



“Evolution of Industrial Pretreatment Programs”

*John P. O’Hare and Molly Rounds
October 25, 2017*



Veolia Organization

- World's leading environmental company

- *\$29.6 billion in annual global revenue*
- *180,000 employees*
- *Euronext: VIE*

- North American leadership

- *\$2.2 billion in annual revenue*
- *7,900 employees*
- *Municipal & Commercial and Industrial businesses*

- *Engineering News Record* and other rankings

- *No. 1 ranking as largest All-Environmental Firm*
- *No. 1 in water partnerships*
- *No. 1 in district energy*
- *No. 1 in core industrial cleaning market*
- *Leadership in hazardous waste market*

Resourcing the world  **VEOLIA**



Veolia Globally



North America

Veolia North America includes 8,000 employees serving 550 communities and 30,000 customers in the U.S. and Canada who are organized into our two main businesses, Municipal & Commercial and Industrial.

Worldwide

Veolia includes 163,000 employees, provides 100 Million Gallons Drinking Water, provides the treatment of 61 Million Gallons Wastewater, produces 54 Megawatt Hours of Energy, converts 30 Million Tons of Waste

Veolia North America



ENERGY



From managing heating and cooling networks for cities and universities to providing consulting services, we are a leading operator and developer of sustainable, energy efficient solutions.

WATER



From treating water and wastewater for cities to recovering valuable materials for industry, we are the world's leading provider of water services and technologies.

WASTE



From hazardous waste to commercial waste like fluorescent lamps and batteries, we provide responsible waste solutions, emphasizing the recovery of product from waste to help preserve diminishing resources.

A Little Trivia – Then and Now



- *The Federal Register was first published in 1936*
- *Activated Sludge turned 100 years old April 4, 2014*
- *Most American car horns honk in the key of “F”*
- *Every time you lick a stamp, you consume 1/10 of a calorie*
- *The average person falls asleep in seven minutes*
- *The electric chair was invented by a dentist*
- *The average person spends 6 months of their life sitting at red lights*
- *In 1778, fashionable women of Paris never went out in blustery weather without a lightning rod attached to their hats.*
- *The first product to have a bar code was Wrigley’s gum. The citrus soda 7-UP was created in 1929; '7' was selected after the original 7-ounce containers and 'UP' for the direction of the bubbles.*
- *The inventor of WD40 finally created the formula at the 40th try.*

Food for Thought



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- *You have on average 18 minutes to deliver your message in a presentation.*

Biochemical Oxygen Demand Test



The Royal Commission on River Pollution, which was established in 1865 and the formation of the Royal Commission on Sewage Disposal in 1898 led to the selection in 1908 of BOD₅ as the definitive test for organic pollution of rivers. Five days was chosen as an appropriate test period because this is supposedly the longest time that river water takes to travel from source to estuary in the U.K.. In its sixth report the Royal Commission recommended that the standard set should be 15 parts by weight per million of water.

Now in Europe Chemical Oxygen Demand (COD) is more widely used.

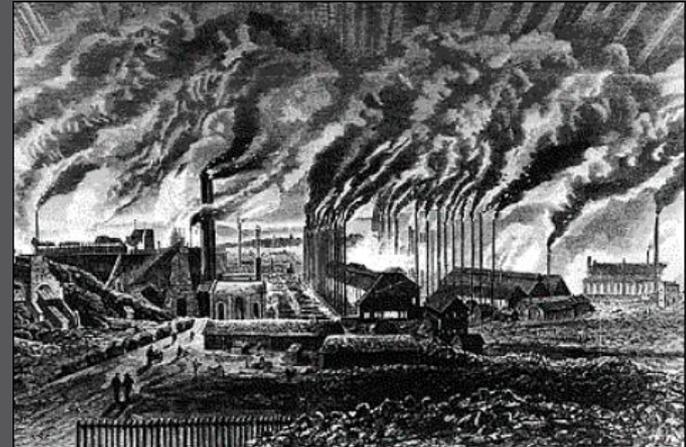
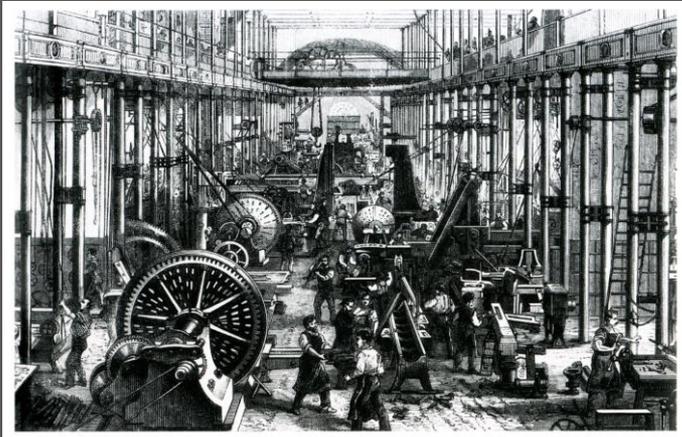
Pretreatment Programs



The goals of the Pretreatment Program is to prevent the introduction of industrial pollutants that result in:

- Pass through of the wastewater treatment plant;*
- Interference of conveyance or treatment of the wastewater;*
- Creating an ignitable or toxic environment in the sewer system; and,*
- Degrading biosolids quality.*

The Industrial Age and Today



EPA New Performance Measures



Program Performance Measures

US EPA Pretreatment Performance Measures August 2013

Name:	Performance Measures								
	Control Emerging Pollutants	STUs Voluntarily Zero Discharge	High Quality Biosolids	Full Compliance - LIs & Cal. Sids.	Correct Permits & Representative Samples	Interference or Pass Through	SSOs Associated with Nondomestic Users	PH Problems & Observed Corrosion	Explosions & Hazardous
Environmental, Public Health, and Asset Management Benefits									
Health & Safety Protection									
Continuity of Service									
Protection Against POTW & Collection System Failure									
Decreased Costs Replace & Repair Assets									
Protection Receiving Water Quality (Reduced Cleanup Costs)									
Decreased Enforcement Action Cost to POTW									
Decreased Possibility Enforcement Action Against POTW									
Cost Savings to Nondomestic Users									
Reduced Monitoring & Oversight Costs POTW									
Cost Savings Sludge Removal and Reuse Practices									
Prevention of Litigation from Outside Parties									
Positive Public Relations									

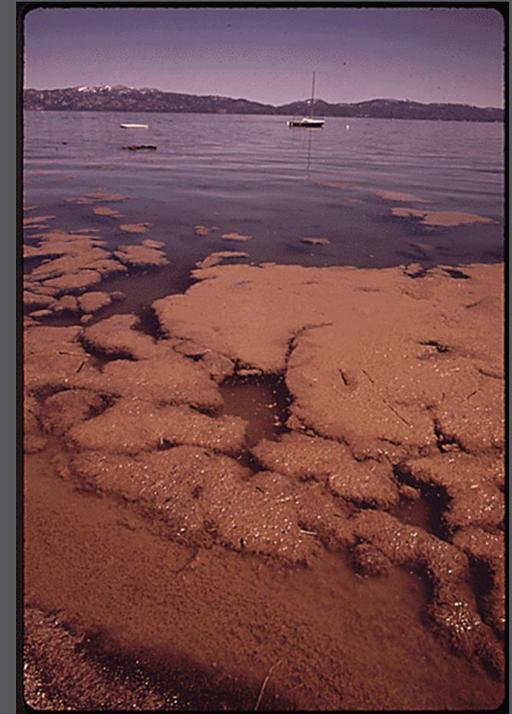
Industrial Wastewater and Air Pollution



Our Nations Water Ways – 1970's



Pollution of Rivers and Streams



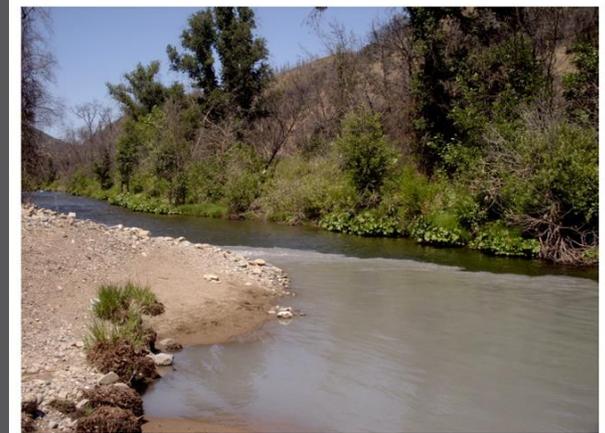
Our Nations Water Ways Today



Pollution of Rivers and Streams - -2017



Plume from French Creek flowing into Clear Creek.



Mine tailings from the 2006 spill flowing from French Creek into Clear Creek.

History of Pretreatment Regulations 1978 - 2012

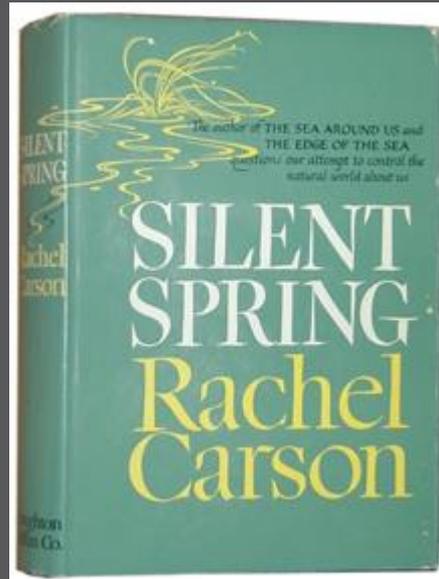
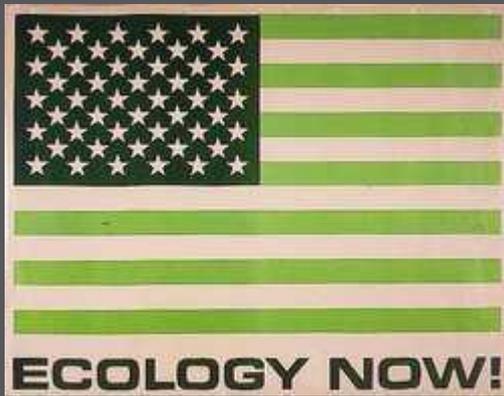


Pretreatment Regulations

Pretreatment Regulations

- 1973 – 40 CFR Part 128 promulgated
- 1978 – 40 CFR Part 403 promulgated
- 1982 – EPA’s criminal enforcement program established and was granted full law enforcement authority by Congress in 1988.
- 1983 – POTW program approval deadline
- 1985 – Pretreatment Implementation Review Task Force (“PIRT”) report released
- 1986 – Domestic Sewage Study (DSS) Report to Congress
- 1988 – PIRT Rules promulgated
- 1990 – DSS regulations promulgated
- 1993 – Removal credit/pollutant eligibility revised
- 1997 – Program Modification Regulation Streamlined
- 2005 – Pretreatment Streamlining Regulations
- 2008 – MOU with the American Dental Association (ADA) and the National Association of Clean Water Agencies (NACWA).
- 2012 - Environmental Protection Agency 40 CFR Parts 403 and 441 Effluent Limitations Guidelines and Standards for the Dental Category; Proposed Rule

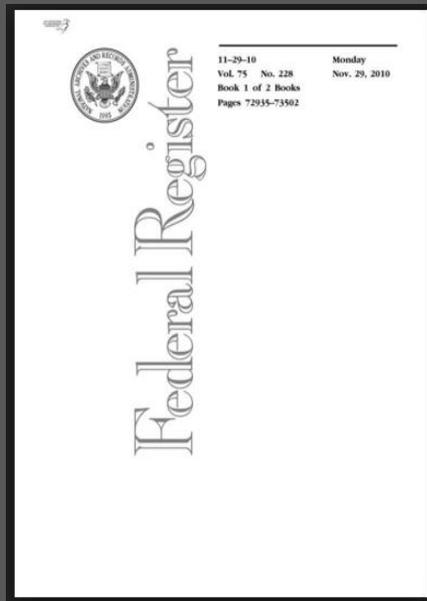
The Ecology Movement



Publishing of Environmental Regulations



Federal Register – Hard Copy



Generations < 1945 - Present



Sociology experts class those born in or before 1945 as the Silent Generation; people born between 1946 and 1964 as Baby Boomers; those born between 1965 and 1980 as Generation X; anyone born between 1980 and 2000 as Millennials.; and Generation Z in 2000 to present day.

- Each has its own style and work habits
- How do these generations work together and the patience for their differences.
- How do we train for the future?
- What is next? Molly Rounds

Just Say Yes' Molly Rounds



- *Toxic Organic Management Plans (TOMPs) are not good for life. They need to be re-evaluated on some frequency and/or testing performed*
- *Mail Fraud is the easiest and quickest environmental prosecution*
- *During the IPP Annual Report preparation Local Limits need to be re-evaluated for effectiveness*
- The Domestic Sewage Exclusion (DSS Hazardous Waste - February 1986) does not extend to wastes which are transported to the POTW by truck, rail, or dedicated pipe and which do not mix with domestic sewage sludge
- DSS required the one-time notification submitted by industrial user (IUs) for individual hazardous waste being discharge to POTW. New IUs as well. Make sure your files contain these submissions.

Just Say Yes' Molly Rounds



- *All Approved Pretreatment have the same requirements and legal responsibilities. Voluntary Programs do not.*
- *A large number of IPP's in the U.S. are implemented by private consultants and engineering companies.*
- *User lists, baseline monitoring reports, chemical inventories, comprehensive waste surveys, and confidential files are still required today.*
- *Discharge pH cannot be regulated continuously unless specified in the Sewer User Ordinance or Rules and Regulations*
- *All Pretreatment Programs must maintain hardcopies of pertinent records for 3 years. Emails are acceptable records. (Federal Records Act, 44 U.S.C. 3101 et seq)*

Just Say Yes' Molly Rounds



- *Critical functions of an IPP include the ability to interrupt decision making, characterization of sampling results, regulations and standards.*
- *IPP private contractors cannot issue fines and penalties to other private companies unless you are in Louisiana.*
- *Portable Samplers are to be maintained in their original condition for 3/8" ID tubing, within 15' suction lift, 4 fps suction, container temperature control, secured, and volume required based on all of the samples being monitored.*
- *The "Great Fire of 1995" at the Malden Mills 13 building complex burned for 5 days and required 10 million gallons of water to put the fire out. The Greater Lawrence Sanitary District received all of this wastewater while maintaining compliance with the its NPDES Permit.*

Just Say Yes' Molly Rounds



Things That Don't Change:

- *Very emotional world of Business and Regulatory. As an IPP Inspector you cost businesses money.*
- *Industrial User miss speak or lie. Remember that a lie is not a lie unless you can figured it out!*
- *Slug/Spills occur without notification*
- *The possibility of a "Third Party" law suit for failure to implement an IPP is very real today. Consider conducting internal audits.*
- *Industrial User still have the responsibility to determine their own compliance from monitoring results unless the POTW performs the analysis.*
- *Finally the end for Molly!!!*



Program Requirements – All but forgotten



Industrial User List Process – Don't be caught being complacent

Domestic Sewage Exclusion – 40 CFR Part 430.12(p) requires a one time report for each hazardous waste discharged to a WWTP and 40 CFR Part 403.12(j) requires a one time report of any substantial change (20 % or greater) in volume or character for each listed or characteristic hazardous waste discharged.

Baseline Monitoring Reports – required for Categorical Industrial Users before any discharge can occur. This is a challenge today.

Comprehensive Waste Surveys – two (2) comprehensive analysis of a proposed IUs wastewater treatment system which is submitted with the Engineering Reports, Plans, and Specifications. Effluent Limitations Guidelines and New Source Performance Standards for the Metal Products and Machinery Point Source Category.

Sewer Use Ordinances, Rules and Regulations, Intermunicipal Agreements – a thorough knowledge of these documents will prevent an embarrassing situation during a PCI, PCA, request to discharge.

Writing and Documentation Skills – Everyone can learn or re-learn these two skills.

U.S. EPA Inspection Requirements - Judgment



- Thorough Approach
- *The first priority is to be compliant with the regulatory requirements*
- *Make sure that your User List is up to date. There is nothing worse than*
- *A complete and thorough industrial user inspection based on EPA and State guidance is critical - Covers all areas including a walk or drive around the site.*
- *Develop a script and forms for conducting an industrial user inspection.*
- *Do you have the ability to conduct an inspection under the watchful eyes of your Manager, EPA or State regulators?*
- *Do your files contain complete, legible, and accurate inspections forms for each IU?*
- Haphazard Approach
- *Incomplete or poorly performed IU inspections can have lasting ramifications. Could lead to enforcement actions; Notices of Violations, Administrative Orders.*

How about a Question



The Burning Question - It is late in the day on Friday and City Hall calls you to request, can you accept 20,000 gallons of aged “Fire Fighter Foam” from the Airport Fire Station? The information says that it is safe for disposal after all the pH is 7.85 – 8.35 s.u.

The link to Safety Data Sheet [SDS for Vucan 1% AFFF.pdf](#)

Can you evaluate the impact of accepting this waste on the collection system, worker safety, wastewater treatment plant, water reuse, sludge disposal?

What are your questions?

What is your decision which could be challenged?

Another Question - Decision Making



Question: An unknown Categorical Industrial User has opened in your community and is calling to report there was a spill which the fire department suggested they call the WWTP. What and Who!

What are your questions

- Who is this industry?*
- Why did they not notify the local agency?*
- How should I proceed?*

Should you notify

- Notify the EPA or the State?*

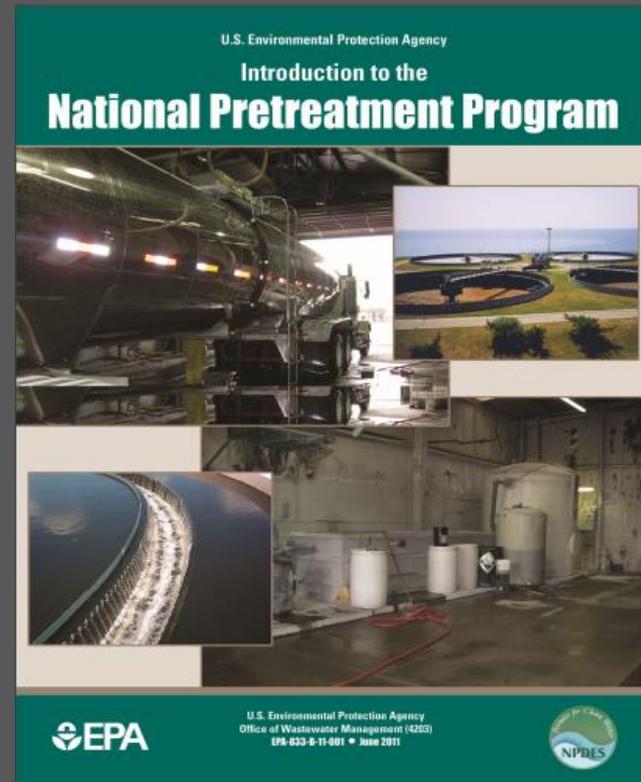
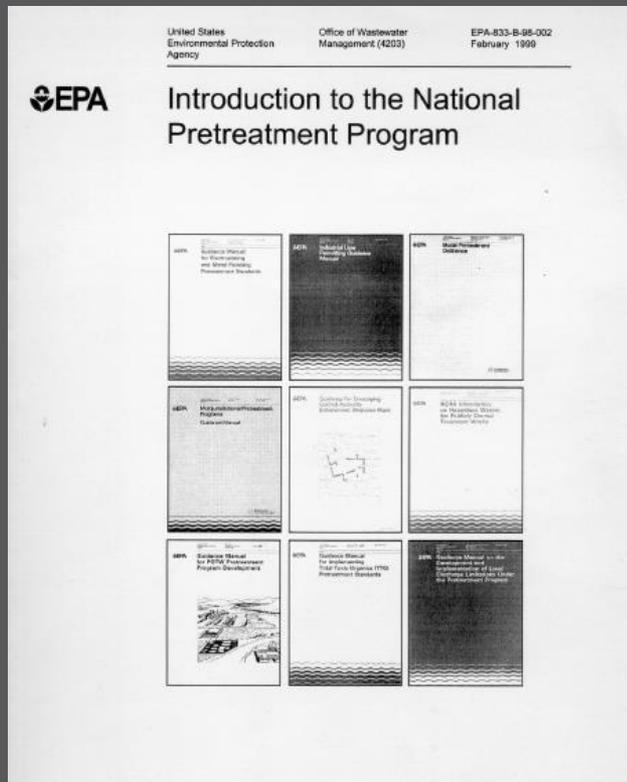
What are the ramifications

- With your local elected officials?*
- What are business advantages for not complying with environmental regulations?*

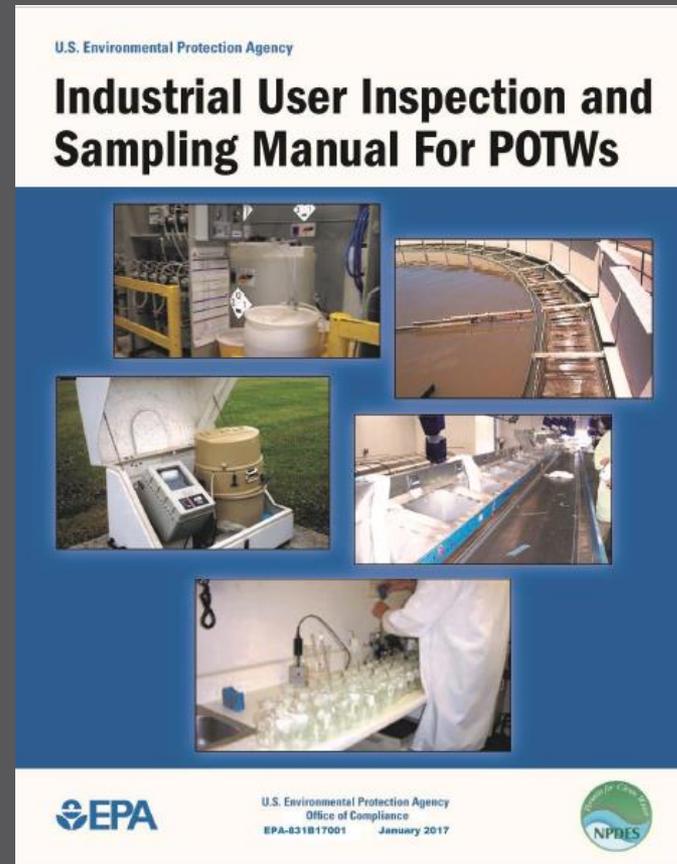
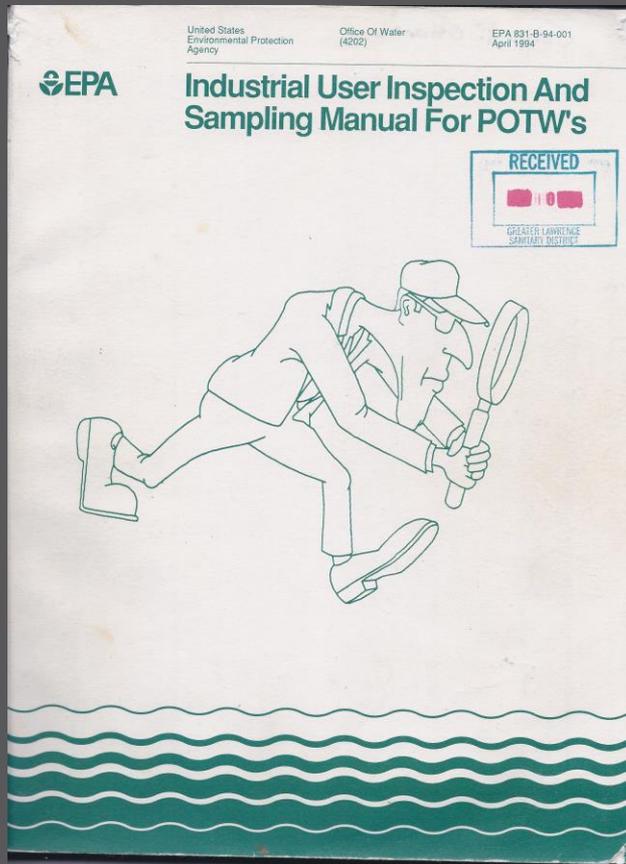
What is your decision based on the answers you received?

- Should you consider the unfair business advantages for not complying?*
- Are there options to correct this situation?*

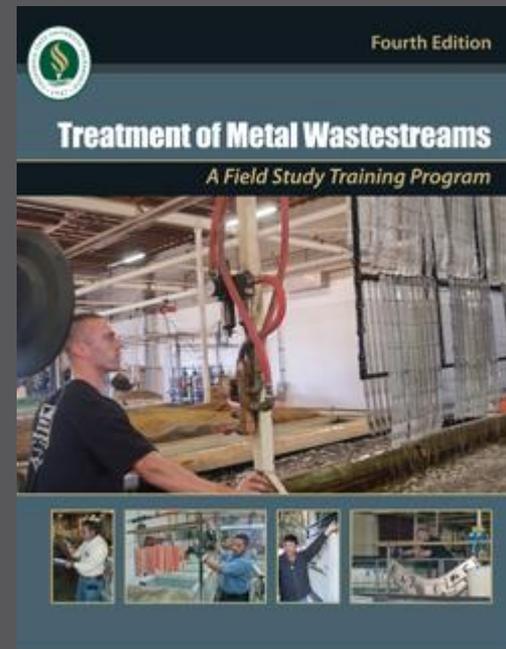
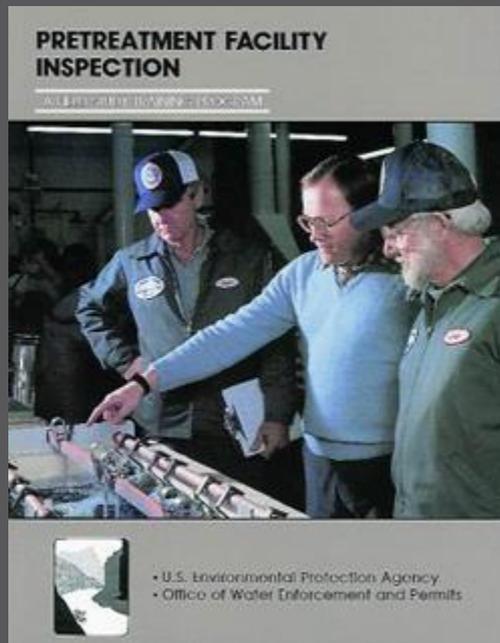
U. S. EPA Pretreatment Manuals 1994- 2011



U.S. EPA Inspection Manuals 1994 and 2017



What do you need to be an Inspector?



<http://www.owp.csus.edu/courses/wastewater.php>

Challenges of Industrial User Inspections - Now



- *Different requirements for what is considered to be an acceptable inspection based on EPA and State requirements. These vary throughout the US depending on the strength of the programs and state.*
- *Each year the regulatory agencies have a “hot topic” ; Proper Inspection Procedures, Up to date Intermunicipal/Multijurisdictional Agreements, Discharge Permit Formats, etc. They are driven by US EPA.*
- *The principal goal of the industrial user inspection is to gather information that can be used to determine compliance with all applicable requirements, including permit conditions, regulations, and other state or local requirements.*
- *Locating, training, and retaining qualified candidates is a challenge in the job market today. Decision making is a critical function.*
- *Conducting inspections with an ever changing workforce in the US with different learning and implementation styles.*

Inspection Process and Areas - JPO



- If you don't know the industry conduct research, review the EPA Sector Manuals, talk to other inspectors and use the online forums.
- Conduct a file and data review, prepare the forms, be prompt
- Entrance Interview: review the areas of inspection and materials to be inspected. Be prepared to look, listen, and ask questions.
- Provide a regulatory update.
- Facility Operation and Maintenance Status: List of any problems
- Process Areas: All locations where industrial wastewaters are produced
- Pretreatment System: Locations, type, operation of waste treatment
- Wastewater Sampling Locations: As required by IU Permit
- Wastewater Flow Monitoring Locations: As required by IU Permit
- Changes since last Inspection: Establishes record(s) for IU files and next inspection
-

Inspection Process and Areas - JPO



- List all other Discharge Permits: Which affect wastewater discharge to sewer system
- Location and Inspection of Record Keeping: As required by IU Permit
- Safety Data Sheets – List of any new chemicals
- Raw Chemical Area
- Non Hazardous Area
- Hazardous Waste Storage Area
- Slug Discharge Prevention Plan: As required by IU Permit
- Facility Perimeter Walk: Establishes record(s) for IU files and next inspection
- Pollution Prevention: If practiced
- Provide guidance and training
- Exit Interview
- Follow up Items

What is needed to be an inspector



- *Ability to work with other WWTP, community, regulatory officials*
- *Ability to research chemical compounds, solutions, materials and how they might effect each other*
- *Ability to learn industrial manufacturing / processes and know them in the field*
- *Ability to engage and communicate with facility owners, plant (operations, maintenance, EH&S, shift supervisors, mechanics, chemist, etc.)staff*
- *Ability to determine unacceptable use of equipment, appliances, components*
- *Ability to read within the field, write; letters, reports, documents, opinions, and articulate to all age groups*

“If you did not write it down it did not happen”

Specialized Inspections



Analytical Laboratories

What type of laboratory operations are conducted (medical, research, analytical)?

Which areas have water and/or chemical discharges?

What are operations generating waste stream?

Is any wet chemistry performed?

Which areas use solvents in their processes?

Is routine glassware washed or disposed?

Any glassware acid washed? Discharge to sanitary sewer?

How are spent or contaminated chemicals handled?

Routine wash-down of work area?

Check the General Industrial Inspection Questions for Radioactive Materials.

Stay Away !!



Funeral Services

- Embalming room chemical usage -how much formalin?
- What percentage of usage is discharged to sewer?
- How much blood discharge/day?
- What is its destination?
- Any other chemicals involved in embalming process?
- Chemical storage (floor drains).
- Embalming table -washing and cleaning procedures -detergents and disinfectants used.
- How are infectious wastes disposed of?

Work Continues for Pretreatment Programs



Pretreatment Programs have the same challenges that were present in the 1980's to prevent the introduction of industrial pollutants into a Sewage Treatment Plant (Water Resources Recovery Facility® (WEF)):

- Drinking Water Quality - Interference of conveyance (Ferric or Alum sludge, High Copper) or treatment of the Water Resources Recovery Facility;*
- Ground Water Recovery and Treatment - Creating an ignitable or toxic environment in the sewer system; and,*
- Bis(2-ethylhexyl) phthalate (Plasticizers) - Degrading biosolids quality.*
- Regulating Bioengineering*
- Implementing Pollution Prevention.*
- New practices for the illegal disposal of waste.*

Industrial Discharges



Heavy Industry Then and Now



The treatment system inside C&R Plating

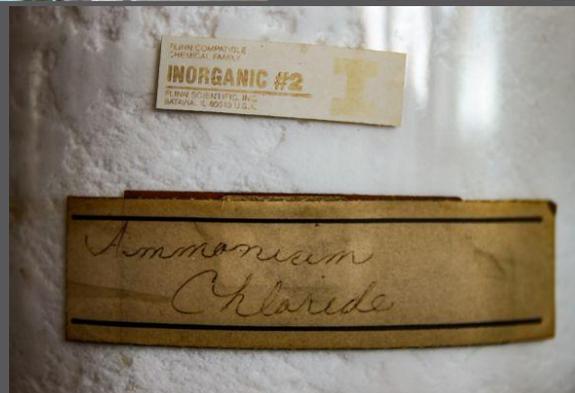


Inside Procino Plating, Inc.



Inside Maracle Industrial Finishing showing the process lines and rinse tanks

Schools, Universities, Colleges



Continued Threat Today



Sources Today



Totes of hazardous waste found inside storage units at Bass at Wesleyan self storage, Macon, Georgia. Storage units were initially rented by Robert Lewis and then opened due to lack of rent payment.



Assessment and removal of hazardous waste Lewis illegally stored inside storage unit 34 at Bass at Wesleyan self storage.



Hazardous waste materials illegally stored and disposed of by Max Spattg.



Do you have a 45 Record Player in your Car !



The Evolution of Pretreatment Programs



Questions and Answers

