

# **Idaho Pollutant Discharge Elimination System**

---

Effluent Limit Development Guidance

Draft Outline



**State of Idaho  
Department of Environmental Quality**

**February 2017**

# Effluent Limit Development Guidance Draft Outline

- ✓ 1. Introduction
  - ✓ a. Purpose and Need
  - ✓ b. Effluent Limit Development Process
  - ✓ c. Relationship to Existing Rules and Guidance
    - ✓ i. Clean Water Act (CWA) Background
    - ✓ ii. Idaho Water Quality Standards
  - ✓ d. Regulatory Citations
  - ✓ e. Data Analyses and Considerations
- ~~2. Data Analyses and Considerations~~
  - ~~a. Background~~
  - ~~b. Data Quality~~
  - ~~c. Data Applicability and Grouping~~
  - ~~d. Statistical Software~~
  - ~~e. Analytical Methods~~
    - ~~i. MDL and ML Definitions~~
    - ~~ii. Sufficiently Sensitive Methods~~
    - ~~iii. Calculating and Reporting Values  $<$  MDL or ML~~
      - ~~1) Calculations Using Values  $<$  MDL or ML~~
      - ~~2) Reporting Calculations of Average Values~~
      - ~~3) Mass Calculations~~
  - ~~d. Compliance with Water Quality-based Effluent Limits (WQBELs) below MDL or ML~~
  - ~~e. Significant Figures, Rounding, and Precision~~
    - ~~i. Significant Figures~~
    - ~~ii. Rounding~~
    - ~~iii. Reporting Significant Figures~~
    - ~~iv. Permit Calculation Examples~~
  - ~~f. Sample Size, Data Normality, and Outliers~~
    - ~~i. Sample Size~~
    - ~~ii. Data Normality~~
    - ~~iii. Outlier Analysis~~
- ✓ 3. Determining Technology-Based Effluent Limits (TBELs)
  - ✓ a. TBELs for Publicly Owned Treatment Works (POTWs)
    - ✓ i. Secondary and Equivalent to Secondary Treatment
      - ✓ 1) Secondary Treatment Standards
      - ✓ 2) Equivalent to Secondary Treatment
      - ✓ 3) Criteria to Qualify for Equivalent to Secondary Treatment Standards
    - ✓ ii. Adjustments to Equivalent to Secondary Treatment
    - ✓ iii. Apply Secondary and Equivalent to Secondary Treatment Standards
      - ✓ 1) Determine Appropriate Standards to Apply
      - ✓ 2) Calculate Effluent Limits Based on Secondary Treatment
      - ✓ 3) Calculate Effluent Limits Based on Equivalent to Secondary Standards
      - ✓ 4) Apply Special Considerations and Adjustments

- ✓ a) Substitution of Chemical Oxygen Demand (COD) or Total Organic Carbon (TOC) for 5-day Biochemical Oxygen Demand (BOD5)
- ✓ b) Adjustments for Industrial Contributions
- ✓ c) Adjustments to Percent Removal Requirements
- ✓ 5) Document the Application Standards, Adjustments, and Considerations in the Fact Sheet
- ✓ iv. Pretreatment Standards
  - ✓ 1) Prohibited Discharges
  - ✓ 2) Categorical Standards
  - ✓ 4) Pretreatment Standards for Existing Sources (PSES)
  - ✓ 5) Pretreatment Standards for New Sources (PSNS)
- ✓ b. TBELs for Non-POTWs
  - ✓ i. Effluent Guidelines and the Statutory Foundation
    - ✓ 1) Best Practicable Control Technology Currently Available (BPT)
    - ✓ 2) Best Conventional Pollutant Control Technology (BCT)
    - ✓ 3) Best Available Technology Economically Achievable (BAT)
    - ✓ 4) New Source Performance Standards (NSPS)
  - ✓ ii. Apply Effluent Guidelines
    - ✓ 1) Learn About the Industrial Discharger
    - ✓ 2) Identify the Applicable Effluent Guideline Categories
    - ✓ 3) Identify the Applicable Effluent Guideline Subcategories
    - ✓ 4) Determine whether Existing or New Source Standards Apply
    - ✓ 5) Calculate TBELs from the Effluent Guidelines
      - ✓ a) Calculating Mass-Based TBELs from Production-Normalized Effluent Guidelines
      - ✓ b) Calculating Mass-Based TBELs from Flow-Normalized Effluent Guidelines
      - ✓ c) Calculating Mass-Based TBELs from Concentration-based Effluent Guidelines
      - ✓ d) Supplementing Mass-Based TBELs with Concentration Limits
      - ✓ e) Incorporating Narrative Requirements from Effluent Guidelines
    - ✓ 6) Account for Overlapping or Multiple Effluent Guidelines Requirements
      - ✓ a) Superseding Effluent Guidelines
      - ✓ b) Multiple Effluent Guidelines Requirements
    - ✓ 7) Apply Additional Regulatory Considerations in Calculating TBELs
      - ✓ a) Tiered Discharge Limits
      - ✓ b) Internal Outfalls
      - ✓ c) Effluent Guidelines Variances, Waivers, and Intake Credits
    - ✓ 8) Apply Additional Requirements in Effluent Guidelines
    - ✓ 9) Document the Application of Effluent Guidelines in the Fact Sheet
  - ✓ iii. Case-by-Case TBELs for Industrial Dischargers
    - ✓ 1) Legal Authority to Establish Case-by-Case TBELs

- ✓ 2) Identify Need for Case-by-Case TBELs
- ✓ 3) Factors Considered When Developing Case-by-Case TBELs
- ✓ 4) Resources for Developing Case-by-Case TBELs
- ✓ 5) Statistical Considerations When Establishing Case-by-Case TBELs
- ✓ 6) Document Case-by-Case TBELs in the Fact Sheet
- ✓ 4. Determining Water Quality-Based Effluent Limits (WQBELs)
  - ✓ a. Characterize the Effluent
    - ✓ i. Identify Pollutants of Concern in the Effluent
      - ✓ 1) Pollutants with Applicable TBELs
      - ✓ 2) Pollutants with a Total Maximum Daily Load (TMDL) Wasteload Allocation (WLA)
      - ✓ 3) Pollutants Identified as Needing WQBELs in the Previous Permit
      - ✓ 4) Pollutants Identified as Present in the Effluent through Monitoring
      - ✓ 5) Pollutants Otherwise Expected to be Present in the Discharge
    - ✓ ii. Identify Effluent Critical Conditions
      - ✓ 1) Effluent Flow
      - ✓ 2) Effluent Pollutant Concentration
  - ✓ b. Characterize Receiving Water Critical Conditions
    - ✓ i. Receiving Water Upstream Flow
    - ✓ ii. Receiving Water Background Pollutant Concentration
    - ✓ iii. Other Receiving Water Characteristics
  - ✓ c. Determine Applicable Water Quality Standards
    - ✓ i. Beneficial Uses
    - ✓ ii. Water Quality Criteria
      - ✓ 1) Numeric Criteria—Aquatic Life
        - ✓ a) Calculating Metals and Ammonia Criteria
        - ✓ b) Special Considerations for Temperature Numeric Criteria
      - ✓ 2) Numeric Criteria—Human Health
      - ✓ 3) Narrative Criteria
      - ✓ 4) Site-Specific Water Quality Criteria Implementation
      - ✓ 5) Water Quality Standard Variances and Intake Credits
    - ✓ iii. Antidegradation
  - ✓ d. Determine the Need for WQBELs
    - ✓ i. Define Reasonable Potential
    - ✓ ii. Assess Critical Conditions
    - ✓ iii. Establish an Appropriate Mixing Zone
  - ✓ e. Mixing Zone Rules
    - ✓ 1) Water Quality Standards

- ✓ 2) Effects on Aquatic Life
- ✓ 3) Effects on Human Health
- ✓ 4) General Size and Location Requirements to Consider
- ✓ 5) Requirements for Submerged Discharges
- ✓ 6) Varied Mixing Zone Sizes
- ✓ 7) Other Considerations
- ✓ 8) Mixing Zone Approval Process
- ✓ 9) Mixing Zone Analysis Level of Effort
- ✓ 10) Mixing Zone Review and Approval
- ✓ 11) Mixing Zone Determinations
- ✓ 12) Background on Mixing Zone Modeling
- ✓ 13) Available Models
- ✓ 14) Data Information to Support Mixing Zone Analysis
- ✓ 15) Dye Studies
- ✓ iv. Conduct a Reasonable Potential Analysis (RPA)
  - ✓ 1) What to do if Data is not Available
  - ✓ 2) Document RPA in the Fact Sheet
- e. Calculate Parameter-specific WQBELs
  - i. Calculate Parameter-specific WQBELs from Aquatic Life Criteria
    - 1) Determine Acute and Chronic WLAs
    - 2) Calculate Long-term Average (LTA) Concentrations for each WLA
    - 3) Select the Lowest LTA as the Performance Basis for the Permitted Discharger
    - 4) Calculate an Average Monthly Limit (AML) and a Maximum Daily Limit (MDL)
    - 5) Document Calculation of WQBELs in the Fact Sheet
  - ii. Calculate Chemical-specific WQBELs based on Human Health Criteria for Toxic Pollutants
- f. Calculate RPA and WQBELs for Whole Effluent Toxicity (WET)
  - i. Types of WET Tests
  - ii. Express WET Limits or Test Results
  - iii. Determine WET Limits and Triggers
  - iv. Document WET Calculations in the Fact Sheet
- g. Special Considerations
  - i. Water Quality Trading
    - 2) Intake Credits
    - 3) Variances
  - ii. Emerging Contaminants
  - iii. Watershed Permitting

5. Final Effluent Limits and Antibacksliding
  - a. Determine Final Effluent Limits
  - b. Apply Antibacksliding Requirements
  - c. Document Final Effluent Limit Rationale in the Fact Sheet