



MAKING THE SAUSAGE HOW AN NPDES PERMIT IS DEVELOPED

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Environmental Finance Center



Environmental Finance Center Network
Webinar Series

NOTES

- This presentation is focused mainly on Publicly Owned Treatment Works (POTWs) NPDES permitting; however, others should benefit by understanding how NPDES permit limits are derived.
- This presentation generally discusses NPDES permitting in terms of the Federal (EPA) and State permitting authority roles, it is recognized that Tribes and Territories can also seek permitting authority. In most cases, Tribe and/or Territory could be substituted for “State” when discussing authorized NPDES permitting programs.

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NPDES Public
Involvement

WEBINAR OUTLINE

BRIEF NPDES PROGRAM BACKGROUND

We will briefly cover these items:

- Statutes (Laws)
- Regulations
- State Authorization
- Water Quality Standards (WQS)



WASTEWATER STATUTE HISTORY – PASSED BY CONGRESS

- 1948 Federal Water Pollution Control Act (FWPCA)
 - Federal tech assistance/funds to States wanting to protect water quality
- 1965 Water Quality Act
 - Charged states with setting WQS for **interstate** navigable waters
- 1972 FWPCA Amendments - a/k/a ***Clean Water Act (CWA)***
 - NPDES Permit Program was created
 - Permits control discharge of pollutants to protect water quality and human health
 - Permits translate general requirement of CWA and federal regulations
 - Permits issued by EPA or authorized states
 - Construction Grants Program was created

WASTEWATER STATUTE HISTORY – PASSED BY CONGRESS

- 1977 Clean Water Act (CWA)
 - Control of toxic pollutants
- 1987 Water Quality Act (WQA)
 - Stricter regulation of toxic chemicals from industry
 - Moved from Construction Grants to Clean Water State Revolving Fund
- 2014 Water Resources Reform Development Act (WRRDA)
 - Water Infrastructure Finance and Innovation Act (WIFIA)
 - Alternative loan program


WASTEWATER REGULATIONS – DEVELOPED BY EPA

- Statutes are broad, regulations add more detail
- NPDES Regulations generally found at 40 CFR §122 – 136
 - Also found at
 - 40 CFR §403 – Pretreatment
 - 40 CFR §502 – State Sludge (Biosolids) Management
 - 40 CFR §503 – Federal Sludge (Biosolids) Management
- Key areas
 - §122 – Definitions and General Program Requirements
 - 122.21 – 122.38 – Applications and Special Requirements
 - 122.41 – 122.50 – Permit Conditions
 - 122.61 – 122.64 – Transfer, Modification, Revocation and Reissuance, and Termination of Permits
 - §133 – Secondary Treatment Regulation
 - Provides information on the level of effluent quality attainable by application of secondary treatment - POTWs

STATE/TRIBE/TERRITORY AUTHORIZATION

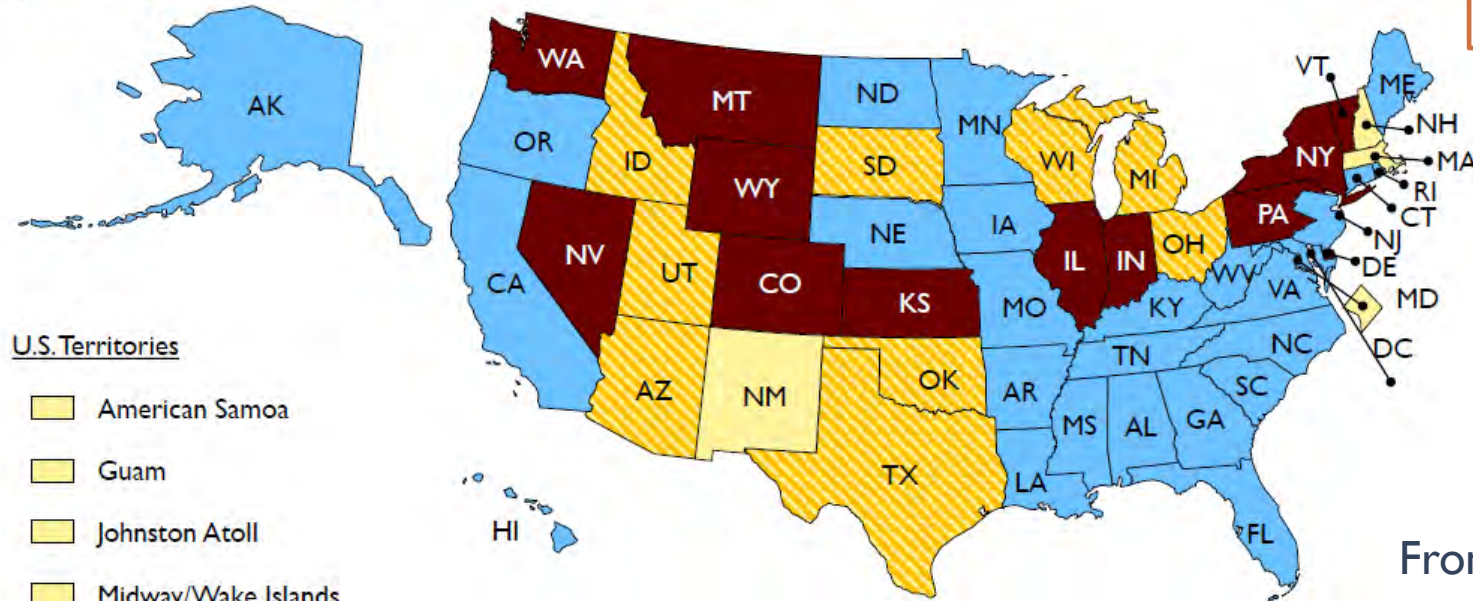
- While tribes and territories can seek authorization, I will generically use *states*
- CWA Section 402(b) allows EPA to authorize states to administer NPDES
 - 33 U.S.C. 1342(b) – Section 1342(b) of Title 33 of the US Code
 - Lays out requirements if a Governor of a state wishes to administer NPDES
 - Submit a letter from the governor to EPA requesting review/approval of program submission
 - Memorandum of Agreement (MOA)
 - Program Description
 - State Attorney General's Statement that state can legally implement
 - Applicable state laws and regulations
 - Within 90 days of receipt, EPA approves or disapproves the program
 - Authorization process includes a public notification, comment, and a public hearing
- If state does not seek authorization, EPA is the permitting authority

STATE/TRIBE/TERRITORY AUTHORIZATION

- Currently, 47 states are authorized for NPDES
 - So, about 48 different ways NPDES permitting is implemented 
 - That is actually a good thing, as states try to tailor to local conditions
- But wait – not every state is authorized for each program area under NPDES
- Program areas include:
 - Base - individual permits for cities and industries
 - General Permit – general permit to cover group of similar permittees
 - Pretreatment - control pollutants from *indirect* dischargers interfering w/POTWs
 - Federal Facilities – permit wastewater discharge from federally-owned facility
 - Biosolids (Sewage Sludge) – permit sludge disposal/reuse
- States may be authorized for all or some of the NPDES areas

STATE/TERRITORY AUTHORIZATION

NPDES Program Authorizations (as of July 2019)



3 States Unauthorized
13 State Partial Authorization
34 Full Authorization

WATER QUALITY STANDARDS (WQS)

- While NPDES is implemented by EPA unless state seeks authorization
 - The CWA puts states in the lead of developing WQS for their individual states
 - States must submit their WQS to EPA for approval/disapproval
 - If EPA disapproves, EPA may “promulgate” a WQS for a state
- WQS play a big role in many NPDES permits
 - Discharge of a pollutant must not cause a WQS to be exceeded in a waterbody
- WQS components
 - Designated Uses – uses a state wants a waterbody to support
 - Aquatic Life Support
 - Drinking Water
 - Human Health Protection
 - Etc.

WATER QUALITY STANDARDS (WQS)

- WQS components – continued
 - Water Quality Criteria (WQC) to protect each designated use
 - Aquatic Life Criteria
 - Often come in to play in NPDES permits
 - Acute WQC protect against mortality (death)
 - Chronic WQC protect against mortality and growth/reproductive impacts
 - Acute and Chronic have three components
 - Magnitude – how much of pollutant will protect a designated use
 - Frequency – how often the magnitude can be exceeded
 - Duration – the averaging period
 - Antidegradation – protect and maintain high quality waters (more later)
- You will see later how WQS significantly factor in to permit limits

WEBINAR PROGRESS

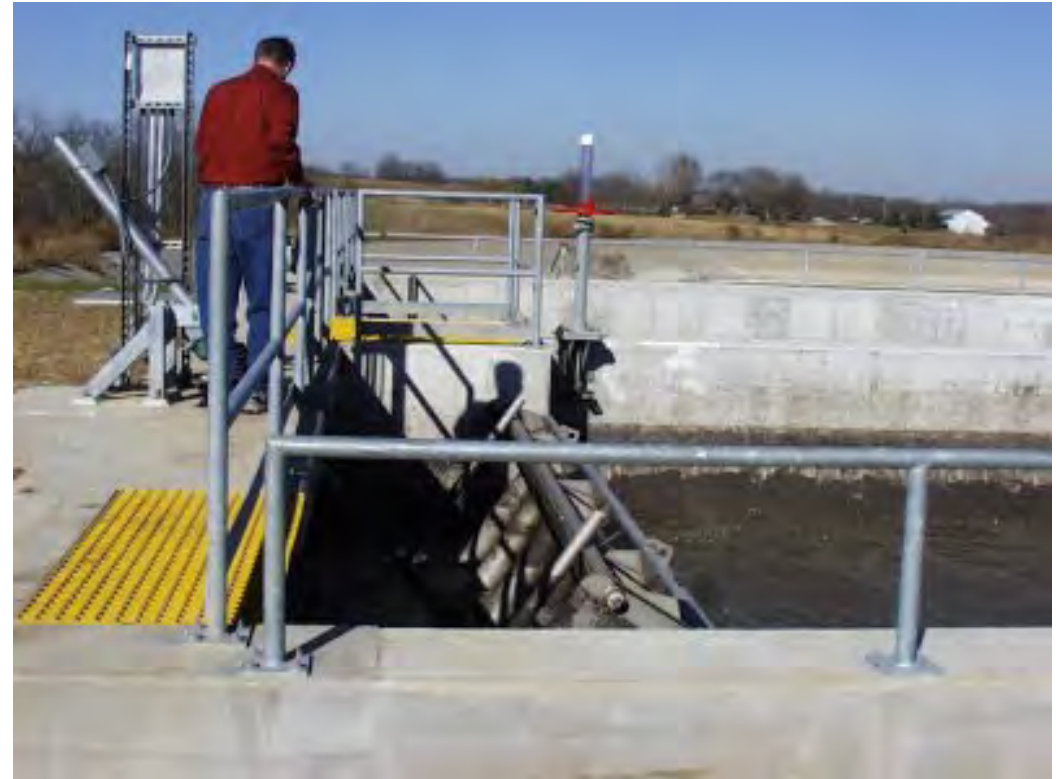
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Topic 2. NPDES Permit Applications

Topic 3. NPDES Permit Limit Development

Topic 4. NPDES Permit Components

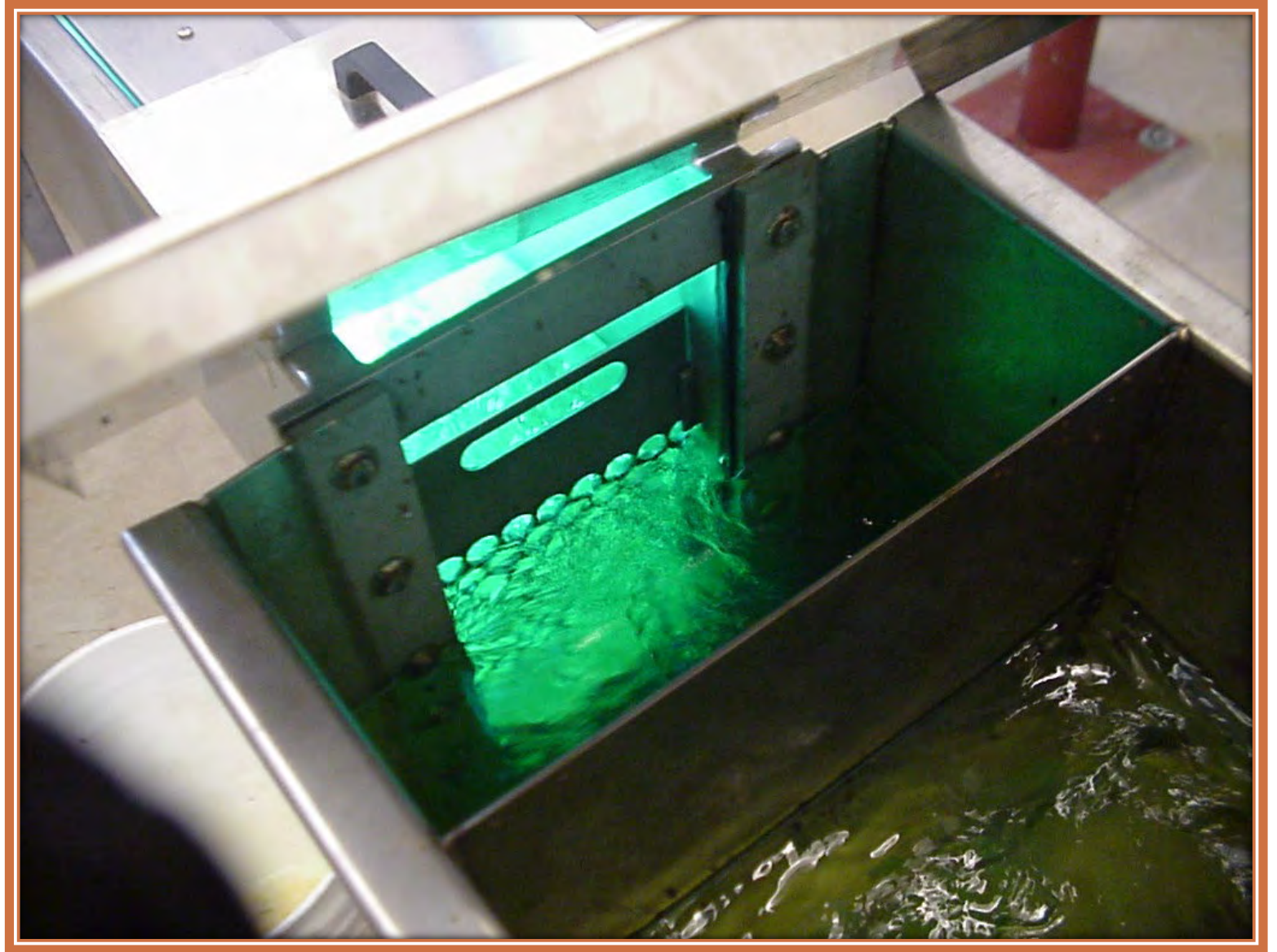
Topic 5. NPDES Public Involvement



NPDES PERMIT APPLICATIONS

We will briefly cover these items:

- Who submits an application
- Application forms
- Application components
 - Major facilities
 - Minor facilities
- Signatories – who signs



NPDES PERMIT APPLICATIONS – WHO SUBMITS

- Again, regulations relating to applications can be found at 40 CFR §122.21
- Who needs an NPDES permit?
 - Any “person who discharges or proposes to discharge pollutants” via a point source to Waters of the United States
 - Person means “*an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof*”
 - Point Source means “*means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged.*”
 - Water of the United States defined under 40 CFR §120.2
 - Biosolids facility regulated under §503

NPDES PERMIT APPLICATIONS – FORMS

- EPA has application forms that can be used – see Table on next slide
 - States can substitute forms if
 - Capture similar information
 - EPA OKs
 - Permitting authority can waive submitting effluent quality data if they already have
 - For example – Kansas maintains database of all effluent data, so pulls data in lieu of form
 - Must get EPA approval to waive
 - General categories of required information for POTWs
 1. Facility info – location, name, mailing address, phone, population served, receiving water, etc
 2. Effluent discharge info – outfall no., state, county, city, lat/lon, avg flow rate, receiving water, etc.
 3. Effluent monitoring – pollutants required by permitting authority, analytic method used, etc.
 - All POTWs do BOD, Pathogen, Design Flow Rate, pH, Temperature, and TSS
 - POTW > 0.1 MGD – NH₃, Chlorine, DO, NO₂/NO₃, TKN, O&G, Phosphorus, TDS
 - POTW > 1.0 MGD or as specified by permitting authority – WET, 100+ other pollutants

EPA NPDES Permit Application Forms

From EPA Permit Writers' Manual

Type of facility or program area	Status	Forms	Regulatory citations and additional application requirements (40 CFR)
Municipal facilities <ul style="list-style-type: none"> POTWs with design flows greater than or equal to 0.1 million gallons per day (mgd) POTWs with design flows less than 0.1 mgd 	New and existing	Form 2A , Parts A, B and C; Parts D, E, F, or G as applicable	<ul style="list-style-type: none"> § 122.21(a)(2)(i)(B) § 122.21(j)
	New and existing	Form 2A , Parts A and C; Parts D, E, F, or G as applicable	<ul style="list-style-type: none"> § 122.21(a)(2)(i)(B) § 122.21(j)
TWTDS (sewage sludge)	New and existing	Form 2S	<ul style="list-style-type: none"> § 122.21(a)(2)(i)(H) § 122.21(q)
Concentrated animal production facilities <ul style="list-style-type: none"> Concentrated animal feeding operations Concentrated aquatic animal production facilities 	New and existing	Form 1 and Form 2B	<ul style="list-style-type: none"> § 122.21(a)(2)(i)(A) and (C) § 122.21(f) and (i)
Industrial facilities <ul style="list-style-type: none"> Manufacturing facilities Commercial facilities Mining activities Silvicultural activities 	Existing	Form 1 and Form 2C	<ul style="list-style-type: none"> § 122.21(a)(2)(i)(A) and (D) § 122.21(f) and (g)
	New (process wastewater)	Form 1 and Form 2D	<ul style="list-style-type: none"> § 122.21(a)(2)(i)(A) and (E) § 122.21(f) and (k)
	New and existing (non-process wastewater)	Form 1 and Form 2E	<ul style="list-style-type: none"> § 122.21(a)(2)(i)(A) and (F) § 122.21(f) and (h)
Stormwater discharges associated with industrial activities (except stormwater discharges associated with construction activity)	New and existing	Form 1 and Form 2F	<ul style="list-style-type: none"> § 122.21(a)(2)(i)(A) and (G) § 122.21(f) § 122.26(c)
Stormwater discharges associated with construction activity	New and existing	Form 1	<ul style="list-style-type: none"> § 122.21(a)(2)(i)(A) § 122.21(f) § 122.26(c)(1)(ii)

NPDES PERMIT APPLICATIONS – FORMS

- General categories of required information for POTWs – contd.
 - 4. Whole Effluent Toxicity - >1.0 MGD POTWs, POTWs w/pretreatment program, other specified by permitting authority
 - 5. Industrial Discharges – significant/non-significant industrial users (SIUs)
 - Name Address
 - Type of waste
 - Subject to local limits?
 - Subject to Categorical Standards?
 - Etc.
 - 6. Discharge from Haz Waste generators/remediation sites – info on waste received
 - 7. Combined Sewer Overflows (CSO) – map and info on CSO discharges

NPDES PERMIT APPLICATIONS – SIGNATORIES

- “Signatories” refers to the entity that can sign an NPDES permit application
- 40 CFR § 122.22 spells out who can legally sign an NPDES application
 - Corporation
 - *A pres., secretary, treasurer, or VP of the corporation in charge of a principal business function*
 - *The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations*
 - Partnership or sole proprietorship
 - *General partner or the proprietor, respectively*
 - Municipality, State, Federal, or other public agency
 - *Principal executive officer or ranking elected official – like Mayor or City Manager*
 - Operators should not sign application (unless they are also the principal executive officer or ranking elected official)

WEBINAR PROGRESS

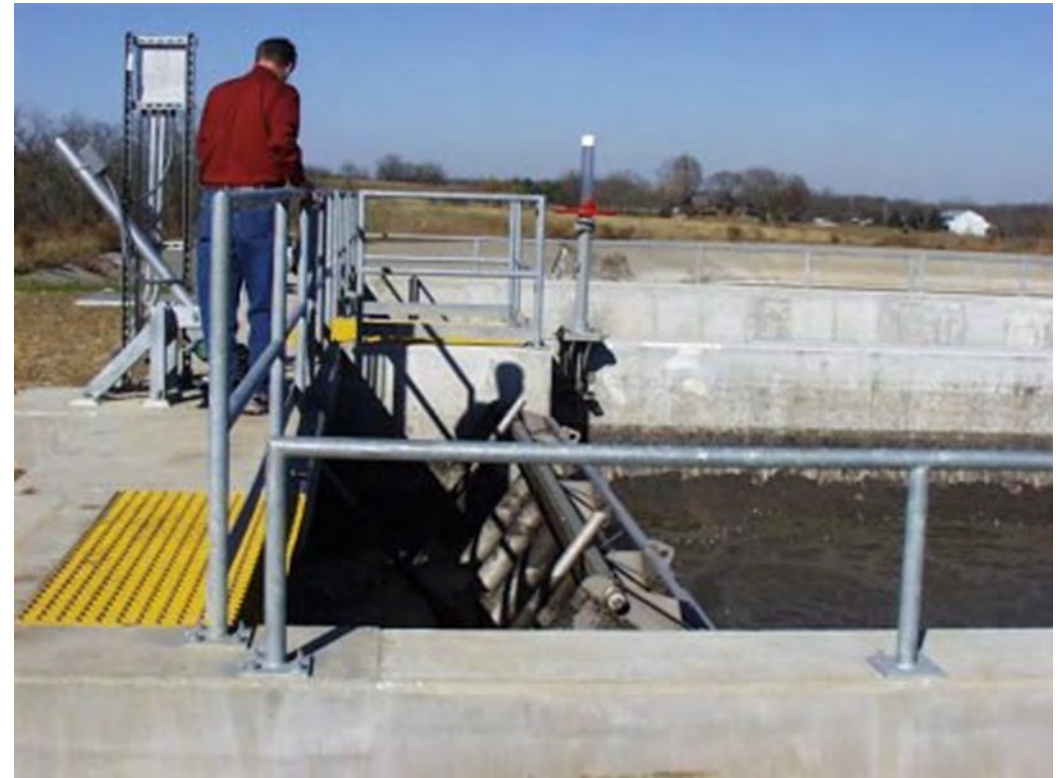
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NPDES PERMIT LIMIT DEVELOPMENT

We will briefly cover these items:

- Point sources
- General vs Individual permits
- Technology-based limits
- TMDL-specified limits
- Water quality-based Limits
 - Assumptions used
- Antidegradation
- Anti-backsliding



POINT SOURCES

- The NPDES permitting program applies discharges from “point sources”
- Clean Water Act point source definition
 - *The term "point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges and return flows from irrigated agriculture*
- Note stormwater from a municipality is a PS, from agriculture it is not
- Note POTWs that do not discharge are not required to have an NPDES permit
 - However, most states regulate under their own state authorities, including:
 - Irrigation
 - Total Reuse
 - Evaporation
 - Etc

INDIVIDUAL VS GENERAL PERMITS

- Individual permits are issued directly to an individual discharger
- General permits (GPs) are
 - Issued to cover a group or class of similar dischargers
 - Permittees then seek coverage under a general permit
- Individual permits
 - Take considerable time to develop
 - Can take several months to issue
 - Tailored to a specific discharger based on type of discharge and receiving water
 - Require one or more detailed application forms

INDIVIDUAL VS GENERAL PERMITS

- General Permits
- Also take considerable time to develop
 - But once issued can be used to cover multiple eligible entities quickly
 - All the heavy lifting is in getting the single GP issued
- One general permit can
 - Cover hundreds (or more) entities
 - Often used for municipal stormwater and pesticide application
 - EPA Region 8 has GPs for Tribal lagoons
 - Many states use for confined animal feeding operations (CAFOs)
- Once issued, coverage under a general permit requires submission of a Notice of Intent form – usually fairly simple
 - Coverage under some state GPs can be turned around in a day or two

PERMIT LIMIT DEVELOPMENT – TECHNOLOGY-BASED

- Technology-Based Effluent Limits (TBELs)
 - Minimum level of effluent quality attainable from demonstrated technologies
 - For POTWs – Secondary Treatment TBEL is defined by 40 CFR §133
 - BOD
 - TSS
 - pH
 - For Industry – TBELs are industry-specific and found at 40 CFR §400-471
 - For example
 - Petroleum Refining
 - Meat and Poultry Products
 - Metal Finishing
 - Etc

TBELS - POTWS

- Secondary Treatment and Equivalent to Secondary Treatment
 - Equivalent to Secondary Treatment applies to
 - Trickling Filters
 - Wastes Stabilization Ponds – i.e. Lagoons
- Secondary Treatment

Parameter	30-day Average	7-day Average
BOD ₅ /CBOD ₅	30 mg/L / 25 mg/L	45 mg/L / 40 mg/L
TSS	30 mg/L	45 mg/L
pH	6.0 – 9.0	6.0 – 9.0
BOD ₅ & TSS Removal	≥ 85%	N/A

TBELS - POTWS

- Equivalent to Secondary Treatment

Parameter	30-day Average	7-day Average
BOD ₅ /CBOD ₅	≤45 mg/L / ≤40 mg/L	≤65 mg/L / ≤60 mg/L
TSS	≤45 mg/L*	≤65 mg/L*
pH	6.0 – 9.0	6.0 – 9.0
BOD ₅ & TSS Removal	≥ 65%	N/A

* Lagoons can have alternative TSS if

- Lagoon is primary treatment process
- Lagoon cannot meet Equivalent to Secondary limit
- EPA-Approved alternative TSS ranges from 37 – 120 mg/L dependent on state

TBELS – NON-POTWS (INDUSTRY)

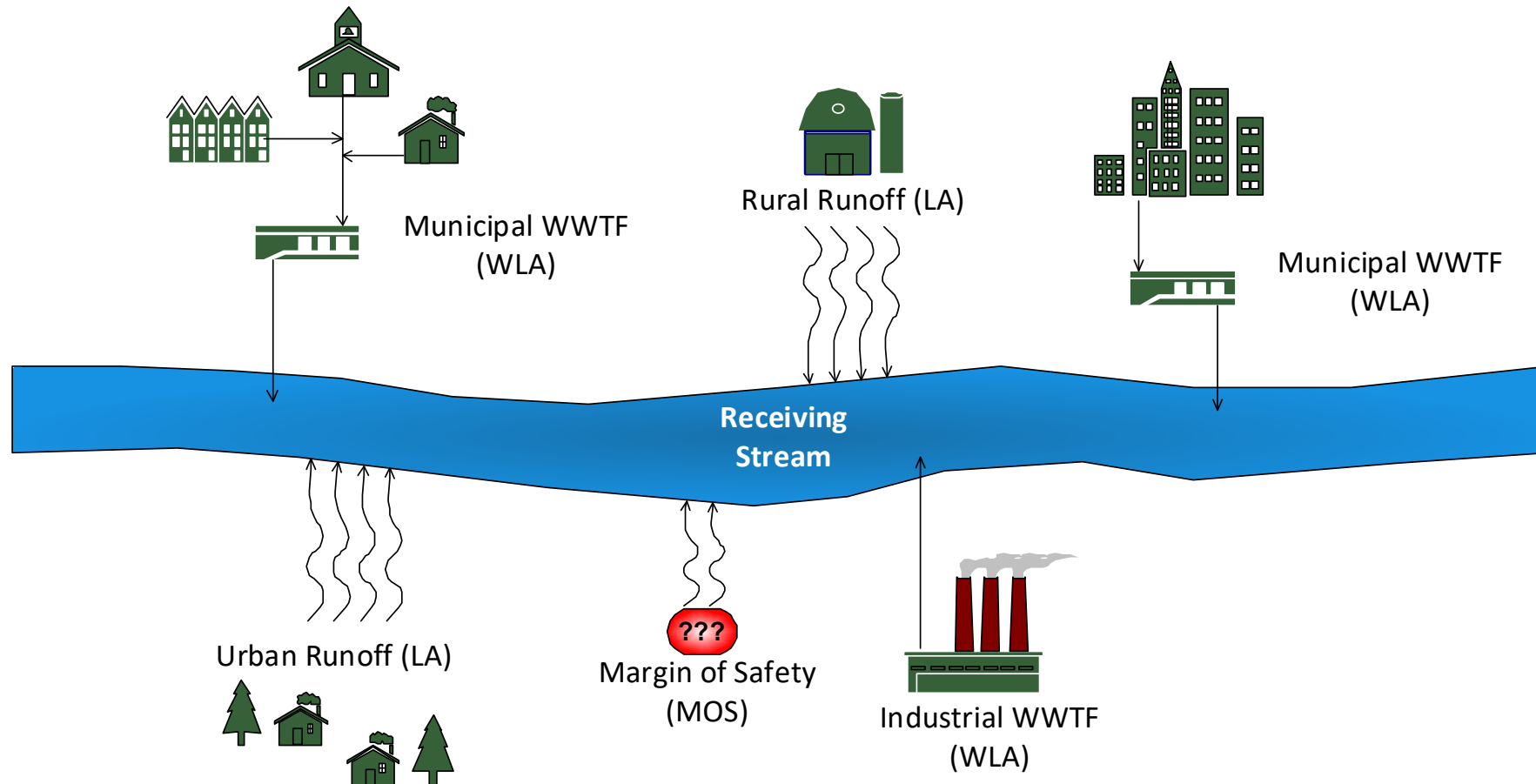
- Based on what a typical industry can achieve using a particular technology
 - Industry specific Effluent Limitation Guidelines (ELGs)
 - Based on in-depth engineering and economic study of the industry and typical treatment
 - Technical Development Documents are great source to help understand a particular industry
 - ELGs are expressed in a number of different ways
 - For Petroleum industry, some expressed as
 - Maximum kg per day per 1000 m³ of feedstock
 - For Meat Processing industry, some expressed as
 - Maximum daily pounds per 1000 lbs of Live Weight Kill (LWK)
 - For Dairy Processing industry, some expressed as
 - Maximum daily kilograms per 1,000 kg of BOD5 input
- You really need to know the particular industry and how it operates

PERMIT LIMIT DEVELOPMENT – TMDL-BASED

- Total Maximum Daily Load (TMDL)
 - States required to develop lists of *impaired waters* under §303(d) of CWA
 - *Impaired Waters*
 - Do not meet WQS states set for them, even after point sources treat effluent
 - On a priority basis, states required to develop TMDLs for those impaired waters
 - TMDLs identify *Wasteload Allocations* (WLAs) for the impairing pollutant
 - WLAs establish levels of pollutants given to point sources
 - May have multiple WLAs - one for each point source
 - Nonpoint sources are given *Load Allocations* (LAs)
 - The TMDL also incorporates a *Margin of Safety* (MOS) because they are based on modeling
 - Theoretically, an impaired waterbody should meet the state WQS for an impairing pollutant if
 - $[WLA_1 + WLA_2 + \dots WLA_n] + LA + MOS \leq TMDL$ – Could also throw in some reserve for future

PERMIT LIMIT DEVELOPMENT – TMDL-BASED

TMDL = Waste Load Allocation (WLA) + Load Allocation (LA) + Margin of Safety (MOS)



PERMIT LIMIT DEVELOPMENT – TMDL-BASED

- Need to work with regulatory agency to understand TMDL implementation
 - Remember it is expressed as a “daily load”
 - Often mass (weight based)
 - Need to understand how to translate that *load* into a permit limit
 - Daily maximum concentration/load?
 - Weekly average concentration/load?
 - Monthly average concentration/load?

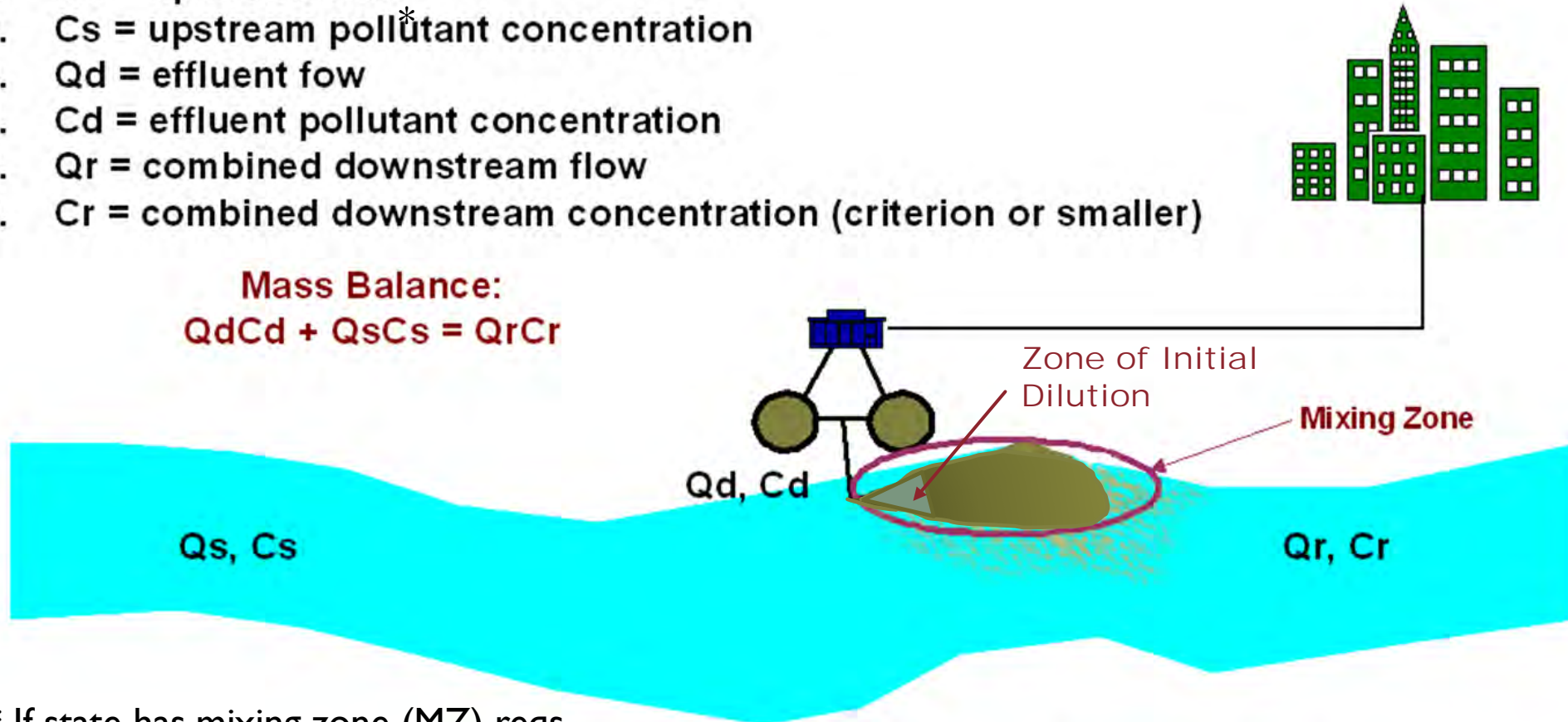
PERMIT LIMIT DEVELOPMENT – WATER QUALITY BASED (WQBEL)

- Recall that states set WQC for specific waterbodies
 - Review and identify all designated uses of the receiving water
 - Different “uses” may have different criteria – always select most stringent
 - Example of a Kansas waterbody with drinking water and aquatic life support uses
 - Chloride WQC for drinking water = 250 mg/L
 - Chloride WQC for aquatic life support = 860 mg/L
 - Select the most stringent which is 250 mg/L
- Most Aquatic Life WQBELs have
 - Acute value – lethality in a short time frame (larger value)
 - Chronic value – reproductive/health effects in longer time frame (smaller value)
- WQBELs set to ensure the WQC is not exceeded downstream of discharger
 - How is that done? A picture is worth a thousand words!

PERMIT LIMIT DEVELOPMENT – WATER QUALITY BASED (WQBEL)

1. Q_s = upstream flow
2. C_s = upstream pollutant concentration*
3. Q_d = effluent flow
4. C_d = effluent pollutant concentration
5. Q_r = combined downstream flow
6. C_r = combined downstream concentration (criterion or smaller)

Mass Balance:
 $Q_d C_d + Q_s C_s = Q_r C_r$



* If state has mixing zone (MZ) reqs,
MZ becomes upstream flow

Solve for C_d :
 $C_d = (Q_r C_r - Q_s C_s) / Q_d$

PERMIT LIMIT DEVELOPMENT – WATER QUALITY BASED (WQBEL)

- Critical upstream flow is typically based on a statistically developed low flow
 - 7Q10 – lowest 7-day low flow in a 10-year period (hydrologically-based)
 - 4B3 – 4-day avg flow event occurring on avg once every 3 years (biologically-based)
 - Tries to estimate actual biological exposure of aquatic life
- If mixing zone (MZ), critical upstream flow is multiplied by the MZ fraction
 - Applies to chronic criteria
 - Example - critical upstream flow is 10 cfs and MZ is 25% of stream flow
 - Upstream flow used in calculation $10 \text{ cfs} \times 0.25$ or 2.5 cfs
- A fraction of the MZ is called the Zone of Initial Dilution (ZID) – often 10%
 - Applies to acute criteria
- Complete the computation for each WQC to establish WQBELs
 - Now were done
 - Just Kidding!

PERMIT LIMIT DEVELOPMENT – WATER QUALITY BASED (WQBEL)

- For toxics, some states and EPA take an extra step detailed in EPA Technical Support Document (TSD) for Water Quality Standards
 - Due to variability of effluent, an average limit will be exceeded at some point
 - TSD procedure tries to minimize excursions
 - Procedure will further reduce the limitation
- TSD also covers Whole Effluent Toxicity (WET)
 - WET looks at potential toxicity entire effluent
 - Acute Toxicity
 - Lethal (kills) test organisms
 - Chronic Toxicity
 - Affects reproduction of test organisms

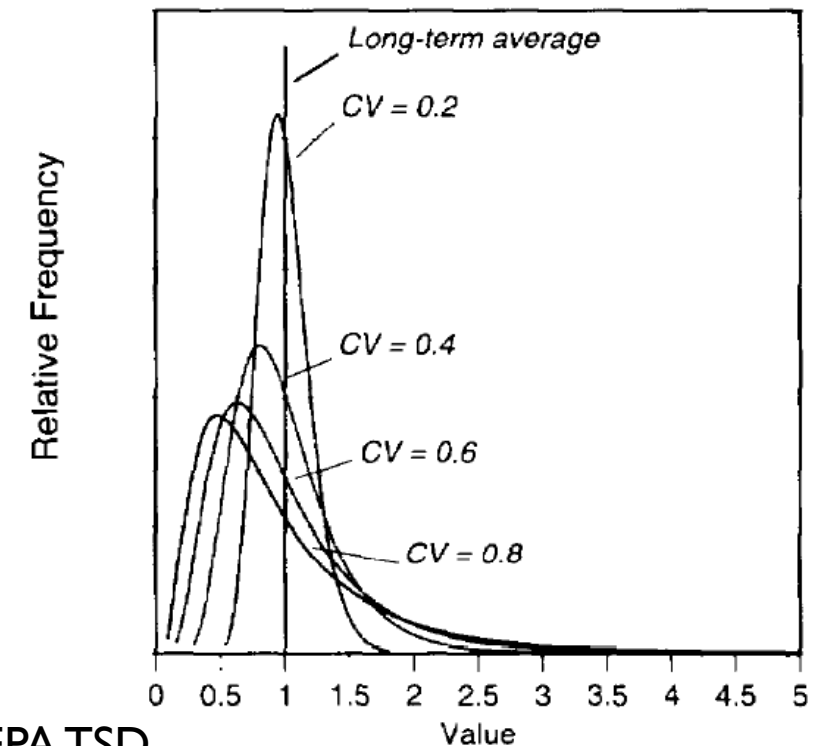
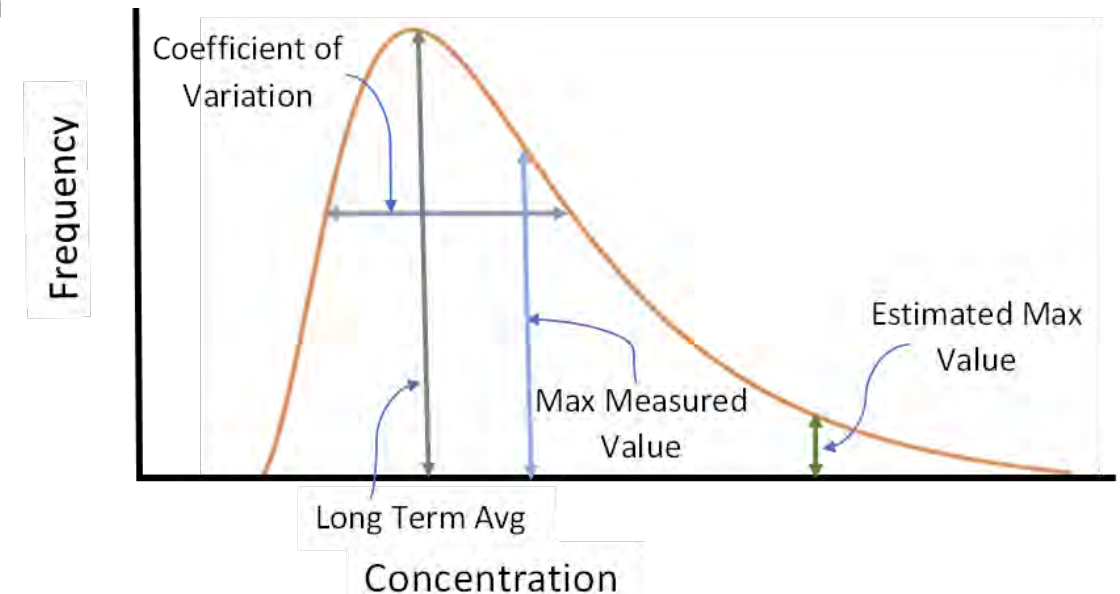


Figure 3-1b. Comparison of Relative Frequencies of Lognormal Distributions with a Mean of 1.0 for Different Coefficients of Variation

PERMIT LIMIT DEVELOPMENT – WATER QUALITY BASED (WQBEL)

- Assess whether there is “reasonable potential” (RP) to exceed the WQBEL
 - Possible for a pollutant to never exceed avg limit, but have potential to exceed WQC
 - *Likelihood of a pollutant to cause or contribute to an excursion of a water quality standard*
 - States and EPA have various methods for assessing RP
 - Like TSD discussion, variability in effluent can lead to excursions of WQBEL
 - Different procedures look at whether a certain percentile exceeds the WQBEL
 - If RP, a limit is placed in the permit
 - If not, no limit is needed
 - If no RP for a pollutant, permitting authority will often include **monitoring** with no limit



PERMIT LIMIT DEVELOPMENT – WATER QUALITY BASED (WQBEL)

- Must also evaluate “narrative criteria” – statements about *desired* WQ
- Narratives used when numeric criteria don’t exist/can’t be developed
- Narrative criteria sometimes referred to as the “free froms”
 - Free from toxics in toxic amounts
 - Free from objectionable color
 - Free from objectionable taste and odor
 - Free from solids build up
- Regulators often include the “free froms” as permit requirements
 - Sometimes “translate” to a numeric value

PERMIT LIMIT DEVELOPMENT

- Now, for the same pollutant we can have
 - A technology-based limit (TBEL)
 - A TMDL-based limit
 - A water quality-based limit (WQBEL)
 - With the possibility of a variance – but that is a story for another day
- What do we do?
 - Select the most stringent of the three possible limits
- And that's it?
 - Not so fast my friend!
- Now we have to consider Antidegradation and Antibacksliding

PERMIT LIMIT DEVELOPMENT - ANTIDEGRADATION

- Antidegradation – does it apply?
 - Three basic questions to ask
 1. Is your discharge new or expanded since a previous permit?
 2. Is the discharge receiving water considered a “high quality water”?
 3. Is a lessening of water quality needed to accommodate “important social and economic development”
 - If the answer to all is yes, you need to assess whether there are *practicable less-degrading alternatives*
 - Practicable incorporates technical and economic viability
 - Depending on state WQS, “expanded” can apply to
 - Concentration – e.g. mg/L, or
 - Mass – e.g. lb/day
 - So, for an expanded discharge, may not be sufficient to just maintain existing concentration
 - Same concentration with more flow = more mass discharged
 - If the permit is a renewal with no expanded discharge
 - Generally, no analysis is required

PERMIT LIMIT DEVELOPMENT - ANTIDEGRADATION

- Antidegradation – contd.
 - Analysis of Alternatives (AA)
 - Permittee performs AA to cost out less-degrading alternatives – if they exist
 - The AA is subject to public participation
 - If there are practicable alternatives, the regulator should require a less-degrading alternative
 - If lessening of WQ is needed to accommodate “important social or economic development”
 - This generally means a lower permit limit
 - If no practicable lesser-degrading alternatives
 - The regulatory authority allows degradation if needed for “important social or economic development”

PERMIT LIMIT DEVELOPMENT - ANTIBACKSLIDING

■ Antibacksliding

- 40 CFR §122.44(l) states “...when a permit is renewed or reissued, interim effluent limitations, standards or conditions **must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit**”
- So, with few exceptions – you can’t raise permit limits on a renewed permit
 - Why *lessen* water quality?
- A few key exceptions
 - Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify a less stringent effluent limitation
 - Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) which would have justified less stringent effluent limitation
 - The Administrator determines technical mistakes or mistaken interpretations of law were made

PERMIT LIMIT DEVELOPMENT - ANTIBACKSLIDING

- Antibacksliding – contd.
 - A few key exceptions – contd.
 - A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy
 - The permittee
 1. Installed treatment facilities required to meet the effluent limitations in the previous permit
 2. Has properly operated and maintained the facilities
 3. Has still been unable to achieve the previous effluent limitations
 - If all 3 met, limitations in the reissued permit may reflect the level of pollutant control actually achieved
 - Bottom line
 - Even if less stringent limits calculated for a renewed permit, old limits likely apply
- Now that is the end of *drafting* the permit limits – promise 😊

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NPDES PERMIT COMPONENTS

We will briefly cover these items:

- Cover Page
- Effluent Limitations
- Monitoring/Reporting Requirements
- General/Standard Conditions
- Special/Supplemental Conditions
- Pretreatment Program Requirements
- Schedules of Compliance
- Fact Sheet/Statement of Basis



PERMIT COMPONENTS – COVER PAGE

- Cover page information
 - Name and location of permittee
 - NPDES permit number
 - Location of wastewater facility
 - Location of outfall(s) authorized for discharge – latitude/longitude
 - Issuance/Expiration date of permit
 - Statement of discharge authorization
 - Signature of regulatory official and date
 - Facility flow and description

PERMIT COMPONENTS – EFFLUENT LIMITS

- Effluent limits developed as described previously incorporated
 - Technology-Based;
 - TMDL derived; and/or
 - Water Quality-Based

} Antidegradation and Antibacksliding applied
- The primary mechanism for controlling discharges of pollutants
- Must express in appropriate units (e.g. mg/L, lb/day, #/100 mL, etc.)
- Must express the appropriate time period (e.g. weekly, monthly, daily, etc.)

PERMIT COMPONENTS – MONITORING & REPORTING

- Monitoring and Reporting conditions
 - Monitoring locations
 - Clearly state where each effluent sample must be taken that is representative of the treatment
 - It allows the permittee and regulator to monitor at the same location for every sample
 - Most times, all samples collected at the same location
 - Example – may require BOD monitoring before aerator, but DO after aerator
 - Clearly state where each influent sample must be taken
 - Clearly state if internal monitoring locations are located
 - Internal monitoring sometimes required
 - Example – when final effluent is a combination of two or more wastestreams subject to different TBELs
 - Monitoring frequencies
 - Daily, weekly, monthly, annually, etc.

PERMIT COMPONENTS – MONITORING & REPORTING

- Monitoring and Reporting conditions – contd.
 - Sample collection methods
 - Grab samples – go out and take a single sample of the effluent
 - Composite sample – utilize a compositor, or manually composite sample
 - Composite may also specify time-based composites, or flow-based composites
 - Analytical methods
 - Permit writer specifies the analytical methods required by the permitting authority
 - Sometimes specifies the “Minimum Detection Level” (MDL)
 - 40 CFR § 136 is often cited as source of analytical methods
 - Reporting and recordkeeping requirements
 - Reporting is done via Discharge Monitoring Report – most now electronic
 - At least annually, but most often monthly – the 28th day after the last day of the report month

PERMIT COMPONENTS – MONITORING & REPORTING

- Monitoring and Reporting conditions – contd.
 - Reporting and recordkeeping requirements – contd.
 - Recordkeeping information maintained for 3 years includes
 - Date, place, time of sampling
 - Name of sampler
 - Date of analysis
 - Name of analyst
 - Analytical methods used
 - Analytical results
 - } May need to acquire from commercial lab if you contract your analytical work
 - IMPORTANT – much of permit compliance involves recordkeeping!!
 - You are required to keep records
 - Be sure to keep your monitoring and reporting records to demonstrate compliance with
 - Recordkeeping requirements
 - Permit compliance

PERMIT COMPONENTS – GENERAL/STANDARD CONDITIONS

- Pre-established conditions applying to each NPDES permit
 - Legal, administrative, and procedural requirements of the permit
 - Found in 40 CFR § 122.41 and 122.42
 - Duty to Comply § 122.41(a): The permittee must comply with all conditions of the permit.
 - Duty to Reapply § 122.41(b): A permittee wishing to continue permitted activities after the permit expiration date must reapply for and obtain a new permit
 - States often send a notice and application for renewal, but that is a *courtesy*
 - Need to Halt or Reduce Activity not a Defense § 122.41(c): Permittee may not use as an enforcement defense that halting/reducing the permitted activity is only way to comply
 - Duty to Mitigate § 122.41(d): The permittee required to take all reasonable steps to prevent any discharge or sludge use/disposal in violation of the permit, if reasonable likelihood of adversely affecting human health or the environment

PERMIT COMPONENTS – GENERAL/STANDARD CONDITIONS

- Pre-established conditions applying to each NPDES permit – contd.
 - Found in 40 CFR § 122.41 and 122.42 – contd.
 - Proper Operation and Maintenance § 122.41(e): The permittee must properly operate and maintain all equipment and treatment systems used for compliance with the permit
 - Permit Actions § 122.41(f): The permit may be modified, revoked and reissued, or terminated for cause
 - Property Rights § 122.41(g): The permit does not convey any property rights of any sort
 - Duty to Provide Information § 122.41(h): The permittee must furnish
 - Any information needed to determine compliance with the permit within a reasonable time
 - Copies of records that must be kept as required by the permit

PERMIT COMPONENTS – GENERAL/STANDARD CONDITIONS

- Pre-established conditions applying to each NPDES permit – contd.
 - Found in 40 CFR § 122.41 and 122.42 – contd.
 - Inspection and Entry § 122.41(i): The permittee must, upon presentation of valid credentials by the Director or his or her representative, allow entry into the premises where the regulated activity or records are present. The Director must have access to and be able to make copies of any required records; inspect facilities, practices, operations, and equipment; and sample or monitor at reasonable times.
 - Monitoring and Records § 122.41(j):
 - Samples must be representative of the monitored activity
 - The permittee must retain records for 3 years (5 years for sewage sludge activities) subject to extension by the Director.
 - Monitoring records must identify the sampling dates and personnel, the sample location and time, and the analytical techniques used and corresponding results
 - Wastewater and sludge measurements must be conducted in accordance with Parts 136 or 503 or other specified procedures. Falsification of results is a violation under the CWA.
 - Signatory Requirement § 122.41(k): The permittee must sign and certify applications, reports, or information submitted to the Director. Knowingly making false statements, representations, or certifications is punishable by fines or imprisonment

PERMIT COMPONENTS – GENERAL/STANDARD CONDITIONS

- Pre-established conditions applying to each NPDES permit – contd.
 - Found in 40 CFR § 122.41 and 122.42 – contd.
 - Planned Changes § 122.41(l)(1): Notice must be given to the Director as soon as possible of planned physical alterations or additions to the facility (or both)
 - Anticipated Noncompliance § 122.41(l)(2): The permittee must give advance notice of any planned changes that could result in noncompliance
 - Permit Transfers § 122.41(l)(3): The permit is not transferable except after written notice to the Director. The Director may require modification or revocation and reissuance, as necessary
 - Monitoring Reports § 122.41(l)(4): Monitoring results must be reported at the frequency specified in the permit and be reported electronically (or under special exception on a discharge monitoring report (DMR) or forms provided or specified by the Director). Monitoring for any pollutant occurring more frequently than required by the permit **and** uses approved test procedures must also be reported. Calculations requiring averaging must use an arithmetic mean unless otherwise specified in the permit

PERMIT COMPONENTS – GENERAL/STANDARD CONDITIONS

- Pre-established conditions applying to each NPDES permit – contd.
 - Found in 40 CFR § 122.41 and 122.42 – contd.
 - Compliance Schedules § 122.41(l)(5): Reports of compliance or noncompliance or any progress report must be submitted no later than 14 days following the interim or final compliance date
 - Twenty-Four Hour Reporting § 122.41(l)(6): The permittee must orally report any noncompliance that might endanger human health or the environment within 24 hours after becoming aware of the circumstances. Within 5 days of becoming aware of the circumstances, the permittee must provide a written submission including a description of the noncompliance
 - Other Noncompliance § 122.41(l)(7): The permittee must report all instances of noncompliance not reported under other specific reporting requirements at the time DMRs are submitted
 - Other Information § 122.41(l)(8): If the permittee becomes aware that it failed to submit or incorrectly submitted any relevant facts in its application or reports must promptly submit such facts or information

PERMIT COMPONENTS – GENERAL/STANDARD CONDITIONS

- Pre-established conditions applying to each NPDES permit – contd.
 - Bypass § 122.41(m) (*abbreviated*): The intentional diversion of waste streams from any portion of treatment facility
 - (4) Prohibition of bypass
 - (i) Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:
 - (A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime.
 - (C) The permittee submitted notices as required under paragraph (m)(3) of this section.
 - (ii) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph (m)(4)(i) of this section.

PERMIT COMPONENTS – GENERAL/STANDARD CONDITIONS

- Upset § 122.41(n): An upset (i.e., an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limits because of factors beyond the permittee's control) can be used as an affirmative defense against permit noncompliance. An upset does not include noncompliance to the extent caused by operational error, improperly designed or inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation. The permittee (who has the burden of proof to demonstrate that an upset has occurred) must have operational logs or other evidence that shows
 - When the upset occurred and its causes
 - The facility was being operated properly
 - Proper notification was made
 - Remedial measures were taken

PERMIT COMPONENTS – SPECIAL/SUPPLEMENTAL CONDITIONS

- Conditions developed to supplement numeric effluent limitations
 - May not be in every NPDES permit – they are “special”
 - Examples include
 - Stream monitoring – up and/or downstream of a discharge
 - Special studies – things like
 - Evaluate operational changes to improve nutrient removal
 - Complete sludge depth study in a lagoon system
 - Complete a mixing zone study
 - Best Management Practices (BMPs) – things like
 - Control stormwater runoff on plant site
 - Provide secondary containment around chemical tanks

PERMIT COMPONENTS – PRETREATMENT REQUIREMENTS

- Some might consider these “special” special conditions
 - For POTWs with pretreatment programs designed to
 - To prevent pass through of pollutants from industry
 - To prevent interference with POTW processes from industry
 - To improve opportunities to recycle/reclaim municipal and industrial wastewater and sludges
 - Blood from one head of cattle ~1,000 Population Equivalent
 - No “standard” pretreatment conditions, so can be different state to state
 - Things like
 - Permittee shall implement and administer a pretreatment program as approved by _____
 - Permittee shall submit an annual report by _____ of each year

PERMIT COMPONENTS – SCHEDULES OF COMPLIANCE (SOCS)

- Give permittees additional time to comply with the CWA
 - Generally, not needed by most permittees
- 40 CFR § 122.47 specifies requirements
 - Cannot be used for TBELs
 - Generally used for WQBELs
 - Time for Compliance – as soon as possible, but not past statutory deadlines
 - Interim Dates for Specific Actions – cannot exceed 1 year
 - Often see annual reporting by a certain date
 - Reporting
 - Within 14 days of an interim date
 - Notify regulator about compliance status with SOC

PERMIT COMPONENTS – FACT SHEETS/STMTS OF BASIS

- Fact sheets are documents that set forth
 - Factual, legal, method, and policy questions considered in drafting the permit
 - The fact sheet and supporting documentation
 - Explain the rationale and assumptions used in deriving limitations
 - Provided to the discharger and the public
 - Required contents of a fact sheet are stated 40 CFR §124.8 and 124.56
 - **General facility information**
 - Description of the facility or activity
 - Sketches or a detailed description of the discharge location
 - Type and quantity of waste/pollutants discharged

PERMIT COMPONENTS – FACT SHEETS/STMTS OF BASIS

- Required contents of a fact sheet are stated 40 CFR §124.8 and 124.56 – contd.
 - **Summary rationale of permit conditions**
 - Summary of the basis for the draft permit requirements
 - References to the applicable statutory or regulatory provisions
 - References to the administrative record
 - **Detailed rationale of permit conditions**
 - Explanation and calculation of effluent limitations
 - Specific explanations of
 - Toxic pollutant limitations
 - Limitations on internal waste streams
 - Limitations on indicator pollutants – e.g. *E. coli* as indicator of pathogens
 - Case-by-case requirements
 - For permits with sewage sludge land application plan, a description of how required elements addressed
 - Reasons why any requested variances do not appear justified, if applicable

PERMIT COMPONENTS – FACT SHEETS/STMTS OF BASIS

- Required contents of a fact sheet are stated 40 CFR §124.8 and 124.56 – contd.
 - **Administrative Requirements**
 - A description of the procedures for reaching a final decision on the draft permit, including
 - Public comment period beginning and ending dates
 - Procedures for requesting a hearing
 - Other procedures for public participation
 - Name and contact info for additional information
 - **Statements of Basis**
 - Only required for EPA-issued non-major permit
 - Most states agree to do Statements of Basis – helps them explain permit rationale
 - ***A Fact Sheet Light***
 - Only required to
 - Describe the derivation of the effluent limitations/conditions in the draft permit, and
 - The reasons for the limitations/conditions

WEBINAR PROGRESS

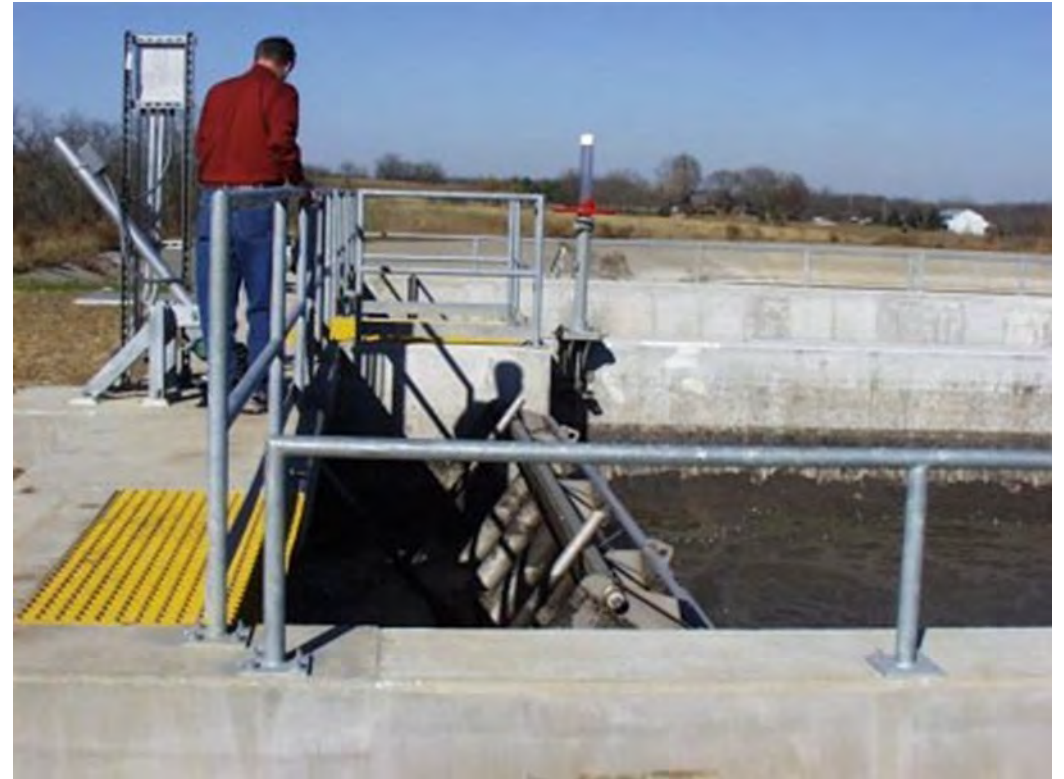
Topic 1. Brief NPDES Program Background

Topic 2. NPDES Permit Applications

Topic 3. NPDES Permit Limit Development

Topic 4. NPDES Permit Components

Topic 5. NPDES Public Involvement



NPDES PUBLIC INVOLVEMENT

We will briefly cover these items:

- Public Notice
- Public Hearing
- Final Determination



PUBLIC INVOLVEMENT – PUBLIC NOTICE (PN)

- *Draft* individual NPDES permits must be placed on Public Notice
 - Ensures opportunity for all interested parties to comment on draft NPDES permits
- Public Notice requirements
 - Must provide 30 days for comments
 - Major permits noticed in a daily or weekly newspaper in the area of discharge
 - Or post permit and fact sheet on a public website for 30-days
 - Direct mail or email to interested parties
 - States often keep email lists of interested parties
 - Where and to whom interested parties can comment
- If sufficient interest, a Public Hearing may be held (more later)
- Regulator must provide a response to significant comments received
 - Permit may be modified (or not) based on comments received

PUBLIC INVOLVEMENT – PUBLIC HEARING (PH)

- Regulators shall hold a public hearing when they find significant public interest
- Regulators may also hold public hearings at their own discretion
 - Regulators often know when a permit has significant interest, or is controversial
- Public hearings require 30 days public notice
 - To save time, regulators may issue a Notice and Hearing date concurrently
 - 30-days total instead of a 30-day PN followed by another 30-day PH notice
- Any person may submit oral or written statements on the draft permit at PH
- Regulator must provide a response to significant comments received
 - Permit may be modified (or not) based on comments received
- Tape recording or transcript of PH will be made available to the public

PUBLIC INVOLVEMENT – FINAL DETERMINATION

- After the close of the public comment period/public hearing
 - Regulator shall issue a final permit decision
 - Move forward with issuance
 - Deny issuance
- Regulator shall notify
 - The applicant; and
 - Each person who submitted written comments or requested notification
 - The notice shall include procedures for appealing a decision



THANK YOU!

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