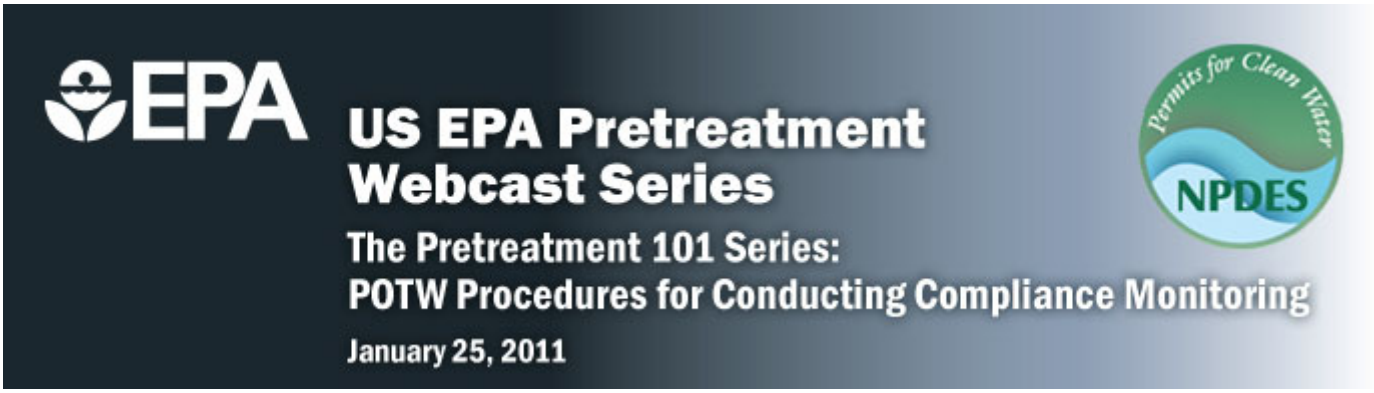

Pretreatment 101 Series: POTW Compliance Monitoring Procedures Resources Document

Pretreatment Program Acronym List

Acronym	Full Phrase
AA	Approval Authority
AO	Administrative Order
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BMR	Baseline Monitoring Report
BOD5	5-day Biochemical Oxygen Demand
BPJ	Best Professional Judgment
BPT	Best Practicable Control Technology Currently Available
CA	Control Authority
CERCLA	Comprehensive Environmental Remediation, Compensation and Liability Act
CFR	Code of Federal Regulations
CIU	Categorical Industrial User
COD	Chemical Oxygen Demand
CSO	Combined Sewer Overflow
CWA	Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended by Pub. L. 95- 217, Pub. L. 95-576, Pub. L. 96-483, Pub. L. 97-117, and Pub. L. 100-4, 33 U.S.C. 1251 et seq.
CWF	Combined Wastestream Formula
CWT	Centralized Waste Treatment
DMR	Discharge Monitoring Report

DSE	Domestic Sewage Exclusion
DSS	Domestic Sewage Study
ELG	Effluent Limitations Guideline
EP	Extraction Procedure
EPA	Environmental Protection Agency
EPCRA	Emergency Preparedness and Community Right to Know Act
ERP	Enforcement Response Plan
FDF	Fundamentally Different Factors
FR	Federal Register
FTE	Full-time equivalent
FWA	Flow Weighted Average
gpd	Gallons per Day
ICIS	Integrated Compliance Information System
IU	Industrial User
IWS	Industrial Waste Survey
LEL	Lower Explosive Limit
MAHL	Maximum Allowable Headworks Loading
MAIL	Maximum Allowable Industrial Loading
MGD	Million Gallons per Day
mg/L	Milligrams Per Liter
mLs	milliliters
MSDS	Material Safety Data Sheet
MSW	Municipal solid waste
MTCIU	Middle Tier Categorical Industrial User
NAICS	North American Industry Classification System (replaces SIC coding system in 1998)
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NRDC	Natural Resources Defense Council
NSCIU	Nonsignificant Categorical Industrial User
NSPS	New Source Performance Standard
OandG	Oil and Grease
OandM	Operations and Maintenance

OCPSF	Organic Chemicals, Plastics, and Synthetic Fibers
P2	Pollution Prevention
PCA	Pretreatment Compliance Audit
PCI	Pretreatment Compliance Inspection
PCS	Permit Compliance System
PIRT	Pretreatment Implementation Review Task Force
POTW	Publicly Owned Treatment Works
PSES	Pretreatment Standards for Existing Sources
PSNS	Pretreatment Standards for New Sources
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RIDE	Required ICIS Data Element
RNC	Reportable Noncompliance
SDCP	Slug Discharge Control Plan
SIC	Standard Industrial Classification
SIU	Significant Industrial User
SPCC	Spill Prevention Control and Countermeasures
SNC	Significant Noncompliance
SSO	Sanitary Sewer Overflow
SVOC	Semivolatile Organic Compound
SUO	Sewer Use Ordinance
TCLP	Toxicity Characteristic Leachate Procedure
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TKN	Total Kjeldahl Nitrogen
TMDL	Total maximum daily load
TOMP	Toxic Organic Management Program
TRE	Toxicity Reduction Evaluation
TRC	Technical Review Criteria
TRI	Toxic Release Inventory
TRIS	Toxics Release Inventory System
TSDF	Treatment, Storage, and Disposal Facility

TSS	Total Suspended Solids
TTO	Total Toxic Organics
USC	United States Code
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WENDB	Water Enforcement National Data Base
WET	Whole Effluent Toxicity
WWTF	Wastewater Treatment Facility
WWTP	Wastewater Treatment Plant

Guidance Manuals and Documents

Clarification of Sampling Procedures for the VOA Fraction (July 31, 1985)
This EPA memo discusses VOA (volatile organic analysis) sampling requirements.
http://www.epa.gov/npdes/pubs/owm0421.pdf

Comparison of Volatile Organic Analysis Compositing Procedures (1995)
This guidance manual discusses procedures for accurate compositing of volatile organic compounds. EPA 821R95035
http://www.epa.gov/clariton/clhtml/pubtitleOW.html

EPA Memorandum: Statistics Concerning Grab Sampling (March 1989)
This memorandum describes the results of a statistical analysis of sampling data from a single industrial facility.
http://www.epa.gov/region9/water/pretreatment/files/statistics_grab_sampling_1989-03-02.pdf

Industrial User Inspection and Sampling Manual for POTW's (April 1, 1994)
This manual is intended to acquaint POTW personnel with the well-established inspection and wastewater sampling procedures which have been used in the NPDES program for many years. The information presented will guide the POTW inspector by providing a framework for conducting inspections and wastewater sampling.

Chapter III: Sampling Industrial Users. This chapter contains valuable information regarding the following topics:

- Analytical Methods
- Quality Assurance and Sampling Plan
- Standard Operating Procedures
- Pre-Sampling Activities
- On-Site Activities
- Safety Considerations During Sampling
- Flow Measurement
- Quality Assurance and Quality Control
- Compliance Issues Related to IU Sampling
    - The use of duplicate samples to evaluate compliance
    - Compliance with monthly average limitations
    - Frequency of POTW sampling in lieu of IU sampling
    - SNC in situations of multiple outfalls
    - Violation date
      Compliance with continuous monitoring for pH

Appendix V: EPA Memorandum on The Use of Grab Samples to Detect Violations of Pretreatment Standards
Appendix VII: EPA's Policy on Split Samples
http://www.epa.gov/npdes/pubs/owm0025.pdf

National Pollutant Discharge Elimination System Compliance Inspection Manual (July 2004)
Even though the National Pollutant Discharge Elimination System (NPDES) Compliance Inspection Manual was written to provide guidance on NPDES inspections, several chapters and appendices in this guidance contain information regarding compliance monitoring that the POTW can use.
Chapter 5: Sampling
Chapter 6: Flow Measuring
Chapter 7: Laboratory Procedures and Quality Assurance
Appendix M: Example Chain-Of-Custody Form
Appendix O: Supplemental Flow Measurement information
http://www.epa.gov/oecaerth/resources/publications/monitoring/cwa/inspections/npdesinspect/npdesmanual.html

Pretreatment Compliance Monitoring and Enforcement Guidance (for Publicly Owned Treatment Works) (July 25, 1986)
This guidance is intended to assist the Control Authority in translating the regulatory requirements into a workable, effective pretreatment program. The guidance should also assist Control Authorities in gaining proficiency with compliance monitoring, inspection, and enforcement activities.

Appendix C of this guidance contains the descriptions on how to evaluate compliance with average limitations (i.e., monthly average and 4-day average limits).
http://www.epa.gov/npdes/pubs/owm0407.pdf

Pretreatment Streamlining Rule Fact Sheet 5.0: New Classifications for Categorical Industrial Users
This fact sheet describes the oversight actions Control Authorities must take for newly established classes of indirect dischargers, including the "non-significant categorical Industrial User" (NSCIU) and the "Middle Tier" Categorical Industrial User (CIU). The fact sheet specifies who might be affected by these provisions, provides definitions for key terms, and outlines reporting, inspection, and sampling requirements for NSCIUs and Middle Tier CIUs (EPA 833-F-06-011).
http://www.epa.gov/npdes/pubs/CIU_oversight.pdf

Pretreatment Streamlining Rule Fact Sheet 6.0: Optional Sampling Waiver for Pollutants Not Present
This fact sheet describes changes to the General Pretreatment Regulations that allow approved publicly owned treatment works (POTW) pretreatment programs, or Control Authorities (CAs), to reduce or waive certain monitoring requirements that apply to Industrial User (IU) discharges subject to categorical Pretreatment Standards (EPA 833-F-08-003).
http://www.epa.gov/npdes/pubs/pretreatment_streamlining_6.pdf

Procuring Analytical Services: Guidance for Industrial Pretreatment Programs (October 1, 1998)
This document is intended to provide pretreatment authorities and industrial users with guidance for procuring analytical services necessary to support Clean Water Act programs.
http://www.epa.gov/npdes/pubs/owm0014.pdf

Websites and Links

Analytical Methods

The webpage contains links to EPA established laboratory analytical methods that are used by industries and municipalities to analyze the chemical and biological components of wastewater, drinking water, sediment, and other environmental samples that are required by EPA regulations under the authority of the Clean Water Act and the Safe Drinking Water Act.
http://cfpub.epa.gov/npdes/pretreatment/analytical.cfm

Asset Management

This webpage provides an overview of asset management, as defined as managing infrastructure capital assets to minimize the total cost of owning and operating them, while delivering the service levels customer's desire.

Each utility is responsible for making sure that its system stays in good working order-regardless of the age of components or the availability of additional funds. Asset management programs with long-range planning, life-cycle costing, proactive operations and maintenance, and capital replacement plans based on cost-benefit analyses can be the most efficient method of meeting this challenge.

As part of the EPA's Sustainable Infrastructure Initiative, the Office of Water works in collaboration with partner organizations to hosts and co-sponsor training sessions and facilitate discussions on best practice in Advanced Asset Management.
http://water.epa.gov/type/watersheds/wastewater/index.cfm

Clean Water Act Analytical Methods

The website contains EPA’s published laboratory analytical methods that are used by industries and municipalities to analyze the chemical, physical and biological components of wastewater and other environmental samples that are required by regulations under the authority of the Clean Water Act (CWA).
http://water.epa.gov/scitech/swguidance/methods/index.cfm

Pollutant Sources

Provided by Monitoring and Management Services, LLC. www.mmsontheweb.com

Arsenic: Wood Preservatives, by-product of copper and lead smelters, agricultural products, glass, defoliant for agricultural use, nonferrous alloys.

Beryllium: Fuel containers, aircraft disc brakes, X-ray transmission windows, heat shields, precision instruments, mirrors, nuclear weapons and reactors. Beryllium oxide is used to make specialty electrical and high tech ceramics, electronic insulators, and microwave oven components.

Cadmium: Metal plating, nickel-cadmium and other batteries, pigments, plastic stabilizers, pesticides, alloys, chemical reagents.

Chromium: Alloying and Plating element on metal and plastic substrates, protective coatings for automotive and equipment accessories, electroplating cleaning agents, industrial water treatment including treatment of cooling tower water, drilling muds, refractories, mordants in textile industry, fungicides, wood preservatives, dyes and pigments, sensitizer in photographic industry, medical astringents and antiseptics, leather treatment/tanning, nuclear and high temperature research.

Copper: Plumbing/piping (domestic background 0.14 mg/L, but septage can have high concentrations), paints and pigments, corrosion inhibitor, electroplating processes, insecticide, fungicide, herbicide, pigment for ceramics, mildew preventive, paper products, glass, controlling algae and aquatic plant growth, water resistant adhesives for wood, synthetic rubber, varnishes, battery electrodes, cement, stabilizer for polyurethanes and nylons, fuel additive, flame-proofing, printing and photocopying, dyeing and printing textiles, manufacture of indelible, invisible, and laundry marking inks; refining of copper, silver and gold; to remove lead compounds from gasoline and oils/petroleum purifying agent, photography. anti-fouling agent, used in silver, brass, and copper-tin alloy plating.

Lead: Plumbing, batteries, ammunition, electrical equipment (circuit boards for computers and other electronic circuitry), television glass, metal products-sheat lead-solder-pipes, ceramic glazes, roofing materials, medical equipment, scientific and military equipment (tracking systems). *(Synonyms: Plumbum, pigment metal).*

Mercury: Thermometers, Hg switches, barometers, batteries containing Hg are used in devices ranging from guided missiles to hearing aids, cameras, calculators, smoke detectors; electric or mercury lamps for outdoor lighting (floodlights/street lights), used in diuretics, antiseptics, and skin preparations. Also used in dental amalgams, pigments/paints (~1/3 of all interior latex paint contained varying levels of Hg), and lubrication oils. Low Level Hg level interference from tobacco products or exhaust from automobiles. *(Synonyms: quicksilver, liquid silver, hydrargyrum, kwik).*

Molybdenum: Molydates used in corrosion inhibitors- recirculating cooling water and boiler water corrosion control additives or resin treatment cartridges (0.1 to 15 mg/L), lubricating oils, alloy element in steels, cast iron and non-ferrous metals, nuclear medicine-to form technitium used in imaging, smoke

suppressant as ingredient in plastics, foods (beans, peas and other legumes due to molybdenum being essential media nutrient for nitrogen fixation, cereal grains, organ meats, and leafy vegetables).

Nickel: Steels and alloys, permanent magnet materials, nickel-cadmium batteries, electroplating, ceramics, soil, vegetation, fuel oil combustion, stormwater runoff, colored glass, and textiles.

Selenium: Pigments in plastics, paints, enamels, inks, and rubber. Anti-dandruff shampoos, recitifiers for home entertainment equipment, red or black glass, veterinary medicine (fungicide and insecticide), and foods (grains, cereals, meats, seafood).

Zinc: Oils, lubricants and greases, paints and inks, cosmetics and medicines (average residential background is 0.231 mg/L, but some septage samples can be very high - 10 mg/L to 900 mg/L), rubber coating (anti-stick agent), powders, piping, floor cleaners and polishers, batteries and electrical equipment, cooling and boiler water additive to control biofilm, soil/runoff, source water or city water—use of zinc polyphosphate or is groundwater or surface water source high in Zn?, soaps, TV screens, fluorescent lights, and luminous dials.

Phenols: Phenolic resins used in plywood adhesive, construction, automotive and appliance industry. Intermediate in production of caprolactum-used to make nylon and other synthetic fibers. Disinfectant, slimicide, anesthetic in medicinal preparations including ointments, ear and nose drops, cold sore lotions, throat lozenges, antiseptic lotions. Bisphenol-A is used to make epoxy and other resins. Pentachlorphenol used as industrial wood preservative for utility poles, fence posts, and used at sawmills. Used in some air masking agents, odor-control products and deodorizers.

Cyanide: Electroplating, metallurgy, production of organic chemicals, anti-caking agents in road salts, plastic manufacturing, chelating agents, insecticides, dyes and pigment manufacturing, extraction of gold and silver from ores, and photographic development.

Ammonia: Household cleaner, bleaching agent, refrigerant, fertilizer production, plastics, explosives, pharmaceuticals, metal treatment operations (i.e. sodium hydride descaling, nitriding), defoliant agent, rubber industry for stabilization of raw latex to prevent coagulation.

Phthalates: Plasticizers in PVC resins for fabricating flexible vinyl products (PVC resins used in shower curtains, toys, components of paper and paperboard, adhesives, food containers), cosmetic products, mosquito repellents, detergents, aftershave lotions, skin care preparations, fixative in perfumes, nail polish and nail polish remover, tape applications, and food applications.

Naphthalene: Natural component of petroleum and coal, moth repellents/mothballs or crystals, toilet and diaper pail deodorant blocks, leather tanning agents, intermediate in production of phthalic anhydride used in production of resins, plasticizers, dyes, and pharmaceuticals.

Benzene: Synthetic rubbers and fibers, liquid detergents, some plastics, adhesives, radios, textiles, automobiles, tires, appliances, motor vehicle gasoline component, carpet glue, furniture wax.

Carbon Tetrachloride: Used in manufacturing of refrigerants and propellants for aerosol cans, petroleum refining, pharmaceutical manufacturing, general solvent use, until mid 1960s widely used as a cleaning fluid- degreasing agent, spot remover and in fire extinguishers*.(syn: carbona, tetrachloromethane)*

Chloroform: Can form in water with use of chlorine compounds (including HTH, sodium hypochlorite), plastics, solvent for lacquers, floor polishes, artificial silk manufacture, resins, fats, greases, gums, waxes, adhesives, oils, rubber. Industrial solvent in extraction and purification of some antbiotics, vitamins, and flavorings. *(syn: methane trichloride, trichloromethane).*

Methyl Ethyl Ketone: Solvent for coatings, adhesives, magnetic tapes, printing inks, and pesticides. As an extraction solvent for hardwood pulping and vegetable oil, colorless synthetic resins, as a fragrance and flavoring agent in candy and perfumes, lacquering and varnishing, artificial leather, lubricating oils, cleaning fluids, fabric coating, cements, smokeless powder*.(syn: MEK, 2-butanone, methyl acetone).*

Methylene Chloride: Industrial solvent, cleaning and thinning uses, aerosol products such as coatings, paint removers, hair sprays, room deodorants, herbicides, insecticides. Metal degreasing, foam blowing of polyurethanes, stripping and degreasing in the electronics industry, polycarbonate resin production. *(syn: dichloromethane, methylene dichloride - trade names: Aerothene, MM, Freon 30, Narkotil, R30, Solaestin, and Solmethine).*

Tetrachloroethylene: Dry cleaning, metal degreasing. In smaller quantities used in rubber coatings, solvent soaps, printing inks, adhesives and glues, sealants, lubricants, pesticides. *(syn: Perchloroethylene, PCE, Perc, ethylene tetrachloride, perchlor)*

Toluene: Component of gasoline, 1% used in solvents in paints, inks, adhesives, and cleaning agents. Production of pharmaceuticals, dyes, cosmetic nail products. Used in chemical synthesis of benzene, urethane foams. (*syn: phenyl methane, methyl benzol, toluol, methyl benzene).*

1,1,1-Trichloroethane: Solvent for adhesives and in metal degreasing, pesticides, textile processing, cutting fluids, aerosols, lubricants, cutting oil formulations, drain cleaners, shoe polishes, spot cleaners, printing inks. Industry cleaning (vapor degreasing of precision instruments, molds, electrical equipment, circuit boards), circuit board fabrication and in semiconductor industry for secondary cleaning, cleaning of printing presses, food packaging machinery. *(syn: methyl chloroform, chloroethane, methyltrichloromethane)*- No longer to be made in US after 1996.

Trichloroethylene: Solvent to remove grease from metal parts, particularly in the automotive and metals industries, found in household products- typewriter correction fluid, paint removers, adhesives, spot removers, rug cleaning fluids. *(syn: ethylene trichloride, triclene, acetylene trichloride, NCI-CO4546, 1,1,2-trichloroethylene).*

Vinyl chloride: Parent component of PVC. Containers, pipes, hose, flooring, wrapping film, battery cell separators, refrigerant gas, electrical insulation. *(syn: VC, chloroethene, ethylene monochloride, monochloroethylene).*

Xylenes: Manufacture gasoline, reforming petroleum fractions solvent, production of polyester fibers, dyes. Three (3) isomers: ortho (feed stock for phthalic anhydride manufacture - pigment), meta (manufacture of isophthalic acid), and para (household fabrics, clothing, carpets). *(syn: o, m, or p-xylol, dimethylbenzene).*

Speaker Information

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Jan Pickrel is EPA's National Pretreatment Program Coordinator in the Water Permits Division of the Office of Wastewater Management (OWM) as well as the OWM Climate Change Coordinator. She coordinates the implementation issues regarding industrial wastewater permits and the development of technology-based effluent guidelines and categorical standards with EPA's Office of Science and Technology and other EPA offices. She has taught over 30 intensive courses and webinars on the pretreatment program across the nation with the Water Environment Federation and spoken at many other venues on the development and implementation of pretreatment programs and the regulation of industrial wastewater discharges.

Prior to coming to EPA's Office of Wastewater Management in 1997, Jan worked for 13 years at Virginia Department of Environmental Quality's Northern Virginia Regional Office, where she served as the Pretreatment Coordinator and Senior Environmental Engineer with the region's VPDES Program. During her tenure at VDEQ, she also served as the Chief Regional Geologist and has extensive experience in land application of biosolids, ground water and surface water investigations, and oil spill remediation efforts.

Ms. Pickrel received her B.S. in Geology from the College of William and Mary and a Masters of Engineering Administration from George Washington University.

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Byron Ross has over 22 years of experience in industrial pretreatment, wastewater treatment, receiving stream assessment, and environmental sampling and monitoring. In 2003, Mr. Ross started Monitoring and Management Services, LLC, a small business that provides technical assistance to federal, state and local government agencies in the areas of industrial pretreatment and Capacity, Management, Operations, and Maintenance (CMOM). Since 2004, Mr. Ross has been a contractor for Tetra Tech, Inc. for U.S. EPA tasks related to industrial pretreatment and wastewater. Prior to the formation of Monitoring and Management Services, Mr. Ross worked as a Chemical Manager for Henkel/GM for 2 years, an Environmental Monitoring Supervisor for a private laboratory for 7 years, and as a Biologist for a municipality for 8 years.

Mr. Ross has performed the following duties for U.S. EPA, as a contractor with Tetra Tech, Inc.:

- Conducted numerous Industrial Pretreatment Inspections and Audits in EPA Regions 5 and 9.
- Speaker/Presenter at Wastewater and Industrial Pretreatment Training Courses and Seminars in EPA Regions 4, 5, and 9.
- Industrial Pretreatment Local Limits Calculations and Verification Reports for EPA Regions 4 and 9.
- Technical Review of Permits and Sewer Use Ordinances in Regions 4 and 9.
- Technical Assistance to California Regional Water Quality Board Personnel in EPA Region 9.