



CWEA Collection System Maintenance Certification

CWEA Technical Certification Program (TCP)

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CWEA STAFF

CWEA



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Individual Benefits

- Commitment to lifelong learning
- Demonstrated competency
- Increased earning potential
- Opportunity for promotion
- Competitive advantage
- Mobility

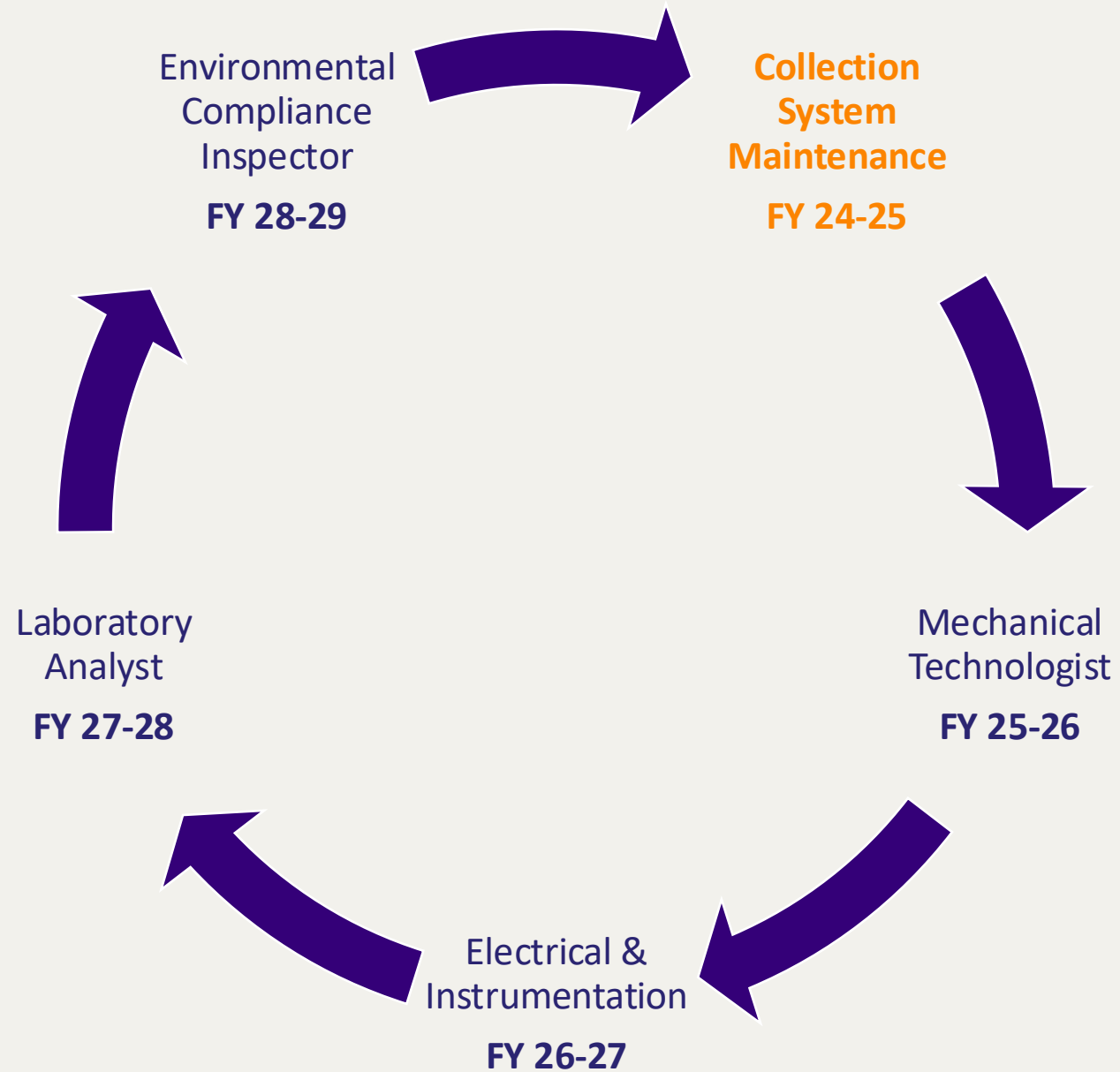


Employer Benefits

- Documentation of job-related knowledge
- Assurance of safe work practices
- Evidence for the public
- Competitive position



Exam Revalidation Cycle



Psy•cho•met•rics

The science of
measuring mental
capacities and
processes.

(aka Knowledge Measurement)



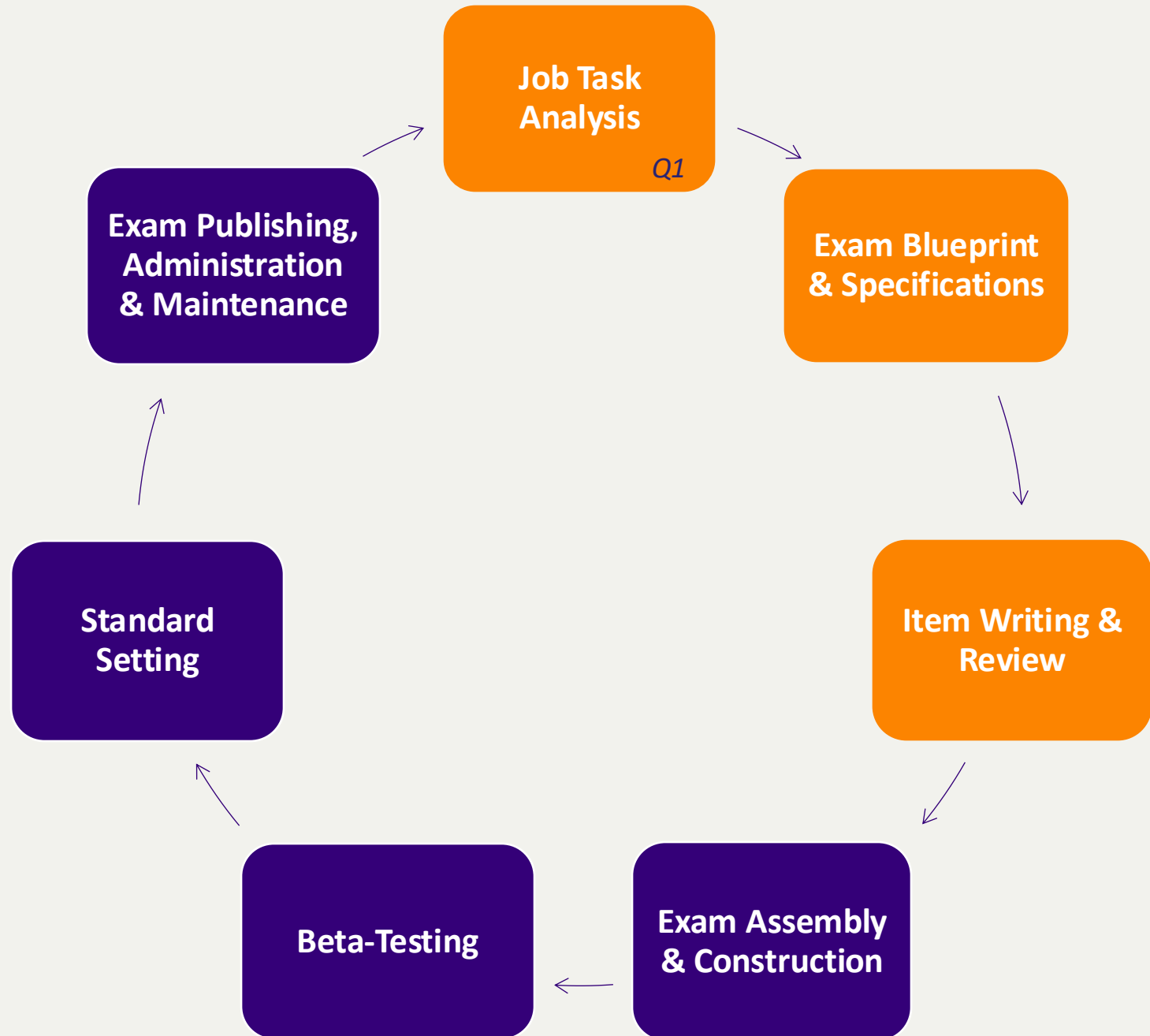
Amanda Dainis, PHD, MPA
CEO and Lead Psychometrician



Michael Maurice, MPA
COO and Project Manager

Exam Development Process

- 18 SMEs selected for panel
- Held in-person JTA workshop
- Content outlines drafted for CSM 1-4
- Validation survey developed and distributed
- Item writing has begun



CSM Update Progress



- Content outlines & exam blueprints have been finalized
 - **20%** response rate to validation survey
- No changes to Minimum Qualifications (education & experience requirements)
- **50%** of the way to our item development goal
- Need more volunteers in spring!

Specifications	Grade 1	Grade 2	Grade 3	Grade 4
Brief description of the Grade Level in relation to the job family.	Entry and basic working level.	Skilled or journey level.	Lead/advanced technical level.	Program manager level.
Level of knowledge, skill and ability within the job family, in relation to job tasks, including the taxonomic level of knowledge applied on the job.	Basic knowledge and ability, as needed to safely and effectively perform basic tasks. This includes: recall and recognition, comprehension, and application.	Knowledge and ability to safely and effectively accomplish most technical tasks in the job family. This includes: comprehension, application, and analysis.	Knowledge, skill and ability to safely and effectively accomplish and coordinate complex tasks. This includes: application, analysis and synthesis.	Knowledge, skill and ability to administer, coordinate and manage complex programs across vocations. This includes: analysis, synthesis, and evaluation.
Level of supervision received.	Receives direct supervision.	Receives limited supervision.	Receives general direction.	May receive broad direction.
Level of supervision exercised.	None.	May provide technical direction over other staff.	Will oversee and direct complex tasks performed by others.	Will coordinate program activities within or across vocations.
Level of training provided to other personnel.	None.	May train lower-level personnel.	May oversee a training program.	Designs and administers training program within the job family.
Use of tools.	Will recognize the basic tools of the job family.	Will be able to apply most of the tools used by those in the job family.	Will select tools for individuals and teams in relation to specific problems.	Manages and evaluates systems and facilities.
Problem solving and troubleshooting responsibilities.	Follows directions.	Troubleshoots and solves common problems without supervision.	Troubleshoots and solves complex problems.	Evaluates program effectiveness and takes corrective actions as needed.
Actions in relation to safety problems.	Recognizes unsafe conditions.	Recognizes and corrects unsafe conditions.	Anticipates and prevents unsafe conditions.	Designs and administers safety programs.
Actions in relation to standard operating procedures (S.O.P.s), laws and regulations.	Has the ability to follow S.O.P.s.	May assist in formulating and revising SOPs.	May oversee and formulates new S.O.P.s and ensure regulatory compliance.	Assures program compliance with laws and regulations.
Actions in relation to documentation of work activities.	Accurately completes records of work processes.	Accurately completes records of work processes and performs peer review of records.	Conducts audits of records of work processes for completeness, accuracy, and compliance, and recommends or takes necessary corrective action.	Responsible for quality assurance of program documentation, including management review and internal audits.

Qualifying Education & Experience Requirements

Collection System Maintenance

GRADE 1	<ul style="list-style-type: none">▪ No experience required▪ (1 year of experience in the vocation is recommended)
GRADE 2	<ul style="list-style-type: none">▪ 2 years of experience in the vocation
GRADE 3	<ul style="list-style-type: none">▪ CSM Grade 2 certification in good standing▪ 4 years of experience in the vocation OR 3 years with a bachelor's degree or a water/wastewater associate degree
GRADE 4	<ul style="list-style-type: none">▪ CSM Grade 3 certification in good standing▪ 6 years of experience in the vocation OR 5 years with a bachelor's degree or a water/wastewater associate degree▪ 1 year experience supervising others in the vocation, crew lead experience qualifies

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CANDIDATE HANDBOOKS



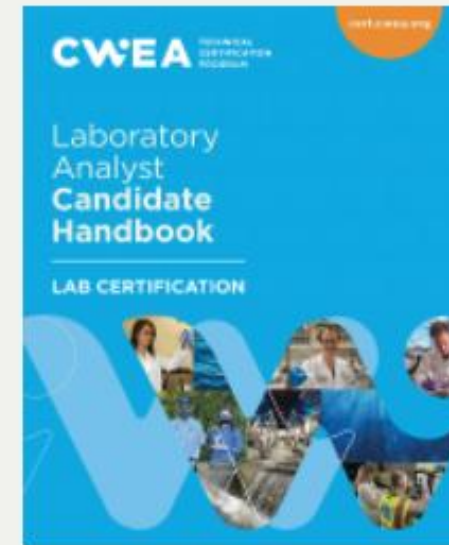
CSM Candidate Handbook



ECI Candidate Handbook



EIT Candidate Handbook



LAB Candidate Handbook



NEW! MT Candidate Handbook

CSM GRADE 1 EXAM CONTENT OUTLINE

Content Domain	Weighting
Domain 1 – Systems Operations, Inspections, and Maintenance	36%
Domain 2 – Records, Documentation, and Mapping	17%
Domain 3 – Safety and Customer Service	23%
Domain 4 – Vehicles, Equipment, and Grounds	16%
Domain 5 – Math for Collection Systems	8%
Total	100%

Domain 1: Systems Operations, Inspections, and Maintenance

Sub-Domain 1.1:

Inspection, cleaning and maintenance of wastewater collection systems utilizing equipment

1. Choose the most effective way to remove root systems, sand, and grit from sewer systems
2. Identify parts of a standard sewer and their functions
3. Understand methods and procedures of preventative maintenance
4. Understand mechanical cleaning systems
5. Understand the use of high-velocity sewer cleaners, mechanical rodding

Domain 1 – Systems Operations, Inspections, and Maintenance

Sub-Domain 1.1	Operation and Maintenance of Wastewater Collection Systems, Volume 1, 8th Edition. Pages 2, 9-10, 33, 49-55, 278-305, 315-319, 323-402, 452-468
Sub-Domain 1.2	Operation and Maintenance of Wastewater Collection Systems, Volume 1, 8th Edition. Pages 142-165, 190-204, 370-382, 468-491 Operation and Maintenance of Wastewater Collection Systems, Volume 2, 7th Edition. Pages 14-27, 32-80, 83-93
Sub-Domain 1.3	Operation and Maintenance of Wastewater Collection Systems, Volume 1, 8th Edition. Pages 419-472, Glossary Operation and Maintenance of Wastewater Collection Systems, Volume 2, 7th Edition. Pages 520-522
Sub-Domain 1.4	Operation and Maintenance of Wastewater Collection Systems, Volume 1, 8th Edition. Pages 89-189, 162-165, 177-181, 412-491, 518-521 Operation and Maintenance of Wastewater Collection Systems, Volume 2, 7th Edition. Pages 14-27, 261-330, 357-376, 617 Title 29 CFR 1926.21 Title 29 CFR 1926.650 Title 29 CFR 1926 Subpart P App A California Code of Regulations, Title 8, Section 1541 California Code of Regulations, Title 8, Section 1541.1 California Government Code 4216 California Government Code 4216.2

Publications in the Suggested Reference List

- California Code of Regulations Title 8
 - [Section 1541](#)
 - [Section 1541.1](#)
 - [Section 5157](#)
- [California Commercial Driver Handbook, State of California, Department of Motor Vehicles](#)
- California Government Code
 - [4216](#)
 - [4216.2](#)
- [Operation and Maintenance of Wastewater Collection Systems, Volume 1, 8th Edition, Office of Water Programs](#)
- [Operation and Maintenance of Wastewater Collection Systems, Volume 2, 7th Edition, Office of Water Programs](#)
- [Safety, Health, and Security in Wastewater Systems, 6th Edition, Water Environment Federation](#)

Sample Questions

This section provides sample questions to help applicants become familiar with the exam format and subject matter.

1. What type of equipment should be used to excavate a broken sewer pipe?
 - a. Front end loader
 - b. Bulldozer
 - c. Backhoe
 - d. Grader
2. What is a mechanical means to dislodge material from a sewer?
 - a. High water pressure
 - b. Pumping
 - c. Scraping
 - d. Vacuuming
3. What is the purpose of the OSHA Hazard Communication Standard?
 - a. To make all employees aware of the need to prevent hazardous substances from entering sewers
 - b. To make each employee a chemical safety expert
 - c. To make employees effective communicators with the public
 - d. To make sure employees know about any hazardous chemical that they may contact

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Collection System Maintenance



**Electrical & Instrumentation
Technologist**

WHAT QUESTIONS CAN WE ANSWER?

CWEA

THANK YOU

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