

Idaho Pollutant Discharge Elimination System

Effluent Limit Development Guidance

Draft Outline



**State of Idaho
Department of Environmental Quality**

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1. Introduction
 - a. Purpose and Need
 - b. Relationship to Existing Rules and Guidance
 - i. Clean Water Act (CWA) Background
 - ii. Idaho Water Quality Standards
 - c. Regulatory Citations
2. Data Analyses and Considerations
 - a. Background
 - b. Statistical Software
 - c. Method Detection Limit (MDL) and Minimum Level (ML) of Quantitation
 - i. MDL and ML Definitions
 - ii. Calculations using Values $<$ MDL or $<$ ML
 - d. Compliance with Water Quality-based Effluent Limits (WQBELs) below MDL or ML
 - e. Alternate Test Procedures
 - f. Significant Figures, Rounding, and Precision
 - i. Significant Figures
 - ii. Rounding
 - iii. Reporting Significant Figures
 - g. 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
 - 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
 - 1) Substitution of Chemical Oxygen Demand (COD) or Total Organic Carbon (TOC) for 5-day Biochemical Oxygen Demand (BOD₅)
 - 2) Adjustments to Percent Removal Requirements
 5. Document the Application Standards, Adjustments, and Considerations in the Fact Sheet
 - 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)
 5. Pretreatment Standards for Existing Sources (PSES)
 - 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
 6. Account for Overlapping or Multiple Effluent Guidelines Requirements
 7. Apply Additional Regulatory Considerations in Calculating TBELs
 - 1) Tiered Discharge Limits
 - 2) Internal Outfalls
 - 3) Effluent Guidelines Variances
 - 4) Nonconventional Pollutant—CWA Section 301(g) Variance
 - 5) Fundamentally Different Factors—FDF Variance
 - 6) Intake Allowance or Net/Gross Variance
 - 7) Thermal Discharge—CWA Section 316(a) Variance
 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 WQBELs
- a. Determine Applicable Water Quality Standards
 - i. Beneficial Uses
 - ii. Water Quality Criteria
 1. Numeric Criteria – Aquatic Life
 2. Numeric Criteria—Human Health
 3. Narrative Criteria
 - iii. Antidegradation Policy
 - iv. Water Quality Standards Modifications
 1. Designated Use Reclassification
 2. Site-Specific Water Quality Criteria Implementation
 3. Water Quality Standard Variance
 - b. Characterize the Effluent and Receiving Water
 - i. Identify Pollutants of Concern in the Effluent
 1. Pollutants with Applicable TBELs
 2. Pollutants with a Wasteload Allocation (WLA) from a Total Maximum Daily Load (TMDL)
 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. Select An Approach to Model Effluent and Receiving Water Interactions
- iii. Identify Effluent and Receiving Water Critical Conditions
 1. Effluent Critical Conditions
 - 1) Effluent Flow
 - 2) Effluent Pollutant Concentration
 2. Receiving Water Critical Conditions
 - 1) Receiving Water Upstream Flow
 - 2) Receiving Water Background Pollutant Concentration
 - 3) Other Receiving Water Characteristics
- iv. Establish an Appropriate Dilution Allowance or Mixing Zone
 1. Type of Mixing Under Critical Conditions
 2. Maximum Dilution Allowance or Mixing Zone Size
 - 1) Dilution Allowances in Rapid and Complete Mix Situations
 - 2) Dilution Allowances and Regulatory Mixing Zones in Incomplete Mix Situations
 3. Restrictions on Dilution Allowance or Mixing Zone Size
- c. Determine the Need for WQBELs
 - i. Define Reasonable Potential
 - ii. Conduct a Reasonable Potential Analysis (RPA) Using Data
 1. Determine the Appropriate Water Quality Model
 2. Determine and Document RPA in the Fact Sheet
 - iii. Conduct a RPA without Data
 - iv. Calculate Parameter-specific WQBELs
 1. 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
 2. Calculate Chemical-specific WQBELs based on Human Health Criteria for Toxic Pollutants
 - v. Calculate RPA and WQBELs for Whole Effluent Toxicity (WET)
 1. Types of WET Tests
 2. Express WET Limits or Test Results
 3. Determine WET Limits and Triggers
 4. Document WET Calculations in the Fact Sheet
 - vi. Special Considerations
 1. Water Quality Trading
 2. Intake Credits
 3. Variances
 4. Unique Pollutants
 - 1) Temperature
 - 2) pH
 - 3) Nutrients

- 4) Ammonia
- 5) Toxics
- 6) Emerging Contaminants
- vii. Antidegradation Review
- 5. Final Effluent Limits and Antibacksliding
 - a. Determine Final Effluent Limits
 - b. Apply Antibacksliding Requirements
 - Document Final Effluent Limit Rationale in the Fact Sheet