Key Water Permitting Concepts Learned Over Time

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Agenda

- Introduction
- Water Permitting Concepts for Regulated Community
  - TMDLs
  - Antibacksliding
  - Reasonable Potential Analysis
  - Ability to Comply
- Closing

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Introduction

- Over 35 years of experience in Clean Water Act (CWA) permitting/compliance.
- Lucky career that has been weaved through several interesting projects.
- Presentation to go through key water permitting concepts and how they were applied to projects.

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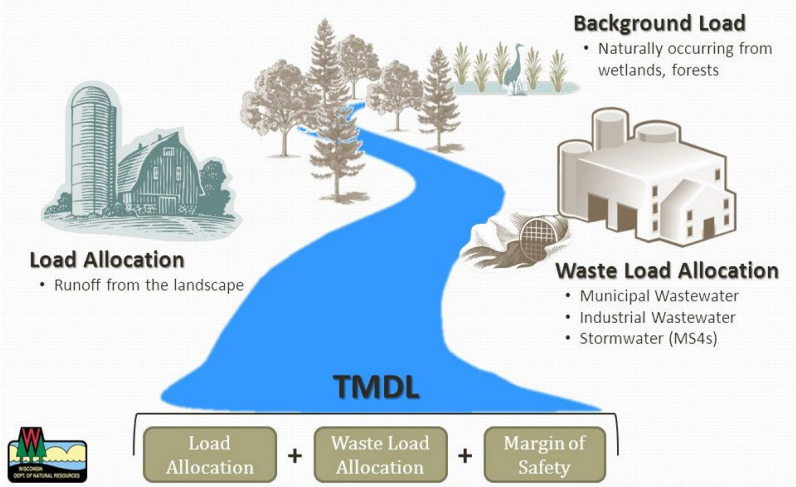
Key Concept - TMDLs

- A Total Maximum Daily Load (TMDL) is the maximum quantity of a particular pollutant that can be discharged into a water body without violating a water quality standard (WQS).
- TMDLs are typically developed through water quality modeling of the receiving stream during critical conditions (e.g., low flow, high temperatures).
- TMDL is then established by evaluating sources and projecting required decreases to meet WQS.



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Work History - TMDLs

- 1983 – Worked as student intern for James M. Montgomery Consulting Engineers compiling point source inventory data for dissolved oxygen TMDLs for Calcasieu and Red Rivers.
- 1984 – Worked as student intern for newly formed LDEQ in the Water Quality Technical Services group.
- 1998 – Managed D.O. TMDL for Bayou Lafourche.
- 2002 – Managed D.O. TMDL model recalibration for Calcasieu River tributaries (Houston River, Bayou D'Inde, Contraband Bayou, and West Calcasieu River).

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Key Concept - Antibacksliding

- Clean Water Act states that renewed/reissued permits must be at least as stringent as the previous permit.
- Exceptions:
  - Material and substantial alterations;
  - New information available which would have justified higher limits;
  - Technical mistakes or mistaken interpretation of law;
  - Allowable variances under the CWA; and
  - Installed and properly operated treatment facilities that meet best available technology for industry but do not meet required limits.
- In no case can exceptions result in limits higher than applicable effluent guidelines or water quality standards.

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Work History

- 1996 – Negotiated modified TPDES permit for Texas City refinery that had limits based on incorrect application of subcategory due to consolidation of state/federal permits.
- 2005 – Identified mistakes in pretreatment permits for Mississippi landfill leachate disposal at municipal WWTPs.

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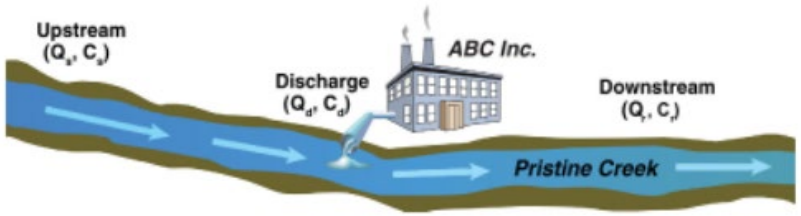
Key Concept – Reasonable Potential Analysis

- Water quality-based effluent limits are applied where a discharge has the "reasonable potential" to exceed water quality standards. The permit writer performs a reasonable potential analysis (RPA) to make this determination.
- The RPA compares discharge data for a pollutant and performs conservative statistical calculations to ensure that the permitted discharge does not cause WQS exceedances.
- It is the permittee's responsibility to provide supporting information (on discharge or receiving stream) to avoid receiving an unwarranted water quality-based effluent limit.



Mass = **Flow** (Q) in million gallons per day (mgd) or cubic feet per second (cfs) X **Pollutant concentration** (C) in milligrams per liter (mg/L)

$$Q_sC_s + Q_dC_d = Q_rC_r$$

where

- Q_s = stream flow in mgd or cfs above point of discharge
- C_s = background in-stream pollutant concentration in mg/L
- Q_d = effluent flow in mgd or cfs
- C_d = effluent pollutant concentration in mg/L
- Q_r = resultant in-stream flow, after discharge in mgd or cfs
- C_r = resultant in-stream pollutant concentration in mg/L (after complete mixing occurs)

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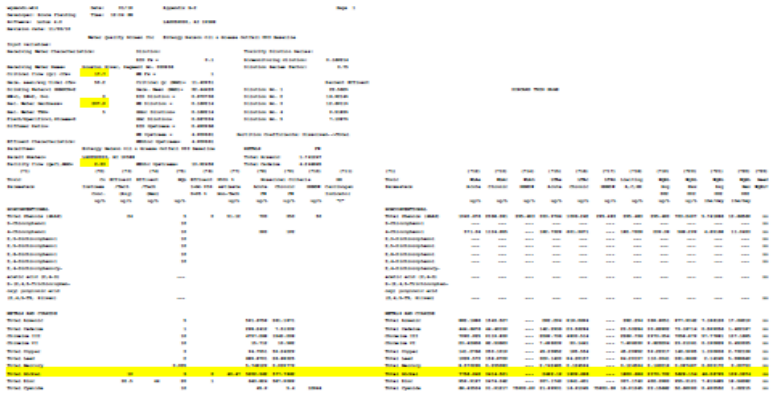
Work History

2013 – Negotiated removal of WQBEL for copper from Lake Charles steam electric plant ash pile runoff discharge based on Houston River hardness data.

2016 – Negotiated removal of WQBEL for zinc from Lake Charles steam electric plant cooling tower blowdown discharge based on setting flow limit.

2022 – Negotiated removal of WQBELs resulting from "overlapping outfall discharges" from two Lake Charles steam electric plants using CORMIX dilution modeling to demonstrate the discharges were not overlapping.



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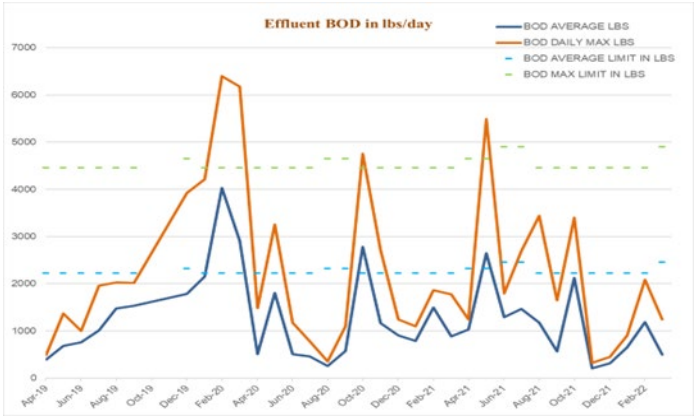
Key Concept – Ability to Comply

- This evaluation is simply comparing your facility discharge data distribution with existing or projected permit limits.
- Typically, the 95th percentile of monthly averages is compared with the monthly average limit and the 99th percentile of the overall data distribution is compared with the daily maximum limit.
- Quantifying the discharge data distribution allows predictive projection of anticipated non-compliance discharges consistent with EPA's Significant Non-compliance (SNC) Criteria.



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Work History

- 2000 – Railroad train derailment in Eunice resulted in Compliance Order with unachievable limits.
- 2018 – Contested D.O. TMDL applied to raw sugar factory on Bayou Poydras in 2008. Negotiations resulted in the TMDL being redone and required a permit appeal.

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Closing

- Understand how permit writers do their job.
  - Regulations, policies, procedures, precedents
- Do not accept permit that you cannot comply with.
  - Appeal if you must.
  - Develop compliance approach if permit requirements cannot be successfully challenged.
  - Seek compliance schedule if needed to develop technologies to achieve compliance.
- Be nice and respectful to folks you meet throughout your career. They can become future colleagues, clients, or bosses. All can influence your degree of success.