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California Water Environment Association (CWEA)
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Essential Duties of the Grade I Collection System Maintenance Technologist

Individuals certified as Grade I Collection System Maintenance Technologists are expected to possess acceptable competency when performing the tasks that are necessary for entry level Collection System Maintenance Technologists. These necessary tasks are known as the *Essential Duties*. The certification test measures knowledge, skills and abilities required to perform the *Essential Duties*.

Essential Duties for Grade I

1. Participates in inspecting, cleaning, maintaining, constructing and repairing of wastewater collection systems, utilizing a variety of mechanical or specialized equipment.

2. Assists with pump station inspections, records instrument readings and makes minor adjustments to keep flow steady.

3. Performs a variety of manual tasks including the lifting, carrying and removal of heavy loads including materials, equipment and debris.

4. Inspects and maintains easements, some of which may be remote or difficult to access.

5. Participates in excavating, shoring and repairing the collection system, including damaged pipe, manholes and casting adjustments.

6. Breaks, cuts and restores concrete and paved surfaces using jackhammers, concrete saws, etc.

7. Prepares, inspects, and maintains vehicles for use; ensures vehicles are in proper operating condition and arranges for maintenance when required.

8. Ensures that tools and equipment are in proper operating condition for daily use and arranges for maintenance when required.

9. Participates in the maintenance and repair of wastewater collection system lift stations and components.

10. Completes accurate, legible and timely records/data of work performed.

11. Participates in maintaining proper traffic safety controls at work sites to move traffic safely and efficiently around work site.

12. Responds to public inquiries in a courteous manner and provides information appropriate to the area of assignment.

13. Adheres to safe work practices and abides by all applicable regulations, policies and procedures.

14. Reads and interprets collection system maps to determine basic flow characteristics and construction details.

15. Participates in the containment and clean-up of wastewater spills.

16. Stays abreast of new trends and innovations in the field of wastewater collection system operation and maintenance.

17. Participates in confined space entries.

Grade I Complexity of Test Questions
At the Grade I level, certificate candidates are expected to have basic knowledge of the job and the ability to safely perform the *Essential Duties* listed above. Examinees will have to answer multiple choice questions that test knowledge, comprehension, and application of the subject matter. The complexity of the questions will range from basic recall of previously learned material and the ability to understand the meaning of the subject matter, to being able to apply knowledge to new situations.

Essential Duties of the Grade II Collection System Maintenance Technologist
Individuals certified as Grade II Collection System Maintenance Technologists are expected to possess acceptable competency when performing the tasks that are necessary for skilled or journey level Collection System Maintenance Technologists. These necessary tasks are

known as the *Essential Duties*. The certification test measures knowledge, skills and abilities required to perform the *Essential Duties*.

Essential Duties for Grade II

1. Performs, trains and directs the duties listed for Collection System Maintenance Grade I.

2. Inspects, troubleshoots and maintains proper collection system operation using advanced techniques and instruments.

3. Conducts confined space entries.
4. Performs maintenance and repair of wastewater collection system.

5. Provides information and reports on activities as required.

6. Provides assistance to individuals, agencies and private organizations with underground service alert (USA) markings, utilities and manholes.

7. Plans routine traffic safety at worksites and performs non-routine traffic control under general supervision.

8. Resolves routine complaints in an efficient and timely manner.

9. Monitors crew performance to ensure adherence to safe work practices and compliance with all applicable regulations, policies and procedures.

10. Participates in the development and promotion of safe work practices and procedures.

Grade II Complexity of Test Questions
At the Grade II level, certificate candidates are expected to have the knowledge, skill and ability to safely and effectively accomplish most of the *Essential Duties* listed above. Grade II candidates are also expected to be familiar with the Grade I Test Content Areas. Examinees will have to answer multiple choice questions that test comprehension, application and analysis of the subject matter. The complexity of the questions will cover the ability to basically understand the subject matter; to recall and apply principles, ideas, and theories; and to break down ideas and theories into their constituent parts

Essential Duties of the Grade III Collection System Maintenance Technologist
Individuals certified as Grade III Collection System Maintenance Technologists are expected to possess acceptable competency when performing the tasks that are necessary for lead or advanced level Collection System Maintenance Technologists. These necessary tasks are known as the *Essential Duties*. The certification test measures knowledge, skills and abilities required to perform the *Essential Duties*.

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Essential Duties for Grade III

1. Plans, coordinates and reviews the performance of the duties of Collection System Maintenance Grade I and Grade II.

2. Coordinates with other utilities, the public, agencies and private organizations to address complex or non-routine issues.

3. Participates in the evaluation of the performance of the wastewater collection system such as energy efficiency, material costs and preventive/predictive maintenance programs.
4. Participates in the development and implementation of training of assigned employees in their areas of work in wastewater collection system inspection and repair methods, techniques, equipment and safety.

5. Verifies the work of assigned employees for accuracy, proper work methods, techniques and compliance with applicable standards and specifications.

6. Monitors and inspects the work of contractors for a variety of construction or maintenance projects.

7. Analyzes and reviews system data to recommend priorities, schedules and workload performance measures.

8. Develops and directs the execution of complex or non-routine traffic safety plans.

9. Responds to exceptional and/or non-routine public inquiries in a courteous manner and participates in the development of formal reports and responses to the media

10. Participates in, ensures the development of, and adherence to the safety program. Participates in fact-gathering to respond to liability claims.

11. Participates in investigations into potential wrongdoing or policy violations.

12. Attends and participates in professional group meetings; stays abreast of new trends and innovations in the field of wastewater collection system operation and maintenance.

Grade III Complexity of Test Questions

At the Grade III level, certificate candidates are expected to have the knowledge, skill and ability to safely and effectively accomplish and coordinate complex tasks as listed in the *Essential Duties* above. Grade III candidates are also expected to be familiar with the Grade I and II Collection System Maintenance Technologist knowledge, skills and abilities. Examinees will have to answer multiple choice questions that test application, analysis, and

synthesis of the subject matter. The complexity of the questions will cover the ability: to abstract in particular and concrete situations; to clarify and organize theories and ideas; and to put facts together to form a new solution.

Essential Duties of the Grade IV Collection System Maintenance Technologist

Individuals certified as Grade IV Collection System Maintenance Technologists are expected to possess acceptable competency when performing the tasks that are necessary for management level Collection System Maintenance. These necessary tasks are known as the *Essential Duties*. The certification test measures knowledge, skills and abilities required to perform the *Essential Duties*.

Essential Duties for Grade IV

1. Administers and manages the performance of the duties of Collection System Maintenance Grade I, Grade II and Grade III.

2. Responsible for all services and activities associated with the operation, maintenance and repair of the wastewater collection system.

3. Manages the development and implementation of goals, objectives and policies for the wastewater collection program.

4. Directs and supports supervisors and staff to ensure high performance in a customer service-oriented work environment that supports achieving desired goals and objectives.

5. Evaluates the performance of the wastewater collection system such as staffing levels, predictive/preventive maintenance programs, energy efficiency and material costs.

6. Plans, directs, coordinates, prioritizes and reviews the work plan for the collection system.

7. Selects, motivates and evaluates personnel; works with employees to achieve performance goals and objectives; implements disciplinary procedures; conducts general labor relations activities.

8. Develops, implements and oversees a comprehensive equipment selection and maintenance program Coordinates wastewater collection system activities with other divisions, outside agencies and organizations. Negotiates and resolves sensitive and controversial issues.

9. Provides responsible and complex technical support to upper management and prepares and presents staff reports, including organizational studies.

10. Originates and administers the work of contractors/consultants/engineers for a variety of construction or maintenance projects.

11. Responsible for the development and administration of safety training programs for wastewater collection system staff and ensures compliance with safe working practices, rules and regulations.

12. Responsible for the development and administration of assigned employees in wastewater collection system inspection, repair methods, techniques and equipment.

13. Oversees and participates in the development and administration of the wastewater collection system annual budget; tracks and forecasts resources needed for staffing, equipment, materials, and supplies; monitors and approves expenditures and implements adjustments.

14. Initiates, develops and administers programs, and procedures to ensure the safe and efficient operation of the wastewater collection system.

15. Attends and participates in professional group meetings; stays abreast of new trends and innovations in the field of wastewater collection system operation and maintenance; ensures the availability of opportunities for all staff to participate in professional development.

16. Responds to difficult and sensitive public inquiries in courteous manner and develops formal reports and responses to the media.

17. Reviews and responds to liability claims.

18. Investigates potential wrongdoing or policy violations.

Grade IV Complexity of Test Questions

At the Grade IV level, certificate candidates are expected to have the knowledge, skill and ability to administer, coordinate and manage complex programs described in the *Essential Duties* above. Grade IV candidates are also expected to be familiar with the Grade I, II, and III Collection System Maintenance Technologist knowledge, skills and abilities. Examinees will have to answer multiple choice questions that test analysis, synthesis and evaluation of the subject matter. The complexity of the questions will cover the ability: to clarify and organize theories and ideas; to put together facts to form new solutions; to make managerial level judgments.

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Reference Reading for Grade I, II, III, and IV Certification Tests

"Operation and Maintenance of Wastewater Collection Systems", Volume I, Kenneth Kerri, Office of Water Programs, California State University Sacramento, 6000 J Street, Sacramento, CA. 95819-6025, (916) 278-6142. www.owp.csus.edu.

"Collection System Maintenance Study Guide", Grades 1-4 (2001) CWEA (510) 382-7800 www.cwea.org.

"Confined Space Entry", WEF Publication, 1998 Edition", Water Environment Federation, 601 Wythe Street, Alexandria, VA. 22314-1994, Phone: 1-800-666-0206. www.wef.org ISBN: 1-57278-122-X.

"Wastewater Collection System Maintenance", Michael J. Parcher CRC Press. ISBN: 1566765692 www.crcpress.com Phone: 800/272-7737 Fax: 800/374-3401 email: orders@crcpress.com.

"The Math Text for Water and Wastewater Technology" Second Edition, Wrights Training, P.O. Box 515, Elmira, CA. 95625-0515. (707) 448-3659 www.wrights-trainingsite.com. (download form to order)

"Operation and Maintenance of Wastewater Collection Systems" Volume II, Kenneth Kerri, Office of Water Programs, California State University Sacramento, 6000 J Street, Sacramento, CA. 95819-6025, Phone: (916) 278-6142.

"Wastewater Collection Systems Management", (Manual of Practice No.7), 5th Edition, ISBN: 1-57278- 152-1 Water Environment Federation, 601 Wythe Street, Alexandra, VA. 22314-1994, 1-800-356-5705. www.wef.org.

"Supervision", 6 th Edition, Allyn and Bacon, Longman Publishers , a Division of Pearson 160 Gould Street, Needham Heights, MA. 02194. (888) 977-7900 www.ablongman.com.

"Supervisor's Guide to Safety and Health Programs", Water Environment Federation, 601 Wythe Street, Alexandria, VA. 22314-1994, 1-800-666-0206.

"Applied Math for Wastewater Operators", Joan Kirkpatrick Price, CRC Press, 1-800-374-3401 www.crcpress.com ISBN: 0877620892.

"Supervisory Management in the Water/Wastewater Field", Michigan State University, Self Study Course, 3535 Forest Rd. Lansing, Michigan 48910, 1-800-358-5705 www.vu.msu.edu.

"Existing Sewer Evaluation & Rehabilitation", Water Environment Federation, 601 Wythe Street, Alexandra, VA. 22314-1994, 1-800-666-0206. www.wef.org.

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"Utility Management" Office of Water Programs California State University Sacramento 6000 J Street Sacramento, CA 95819-6025 916/278-6142 www.owp.csus.edu/

"Manual of Traffic Controls for Construction and Maintenance Work Zones -1996 State of California Department of Transportation 1900 Royal Oaks Drive Sacramention, CA 95815 www.dot.ca.gov Download from www.cwea.org/book_brcsg_csm3.shtml or www.dot.ca.gov/manuals.htm.

"Safety and Health in Wastewater Systems", WEF Manual of Practice SM-1 Water Environment Federation 601 Wythe St. Alexandria, VA 22314-1994 800/666-0206 www.wef.org ISBN: 1-881369-87-0

"Sewer System Infrastructure Analysis and Rehabilitation", (EPA/625/6-9/030 Handbook), U.S. Environmental Protection Agency, Office of Research and Development, Cincinnati, OH. 45268.

"Gravity Sanitary Sewer Design and Construction", Water Environment Federation, 601 Wythe Street, Alexandra, VA. 22314-1994, (This Manual will be of use to the design engineer), 1-800-666-0206.

"Odor and Corrosion Control in Sanitary Sewerage Systems and Treatment Plants" (EPA/625/1-85/018 Design Manual), U.S. Environmental Protection Agency, Office of Research and Development, Cincinnati, OH.

"Pipe Bedding and Backfill", Amster K. Howard Bureau of Reclamation, Attention Code 822-A, P.O. Box 25007, Denver Federal Center, Denver, CO.80225-0007, (303)236-6741.

"Maintaining Wastewater Equipment", TPC Training Systems, Technical Publishing, 1301 So. Grove Ave., Barrington, Illinois 60010, (312)381-1840. www.tpctraining.com.

"Cave-in Protection and Competent Person Training Manual", ACR Publications Inc., 1298 Elm Street SW Albany, OR. 97321, (503) 928-5211. 1 (800) 433-8150 http://www.acrp.com/acr_pb_water_ww_books.html.

"Pumps & Pumping", ACR Publications Inc., 1298 Elm Street SW Albany, OR. 97321, (503) 928-5211. 1 (800) 433-8150 http://www. acrp.com/.

"Existing Sewer Evaluation and Rehabilitation", WEF Manual of Practice FD-6, ASCE Manual and Report on Engineering Practice No. 62, Water Environmental Association, 601 Wythe Street, Alexandria, VA. 22314-1994, 1-800-666-0206.

"Pump Handbook", Mc Graw-Hill Publishing Company, 1221 Avenue of the Americas New York, NY. 10020, 1-800-2-Mcgraw. http://www.mcgraw-hill.com/ ISBN: 0070340323.