



NTL ALASKA, INC.

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Introduction to Alaskan Wastewater Systems

This is the official introductory course for Alaskan small wastewater systems operations and maintenance. This course is accredited for 3.0 CEU's and qualifies the student to take ADEC Provisional Level 1 certification exams.

All persons applying for Provisional exams must have a high school diploma or GED certificate. Provisional exams require that an operator have at least three FULL TIME months of operations experience OR completion of an approved training course such as Introduction to Alaskan Water Systems.

Exam applications will be filled out during the class and the exams will be proctored on the last day of class.

All exam fees should be remitted to NTL along with the class registration fees. NTL will take care of all submittals and remittance to the State of Alaska.

The two exams available for the **Introduction to Alaskan Wastewater Systems** Class are:

- Wastewater Collection, Provisional Level 1
- Wastewater Treatment, Provisional Level 1

A Provisional Level 1 certificate will be issued to any person who passes the exam with a 70% or higher score at an approved course. Provisional certification can be upgraded to Level 1 certification without further testing once operators meet the Level 1 eligibility requirements. Operators must apply to ADEC for the upgrade by presenting evidence of 1,950 hours of appropriate operational experience. Applications for upgrade of provisional certificates to level 1 will be reviewed four times per year at dates published on the ADEC statewide training calendar.

The State of Alaska charges a \$20.00 application fee and \$30.00 for each exam that you request:

- One exam $20.00 + 30.00 = \$50.00$
- Two exams $20.00 + 60.00 = \$80.00$

“Understanding Water”

INTRODUCTION TO SMALL WASTEWATER SYSTEMS

TEXT: *Introduction to Alaska Small Wastewater Systems*, Skeet Arasmith, 1994

INSTRUCTOR: Michael R. Pollen, President, NTL Alaska, Inc.

Course Outline:

- I. **Introduction to Wastewater Systems**
 - A. Sources of Wastewater
 - B. Impact of Wastewater
 - C. The Spread of Disease
 - D. Other Water Quality Considerations
 - E. The Solution

- II. **Characteristics of Wastewater**
 - A. What is Wastewater
 - B. Physical Characteristics
 - C. Chemical Characteristics
 - D. Biological Characteristics

- III. **Wastewater Collection Systems**
 - A. Functions of a Collection System
 - B. Types of Collection Systems
 - C. Lift Stations
 - D. Operations and Maintenance of Collection Systems

- IV. **Wastewater Treatment Systems**
 - A. Preliminary Treatment
 - B. Primary Treatment
 - C. Secondary Biological Treatment
 - D. Activated Sludge
 - E. Secondary Clarifiers
 - F. Ponds and Lagoons
 - E. Flow Measurement

- V. **Sludge Treatment and Disposal**
 - A. Sources and Types of Sludge
 - B. Sludge Stabilization
 - C. Solids Conditioning and Dewatering
 - D. Sludge Disposal

- VI. **Disinfection**
 - A. Methods of Disinfection
 - B. Chlorine Properties
 - C. Safety Considerations
 - D. Dechlorination
 - E. Lime Application

- VI. **Wastewater Laboratory**
 - A. Equipment
 - B. Basic Lab Techniques
 - C. Laboratory Safety
 - D. Discharge Permit Required Lab Testing
 - E. Process Control Testing
 - F. Record Keeping

- VII. **Pumping Systems**
 - A. Basic Hydraulic Terms and Concepts
 - B. Centrifugal Pumps
 - C. Pneumatic Ejectors and Air Lift Pumps
 - D. Positive Displacement Pumps
 - E. Pump Electrical Systems
 - E. Pump Maintenance

- VIII. **Safety**
 - A. Safety Programs
 - B. Confined Space Overview
 - C. Electrical Safety
 - D. Lockout/Tagout
 - E. Hazardous Material Communication
 - F. Traffic Control
 - G. Competent Person/Shoring
 - H. First Aid
 - I. Bloodborne Pathogens
 - J. General Hygiene
 - K. Fire Safety

- IX. **Math Concepts**
 - A. Perimeter
 - B. Surface Area
 - C. Volume
 - D. Flow
 - E. Loading Rates
 - F. Detention Time
 - G. Backwash Rates
 - H. Dosing Formulas

X. Course Closure & Evaluation

XI. Final Exams on Day 5 (*Exams will be administered by an independent proctor selected by ADEC*)

- A. ADEC Wastewater Treatment Provisional Level 1 Exams
- B. ADEC Wastewater Collection Provisional Level 1 Exams