

Planning for Local Limits Re-Evaluation

Pacific Northwest Pretreatment Workshop

LeAnn Books, PE, PMP

October 15, 2025



We Make a Difference

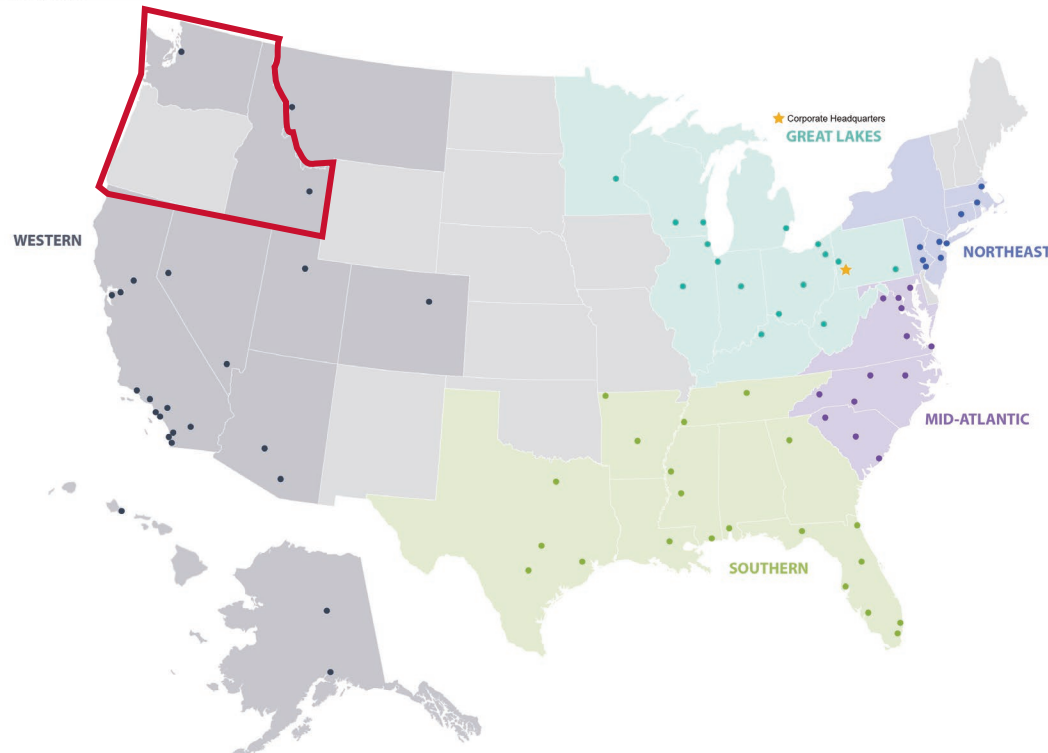


Who is Michael Baker International?

Michael Baker
INTERNATIONAL



Rochester, PA



Bridge

Highway

Intelligent Transportation

Design-Build

Federal

Construction Services

Planning

Water

Environmental

Architecture

Aviation

Rail and Transit

Land Development

Energy

Cold Regions Engineering

Cost Management

Geospatial Services

Sustainable and Resilient
Solutions

Surveying

Geotechnical Engineering

We Make a Difference



Who is Michael Baker International?

Michael Baker
INTERNATIONAL

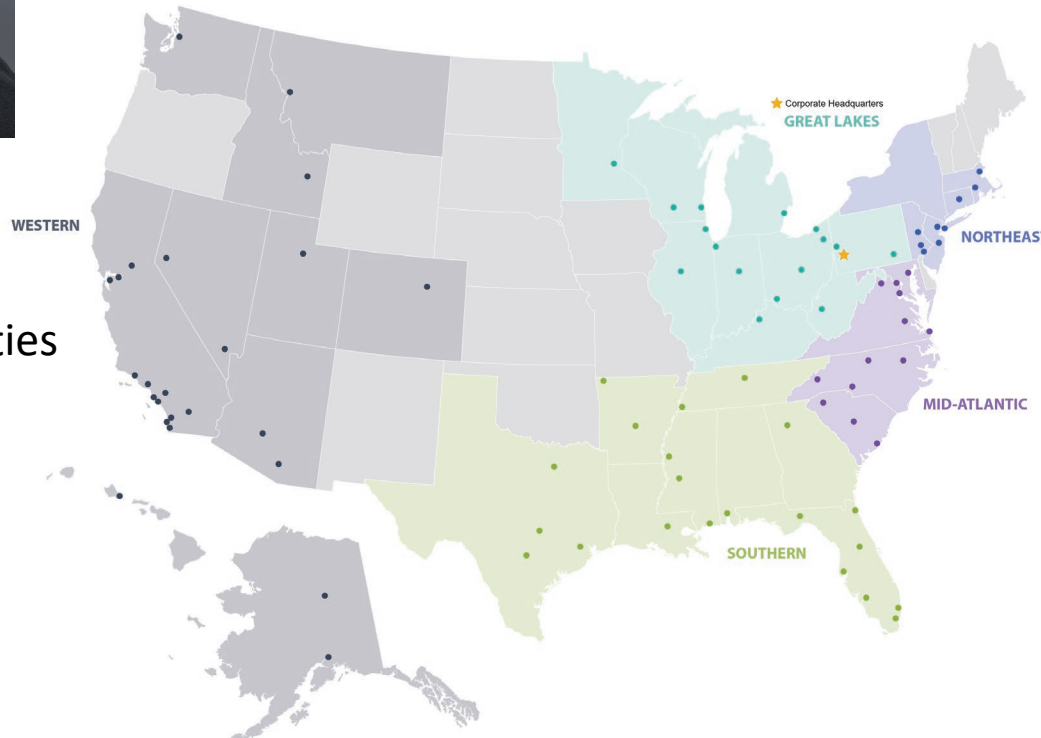
Pretreatment



LeAnn Books

Pretreatment Programs

Consultant partner with Cities
Helena, MT



Pat Bradley

Clean Water Act Specialist

EPA Headquarters +
City of Richmond, VA
Virginia Beach, VA

We Make a Difference



LeAnn's Qualifications



LeAnn's Qualifications

Michael Baker
INTERNATIONAL



2011- 1st Local Limits Evaluation (Region 8)
2nd & 3rd Local Limits Detailed Re-evaluation
Update IU Permits

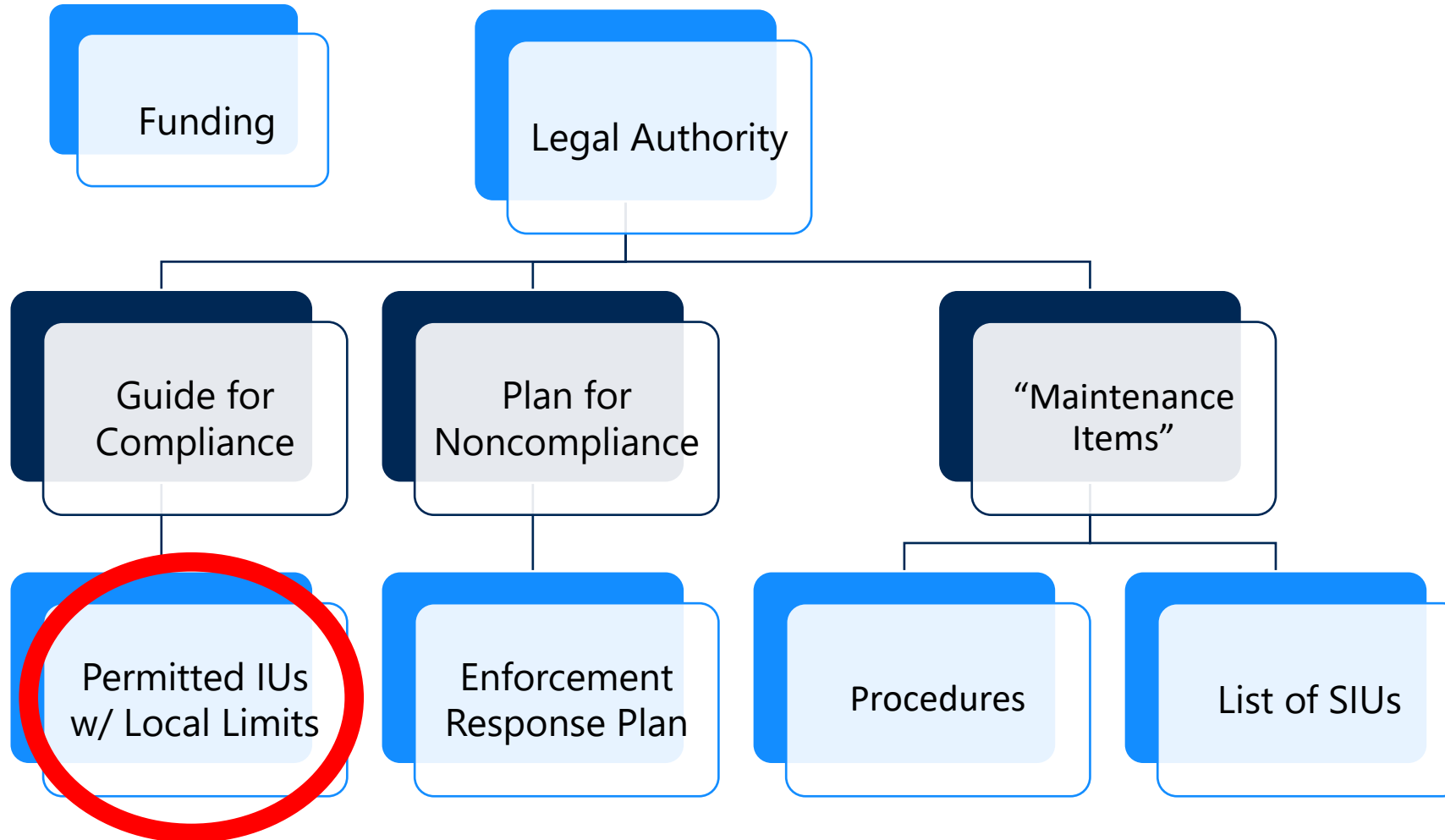


Local Limits Detailed Re-Evaluation
Program Audit Support
Permit Writing
Code Review
EPA Regions 1, 4, & 9



Robust Permit Fact Sheets 

LL's Place in Pretreatment Programs



Agenda

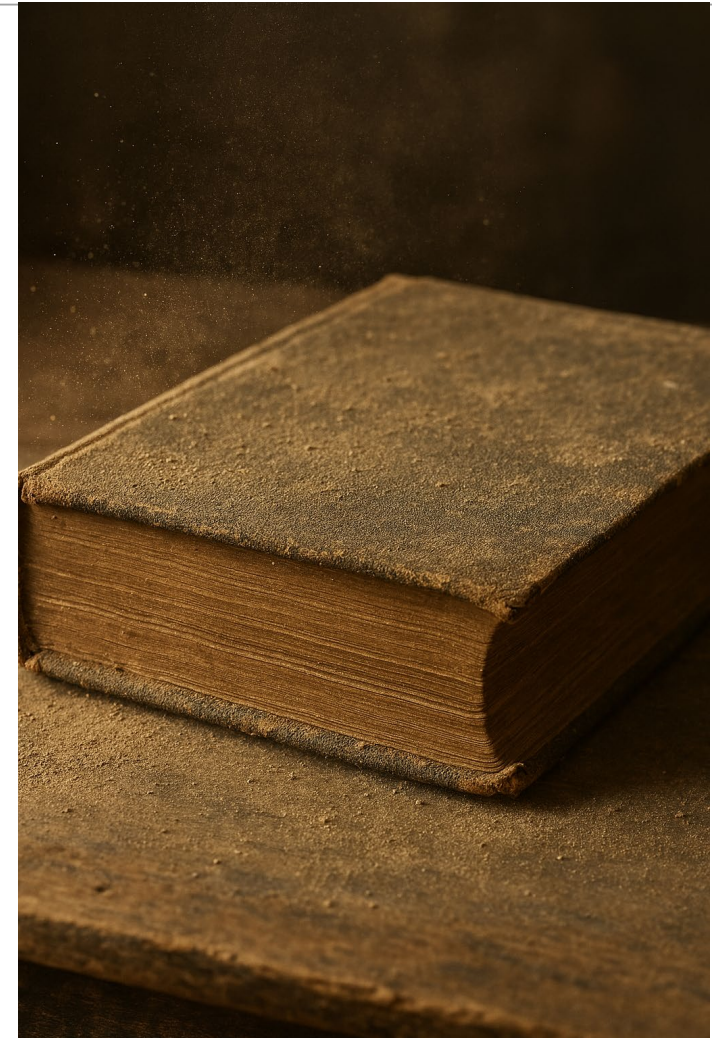
- Triggers for & Types of Local Limits Evaluation
- Conceptual Maximum Allowable Headworks Loading
- Local Limits Detailed Re-evaluation
 - Planning
 - Data Collection
 - Detailed Re-evaluation
 - Approval Authority
 - Issue Updated IU Permits

Are my Local Limits too old?

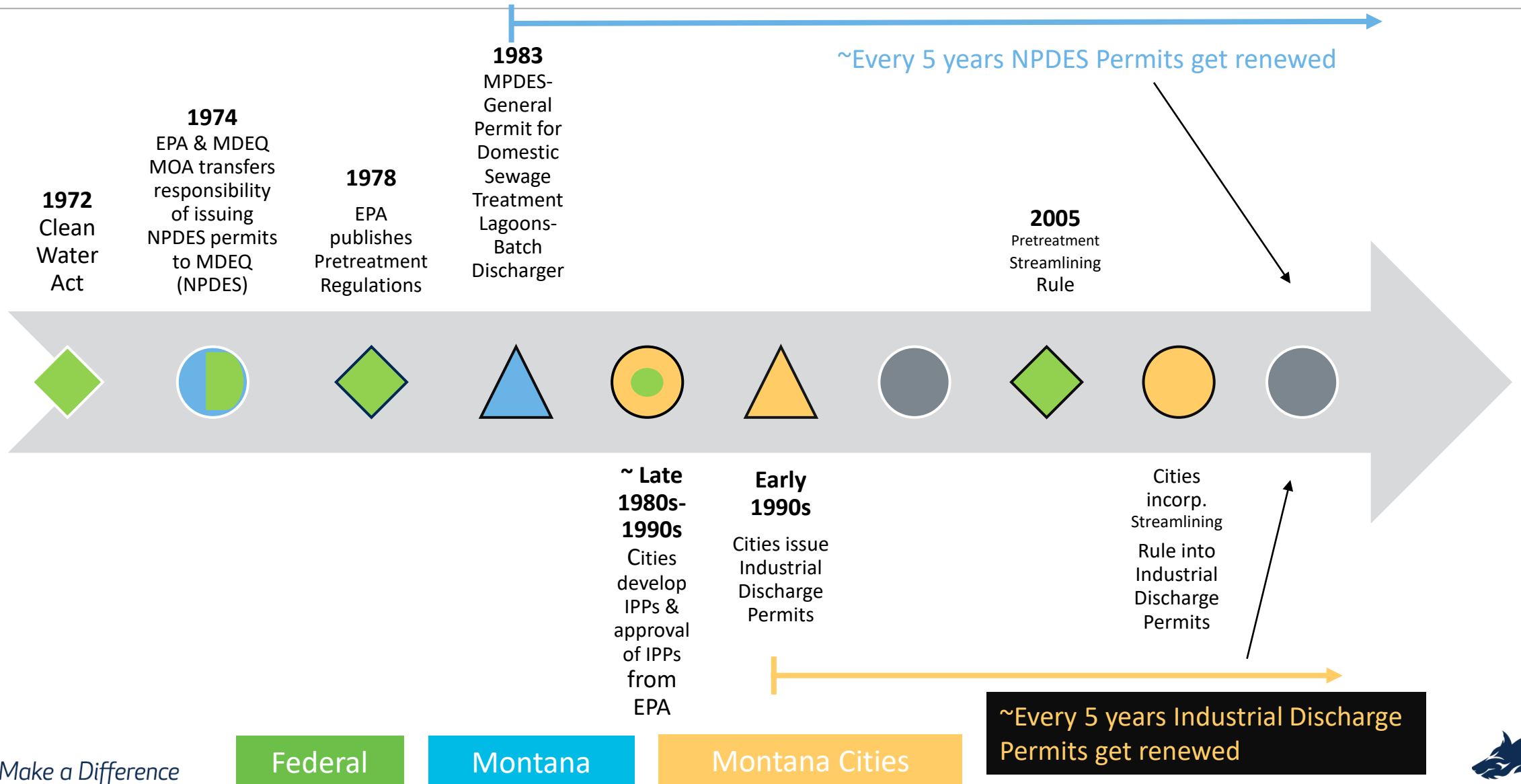
What's a normal interval for local limits evaluations?

How long is too long between updates?

It depends.



Regulation Overview



Trigger for Local Limit Evaluation

- NPDES Permit Application or Renewal

- According to 40 CFR 122.44(j)(2)(ii), POTWs must “provide a written technical evaluation of the need to revise local limits under 40 CFR 403.5(c)(1), following permit issuance or reissuance.”

- NPDES Permit Renewal

WA	S6. PRETREATMENT A. General Requirements B. Monitoring Requirements C. Reporting of Monitoring Results..... D. Local Limit Development	D. As sufficient data becomes available, the Permittee in consultation with [the Department of] Ecology, must reevaluate its local limits
ID	II. Special Conditions..... A. Pretreatment Requirements	A.5- Within one year of the effective date of this permit, the permittee must submit to the EPA for review and approval, the results of a local limits study.
MT	I. EFFLUENT LIMITATIONS, MONITORING REQUIREMENTS A. DESCRIPTION OF DISCHARGE POINTS AND MIXING ZONE B. EFFLUENT LIMITATIONS FOR OUTFALL 003 C. SPECIAL CONDITIONS D. PRETREATMENT REQUIREMENTS	E.2- Permittee shall submit the proposed local limits to the EPA in approvable form based upon the findings of the technical evaluation within two-hundred and seventy (270) days from the effective date of this permit.

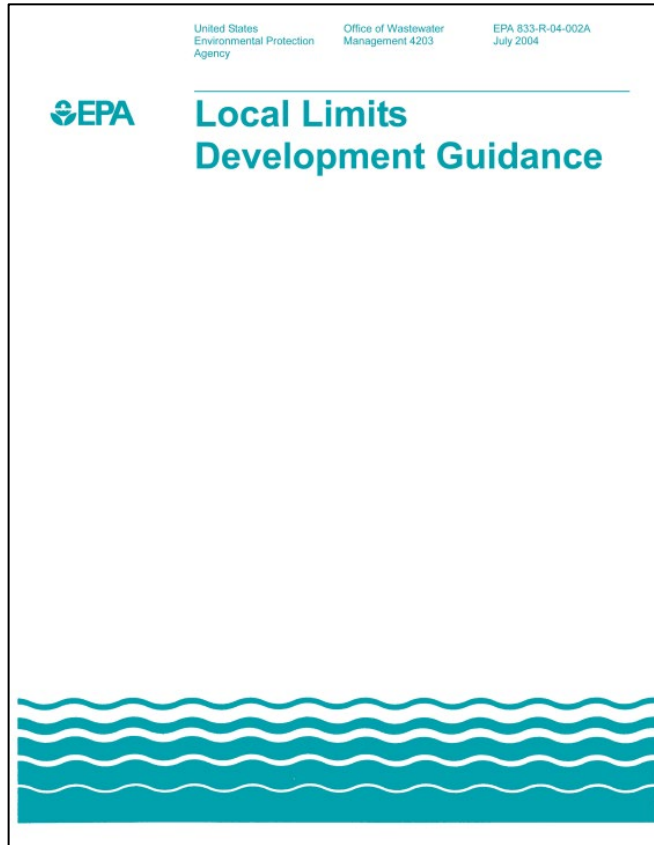


Trigger for Local Limit Evaluation (Cont.)

- Changes to the POTW
- Violations of NPDES Permit – (specifically exceedances)



Types of Local Limit Evaluation



EPA833-R-04-002A, July 2004

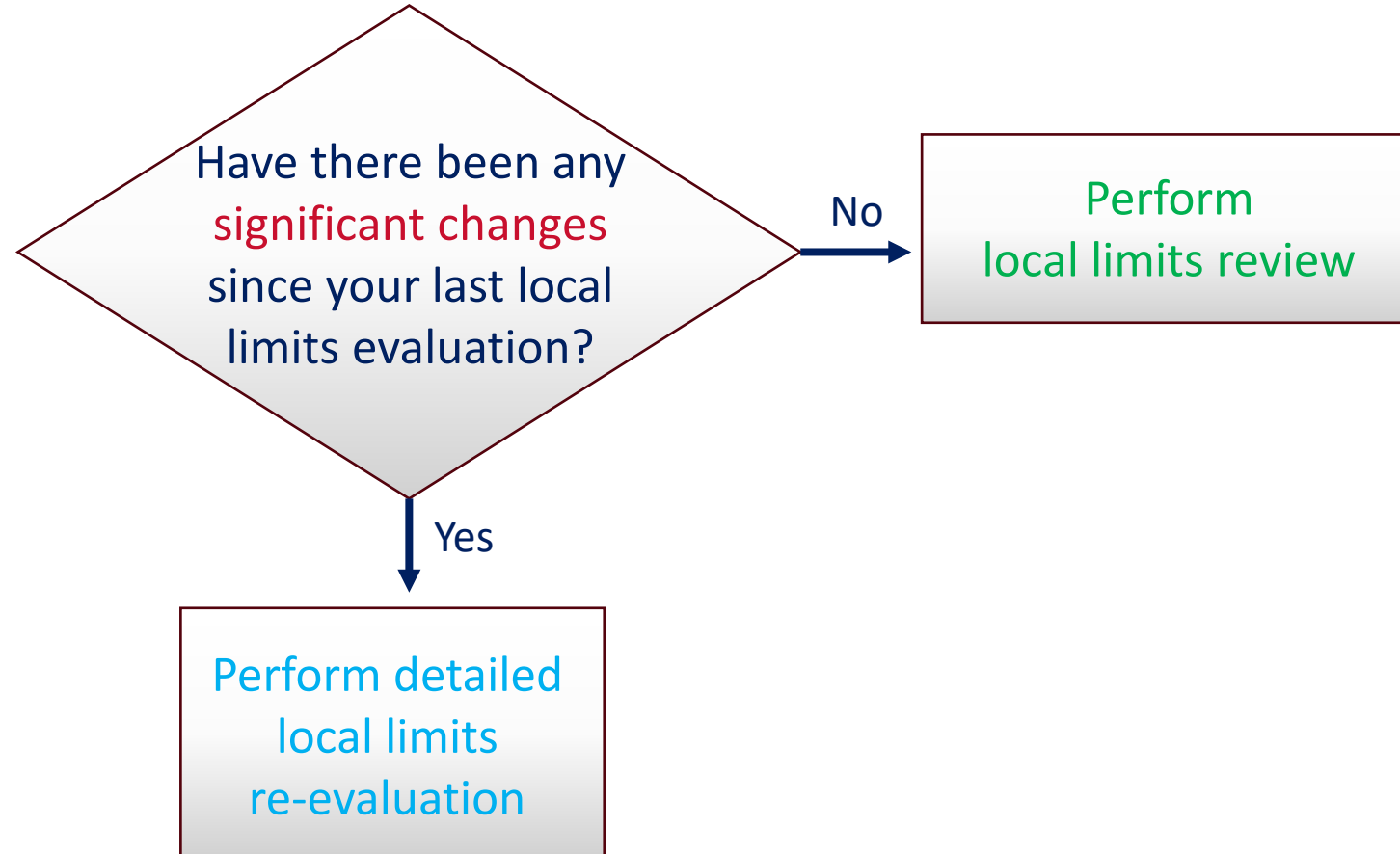
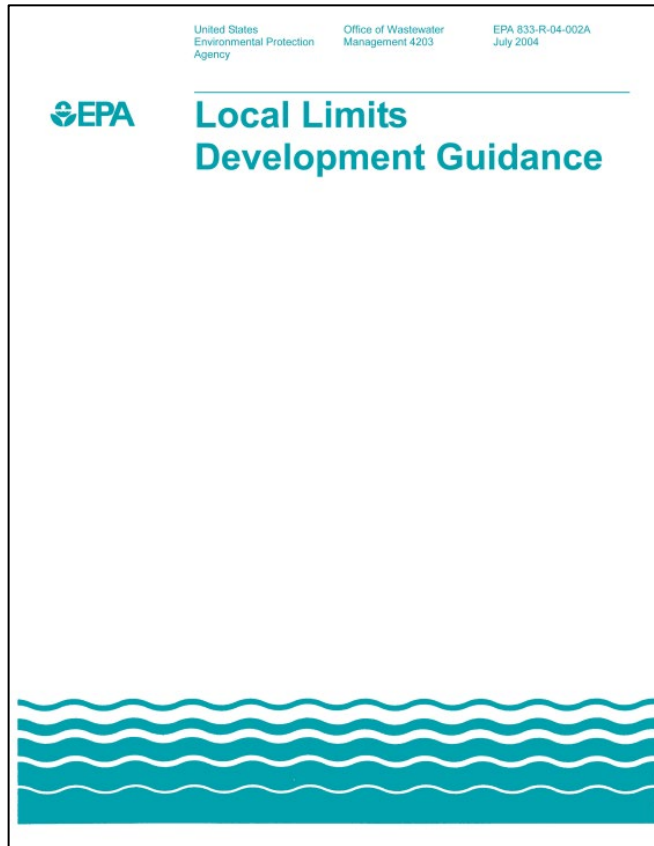


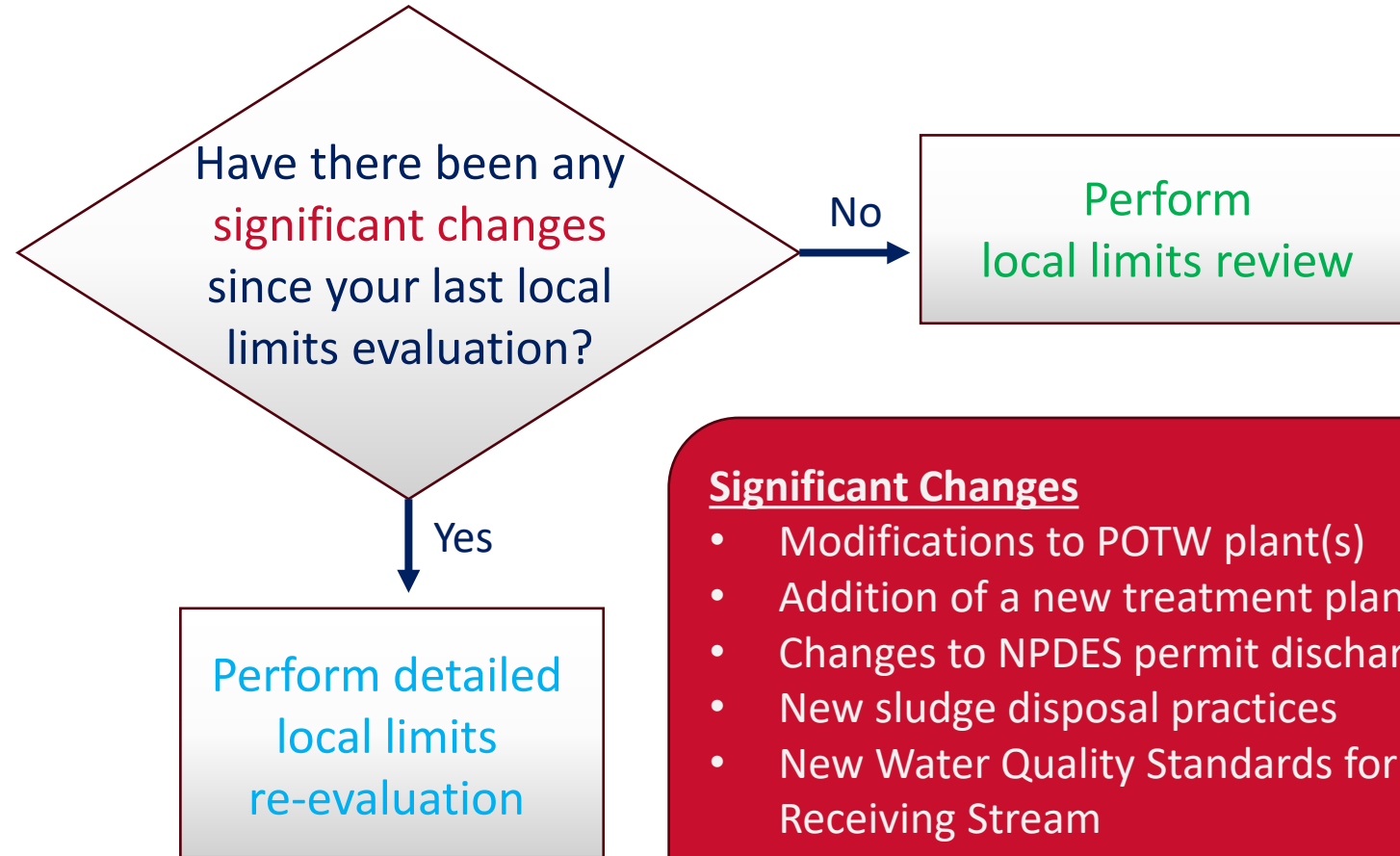
Figure 2-1: POTW Local Limits Decision Tree



Types of Local Limit Evaluation



EPA833-R-04-002A, July 2004



Significant Changes

- Modifications to POTW plant(s)
- Addition of a new treatment plant
- Changes to NPDES permit discharge limits
- New sludge disposal practices
- New Water Quality Standards for the Receiving Stream
- NPDES discharge or sludge disposal violations

Figure 2-1: POTW Local Limits Decision Tree



Types of Local Limit Evaluation

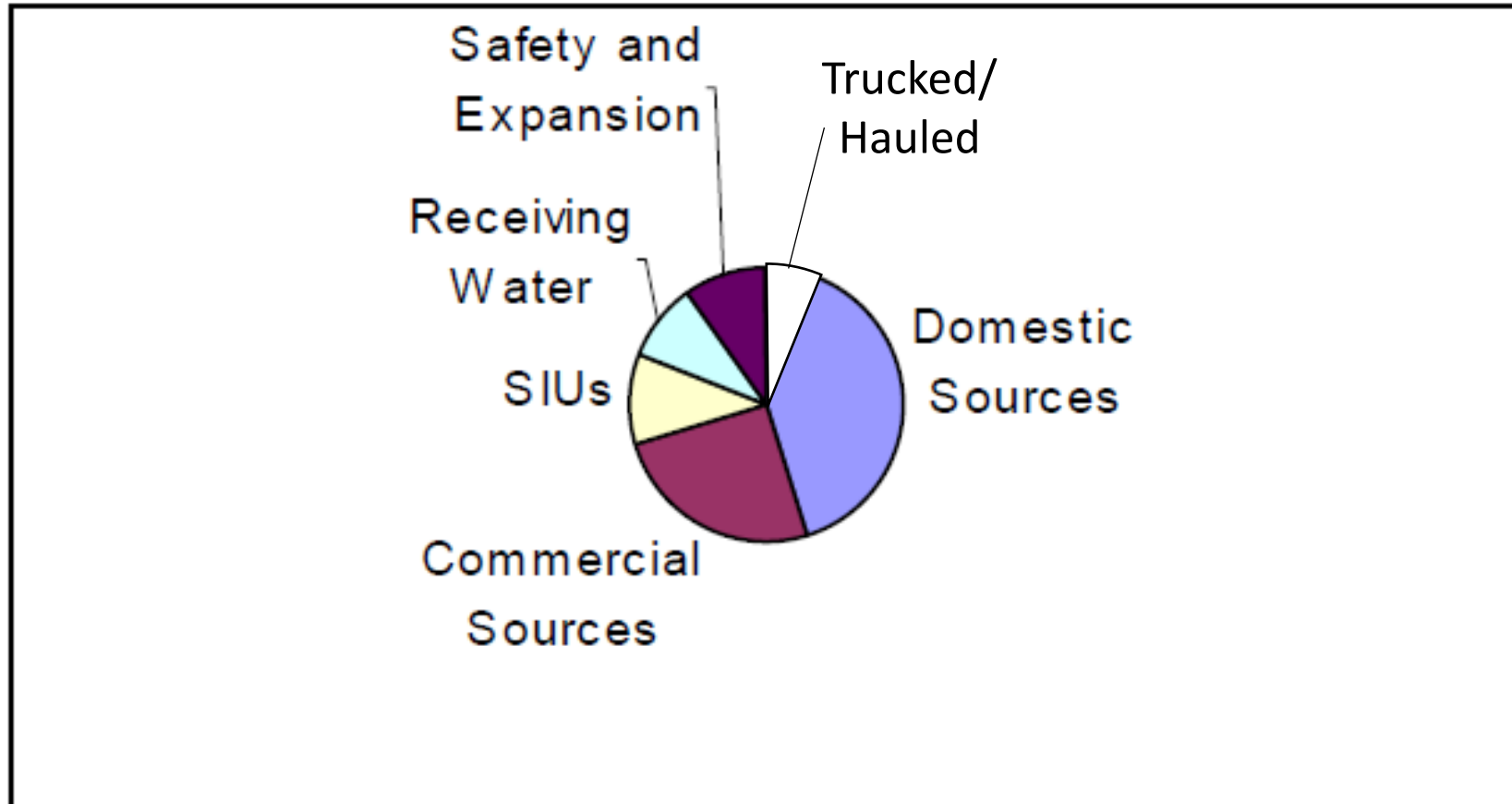
	Local Limits Review	Detailed Local Limits Re-evaluation
	“Simple”	“Complex”
Duration to Complete	Days to Weeks	Months to Years
Level of Effort	Limited labor	Collaborative Process
Outcomes	Not likely to change numerical values of local limits or add new pollutants	May change numerical values of local limits and/or can add new pollutants



Agenda

- Triggers for & Types of Local Limits Evaluation
- Conceptual Maximum Allowable Headworks Loading
- Local Limits Detailed Re-evaluation
 - Planning
 - Data Collection
 - Detailed Re-evaluation
 - Approval Authority (Approval)
 - Issue Updated IU Permits

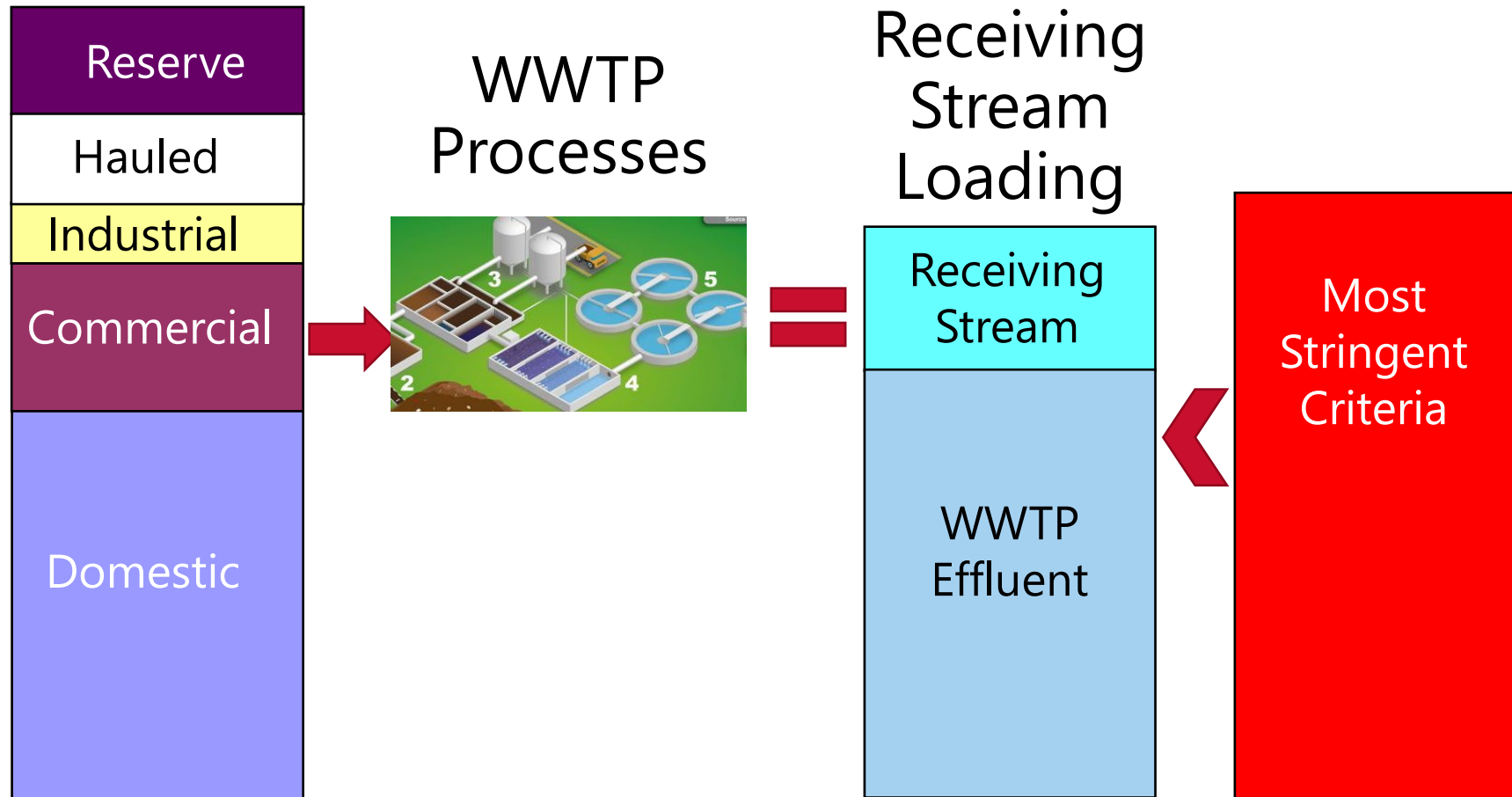
Total Pollutant



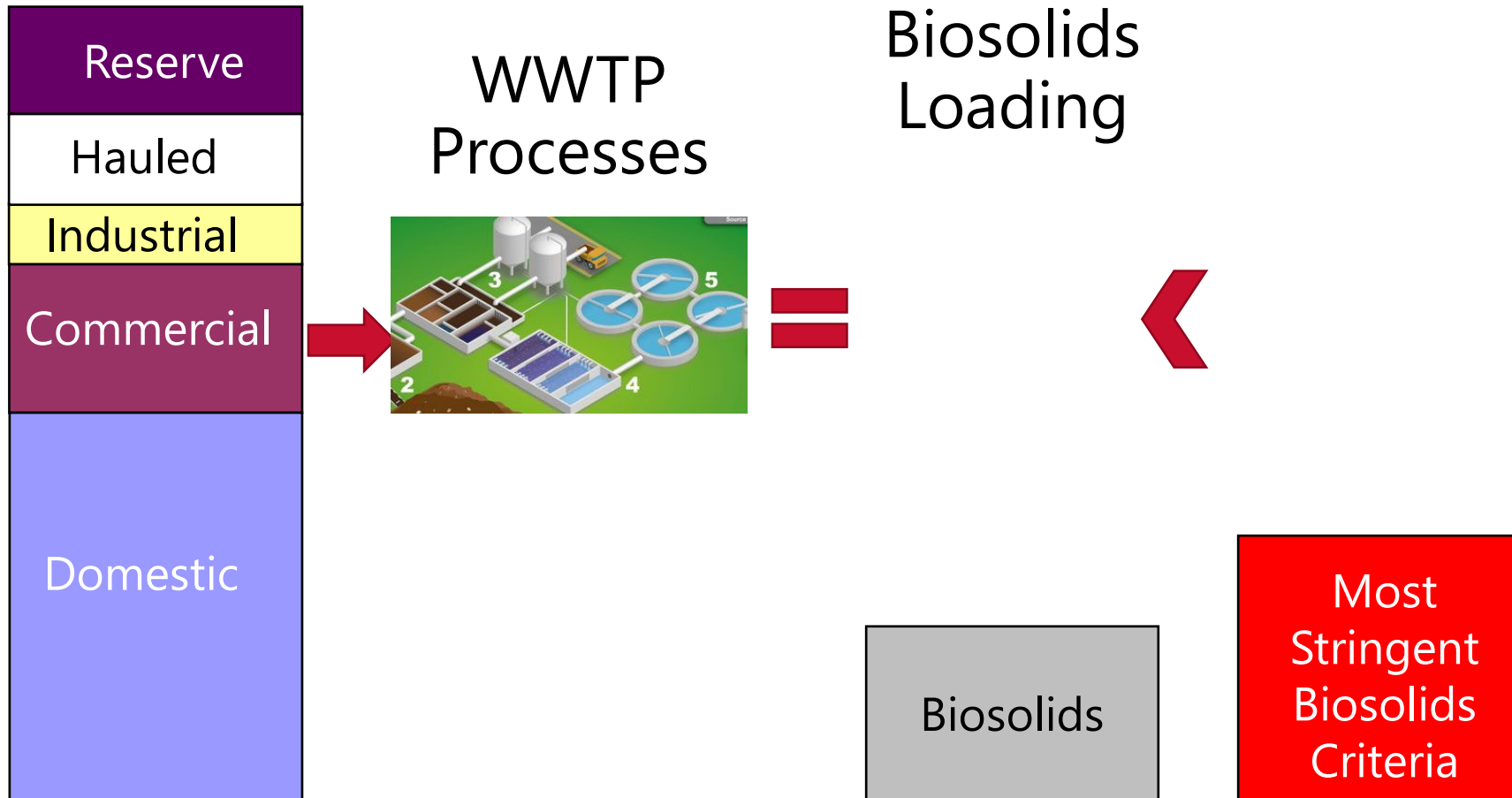
- Adapted From USPA Region 8 LL Development Strategy, Figure 1



Headworks Loading- Receiving Stream Method

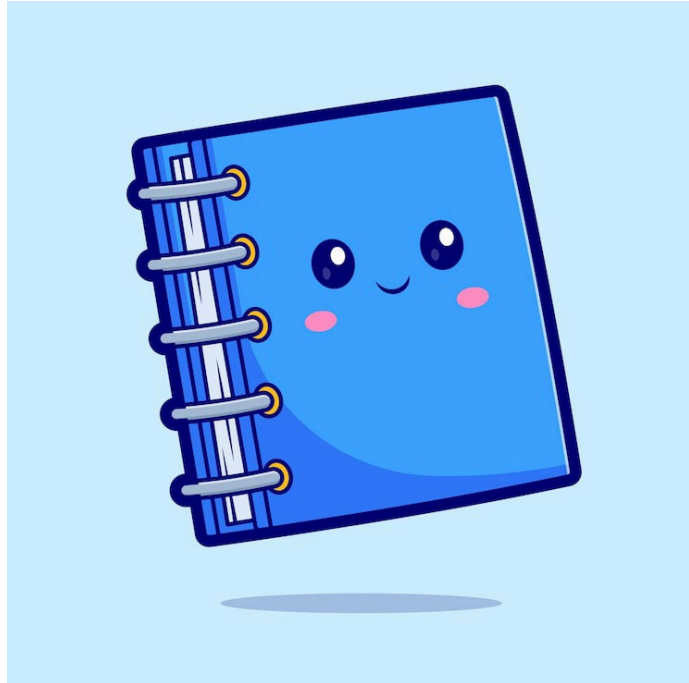


Headworks Loading- Biosolids Method



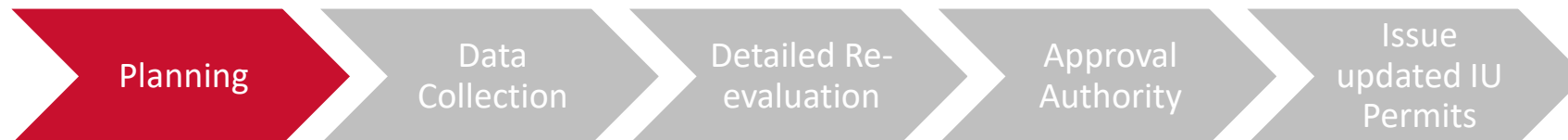
Agenda

- Triggers for & Types of Local Limits Evaluation
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Example Table of Contents

Section 3	Rationale for Detailed Local Limits Re-evaluation
3.1	MPDES Permit Renewal History
3.2	Current Status of MPDES Permit MT0021290
Section 4	Sampling Plan
Section 5	Identification of Pollutants of Concern
5.1	Period of Record
5.2	Number of Samples
5.3	Identifying Pollutants of Concern
5.4	Pollutants of Concern



Documents to Develop Plan



Identify Pollutants of Concern



Create Sampling Plan

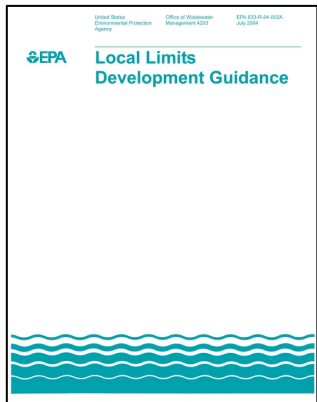


Must Have Documents

Local Limits
Development
Guidance
Documents

NPDES Permit &
Fact Sheet

State (or EPA
Region) Specific
Calculation
Spreadsheet



(State
or EPA Region)
Local Limits
Development
Guidance



EPA833-R-04-002A,
July 2004

Planning

Data
Collection

Detailed Re-
evaluation

Approval
Authority

Issue
updated IU
Permits

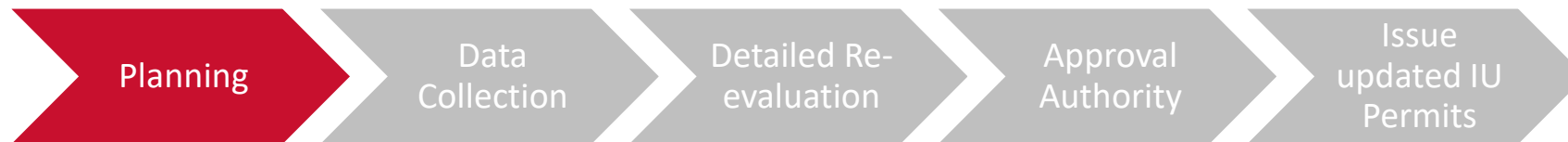


Identify Pollutants of Concern (POC)

- National Pollutants of Concern
 - 15 – Conduct a technical evaluation to determine the maximum allowable headworks (influent) loading (MAHL) for at least*

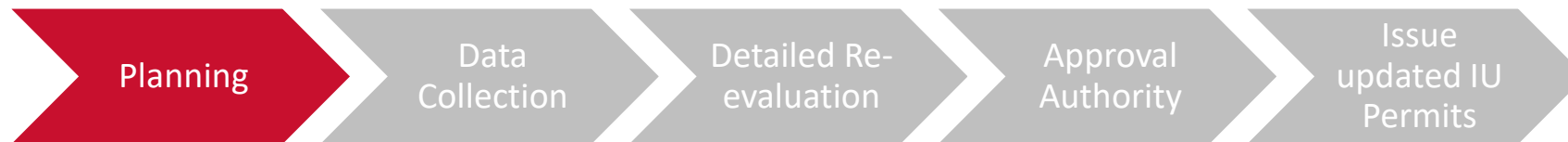
arsenic	cadmium	chromium	copper	lead	mercury	molybdenum	nickel	selenium	silver	zinc
Ammonia				BOD5				TSS		
cyanide										

- *EPA Introduction to the National Pretreatment Program -EPA-833-B-11-001 June 2011



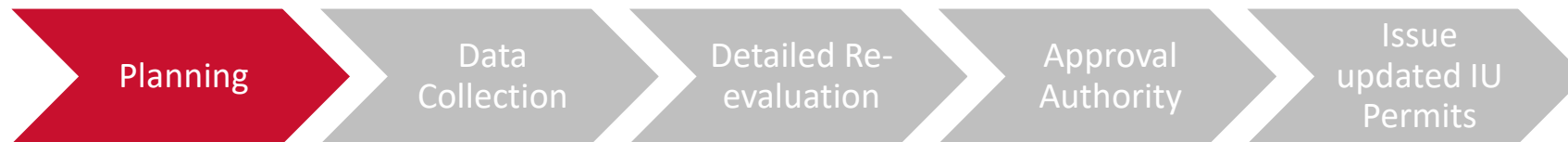
Identify Pollutants of Concern (POC)

- NPDES Pollutants
 - Pollutants with effluent limits
 - Pollutants with monitoring requirements
 - Pollutants that have caused a failure of the Whole Effluent Toxicity testing
- State Water Quality Standards
 - Specific to receiving water



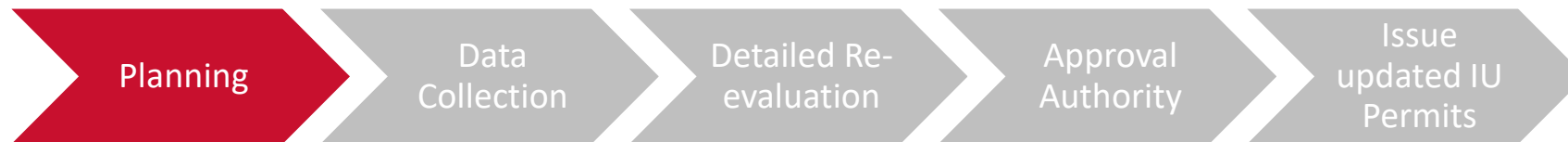
Identify Pollutants of Concern (POC)

- Biosolids Regulated Pollutants POCs
 - Land Application: [40 CFR Part 503]
 - Arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, zinc
 - Surface Disposal: [40 CFR Part 503]
 - Arsenic, chromium, nickel
 - Incineration: [40 CFR Parts 503 and 60]
 - Beryllium, mercury, lead, arsenic, cadmium, chromium, nickel, dioxins, furans



Identify Pollutants of Concern (POC)

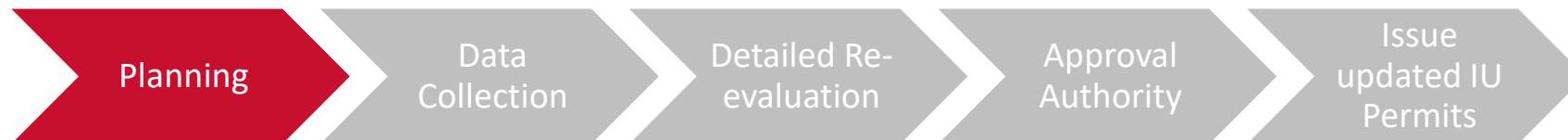
- Reclaim Water [Effluent] Reuse Limits
- Air Quality Standards [NESHAP, NAAQS]



Identify Pollutants of Concern (POC)

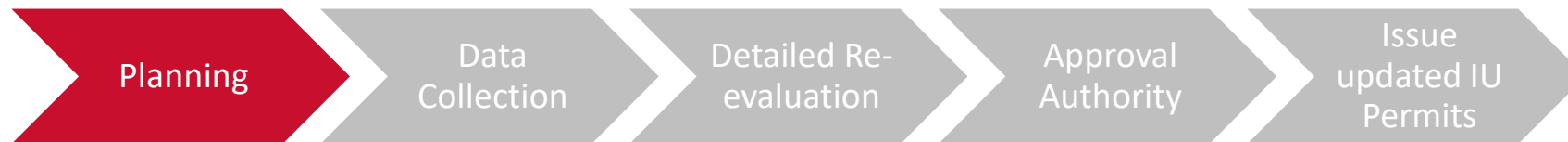
- Site Specific or Approval Authority Specific Pollutants
 - Region 8 Example:

"Should be Sampling" Check	"Less Common" Check
40 CFR 122 Appendix D, Tables II or V that was detected in an influent or effluent sample and its concentration was equal to or greater than 0.05 mg/L	has a current average influent loading greater than 70% of the POTW design load
Any pollutant that is identified in biosolids analytical results which is not a pollutant that would be expected or is at a concentration that would be considered atypical	present at 0.01 mg/L or greater (above the method detection limit if MDL is >0.01 mg/L) AND has a BCF (bioconcentration factor) of 300 or greater



Identify Pollutants of Concern (POC)

Can local limits be protective
without including emerging
contaminants?

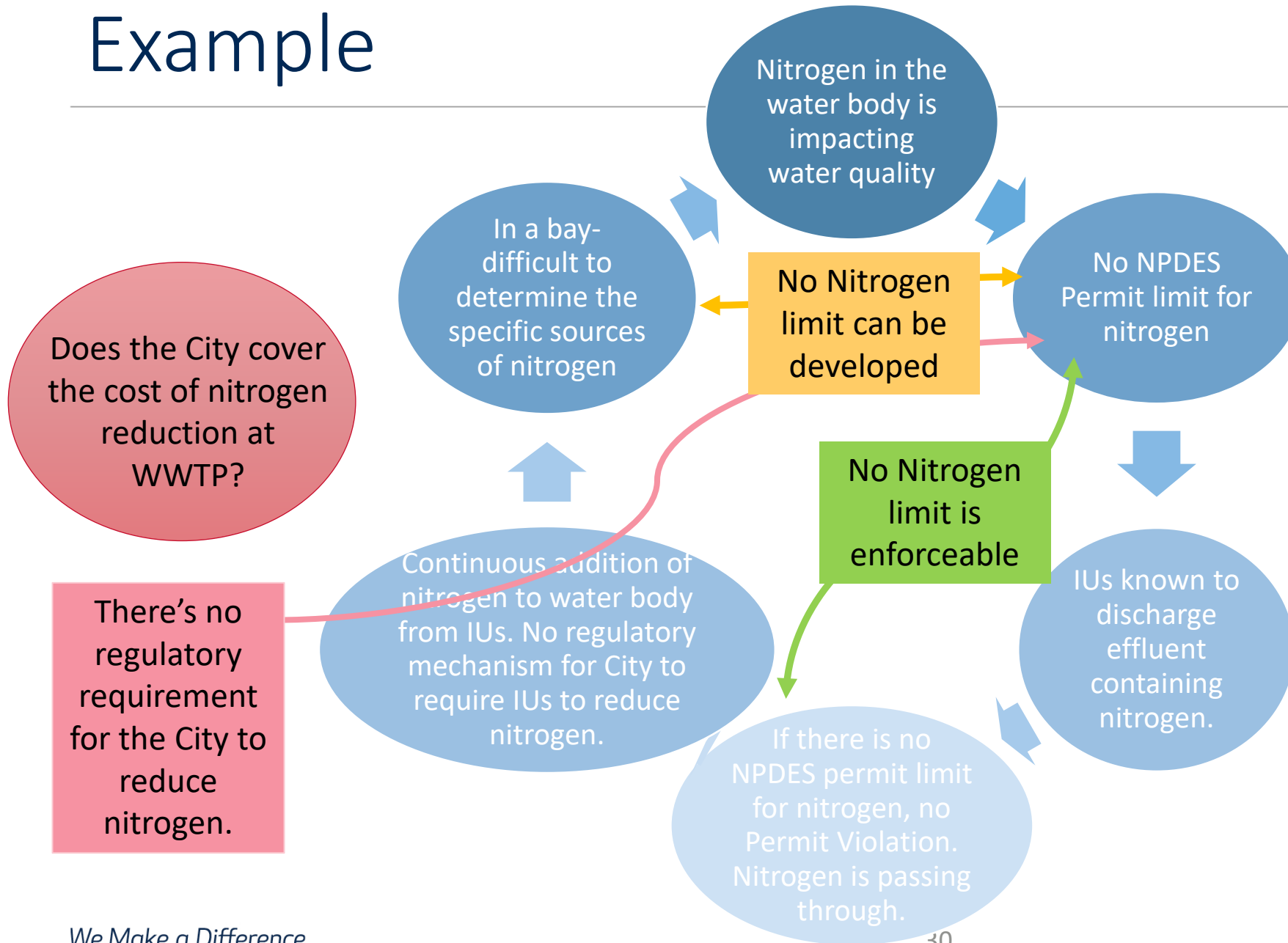


Pass Through and Interference

- Protect Infrastructure
- Specifically NPDES Permit Violations
 - Parameter that is regulated
- **Pass through** ([40 CFR Part 403.3\(p\)](#)) ([PDF](#)) (4 pp, 192 K) – “A discharge that exits the POTW into waters of the United States in quantities or concentrations that, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES [National Pollutant Discharge Elimination System] permit (including an increase in the magnitude or duration of a violation).”
- **Interference** ([40 CFR Part 403.3\(k\)](#)) ([PDF](#)) (4 pp, 192 K) – “A discharge that, alone or in conjunction with a discharge or discharges from other sources, both (1) inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use, or disposal; and (2) therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.”



Example



Identify Pollutants of Concern (POC)

Can local limits be protective without including emerging containments?

Discuss up your chain. Talk to your attorney.

-Do you have legal authority?

-What is the risk tolerance for litigation?

Planning

Data
Collection

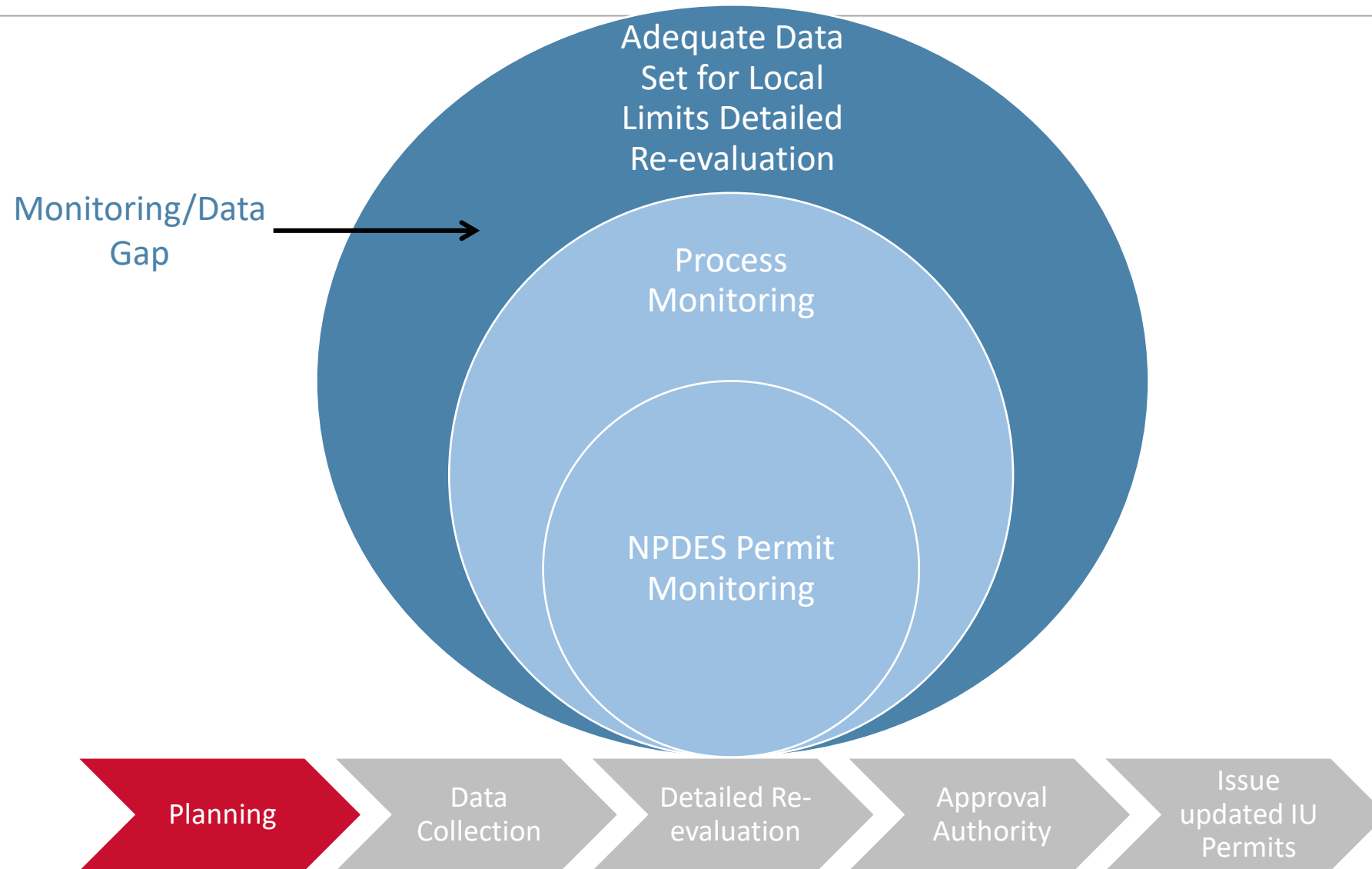
Detailed Re-
evaluation

Approval
Authority

Issue
updated IU
Permits

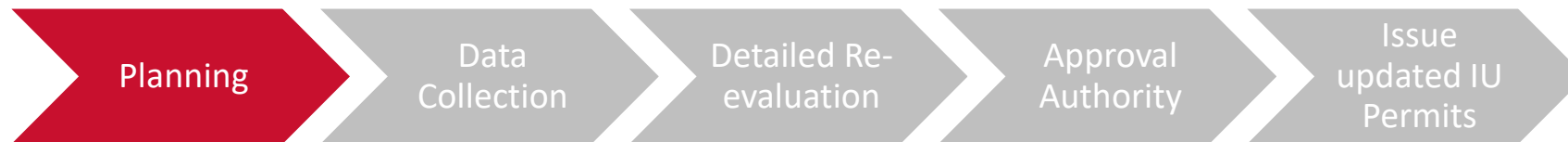


Identify Monitoring Gap

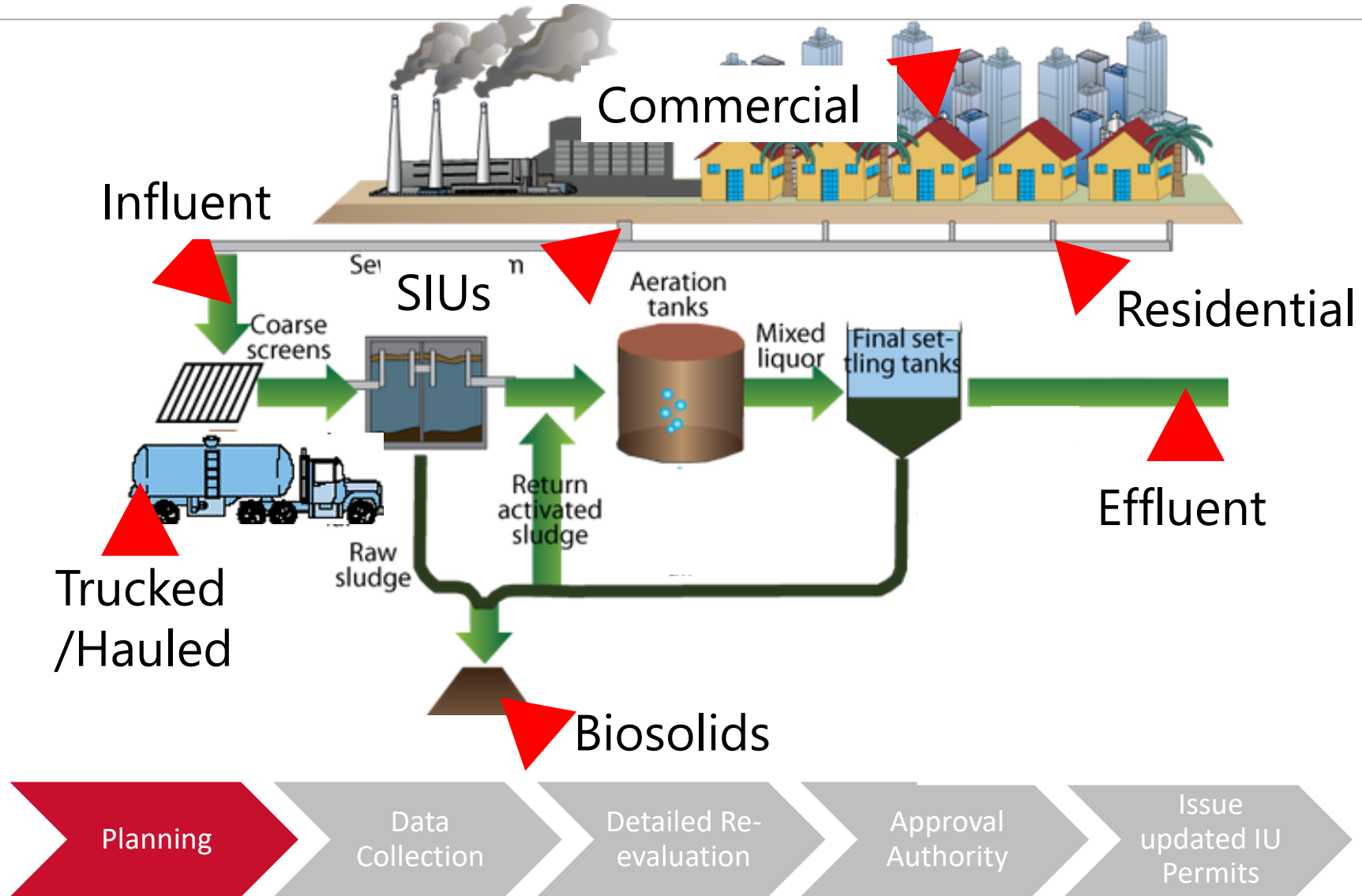


Data Gap Review- Non-SIU contribution

- “Background” or “Domestic and Commercial” or “Representative”



Flow Stream Sampling



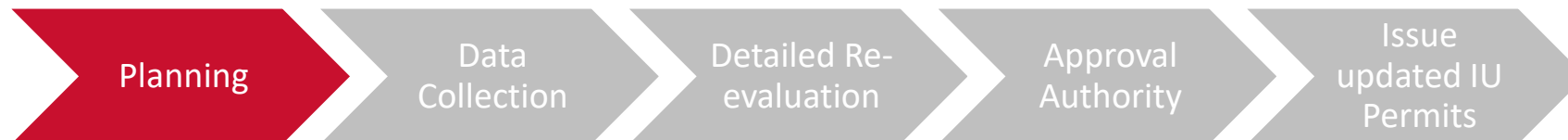
Detailed Sampling Plan

- Minimum

Location	Parameter	Frequency
Influent	Arsenic	Monthly

- Other considerations for Sampling Plan

- Sample methodologies, number of sample bottles, hold times, staffing, composite sampler batteries, etc.



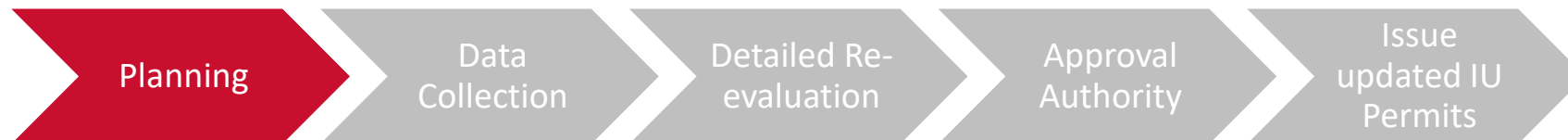
Detailed Sampling Plan

Location	Frequency	Parameter	Sample Type
WWTP Influent	Continuous	Flow	Continuous
	5 Days/Week	CBOD ₅ , TSS	Composite
	Monthly	Table III ¹ Total Ammonia, as N	Composite
	Annually	Table II	Composite
	2/Year	Total Nitrogen Total Phosphorus Hardness as CaCO ₃	Grab
	1/Permit Cycle	Table V	Composite
WWTP Effluent	Continuous	Flow	Continuous
	5 Days/Week	CBOD ₅ , TSS	Composite
	Monthly	Table III ¹ Total Ammonia, as N Total Nitrogen Total Phosphorus	Composite
	2/Year	Hardness as CaCO ₃	Grab
	Annually	Table II	Composite

Location	Frequency	Parameter	Sample Type
Upstream Ambient Water (Missouri)	Quarterly	Table III ¹ Hardness as CaCO ₃ Nutrients ³ WET Testing	Grab
Biosolids	-	Flow	At Discharge
	Annually	Table III ¹	Composite
Hauled Waste	Annually	Table III ¹ Flow	Composite
Permitted SIU	In accordance with current IU Discharge Permit- Varies by Permittee		
Domestic	Distinct Sample Events	Table III ¹	Composite
Commercial	Distinct Sample Events	Table III ¹	Composite

¹Table III includes antimony, arsenic, beryllium, cadmium, chromium (total, III, and VI) copper, lead, mercury, nickel, selenium, silver, thallium, zinc, cyanide, and phenols.

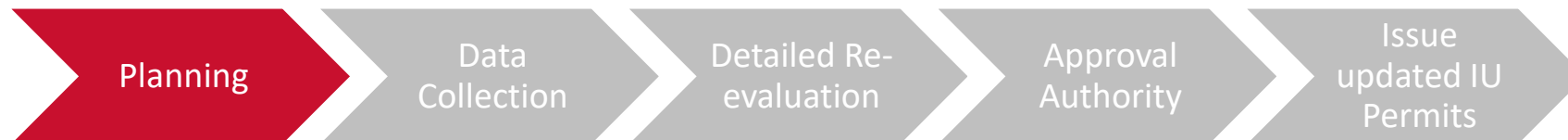
³Nutrients includes Total Ammonia, as N and Nitrate + Nitrite, as N . (July, August, and September the following are required monthly Nitrate + Nitrite, as N; Kjeldahl Nitrogen, as NI Total Nitrogen as N, Total Phosphorus, as P)



Coordination with Approval Authority

- Consider level of coordination with Approval Authority that might be beneficial
 - Confirmation of appropriate Guidance Documents
 - Confirmation of appropriate calculation spreadsheets
 - Review of “background” data collection methods
 - Number of samples

Section 3	Rationale for Detailed Local Limits Re-evaluation
3.1	MPDES Permit Renewal History
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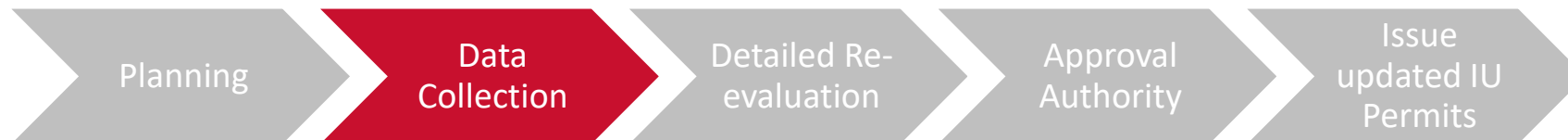
Agenda

- Triggers for & Types of Local Limits Evaluation
- Conceptual Maximum Allowable Headworks Loading
- Local Limits Detailed Re-evaluation
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 - Detailed Re-evaluation
 - Approval Authority
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Duration and Methods

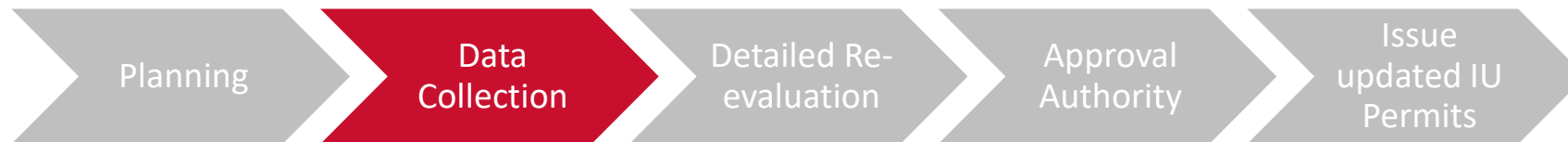
- Period of Record
 - Samples must occur within previous 2 years*
 - Minimum 6 samples*

*Confirm with Approval Authority
- Methods 40 CFR Part 136
 - 40 CFR Section 403.12(g)(4)



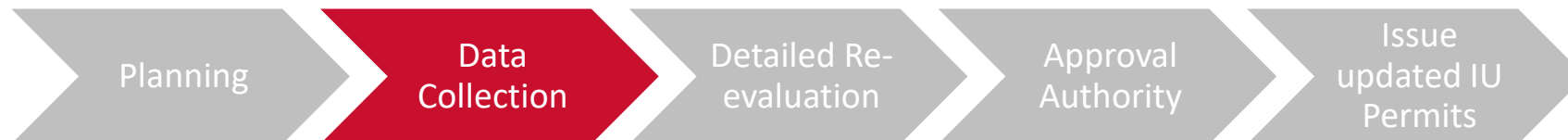
“Background” Sampling

- Will be outside of typical monitoring/sampling procedures



Considerations of Data Management

- QA/QC of lab data
- Consider number of data points
- Do methods provide adequately precise measurements?
 - Non-detect values
 - Data reported between method detection limit (MDL) and reporting Limit (RL) gets reported with a qualifier.



Agenda

- Triggers for & Types of Local Limits Evaluation
- Conceptual Maximum Allowable Headworks Loading
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 - Data Collection
 - Detailed Re-evaluation Calculations
 - Approval Authority
 - Issue Updated IU Permits

Spreadsheet Time! – MAHL & MAIL

Enter General POTW Information in the Yellow Shaded Areas

The spreadsheet will automatically calculate removal efficiencies when the user enters influent/effluent data. If the user desires to override these calculations (e.g., to enter literature values for removal efficiencies), then these removal efficiencies should be entered in the [turquoise](#) columns.

Pollutant	Average Pollutant Concentrations								Removal Efficiencies (Percent of pollutant removed)			Industrial Contribut ary Flow (mgd)	Safety Factor + Growth Allowance Factor (Percent)
	POTW Influent (mg/L)	Primary Effluent (mg/L)	Secondary Effluent (mg/L)	Final Effluent (mg/L)	Effluent Coefficient of Variation	Non- Industrial (mg/L)	Sludge To Digester (mg/L)	Biosolids To Disposal (mg/kg)	Through Primary	Through Secondary	Overall POTW		
Antimony													
Arsenic													
Barium													
Cadmium													
Chromium													
Copper													
Cyanide													
Iron													
Lead													
Mercury													
Molybdenum													
Nickel													
Selenium													
Silver													
Thallium													
Zinc													

Flow Information		Sludge Information		Edge Land Application Information	
POTW Flow (mgd)		Flow to Digester (mgd)		Site Use Duration (years)	
Industrial Flow (mgd)		Flow to Disposal (mgd)		Site Area (acres)	
Non-Industrial Flow (mgd)		Percent Solids to Disposal		Compost? Y/N	

POTW Name:
POTW Contact:

A	B	C	D
1 Enter Data in Blue Areas Only	Values entered in Blue area are for examples only. Update these.		
2			
3			
4	A	B	C
5	TABLE 1 - GENERAL DATA ENTRY		
6	POTW NAME:	Example	
7			
8			
9	POTW HIGHEST MONTHLY AVERAGE FLOW (MGD):	2.5	
10	DOMESTIC FLOW (MGD):	1.1	
11	SIU FLOW (MGD):	0.9	
12	COMMERCIAL FLOW (MGD):	0.5	
13	TRUCKED AND HAULED WASTE FLOW (MGD):	0.005	
14			
15	COMMERCIAL FLOW AS A % OF ALL NON-DOMESTIC	36	
16	TOTAL COMMERCIAL FLOW AS A % OF TOTAL POTW FLOW	20	
17	TOTAL NON-DOMESTIC FLOW AS A % OF TOTAL POTW FLOW	56	
18			
19			
20	SPECIFIC GRAVITY OF SLUDGE TO DISPOSAL (kg/l)	1	Default 1
21	SLUDGE FLOW TO DISPOSAL (MGD):	0.07	See Appendix M of the Strategy

Spreadsheet

Please email Curt A McCormick at mccormick.curt@epa.gov with any comments if you are in Region 8 Not supported outside of Region 8 Pretreatment Programs

1	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
2	Enter Data in Blue Areas Only															
3	Purple Areas are Optional Data Entry Columns															
4	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
5	TABLE 5: POLLUTANT LOADING AND RECEIVING WATER															
6		TOTAL CURRENT SHULADING TO POTW LE/SD	DOMESTIC CONTRIBUTION TO POTW MG/L	USER ENTERED DOMESTIC LOADING TO POTW LE/SDAY	FINAL CALCULATED DOMESTIC CONTRIBUTION LE/SDAY					COMMERCIAL USER DISCHARGE TO POTW MG/L	USER ENTERED COMMERCIAL LOADING TO POTW LE/SDAY	CALCULATED COMMERCIAL CONTRIBUTION LE/SDAY	TOTAL DOMESTIC PLUS COMMERCIAL LOADING LE/SDAY	USER ENTERED TRUCKED AND HAULED WASTE LOADING TO POTW LE/SDAY	UPSTREAM RECEIVING WATER MG/L	
7																
8																
9		POLLUTANT								POLLUTANT						
10																
11		ARSENIC	0.002		0.01248	ARSENIC	0.007			0.02919		0.047539				
12		CADMIUM	0.001		0.009174	CADMIUM	0.02			0.092574		0.092574				
13		CHROMIUM - TOTAL	0.0029		0.0266046	CHROMIUM - TOTAL	0.1			0.4430486		0.4430486				
14		CHROMIUM (VI)			Not a Domestic Data	CHROMIUM (VI)				Not a Commercial Data		Not a Commercial Data				
15		CHROMIUM (VI)	0.005		0.04587	CHROMIUM (VI)	0.001			0.00417		0.05004				
16		COPPER	0.050		0.522092	COPPER	0.06			0.2592		0.792292				
17		LEAD	0.001		0.009174	LEAD	0.003			0.01251		0.021634				
18		MERCURY	0.0003		0.0027922	MERCURY	0.0009			0.002919		0.0040372				
19		MOLYBDENUM	0.000		0.027922	MOLYBDENUM	0.05			0.24165		0.241652				
20		NICKEL	0.005		0.04587	NICKEL	0.03			0.1251		0.17097				
21		SELENIUM	0.3		2.7522	SELENIUM	0.3			1.251		4.0032				
22		SILVER	0.002		0.019348	SILVER	0.06			0.24592		0.24592				
23		ZINC	0.192		0.59748	ZINC	0.112			0.46704		1.402759				
24																
25																
26																
27																
28																
29																
30																
31																
32																
33																
34																
35																
36																

Planning

Data
Collection

Detailed Re-
evaluation

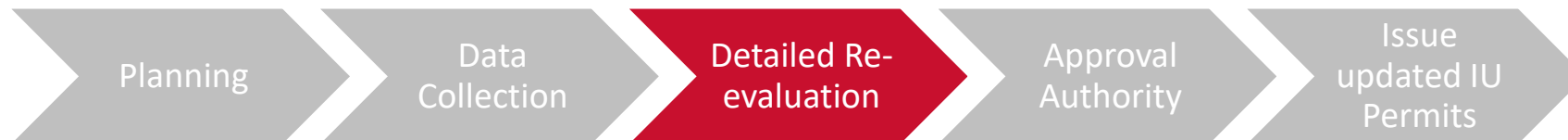
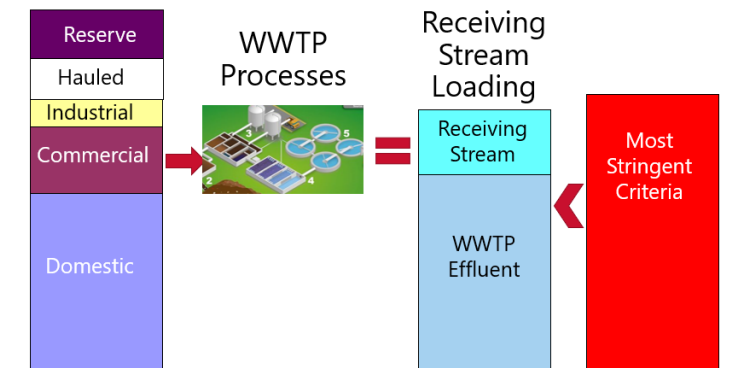
Approval
Authority

Issue
updated IU
Permits



Spreadsheet Time! – MAHL & MAIL

- The calculations are not hard
- Requires thorough understanding of inputs and calculations
- Document assumptions
 - How do you handle non-detect values?
- Conceptually: Do the MAHL & MAIL make sense?

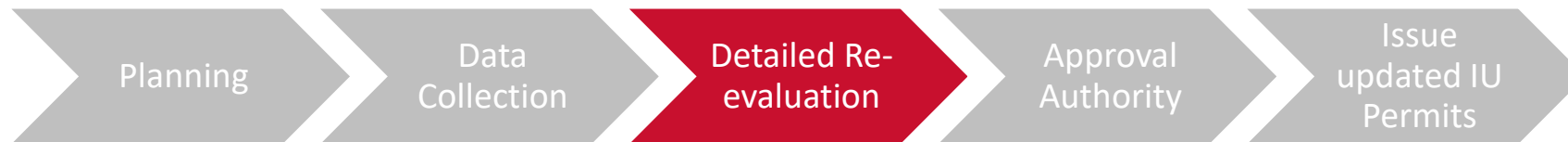


Additional Data Collection



Proposed Local Limits

- Decisions about how to allocate MAIL to IUs
 - Concentration based, mass load based
- Decisions about how to implement
 - Municipal code
 - Amendment
 - Permit Only (Mid-Atlantic Coast)

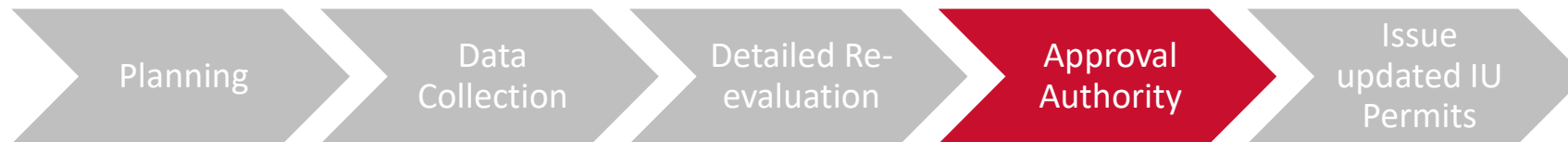


Agenda

- Triggers for & Types of Local Limits Evaluation
- Conceptual Maximum Allowable Headworks Loading
- Local Limits Detailed Re-evaluation
 - Planning
 - Data Collection
 - Detailed Re-evaluation
 - Approval Authority (Approval)
 - Issue Updated IU Permits

Proposed Local Limits

- Local Limits must be approved by Approval Authority
 - Approval Authority
 - Are limits Technically-based?
 - Are Federal Regulations incorporated?
 - Review of local language
- Approval process typically requires opportunity for public input
 - Public Readings at Commission Meetings
 - Public comment period- (EPA, State, and Local)



Agenda

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Updating IU Permits w/ new Local Limits

Industrial User A

☐ Categorical User

☐ Local Limits

☐ Categorical Limits

Industrial User B

☐ Locally Significant User

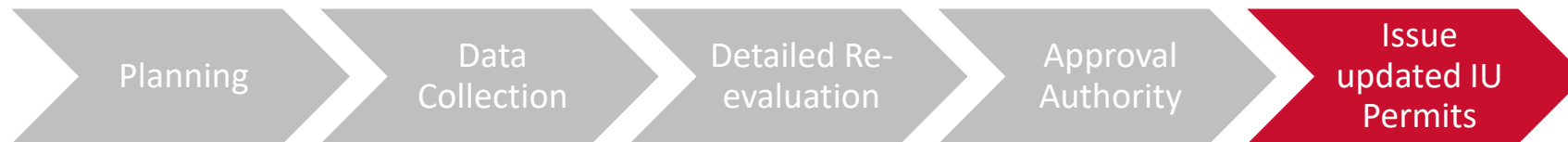
☐ Local Limits

Industrial User C

☐ Locally Significant User

☐ Local Limits

☐ BMPs



Questions?



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