Yukon Water & Wastewater Operator Program

Wastewater Collection Level 1 & 2

Course Outline

INSTRUCTOR: Darcy Dragonetti, AScT
DATE: January 22 – 26, 2018 (Monday – Friday)
TIME: 8:00 am – 3:30 pm

Course Description

This 4.5 day (30 hour) course is designed to prepare the participants to write their Environmental Operators Certification Program (EOCP) certification exam for Level 1 or 2 Wastewater Collection (required by Yukon Government Regulation).

The main objective of the course is to provide knowledge of wastewater collection practices and focuses on the practical aspects of system construction, operation and maintenance and, to operate the wastewater system reliably in order to safeguard the public and environment.

Course Pre-requisites

There are no specific pre-requisites for this course. However, Grade 12 (or equivalent) math skills are an asset. Math upgrades are available –contact us.

Continuing Education Units (CEUs)

This course is accepted with EOCP as core for WWC - SWWS - for 2.70 CEUs.

Course Duration

- 4.5 day
- 8:00 am to 3:30 pm each day, except last day from 8:00 am to 12:00 pm
- 1hour lunch break
- 15minute breaks morning and afternoon

Course Topics and Learning Outcomes

Upon successful completion of the course, the students will be able to:

Roles and Responsibilities of a Wastewater Collection Operator

- Define what is a wastewater collection system and the characteristics of a good operator
- Describe typical operation and maintenance duties of an operator

Safety and System Hydraulics

- Understand and practice safe procedures in the workplace, including:
  - Safety Programs
  - First Aid
  - Site Safety
  - Excavation Safety
  - Confined Space Entry
  - Traffic Control
  - Personal Protective Equipment
  - Lock-out
  - WHMIS
  - Fire Extinguishers
  - Chlorine Handling
- Apply basic hydraulic concepts to wastewater collection systems

Wastewater Collection Systems

- Recognize basic types of wastewater flows
- Understand types of wastewater collection systems
- Describe pipe materials used for wastewater collection systems
- Identify pipe joints for different pipe materials
- Become familiar with design concepts of a wastewater collection system

Inspecting and Testing Collection Systems

- Understand how to perform smoke testing and dye testing
- Define pipeline lamping techniques
- Carry out proper inspection techniques including air and water testing
- Perform closed-circuit television (cctv) inspections

Pipeline Cleaning and Maintenance Methods

- Recognize basic types of cleaning equipment used in maintenance
- Understand hydraulic cleaning and mechanical cleaning methods
- Describe chemicals used for cleaning

- Recognize and identify problems and select solutions
- Perform hydrogen sulfide control

Underground Repair

- Identify types and shoring requirements
- Understand how to perform proper underground work
- Carry out construction of a wastewater collection system
- Perform main line, service and manhole repairs
- Describe sewer construction inspection and testing techniques

Plan Reading, Pipe Materials, Main Construction, and Cross Connection

- Recognize basic types of engineering drawings and their purposes
- Understand main line construction and service installations
- Describe phases of construction project
- Identify desirable pipe material characteristics and uses
- Recognize cross connections and how to protect against contamination

Operator Mathematics and Practical Calculations

- Convert units of measurement (within the metric system and metric to imperial)
- Apply the principle of "order of operations" to math calculations
- Calculate percentages and apply to chemical concentrations
- Calculate area and volume
- Calculate perimeters & circumferences
- Use algebraic formulae to solve flow rate, detention time and chemical concentration and dosage problems

Delivery Method/Format

Instructional Method	**Percentage of Class Time**
Hands-on/Q & A	20%
Examples/Case Study	20%
Presentation/Lecture	10%
Slides	35%
Demonstration (field trip if applicable)	5%
Video/DVD	5%
Tutoring	5%

Material/Handouts (supplied)

- Student Binder: Yukon College, 2018. Wastewater Collection Level 1 & 2; a core –EOCP Exam Preparation– course. Whitehorse, Yukon.
- Reference Manual: Office of Water Programs, 2015; Operation and Maintenance of Wastewater Collection Systems, Volume I; a field study training program. 7th Edition. Sacramento, California.
- EOCP Course Completion and Evaluation Form.
  - every student needs to complete and return this form for any CEU allocation
- Calculators are provided but students are welcome to use their own.
  - please return

Course Requirements

Attendance and participation in class are required. It is the student's responsibility to attend all classes.

CEUs will be allocated based on attendance and course completion; Yukon College records will show a pass or fail result. If the participant doesn't attend the class, Yukon College records will show a "no show" result and no CEUs will be allocated.

Evaluation

There will be a quantifiable evaluation at the end of this course with a passing mark of 70%. If anyone fails this evaluation, arrangements can be made for a re-assessment. Please note that this evaluation is for self-assessment purpose only.

The final evaluation for this course is NOT an EOCP certification exam. To challenge a certification exam, register separately with EOCP at least 3 weeks in advance: crm.eocp.ca or 1-866-552-3627.

Appropriate Language

In all areas of the college environment, students are responsible for showing respect for others. Swearing, or language that is discriminatory or derogatory in relation to race, sex, ethnic background, religious beliefs, age, and physical condition is not appropriate.

Electronic Devices

In order to be successful in classes and minimize distractions for others, cell phones, iPods, and other electronic devices must be turned off while students are in class. In an emergency situation, the instructor may give a student permission to use a cell phone or pager.

Academic and Student Conduct

Information on academic standing and student rights and responsibilities can be found in the current Academic Regulations that are posted on the Student Services/Admissions & Registrations web page.

Plagiarism

Plagiarism is a serious academic offence. Plagiarism occurs when students present the words of someone else as their own. Plagiarism can be the deliberate use of a whole piece of another person's writing, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material. Whenever the words, research or ideas of others are directly quoted or paraphrased, they must be documented according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Resubmitting a paper which has previously received credit is also considered plagiarism. Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may also result in dismissal from a program of study or the College.

Academic Accommodation

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon College Academic Regulations (available on the Yukon College website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, he/she should contact the Learning Assistance Centre (LAC) at (867) 668-8785 or lassist@yukoncollege.yk.ca.

Class Outline

Agenda	Time (hours)
Introduction	0.50
Safety	3.50
System Hydraulics	2.00
Operator Mathematics	5.00
Practical Calculations	1.00
Review Assignment 1 (math)	0.50
Wastewater Chemistry	1.00
Intro to Plan Reading	1.50
Pipe Materials	1.00
Pipeline Design Concepts	0.50
Construction Layout	1.00
Midterm Exam	1.50
Review Midterm Exam	0.50
Sewer Construction	1.50
Trenchless Technology	1.00
Lift Stations	0.50
Pumps	1.50
Controls	1.50
System Maintenance	1.00
Testing Techniques	0.50
System Flow Analysis	0.50
Exam tips and Sample Questions	0.50
Final Exam	2.00