is not in set point range. All pH monitors are calibrated every Monday.

Sampling

- Sampling Accessibility: Yes: X No:
- Confined Space: Yes: No: X
- Manhole: On Site: Yes Off Site:
- Sample Location: Spigot on the effluent pipe
- Type of Sample: 24 Hour Comp: X Batch:

Waste Treatment

- Are Pretreatment Facilities Provided? Yes: X No:
- Flow Monitoring, Equalization, Metal Precipitation, Membrane Filtration, Sludge Dewatering, Segregation, pH Neutralization, Cyanide Destruct

- Consultant: JPS, Inc. John Sullivan
- Is There a Compliance Schedule in Place: Yes: X No:
- If Yes, Why? Multiple Zinc Violations

Types of Waste Treatment

- Cyanide Destruction
  - pH/ORP Date of Last Calibration: 10-22-18
  - Chemical Addition: Sodium Hypochlorite, Sodium Hydroxide, Sulfuric Acid
  - This is a two stage continuous flow system.

- Sludge Dewatering
  - Plate/Frame Polymer Addition: No
  - Two presses on site. Sludge is stored in totes for shipment.

Waste Treatment

- Metal Precipitation
  - pH/Date of Last Calibration: 10-22-18
  - Evaporator on Site? No
  - Clarifier? No
  - Micro filtration system
- Wet Scrubbers
  - Number of Units: 4 2 Acid, 2 Cyanide
  - Discharge Point: Waste Treatment
  - Flow: 8 GPM Combined

Filters, O+G Separators

- Deionization, Reverse Osmosis, Ultrafiltration, Particle Filters
  - How many of each?
  - Used for waste treatment or incoming water?
  - Regenerated or shipped off site?

- O+G Separators
  - Degreasers, Grease Traps
  - How many?
  - Service schedule?
  - Are they bypassing?

Walk Through

- How many operators? 3 Certifications: (2) 4 I, (1) 3I

- Are log books in order? Daily, pH and flow charts.
- What to look for:
  - Clarifier and Effluent Weir clean
  - Chemical Addition System properly marked, floor drains
  - Chemical/Waste Storage Areas properly marked, floor drains
  - Leaking Tanks, Cross Connections, Questionable Plumbing, Hoses, and Drains, Dilution, Bathrooms

Walk Through

- Boiler Blowdowns: Number of Units and GPD
- O+G System
- Sludge Press and Sludge Storage Area
- Solvent Cleaning & Recovery
- Drag Outs
- Housekeeping in Overall Facility
- Are All the Tanks Properly Marked
- Signage for Storage Areas

Record Keeping, Compliance, and Enforcement

- Are they in compliance with all their permits?
  - Any enforcement action by any agency, in place or pending?
- List of Pollutants and Inventory of Raw Materials
  - Date Received
  - Update Every Two Years or as Necessary
- Has S.A.R.A. regulations been complied with?
  - Agencies reporting to? EPA, DEP, City/Town
  - Tier I, II, and Form R
- Waste Treatment Area and Facility Sketches on File
  - Are they up to date?

Slug/Spill Control and Prevention Plan

- Slug/Spill Control and Prevention Plan
  - Date Received
  - Update Every Permit Renewal
- Response Team on Site?
  - Training/Meetings
- Emergency Response Numbers Posted
  - Police/Fire/Hospital 911 and Business Line
  - Sanitary District
  - Environmental Cleanup Team

Chemical and Waste Storage Area

- Chemical and Waste Storage Area
  - Containment? Berms, Ramps
  - Floor Drains?
  - Hauler?
  - Log Book?
  - Potential for Spills?

- Liquid Bulk Storage
  - Size, Age, Contents of All Tanks
  - Are the Tanks Properly Marked

Final Questions

- Any process changes since last inspection to reduce waste generation or emissions to any media?
- Does the facility have a policy for pollution prevention and waste minimization?
- Does the facility have a Toxic Use Reduction Plan in place?

Discussion & Questions

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