

Clean Water 2020 Program

WASTEWATER COLLECTION AND TRANSMISSION SYSTEM TRAINING PROGRAM

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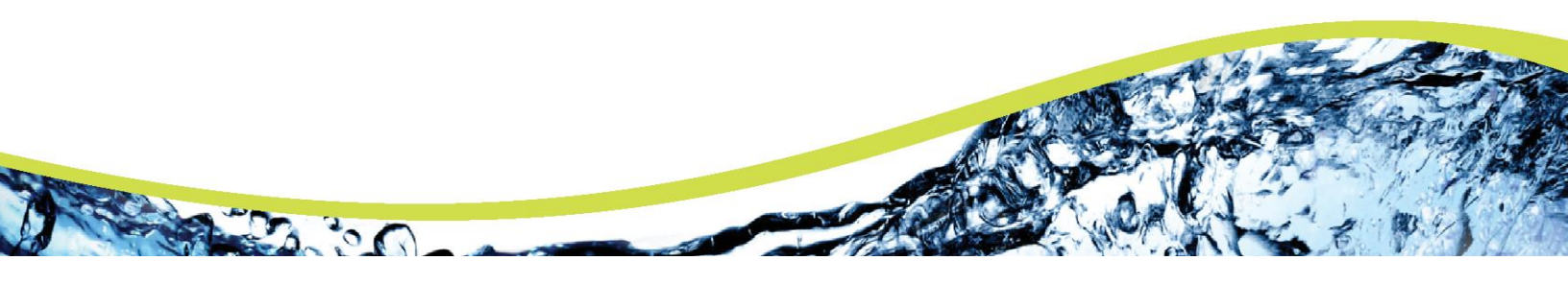


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Program Summary and Intent

Introduction

The City of Columbia (City) has developed this Wastewater Collection and Transmission System (WCTS) Training Program in accordance with the requirements of Paragraph 12 of the Consent Decree entered by order dated May 21, 2014 in *The United States of America and State of South Carolina by and through the Department of Health and Environmental Control (SCDHEC) vs. the City of Columbia*, Civil Action No. 3:13-2429-TWL, DOJ Case Number 90-5-1-1-00954. The WCTS Training Program addresses the specific requirements of the Consent Decree (CD) as outlined in **Table 1**, and was developed based on the specific needs of the City’s WCTS.

Table 1 – CD Requirements for the WCTS Training Program

CD Section	CD Requirements	WCTS Training Program Section
12.c.(i)	“ General Training. Columbia shall provide general training to address tasks undertaken by Columbia's wastewater personnel. General training would include, for example, employee orientations, training in the basic principles of wastewater collection and transmission, and training in the rules and regulations affecting Columbia’s Wastewater Maintenance Division. The general training component of the Program shall provide the content of the initial training, and the frequency and content of the refresher training, to be required for all personnel responsible for management, operations, or maintenance of Columbia's WCTS.”	Section 2. General Training
12.c.(ii)	“ Position Specific Training. Columbia shall provide training for tasks undertaken by Columbia’s wastewater personnel to address the methods, processes, procedures, and techniques required to perform the duties and tasks necessary for the proper operation and maintenance of the collection and transmission system. Collection system training would include, as appropriate, training in equipment operation, pipe installation/replacement, pipe cleaning, pipe inspection, and reading as-built drawings. Transmission system training would include, as appropriate, training in equipment operation, pump/ejector inspection, pump/ejector maintenance, and pump/ejector repair. Columbia's collection system training and transmission system training program shall include.”	Section 2. Position Specific Training
12.c.(ii).(A)	“Identification of the related tasks, equipment, and facilities.”	Section 3.1 Identification of Related Tasks, Equipment, and Facilities
12.c.(ii).(B)	“Description of the technical knowledge necessary to properly conduct the individual tasks and properly operate the individual equipment and facilities.”	Section 3.2

CD Section	CD Requirements	WCTS Training Program Section
		Description of Technical Knowledge
12.c.(ii).(C)	"Description of the underlying purposes and technical reasons for conducting the individual tasks or operating the individual equipment and facilities."	Section 3.3 Description of Purposes and Technical Reasons
12.c.(ii).(D)	"Standard procedures which personnel shall follow when conducting the individual tasks or operating the individual equipment and facilities."	Section 3.4 Standard Procedures
12.c.(ii).(E)	"The content of the initial training, and the frequency and content of the refresher training, to be required for personnel conducting the individual tasks, or operating the individual equipment and facilities."	Section 3.5 Training Content and Frequency
12.c.(ii).(F)	"Training designed to provide trainees with a thorough understanding of the individual procedures, underlying technical reasons, and underlying purposes associated with the individual tasks they may conduct, or the specific equipment and facilities they may operate, and to provide this in a consistent manner to all trainees."	Section 3.6 Training Programs
12.c.(iii)	" <u>Tracking</u> . The Training Program shall include a description of the common data management system to be used for tracking personnel participation in, and completion of, the initial general training, collection system training, and/or transmission system training, and the corresponding refresher training."	Section 4 Tracking
12.c.(iv)	" <u>Implementation Schedule</u> . The Training Program shall include an implementation schedule specifying dates and actions."	Section 5 Implementation Schedule

Acronyms & Abbreviations

ABC – Association Boards of Certification

AP – Apprenticeship Program

CD – Consent Decree

City – City of Columbia

CSUS – California State University, Sacramento

CW2020 – City’s program to manage consent decree compliance

EPA – United States Environmental Protection Agency

GSOMP – Gravity Sewer System Operation and Maintenance Program

PMTAP – Plant Maintenance Technologist Apprenticeship Program

SCDHEC – South Carolina Department of Health and Environmental Control

SOP – Standard Operating Procedure

TSOMP – Transmission System Operations and Maintenance Program

WCTS – Wastewater Collection and Transmission System

WEASC – Water Environment Association of South Carolina

WMD – Wastewater Maintenance Division

WWCSOTAP – Wastewater Collection Systems Operator Training and Apprenticeship Program

WWTP – Wastewater Treatment Plant

Section 1 General Training

The WCTS Training Program addresses the following general training requirements of the Consent Decree.

- Subparagraph 12.c.(i) – General Training. Columbia shall provide general training to address tasks undertaken by Columbia's wastewater personnel. General training would include, for example, employee orientations, training in the basic principles of wastewater collection and transmission, and training in the rules and regulations affecting Columbia's Wastewater Maintenance Division. The general training component of the Program shall provide the content of the initial training, and the frequency and content of the refresher training, to be required for all personnel responsible for management, operations, or maintenance of Columbia's WCTS.

The WCTS employees receive orientation training and general training on the operation and maintenance of the WCTS. There are two separate groups that maintain the WCTS. The Wastewater Maintenance Division (WMD) operates and maintains the gravity sewer lines and force mains. The Pump Station group within the Wastewater Treatment Plant (WWTP) Division operates and maintains the pump stations (Pump Station Group).

The State of South Carolina does not license WCTS operators; however, the City has developed a training program for its WCTS employees with resources available through industry trade organizations. In 2013, the WMD developed and implemented a comprehensive Apprenticeship Training Program that follows the Association of Boards of Certification (ABC) criteria for collection system operators. The WMD Apprenticeship Program (AP) is registered with and meets the requirements of the United States Department of Labor Apprenticeship Program. This program has been implemented by the WMD and provides the necessary general training in the basic principles of operation and maintenance of the wastewater collection and transmission system (WCTS). The City requires all WMD employees to participate in the program and to obtain operator certification through a voluntary certification program administered by the Water Environmental Association of South Carolina (WEASC). The WEASC certification program has four levels of classifications for wastewater collection system operators.

The AP requires all operators, hired and retained, to complete the program within a specified time frame. The total length of the program is four years. Each level of the program must be completed within one year.

Failure to satisfy the following program criteria within the specified time period will affect an individual's eligibility to qualify for promotion:

- Apply for and maintain membership in WEASC
- Register with the US Department of Labor
- Obtain operator certification through the WEASC Voluntary Certification Program for wastewater collection system operators
- Possess a SC Class "A" Commercial Driver's License

The Pump Station Group is currently in the process of finalizing its apprenticeship program. Until the City finalizes and implements this program, the employees in the Pump Station Group are being trained under the Metro Wastewater Treatment Plant Operator Training Program.

As noted above, the AP uses the ABC criteria for training employees. ABC has developed wastewater collection system tasks through a process of surveying wastewater system operators throughout the United States to identify essential tasks associated with the operation and maintenance of the wastewater collection system. These are called core competencies. These core competencies are also incorporated into the WMD and Pump Station Group Standard Operating Procedures (SOPs) referenced in the Gravity Sewer System Operation and Maintenance Program (GSOMP) and the Transmission System Operations and Maintenance Program (TSOMP). The Programs and SOPs are available to WCTS employees electronically and in hard copy.

The ABC core competencies for WCTS operators include essential tasks and capabilities for the following job duties:

- Operate Equipment
- Evaluate and Maintain Equipment
- Maintain and Restore Collection System
- Maintain Lift Stations
- Monitor, Evaluate and Adjust Collection System
- Perform Security, Safety and Administrative Procedures

Technical knowledge necessary to properly conduct the individual task and operate the individual equipment and facilities is defined as part of the AP. Technical knowledge is a progressive process for employees that operate and maintain the WCTS. The WMD uses the WEASC voluntary certification program to test employee for technical knowledge.

In addition to the AP training, to prepare for the voluntary certification program testing, employees receive general on the job training from their supervisors. In addition to on the job training, operators are required to complete *Operation and Maintenance of Wastewater Collection Systems*, Volumes I and II provided by California State University, Sacramento (CSUS). Operators use these manuals to study general wastewater collection system concepts. Each section has a review test which is administered by WMD staff. Section tests must be passed by operators prior to taking the WEASC certification tests.

WEASC Voluntary Certification Program for Wastewater Collection System Operators is a tiered professional certification program. A wastewater collection system operator prepares for and takes the appropriate level exam, beginning with the "D" level and is awarded that certification upon successful completion (a score of 70 or above) of the exam. The individual may continue with the process, gaining the general practical experience and taking exams until the desired certification, "A" being the highest level. Once an individual receives certification, six continuing education units of training annually is required to maintain certification status.

The AP outlines this process and requires that all wastewater collection system operators achieve, at a minimum, a “C” level certification. Operators will continue course study through CSUS. These courses are designed to train collection system operators to safely and efficiently operate and maintain wastewater collection systems.

WMD SOPs are used to train personnel on appropriate work processes. The SOPs document the manner in which activities are to be performed to ensure consistent technical requirements are being met by operators. Actions such as processes for maintaining and using equipment are described. SOPs are specific to the WCTS activities and provide the management quality control and quality assurance processes to ensure compliance with rules and regulations.

Section 2 Position Specific Training

The WCTS Training Program addresses the following position specific requirements of the Consent Decree.

- Subparagraph 12.c.(ii) – Position Specific Training. Columbia shall provide training for tasks undertaken by Columbia’s wastewater personnel to address the methods, processes, procedures, and techniques required to perform the duties and tasks necessary for the proper operation and maintenance of the collection and transmission system. Collection system training would include, as appropriate, training in equipment operation, pipe installation/replacement, pipe cleaning, pipe inspection, and reading as-built drawings. Transmission system training would include, as appropriate, training in equipment operation, pump/ejector inspection, pump/ejector maintenance, and pump/ejector repair. Columbia's collection system training and transmission system training program shall include.
- Subparagraph 12.c.(ii).(A) – Identification of the related tasks, equipment, and facilities.
- Subparagraph 12.c.(ii).(B) – Description of the technical knowledge necessary to properly conduct the individual tasks and properly operate the individual equipment and facilities.
- Subparagraph 12.c.(ii).(C) – Description of the underlying purposes and technical reasons for conducting the individual tasks or operating the individual equipment and facilities.
- Subparagraph 12.c.(ii).(D) – Standard procedures which personnel shall follow when conducting the individual tasks or operating the individual equipment and facilities.
- Subparagraph 12.c.(ii).(E) – The content of the initial training, and the frequency and content of the refresher training, to be required for personnel conducting the individual tasks, or operating the individual equipment and facilities.
- Subparagraph 12.c.(ii).(F) – Training designed to provide trainees with a thorough understanding of the individual procedures, underlying technical reasons, and underlying purposes associated with the individual tasks they may conduct, or the specific equipment and facilities they may operate, and to provide this in a consistent manner to all trainees.

2.1 Identification of Related Tasks, Equipment, and Facilities

The WMD has adopted a general training program through its Apprenticeship Program and the Pump Station Group has adopted a general training program through the Metro Wastewater Treatment Plant Operator Training Program. Each requires its employees to know and understand all tasks associated with the operations and maintenance of WCTS. These employees receive collection system training in equipment operation, pipe installation/replacement, pipe cleaning, pipe inspection, and reading as-built drawings. Transmission system training includes training in equipment operation, pump/ejector inspection, pump/ejector maintenance, and pump/ejector repair. All employees are trained in all areas of the WCTS.

2.2 Description of Technical Knowledge

Technical knowledge necessary to properly conduct the individual task and properly operate the individual equipment and facilities is defined as part of the AP. Technical knowledge is a progressive process for employees that operate and maintain the WCTS and is achieved through the WEASC voluntary certification program as described under General Training (**Section 1**).

2.3 Description of Purposes and Technical Reasons

The description of purposes and technical reasons for conducting the individual tasks or operating the individual equipment and facilities is identified in each WMD and Pump Station Group SOP. Also provided in the SOPs are descriptions of the underlying purposes and technical reasons for conducting specific tasks and for the operations of equipment and facilities.

The purpose of these SOPs is to detail regularly recurring work processes that are to be conducted or followed by personnel. The SOPs document the way activities are to be performed to ensure consistent technical requirements are being met by personnel. Actions such as processes for maintaining and using equipment are described. SOPs are specific to the WCTS activities and provide the management quality control and quality assurance processes to ensure compliance with rules and regulations.

2.4 Standard Procedures

Standard procedures which personnel follow when conducting tasks or operating the individual equipment and facilities are outlined in SOPs for the WMD and the Pump Station Group. The sections of each SOP describe the standard procedures which personnel follow when conducting the individual tasks or operating the individual equipment and facilities.

2.5 Training Content and Frequency

Training is designed to provide trainees with a thorough understanding of individual procedures, underlying technical reasons, and underlying purposes associated with individual tasks they may handle, or the specific equipment and facilities they may operate, and provide this in a consistent manner to all trainees.

The AP includes very specific course material and frequency of training. The voluntary certification program testing is administered by the WEASC. The training content and frequency for each certification level is established in the AP.

2.6 Training Programs

The WMD training program is outlined in the AP. The Pump Station Group uses the Metro Wastewater Treatment Plant Operator Training Program. Specific guidance on the training program is defined annually by staff and records are maintained in the training tracking system.

As indicated in **Section 1** above, the Pump Station Group is in the process of finalizing its apprenticeship program, known as the Plant Maintenance Technologist Apprentice Program (PMTAP).

Section 3 Tracking

The WCTS Training Program addresses the following tracking requirements of the Consent Decree.

- Subparagraph 12.c.(iii) – Tracking. The Training Program shall include a description of the common data management system to be used for tracking personnel participation in, and completion of, the initial general training, collection system training, and/or transmission system training, and the corresponding refresher training.

The WMD and the Pump Station Group are currently using TargetSolutions, an employee training and tracking software. The training and tracking software allows management to track training events, link documents to training requirements, and also enables management and employees to see an employee's overall training progress. The system can:

- Create collection and transmission system course profiles for repeat training activities
- Load course-specific requirements and add any training material
- Schedule and complete collection and transmission system refresher training
- Automatically schedule training events identifying staff who need the training

TargetSolutions has the ability to provide reports on completed courses, expired training for individuals, and several other management reports on the status of the overall program.

Section 4 Implementation Schedule

The purpose of this section is to identify an implementation schedule, outlined in **Table 2**, which will be implemented within two years of EPA approval of the WCTS Training Program.

- Subparagraph 12.c.(iv) – Implementation Schedule. The Training Program shall include an implementation schedule specifying dates and actions.

The training program for the WMD has been fully implemented and continues in effect. The PMTAP for the Pump Station Group will be implemented according to the following schedule:

Table 2 – WCTS Training Program Implementation Schedule

CD Section	Corrective Action Description	Implementation Schedule
12.c.(i)	Plant Maintenance Technologist Apprentice Program (PMTAP)	Implemented 12 months of EPA approval of the WCTS Training Program