

WHERE DO THE PRETREATMENT PERMIT LIMITS COME FROM???



**Amy Varinoski
City of Mebane**

AND MOST IMPORTANTLY....

- ARE YOU MEETING YOUR CURRENT PRETREATMENT PERMIT LIMITS?
- IF NOT, CAN YOUR COMPANY PARTICIPATE IN ESTABLISHING NEW PRETREATMENT PERMIT LIMITS?

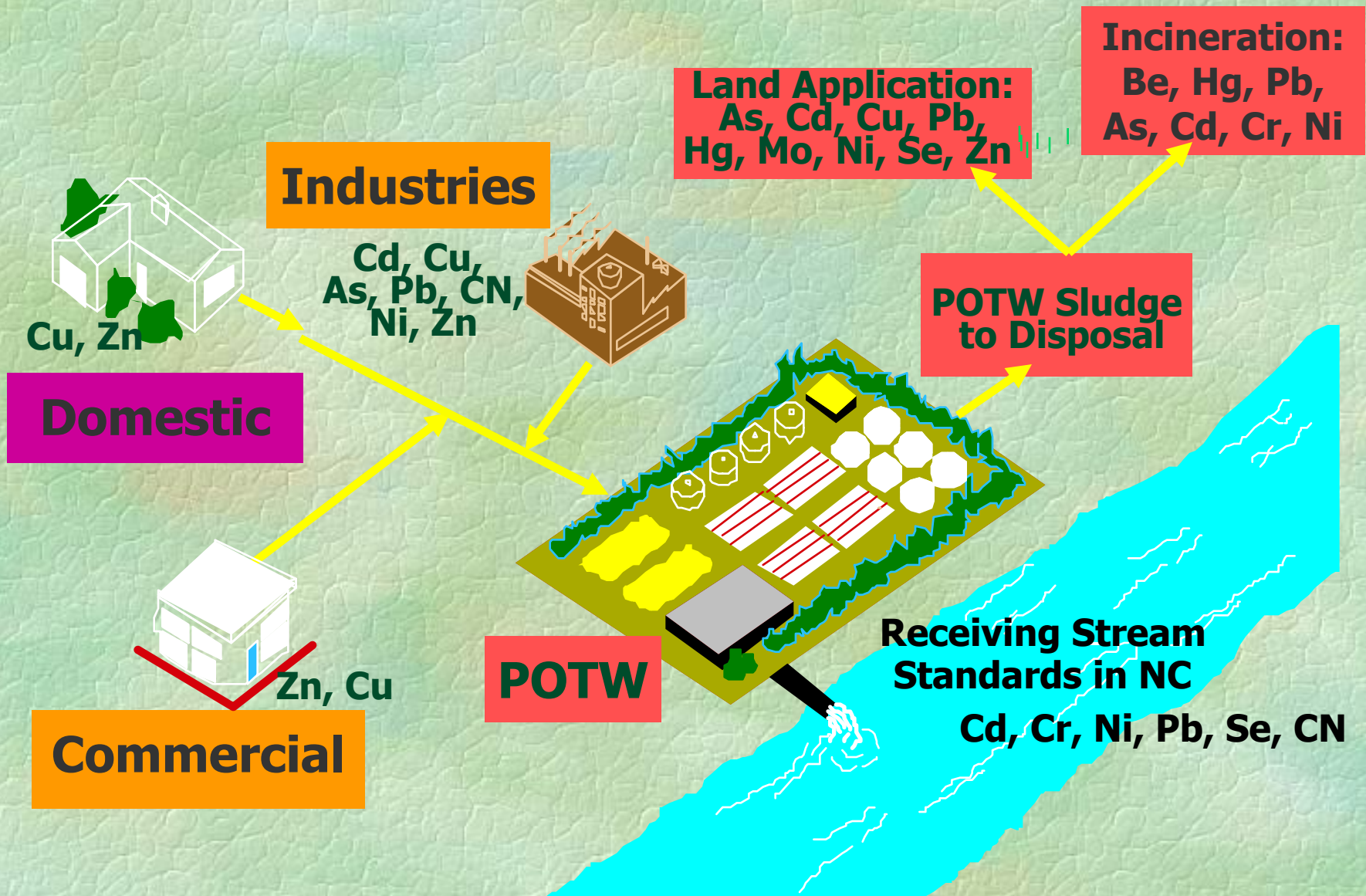
MAYBE....DEPENDING ON WHERE
THE LIMITS CAME FROM...



ACRONYMS/DEFINITIONS

- **SIU** - Significant Industrial User
[means EPA says “U gotta have a permit”]
- **SNC** - Significant Non-Compliance
[means you’re in big trouble and everybody’s gonna know about it...]

POTWs and the Environment



SIGNIFICANT INDUSTRIAL USER [SIU]

[40 CFR 403.3]

- *Subject to Federal Categorical Pretreatment Standards; OR*
- *Discharges >25,000 gpd of Process Wastewater; OR*
- *Discharges >5% of POTW permitted flow or organic maximum allowable headworks loading; OR*
- *Designated as such by POTW based on reasonable potential to adversely impact the POTW*

SIGNIFICANT INDUSTRIAL USER [SIU] DEFINITION [40 CFR 403.3]

- *Subject to Federal Categorical Pretreatment Standards;*
 - Established by U.S. Environmental Protection Agency for Specific Types of Industries with toxic pollutants
 - National Standards no matter where the SIU is located
 - Removes economic benefit of “city shopping” by new industry

SIGNIFICANT INDUSTRIAL USER

[SIU] DEFINITION [40 CFR 403.3]

- *Discharges >25,000 gpd of Process Wastewater;*
- Process wastewater does NOT include:
 - Domestic Waste [bathrooms, kitchen, etc.]
 - Non-contact cooling water
 - Boiler blowdown

SIGNIFICANT INDUSTRIAL USER

[SIU] DEFINITION [40 CFR 403.3]

- *Discharges >5% of POTW permitted flow or organic maximum allowable headworks loading [MAHL];*
- MAHL is maximum POTW influent pollutant loading that can be allowed without causing:
 - NPDES permit violations
 - POTW treatment process upset and/or interference
 - Sludge contamination

SIGNIFICANT INDUSTRIAL USER [SIU] DEFINITION [40 CFR 403.3]

- *Designated as such by POTW based on reasonable potential to adversely impact the POTW*
- **Examples:**
 - Hospitals
 - Small food processing operation [$<25,000$ gpd] but with high BOD concentrations
 - Facility with history of spills to sewer
 - Industries that may impact the collection system

SIGNIFICANT NONCOMPLIANCE

[40 CFR Part 403.8 (f)(2)(vii)]



- Chronic Violations - $\geq 66\%$ of all values in 6 month period exceed limit by any magnitude
- Technical Review Criteria [TRC] Violations - $\geq 33\%$ of all values in 6 month period equal or exceed permit limit times the TRC value
[TRC for Conventional Pollutants = 1.4, TRC for toxics = 1.2]
- Public Notice in Newspaper Required by EPA

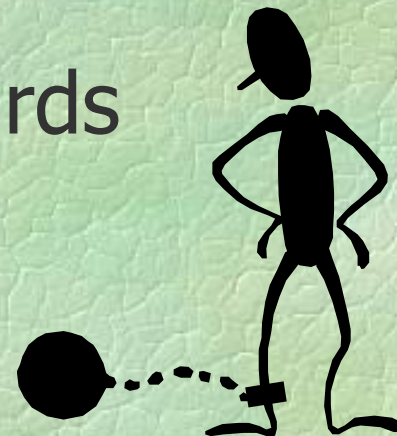
SO YOU'RE AN SIU....

- Now, where do your Significant Industrial User Permit Limits Come From????



TYPES OF PRETREATMENT PERMIT LIMITS

- Prohibited Discharge Standards [from 40 CFR 403.5]
 - General Prohibitions
 - Specific Prohibitions
- Federal Categorical Pretreatment Standards [40 CFR Parts 405-471]
- Local Limits [Required by 40 CFR 403.8 (f)(4)]



EPA GENERAL PROHIBITIONS FOR ALL USERS

➤ Pass Through

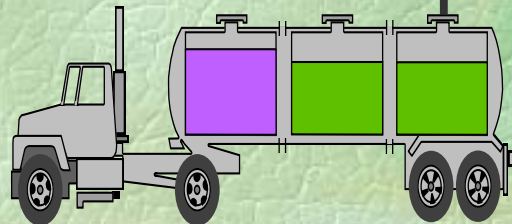
- Discharge which exits the POTW into waters of the United States in quantities or concentrations which...is a cause of a violation of any requirement of the POTW's NPDES permit...

➤ Interference

- Discharge which: inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and therefore is a cause of a violation...of the POTW's NPDES permit or prevention of sludge use or disposal...

EPA SPECIFIC PROHIBITIONS

- Fire or Explosion Hazards
- Corrosive Waters [pH < 5.0 units]
- Obstruction of Flow
- Excessive Heat
- Non-biodegradable oils
- Pollutants resulting in toxic gases, vapors or fumes
- Trucked/hailed wastes except at POTW designated sites



FEDERAL CATEGORICAL PRETREATMENT STANDARDS

- Published in Federal Register in 40 CFR Parts 405 - 471
- Local POTW Can Be More Stringent, but CANNOT make Federal Categorical Standards More Lenient
- Limits Based on Treatment Technology [Not POTW Protection]

FEDERAL CATEGORICAL PRETREATMENT STANDARDS

➤ BASED ON TREATMENT TECHNOLOGY NOT
POTW PROTECTION OR "EQUAL TREATMENT"

- Cyanide Limit - Metal Finishing
[40 CFR Part 433]
 - Daily Maximum = 1.2 mg/l
- Cyanide Limit - Pharmaceutical Mfg
[40 CFR Part 439]
 - Daily Maximum = 33.5 mg/l



FEDERAL CATEGORICAL PRETREATMENT STANDARDS

➤ Numerical Limits

- Daily Maximum and Monthly Average
 - Concentration Based [mg/l or ppm]
 - Mass-Based [pounds]
 - Production Based [lbs pollutant/lbs product]

➤ Management Plans/Certifications

- Toxic Organic Management Plan
- Pollutant Management Plan
- Pollutant Certifications

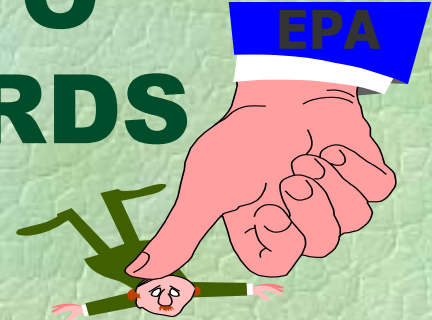
➤ Zero Discharge



INDUSTRIES SUBJECT TO CATEGORICAL STANDARDS

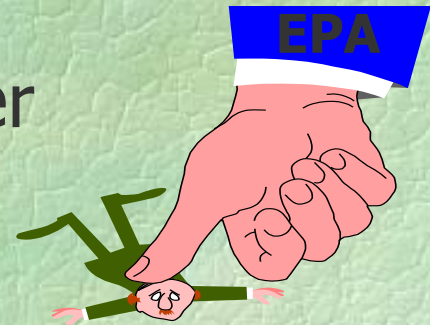
EPA

- 40 CFR Part 413 – Electroplating
- 40 CFR Part 414 - Organic Chemicals, Plastics and Synthetic Fibers [OCPSF]
- 40 CFR Part 415 - Inorganic Chemicals
- 40 CFR Part 417 - Soaps and Detergents
- 40 CFR Part 418 - Fertilizer Manufacturing
- 40 CFR Part 419 - Petroleum Refining
- 40 CFR Part 420 - Iron and Steel Manufacturing
- 40 CFR Part 421 - Nonferrous Metals



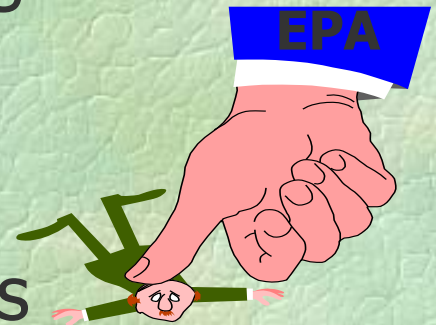
INDUSTRIES SUBJECT TO CATEGORICAL STANDARDS

- 40 CFR Part 423 - Steam Electric Power Generating
- 40 CFR Part 425 - Leather Tanning
- 40 CFR Part 430 - Pulp, Paper & Paperboard
- 40 CFR Part 432 - Meat Products
- 40 CFR Part 433 - Metal Finishing
- 40 CFR Part 437 - Centralized Waste Treatment
- 40 CFR Part 439 - Pharmaceutical Manufacturing



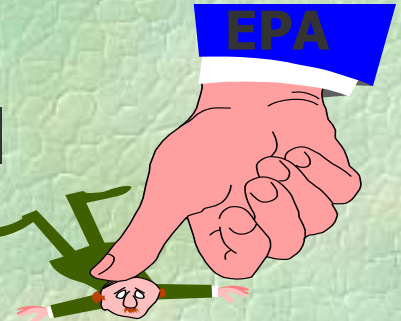
INDUSTRIES SUBJECT TO CATEGORICAL STANDARDS

- 40 CFR Part 442 - Transportation Equipment Cleaning
- 40 CFR Part 443 - Paving and Roofing Materials
- 40 CFR Part 446 - Paint Formulating
- 40 CFR Part 447 - Ink Formulating
- 40 CFR Part 455 - Pesticide Chemicals
- 40 CFR Part 458 - Carbon Black Manufacturing
- 40 CFR Part 461 - Battery Manufacturing



INDUSTRIES SUBJECT TO CATEGORICAL STANDARDS

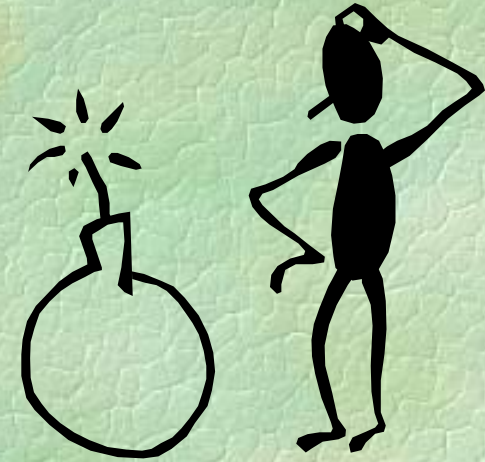
- 40 CFR Part 464 - Metal Molding and Casting
- 40 CFR Part 465 - Coil Coating
- 40 CFR Part 466 - Steel Basis Material
- 40 CFR Part 467 - Aluminum Forming
- 40 CFR Part 468 - Copper Forming
- 40 CFR Part 469 - Electrical and Electronic Components
- 40 CFR Part 471 - Nonferrous Metals Forming and Metal Powders



LOCAL LIMITS

➤ Established by POTW to Prevent:

- Pass Through
- Interference
- Sludge Contamination
- Worker Health Hazards
- NPDES Permit Violations

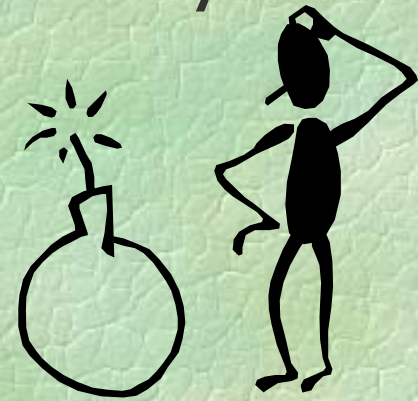


➤ Address POTW-Specific Concerns

➤ Development Unrelated to Categorical Pretreatment Standards

WHY ARE LOCAL LIMITS NEEDED?

- Federal Categorical Standards May Not Adequately Protect POTW
 - collection system
 - sludge quality
 - personnel
- Federal Categorical Standards Do Not Address All Contributed Pollutants
- Federal Categorical Standards Do Not Regulate Other Significant Industrial Users



HOW ARE LOCAL LIMITS DETERMINED?

➤ Collect Data from:

- POTW
 - Influent
 - Effluent
 - Treatment Unit Processes
 - Activated Sludge [Bacteria]
 - Sludge to Disposal
- Industrial Users
- Domestic/Commercial Sources



HOW ARE LOCAL LIMITS DETERMINED?

➤ EPA Required Pollutants of Concern

Arsenic	Lead	Silver
Cadmium	Mercury	Zinc
Chromium	Molybdenum	BOD ₅
Copper	Nickel	TSS
Cyanide	Selenium	Ammonia

IDENTIFY ALL LIMITING CRITERIA

- NPDES Permit Limits
 - Some depend on size of POTW receiving stream
- State Water Quality Standards
 - Some more stringent than drinking water standards
- Sludge Criteria [40 CFR Part 503]
 - Land Application/Incineration
- Activated Sludge Inhibition Criteria
 - Protect those bugs!!!!!!
- Collection System Problems
 - Sanitary Sewer Overflows from Oil and Grease
 - Corrosion
 - Hazardous Gases



CALCULATE/DETERMINE [for each pollutant]

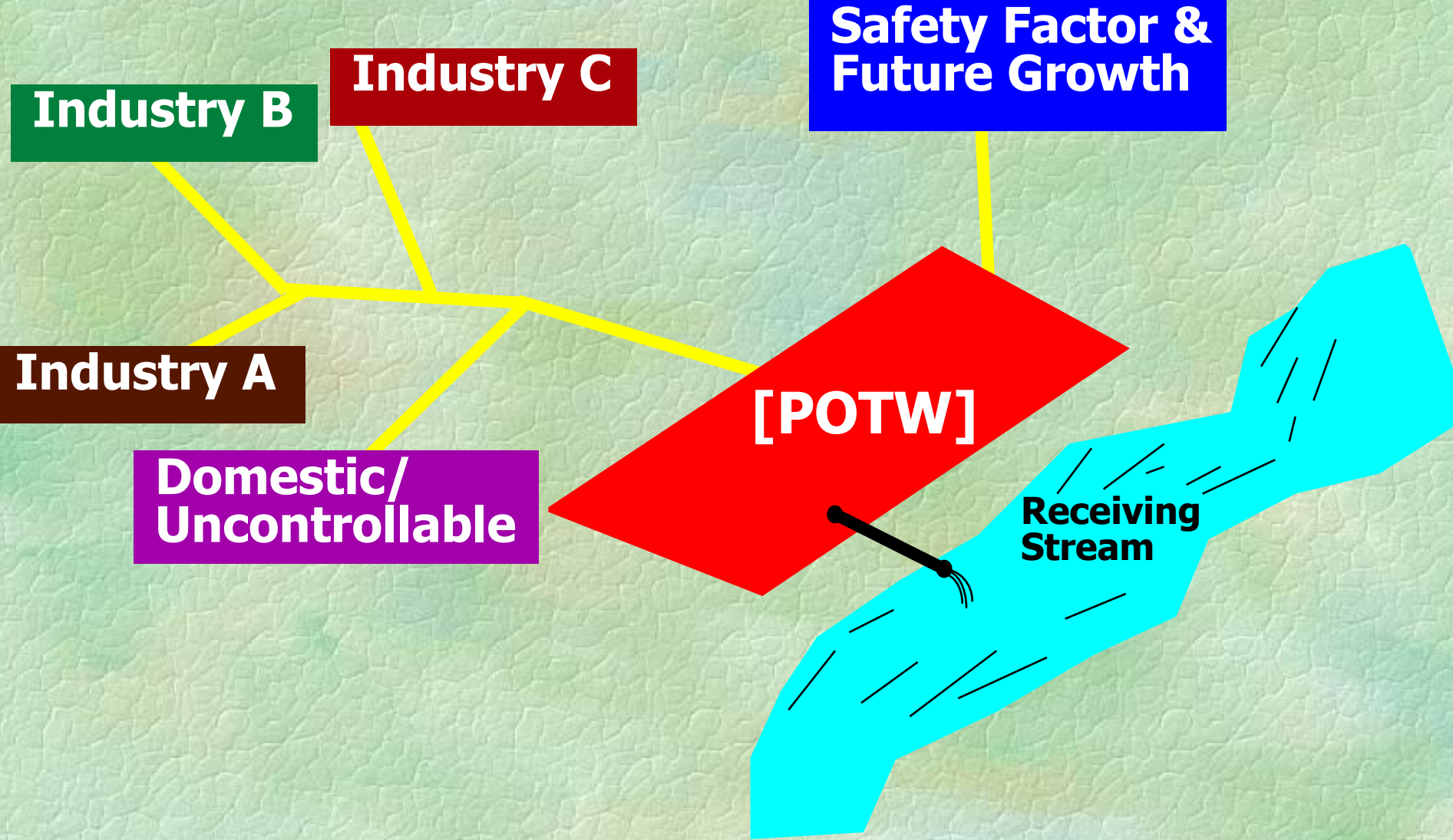


- POTW Removal Rates
- Accumulation Rate in Sludge
- Activated Sludge Inhibition Concentration
- Max. Allowable Headworks Loading for:
 - NDPES Permit Compliance
 - Sludge Compliance
 - Inhibition
- **MUST CHOOSE MOST STRINGENT VALUE**

MAXIMUM ALLOWABLE HEADWORKS LOADING

- Calculated in Pounds for all Pollutants
- Determine “Domestic or Uncontrollable” Loading and Subtract from MAHL
- Determine “Future Growth” Loading and Subtract from MAHL
- Determine “Safety Factor” and Subtract from MAHL
- What’s Left = **Maximum Allowable Industrial Loading [MAIL]**

ALLOCATION OF POTW MAHL



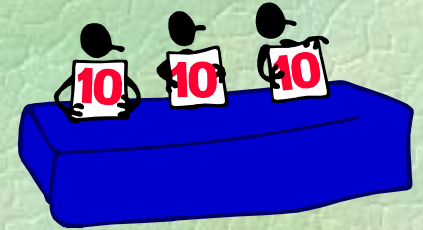
“MAIL”

ALLOCATION METHODS

- Uniform Concentration Limit for All Industrial Users
- Uniform Concentration Limit for Only Contributing Industrial Users
- “WYNIWYG” - What You Need Is What You Get...
- Selected Industrial Reductions Based on Treatability

LOCAL LIMITS: UNIFORM CONCENTRATION METHOD

- Permit Issuance a Breeze...Xerox 'em!
- Appears Fair on a Concentration Basis [Look at the pounds, though!]



- Be Careful.....
 - If SIU develops an ambitious water conservation program, they may “conserve” themselves right into noncompliance
 - “I’d like a million gallons at that concentration, please.....”

UNIFORM CONCENTRATION

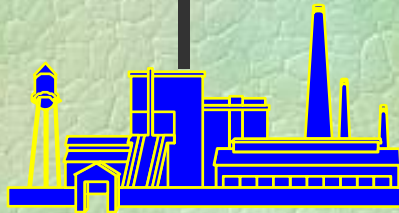
ALLOCATE ONE CONCENTRATION LIMIT
BASED ON FLOW FROM ALL SIUs

$$= 2.5 \text{ pounds Nickel} / (0.3 \text{ MGD} * 8.34) = 1.0 \text{ mg/l}$$

TOTAL FLOW = 300,000 gpd



0.10 MGD


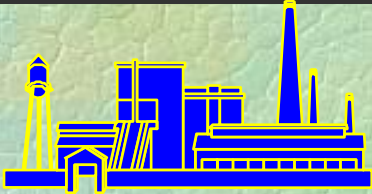



0.10 MGD



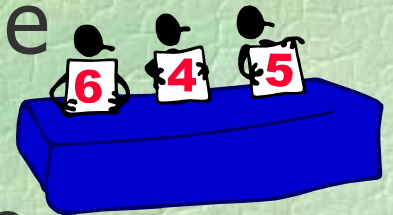
0.10 MGD

UNIFORM CONCENTRATION...

MAIL = 2.5 lbs Nickel			
Industry	Food Processing	Metal Finishing	Textile
Discharge	0.05 mg/l	1.5 mg/l	0.11 mg/l
Uniform Limit	1.0 mg/l	1.0 mg/l (\$\$\$\$\$)	1.0 mg/l
2.5 Pounds Ni Permitted	0.834 lbs	0.834 lbs	0.834 lbs

LOCAL LIMITS: “W.Y.N.I.W.Y.G.” METHOD

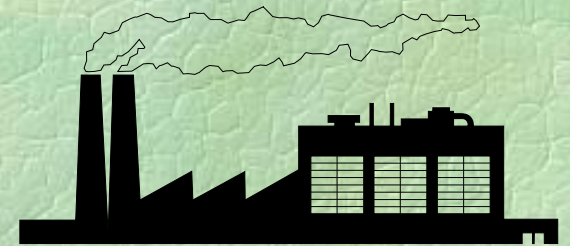
- Much more labor intensive at permit issuance and permit renewal time
 - Every permit is unique
 - Must understand process discharge
- May appear “unfair” on the surface
- No “false capacity” tied up at POTW
- WYNIWYG limits can be mass-based or concentration-based
- Most NC Cities use WYNIWYG.....



WYNIWYG ALLOCATION METHOD BY POTW

➤ *New SIU*

- Is process Categorical?
 - If yes, determine required pollutants for limits
 - All parameters in regulation must have a limit
- Review SIU Effluent Data from Application
 - Is the data estimated or from a “sister” facility in another town?
 - Determine pollutant concentrations *that can be met on a consistent basis*
 - Issue specific permit limits [with a safety factor] for all pollutants of concern



WYNIWYG ALLOCATION METHOD BY POTW

➤ *Existing SIU*

- Review Historical SIU Effluent Data [POTW data and self-monitoring data]
 - Review compliance history
 - Determine cause of any non-compliance [e.g. spill, etc.]
 - Determine pollutant concentrations *that can be met on a consistent basis*
 - Issue specific permit limits [with a safety factor] for all pollutants of concern

“WYNIWYG”

DETERMINE SITE-SPECIFIC LIMITS BASED ON HISTORICAL DATA [plus a safety factor]

0.1 mg/l limit

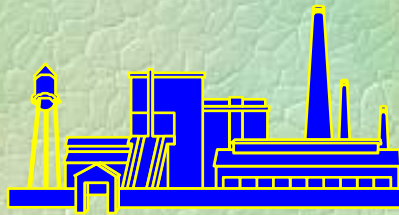
2.38 mg/l limit

0.2 mg/l limit

0.05 mg/l

1.5 mg/l

0.11 mg/l




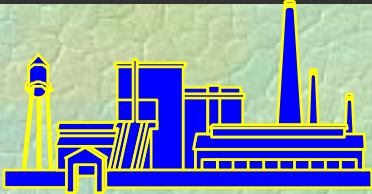

0.10 MGD

0.10 MGD

0.10 MGD

TOTAL FLOW = 300,000 gpd

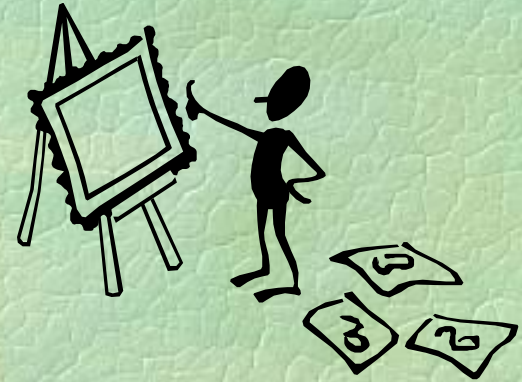
“WHAT YOU NEED IS WHAT YOU GET”

MAIL = 2.5 lbs Nickel			
Industry	Food Processing	Metal Finishing	Textile
Discharge	0.05 mg/l	1.5 mg/l	0.11 mg/l
WYNIWYG Limit	0.1 mg/l	2.38 mg/l (Categorical Std)	0.2 mg/l
2.23 Pounds Ni Permitted	0.08 lbs	1.98 lbs	0.17 lbs

ALLOCATION TABLES

- NC-DWR Requires “Allocation Table”
 - Includes Limits and Mass Calculations
 - Tracks POTW Loadings
 - SIU/IU PERMITTED LOADINGS
 - UNCONTROLLABLE [Domestic/Commercial]
 - AVAILABLE MAHL/MAIL
- In NC, Update/Submittal Required with Every Permit Issuance/Modification

WHY ARE LOCAL LIMITS REVISED?



- Changes in POTW NPDES Permit Limits
- Changes in Sludge Disposal Methods
- Contributing Industries Exceed Maximum Allowable Industrial Load
- POTW Loading Changes Result in Lower Removal Efficiencies
- Chronic POTW NPDES Permit Violations

HOW CAN AN INDUSTRY GET INVOLVED?

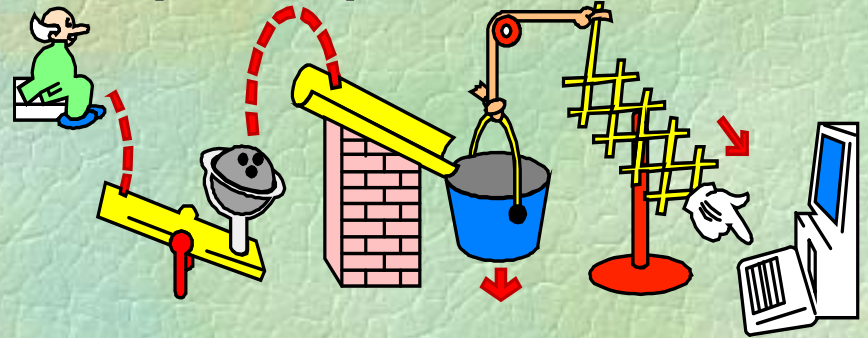
➤ Know your process and your pollutant loadings

➤ Know your POTW

- Compliant?
- Noncompliant? Which pollutants?
 - Do YOU discharge those pollutants????

➤ Know how your POTW Allocates MAIL

- Uniform Concentration for IUs?
- WYNIWYG?

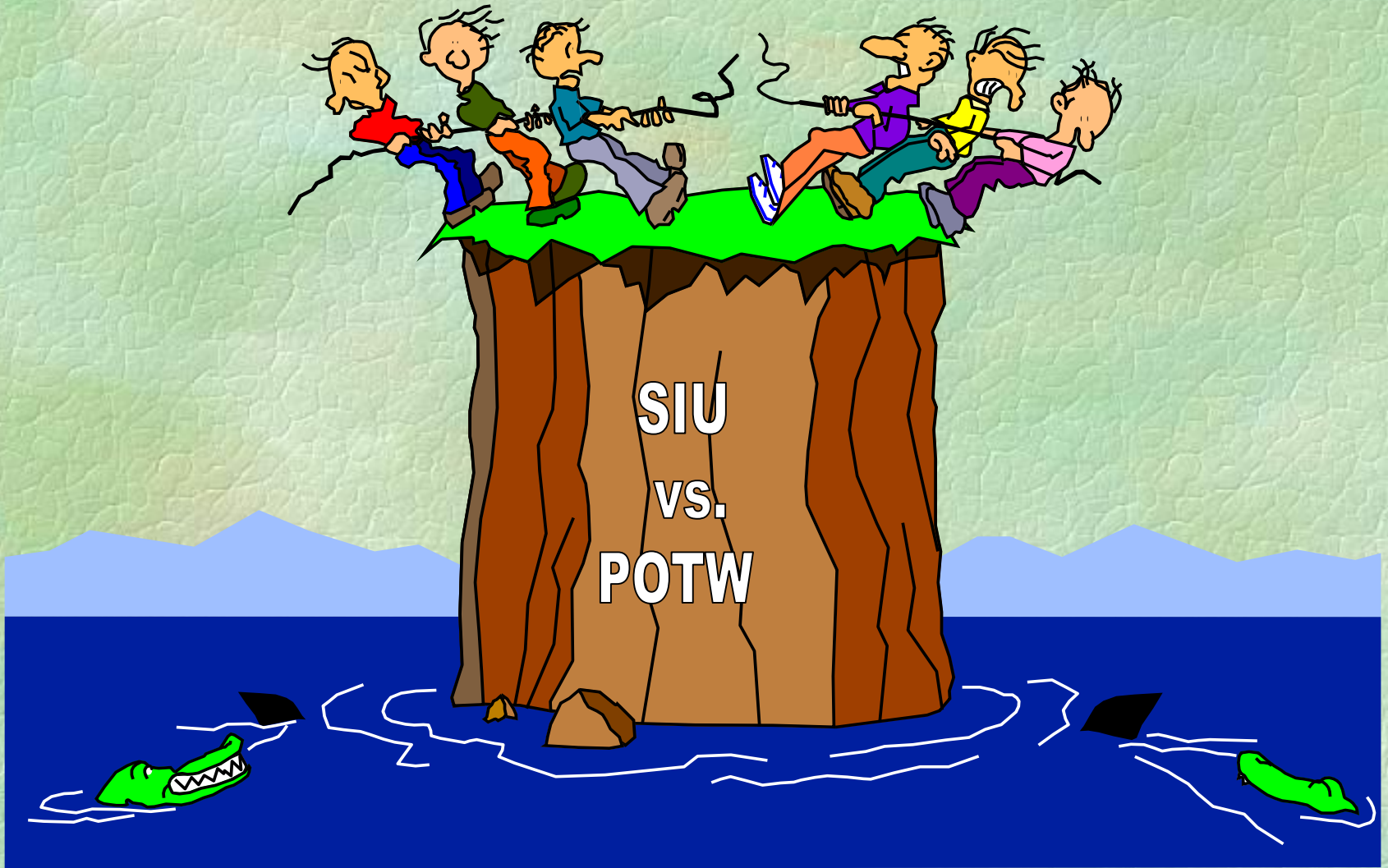


ASK POTW WHERE YOUR LIMITS CAME FROM... [Nicely]

➤ Source of Each Permit Limit Listed in "Permit Fact Sheet" Sent to State

- EPA General/Specific Prohibitions?
 - Smile, Say Thank You and Leave
- Categorical Standards?
 - Smile, Say Thank You and Leave
- Local Limits?
 - Smile, offer chocolate and stay for a chat...





Where are we going...and why are we in this handbasket???