

Gap Analysis Tool

Collection System Maintenance Grade 1

In the rows below, select "Do It All The Time", "Limited Experience" or "Never Do This" based on your current knowledge and experience. Based on your responses, you can assess your overall preparedness for each Domain.

	Do It All The Time	Limited Experience	Never Do This
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 machines, hydraulic winches			
6. Understand CCTV inspection equipment			
7. Understand necessity of sewer cleaning			
8. Analyze situations and choose the most effective cleaning method			
9. Understand how to make observations and problem solve during manhole cover inspections			
10. Understand self-cleaning sewers and the appropriate wastewater velocity			
11. Understand the concepts of preventive, predictive, and reactive maintenance			
12. Understand the type of sewer cleaning that calls for a trap			
13. Understand the basic use of sewer chemicals for controlling grease, odor, roots, etc.			
Sub-Domain 1.2 - Performing and giving assistance with pump station inspections, maintenance, and repair and recording instrument readings			
1. Understand Lockout/Tagout procedures			
2. Define important terms needed to properly execute an inspection			
3. Read and analyze gauges, meters, and pumps			
4. Understand warning tag labels			
5. Recognize the basic components of a pump			
6. Understand the basic functions of pump controls			
Sub-Domain 1.3 - Inspection and maintenance of easements, some of which may be remote or difficult to access			

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1. Describe what easement road maintenance includes			
2. Describe how to exercise caution to prevent injuries, damage to private property or environmentally sensitive areas			
3. Understand the need for easement maintenance			
Sub-Domain 1.4 - Participation in the construction and repair of the wastewater collection system			
1. Understand how to mark sewer pipe locations in accordance with Underground Service Alert guidelines			
2. Identify hazardous gases			
3. Understand construction practices and principles including excavation and shoring			
4. Demonstrate how to calculate the volume of a sewer trench			
5. Describe how to employ safe strategies when excavating trenches			
6. Identify the correct tools to use for installation and repairs			
7. Describe how to replace and repair damaged pipes or maintenance structures			
8. Understand the purpose of raising maintenance structures to grade after paving activities			
9. Understand sewer flow in an excavation			
10. Recognize good safety practices when working in a manhole			
11. Identify preparation steps to take before driving to a repair job and solving issues that may arise			
12. Describe how to protect oneself and other employees during trench excavations			
13. Identify a manhole cover and valve parts and functions			
14. Identify information that is needed before one can execute a proper sewer repair			
15. Understand the role of the Competent Person on the job			
16. Identify the correct reasons for utilizing various repair methods such as excavation repair and trenchless repair			
17. Understand the appropriate PPE (Personal Protective Equipment) related to construction and repair			
Sub-Domain 1.5 - Participation in the containment and cleanup of Sanitary Sewer Overflows (SSOs)			
1. Calculate spill volume of a SSO			
2. Understand the State of California Waste Discharge Requirements			
3. Identify spills and overflow and containment/cleanup procedures			
Sub-Domain 1.6 - Participation in the safe removal and restoration of concrete and paved surfaces using a wide variety of construction equipment, hand and power tools			
1. Solve problems that arise with asphalt and concrete removal			
2. Understand the use of jack hammers and surface cutting tools			
3. Identify the correct tools used to complete a job			

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4. Identify when to use different backfill materials			
5. Understand the importance of proper compaction			
How would you rank Domain 1 based on what you selected for each Sub-Domain?			
Domain 2 - Records, Documentation, and Mapping			
Sub-Domain 2.1 - Completion and maintenance of accurate, legible, and timely records of work performed			
1. Recognize work-related terms and acronyms and their meanings			
2. Understand how to document activities and complete forms			
3. Understand the need for accuracy and the consequence for inaccurate or incomplete (or non-existent) documentation			
Sub-Domain 2.2 - Reading and interpreting collection system maps for operations and maintenance			
1. Comprehend improvement plans to system maps			
2. Read and interpret system maps to report to field locations			
3. Identify basic structures (manholes, mains, laterals, siphons, etc.) and flow direction on a map			
How would you rank Domain 2 based on what you selected for each Sub-Domain?			
Domain 3 - Safety and Customer Service			
Sub-Domain 3.1 - Participation in establishing proper traffic control measures at work sites to protect workers and the public			
1. Define a clear workspace to inform both workers and the public			
2. Understand personal safety and health during traffic control			
3. Implement proper traffic control measures			
4. Identify traffic control measures that need to be taken at night			
5. Identify various traffic control devices (advance warning signs, stop/slow paddles, flags, barricades, delineators, cones, drums, etc.) and when to use them			
6. Identify the different types of temporary traffic control zones and how to correctly set up a temporary traffic zone with regard for public safety			
7. Identify the correct safety equipment for self and others			
8. Understand the appropriate PPE related to traffic control			
Sub-Domain 3.2 - Knowledge of all applicable regulations, policies, and procedures			
1. Understand the protocol for reporting overflows and spills			
2. Understand when high-visibility clothing or devices are required			
3. Recognize safety and indicator markings related to sanitary sewers			

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4. Understand the Injury and Illness Prevention Program (IIPP) required by Cal OSHA and how it protects workers			
5. Understand the purpose of the agency safety policy statement			
6. Knowledge of the components of a Safety Data Sheet (SDS)			
7. Knowledge of First Aid and CPR			
8. Understand basic elements of “Worker Right-To-Know” laws			
Sub-Domain 3.3 - Application of safety-related tasks related to excavation and trenching			
1. Recognize the color codes used for marking underground utilities			
2. Identify the conditions when shoring is required			
3. Understand how soil conditions affect trench stability			
4. Know the minimum distance that the soil must be kept from the edge of an excavation			
5. Understand when, where, and how ladder(s) should be placed in a trench			
6. Identify the different types of shoring equipment – e.g., hydraulic shores, screw jacks, pneumatic shores, solid sheeting, etc.			
Sub-Domain 3.4 - Participation in confined space entries			
1. Remove access covers safely			
2. Identify confined space roles (entrant, attendant, supervisor, rescue) and associated responsibilities			
3. Identify gas types to be monitored when entering a confined space			
4. Define a Permit Required Confined Space and understand how to complete a confined space permit			
5. Identify how to assess and safely handle atmospheric hazards while inspecting confined spaces			
6. Understand how to secure safe working spaces and conditions in confined spaces			
7. Understand how to use a self-contained breathing apparatus			
8. Understand the operation of retrieval device for rescue purposes			
9. Understand the appropriate PPE (Personal Protective Equipment) related to confined space			
10. Understand the procedures for proper inspection of confined space equipment			
Sub-Domain 3.5 - Adhering to safe work practices to mitigate risk related to jobsite hazards			
1. Understand how to read monitoring equipment accurately and respond to unsafe conditions			
2. Recognize personal safety and health measures			
3. Identify unsafe equipment			
4. Understand how to employ safe practices in a wet well			
5. Understand how to operate a high velocity cleaning machine safely			

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6. Identify the correct PPE that is needed to reduce safety risks			
7. Identify potential problems and hazards that arise from poor design velocity			
8. Identify proper lifting techniques			
9. Identify the proper sequence for Lockout/Tagout procedures			
10. Recognize what type of fire each fire extinguisher should be used for - i.e., Class A, Class B, Class C, Class D			
Sub-Domain 3.6 - Responding to public inquiries and service requests in a courteous manner and providing information appropriate to the area of assignment			
1. Understand how to communicate effectively with members of the public			
2. Understand how to respond to service calls and questions professionally			
3. Demonstrate public professionalism and courtesy			
4. Understand collection system operation and maintenance issues that may arise			
5. Understand how to respond to requests according to professional work standards			
How would you rank Domain 3 based on what you selected for each Sub-Domain?			
Domain 4 - Vehicles, Equipment, and Grounds			
Sub-Domain 4.1 - Conducting pre/post trip inspections of vehicles and equipment (including ensuring that hand and power tools are in proper operating condition), and arranging for maintenance when required			
1. Describe what constitutes a pre- and post- trip inspection on commercial vehicles			
2. Recognize who is responsible for different safety checks			
3. Describe operator-related maintenance			
4. Understand how to effectively avoid vehicle accidents			
5. Identify vehicle types and when they are used			
6. Identify and solve problems that may arise during a trip inspection			
7. Understand how to inspect tires in an efficient and safe manner			
8. Recognize when equipment poses a safety hazard			
9. Identify and solve problems that arise with faulty equipment			
Sub-Domain 4.2 - Performing basic building and grounds maintenance at collection system facilities			
1. Understand the scope of Building and Grounds Maintenance			
2. Inspection and operation of equipment found at collection system facilities			
3. Understand how the facility supports the maintenance of the collection system			
How would you rank Domain 4 based on what you selected for each Sub-Domain?			

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Domain 5 - Math for Collections Systems			
Sub-Domain 5.1 - Selecting the appropriate formula and completing basic calculations needed for collection systems maintenance			
1. Use formula to calculate distance			
2. Use formula to calculate velocity and flow rate			
3. Use formula to calculate volume of basic shapes such as cylinder, rectangle, and square			
4. Use formula to calculate surface area of a basic shapes such as square, circle, and rectangle			
5. Use formula to calculate slope			
6. Understand how to execute basic unit conversions in calculations			
7. Understand how to calculate trench depth and width, benching, flow rates, and pipe slope			
How would you rank Domain 5 based on what you selected for each Sub-Domain?			

You may want to focus your studying in the areas where you selected "Limited Experience" or "Never Do This". See Collection System Maintenance Candidate Handbook.

Collection System Maintenance Grade 2

In the rows below, select "Do It All The Time", "Limited Experience" or "Never Do This" based on your current knowledge and experience. Based on your responses, you can assess your overall preparedness for each Domain.

	Do It All The Time	Limited Experience	Never Do This
Domain 1 - Systems Operations, Inspections, and Maintenance			
Sub-Domain 1.1 - Routine maintenance / cleaning of gravity systems			
1. Knowledge of methods of high-velocity cleaning used for gravity systems maintenance			
2. Knowledge of methods of mechanical cleaning used for gravity systems maintenance			
3. Knowledge of methods of hydraulic cleaning used for gravity systems maintenance			
4. Knowledge of root foaming activities			
5. Clean manholes, catch basins, and gravity sewers			
Sub-Domain 1.2 - Repair of gravity systems			
1. Locate damaged sections of sewer lines and sewer lateral lines			
2. Assess severity of system damage			
3. Determine materials required to make repairs			
4. Basic knowledge of trenching and shoring techniques			
5. Perform concrete work and cement repair			
6. Basic knowledge of pipe materials, fittings, and pipefitting tools and methods <ul style="list-style-type: none"> a. Understand pipe bursting b. Understand pipe patching / Cure In-Place Piping (CIPP) 			
Sub-Domain 1.3 - Operation, maintenance, and repair of pumps and force mains			
1. Basic knowledge of SCADA system			
2. Knowledge of methods used to repair pumps			
3. Operate pumps to remove sewage from damaged or clogged lines, in response to sewer overflows, or when by-pass pumping is required			
4. Knowledge of methods used to clean pumps, lift/pump stations, and wet wells			
5. Knowledge of pump components			
Sub-Domain 1.4 - Sanitary Sewer Overflows (SSOs) and emergency response			

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1. Knowledge of containment methods			
2. Knowledge of clean-up methods and procedures			
3. Follow appropriate procedures as the first responder to the SSO			
4. Identify categories of SSOs			
5. Identify water board notification levels and timeframes			
6. Create documentation for reporting of SSOs			
How would you rank Domain 1 based on what you selected for each Sub-Domain?			
Domain 2 - Collection Systems Tools and Equipment			
Sub-Domain 2.1 - Equipment for inspection			
1. Operate CCTV equipment to inspect and assess conditions of collection system			
2. Maintain CCTV equipment			
3. Repair CCTV equipment			
4. Use SONDE and other locating equipment			
5. Record data based on CCTV results			
6. Knowledge of equipment used for physical testing methods <ul style="list-style-type: none"> a. Smoke testing b. Dye testing 			
Sub-Domain 2.2 - Tools and equipment for maintenance and repair			
1. Operate and maintain vehicles			
2. Operate and maintain shoring equipment			
3. Operate and maintain hand tools			
4. Operate and maintain power tools			
5. Operate equipment used for air and water testing of sewer lines			
6. Report the need for vehicle and equipment repairs			
7. Operate tools that are utilized for clearing vegetation			
How would you rank Domain 2 based on what you selected for each Sub-Domain?			
Domain 3 - Plans, Maps, As-Builts, and Meters			
Sub-Domain 3.1 - Sewer system / collection system maps			
1. Read and interpret system maps (collection and drainage)			
2. Make corrections to system / collection maps as needed			

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Sub-Domain 3.2 - Construction plans, drawings, and specifications			
1. Read and interpret construction plans, drawings, and specifications related to collection system projects including underground infrastructure, and related equipment			
2. Read and interpret piping sketches and facility record drawings			
How would you rank Domain 3 based on what you selected for each Sub-Domain?			
Domain 4 - Safety and Regulations			
Sub-Domain 4.1 - Safety policies and procedures / Cal-OSHA			
1. Perform all work in accordance with established safety policies and procedures			
2. Coordinate activities with employees and the public to adhere to safety policies and procedures			
3. Enforce safety regulations			
4. Knowledge of Cal-OSHA safety rules and procedures			
5. Knowledge of hazards associated with easement maintenance			
6. Knowledge of lockout / tagout procedures			
Sub-Domain 4.2 - Confined space entry			
1. Identify the characteristics of a confined space			
2. Perform all work in accordance with Cal-OSHA regulations relating to confined space entry			
3. Recognize correct procedure to safely enter and perform required duties in confined spaces			
4. Perform confined space entries as an entrant, attendant, and supervisor			
5. Use equipment to determine concentration of hazardous gases and oxygen deficiencies in confined spaces			
6. Use self-contained breathing apparatus (SCBA) for confined space entry			
7. Complete confined space entry permit			
Sub-Domain 4.3 - Underground Service Alert			
1. Mark and notify Underground Service Alert for location of all utilities within work area			
2. Determine if site is ready for work, based on required permits and safe-dig procedures			
3. Ensure an underground service alert has been processed if required			
4. Locate underground utilities by use of blueprints and electronic locating equipment in accordance with regulations			
Sub-Domain 4.4 - Traffic control practices and requirements			
1. Knowledge of applicable laws and regulations regarding traffic control			

2. Use proper traffic control techniques when working in traffic areas			
3. Set up traffic control and barricade equipment			
Sub-Domain 4.5 - Trenching and shoring			
1. Assess and implement trenching controls based on worksite conditions			
2. Knowledge of regulations related to trenching and shoring			
Sub-Domain 4.6 - Hazardous materials			
1. Knowledge of safety equipment and practices related to the handling of hazardous chemicals			
2. Identify hazardous materials and proper disposal methods using Safety Data Sheet (SDS)			
3. Knowledge of bloodborne pathogens			
Sub-Domain 4.7 - Environmental protection regulations			
1. Basic knowledge of Statewide General Waste Discharge Requirements (WDR) for sanitary sewer systems			
2. General knowledge of Sewer System Management Plan (SSMP) requirements per the WDR			
3. General knowledge of regulations which govern illegal connections and illicit discharges			
How would you rank Domain 4 based on what you selected for each Sub-Domain?			
Domain 5 - Administration of Collection Systems			
Sub-Domain 5.1 - Records, reports, and documentation			
1. Maintain accurate and complete records and documentation of work performed			
2. Note and report on condition of infrastructure (sewer mains, laterals, and manholes)			
3. Maintain permit, easement, as-built, and blueprint records accurately			
Sub-Domain 5.2 - Customer service and communication			
1. Interact with the public to answer questions, identify applicable laws, rules, and regulations			
2. Receive, record, and respond to customer inquiries and complaints regarding sewer overflows and stoppages, sewer odors, and repair work			
3. Provide the general public with sewer line location, information, and notification of easement maintenance			
4. Work courteously and effectively with the public and with coworkers			
5. Understand and carry out oral and written instructions			
6. Communicate effectively, both orally and in writing			
Sub-Domain 5.3 - Training			
1. Assist in orienting or training new personnel			

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2. Provide training to new and current workers on the proper and safe operation and use of all collection system machinery and equipment			
3. Train and evaluate job performance of subordinates			
Sub-Domain 5.4 - Planning and supervision			
1. Participate in the short and long range planning and scheduling of specific activities to be accomplished by crews under his / her supervision			
2. Verify that all information on work orders and blueprints correspond			
3. Determine the type of materials, supplies, machinery, or tools to be used for each project, and prepare materials for use			
4. Schedule work assignments			
How would you rank Domain 5 based on what you selected for each Sub-Domain?			
Domain 6 - Math for Collection Systems			
Sub-Domain 6.1 - Basic math used in collection systems maintenance			
1. Calculate volume			
2. Calculate area			
3. Calculate gross vehicle weight rating (GVWR)			
4. Calculate flow rate			
5. Calculate velocity			
6. Calculate elevation			
7. Complete SSO-related calculations			
How would you rank Domain 6 based on what you selected for each Sub-Domain?			

You may want to focus your studying in the areas where you selected "Limited Experience" or "Never Do This". See Collection System Maintenance Candidate Handbook.

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Collection System Maintenance Grade 3

In the rows below, select "Do It All The Time", "Limited Experience" or "Never Do This" based on your current knowledge and experience. Based on your responses, you can assess your overall preparedness for each Domain.

	Do It All The Time	Limited Experience	Never Do This
Domain 1 - Systems Operations, Inspections, and Maintenance			
Sub-Domain 1.1 - Preventive / routine maintenance, cleaning, and repair of sewer systems			
1. Perform lead duties and supervise in the inspection and maintenance of sewer lines, storm drain system, lift/pump stations, and manholes			
2. Evaluate, coordinate, and monitor preventive maintenance and root control programs, and make adjustments as necessary			
3. Advanced knowledge of trenching and shoring methods and techniques			
4. Utilize computerized systems to make informed decisions about operation and maintenance (e.g., SCADA, CMMS, historical documents)			
5. Make assessments related to and supervise the repair or replacement of mains, manholes, and other collection system infrastructure			
Sub-Domain 1.2 - Sanitary Sewer Overflows (SSOs) and emergency response			
1. Submit SSO reports on the California Integrated Water Quality System (CIWQS)			
2. Report and assist with reporting SSOs in a timely manner as prescribed by applicable regulations to the proper regulating agency			
3. Oversee containment and clean-up of SSOs			
4. Respond to emergency sewer calls			
5. Direct emergency response activities including repairs, SSO response, storm response, incident command and/or coordination, and EOC support			
6. Validate data associated with direct spill response activities			
How would you rank Domain 1 based on what you selected for each Sub-Domain?			
Domain 2 - Collection Systems Tools and Equipment			
Sub-Domain 2.1 - Equipment for inspection			
1. Utilize CCTV for inspection and assess condition of collection system projects and/or sewer inspection permits			
2. Oversee CCTV program for collection systems			

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3. Understand and apply condition assessment standards			
4. Evaluate the maintenance needs of CCTV equipment			
Sub-Domain 2.2 - Tools and equipment for maintenance and repair			
1. Advise utilities staff, design consultants, engineers, and contractors in acquisition and installation of new equipment			
2. Supervise safe operation and maintenance of vehicles			
3. Supervise safe operation and maintenance of shoring equipment			
4. Supervise safe operation and maintenance of hand tools			
5. Supervise safe operation and maintenance of power tools.			
6. Supervise safe operation and maintenance of equipment used for air and water testing of sewer lines			
7. Oversee the need for vehicle and equipment repairs			
How would you rank Domain 2 based on what you selected for each Sub-Domain?			
Domain 3 - Plans, Maps, As-Builts, and Meters			
Sub-Domain 3.1 - Sewer system / collection system maps			
1. Oversee the operation and use of GIS systems			
2. Evaluate spatial collection system data to plan and route work			
Sub-Domain 3.2 - Construction plans, drawings, and specifications			
1. Understand, evaluate, and prepare comments on construction plans, drawings, and specifications related to collection system projects, including underground infrastructure and related equipment			
2. Recommend modifications to plans, maps, layouts, piping sketches, and facility record drawings			
How would you rank Domain 3 based on what you selected for each Sub-Domain?			
Domain 4 - Safety and Regulations			
Sub-Domain 4.1 - Safety policies and procedures			
1. Ensure that the safety program requirements are implemented and carried out			
2. Identify, investigate, and resolve safety incidents, accidents, injuries, and near misses on the job			
3. Oversee the lockout / tagout program and ensure that all proper procedures are followed			
4. Assist in the development of the collection system safety policies and procedures			
5. Understand the hazards associated with collection systems operation, maintenance, and repair			
Sub-Domain 4.2 - Confined space entry			

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1. Ensure all work is performed in accordance with Cal-OSHA regulations relating to confined space entry and working around dangerous gases			
2. Knowledge of safety equipment and procedures related to confined space entry			
3. Ensure that all necessary equipment is available for confined space entry			
4. Assess when equipment needs to be replaced or repaired			
5. Ensure personal protective equipment (PPE) is available and in good condition			
Sub-Domain 4.3 - Underground Service Alert			
1. Ensure all Underground Service Alert (USA) markings for sewer assets are done in a timely and accurate manner			
2. Ensure all Underground Service Alert (USA) locate requests have been received and processed			
Sub-Domain 4.4 - Traffic control practices and requirements			
1. Assist in the development and oversee the execution of complex or non-routine traffic plans under the California Manual on Uniform Traffic Control Devices for Streets & Highways (MUTCD)			
2. Oversee and evaluate the setup of traffic control devices			
3. Working knowledge of all pertinent personal protective equipment (PPE) and devices in accordance with traffic control			
Sub-Domain 4.5 - Safety regulations			
1. Working knowledge of safety data sheet (SDS) program			
2. Knowledge of pertinent federal, state, and local laws, codes, and regulations			
3. Ensure all applicable Cal-OSHA procedures are enforced			
Sub-Domain 4.6 - Environmental protection regulations			
1. General knowledge of Statewide General Waste Discharge Requirements (WDR) for sanitary sewer systems			
2. General knowledge of Sewer System Management Plan (SSMP) requirements per the WDR			
3. General knowledge of regulations which govern illegal connections and illicit discharges			
4. Provide input into the development, audits, and updates of the SSMP			
How would you rank Domain 4 based on what you selected for each Sub-Domain?			
Domain 5 - Administration of Collection Systems			
Sub-Domain 5.1 - Records, reports, and documentation			
1. Prepare and maintain specialized collection systems records, forms, and reports to regulatory agencies and management			
2. Prepare analytical and statistical reports on operations and activities			

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3. Report on the condition of assets			
4. Oversee maintenance of permit, easement, as-built, and blueprint records			
5. Research property connection history as necessary			
Sub-Domain 5.2 - Customer service and communication			
1. Investigate and resolve complaints related to collection system maintenance and repair			
2. Interact with the public to resolve property damage claims			
3. Coordinate operations with the needs of the public and outside agencies			
4. Ensure property owners are notified of service interruptions and are provided with information regarding the work being performed			
5. Communicate effectively with state and local agencies regarding problems with the collection system			
6. Evaluate the effectiveness of the customer service program and make adjustments as necessary			
Sub-Domain 5.3 - Training and supervision			
1. Supervise, train, evaluate, and instruct personnel			
2. Assist in onboarding new personnel			
3. Plan, prioritize, assign, and review work of staff responsible for the clearing and cleaning of the collection system			
4. Provide leadership and technical assistance, especially on difficult or unusual problems			
5. Identify safety and training needs and assist in the development of training plans			
6. Participate in the investigations of violations of employer policies or agency ordinances			
Sub-Domain 5.4 - Policies and procedures			
1. Ensure compliance with established policies and procedures as required by agency management			
2. Participate in the development of policies and procedures and make recommendations for changes and improvements to existing standards and procedures			
Sub-Domain 5.5 - Planning, budgeting, and data analysis			
1. Assist in scheduling, coordinating, monitoring, and reporting of collection system maintenance and repair activities			
2. Develop and apply performance measures and ensure that performance measures are tracked and met			
3. Identify and implement process improvements			
4. Utilize the Computerized Maintenance Management System (CMMS) to monitor and report on work activities			
5. Assist with the preparation and administration of the annual budget and work plan			

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6. Forecast funding, staffing, equipment, and material needs			
7. Use cost effective methods to maintain the collection system			
8. Estimate necessary materials, supplies, and equipment to complete projects			
9. Assist in fact-gathering to respond to claims			
How would you rank Domain 5 based on what you selected for each Sub-Domain?			
Domain 6 - Math for Collection Systems			
Sub-Domain 6.1 - Basic math used in collection systems maintenance.			
1. Calculate volume			
2. Calculate area			
3. Calculate gross vehicle weight rating (GVWR)			
4. Calculate flow rate			
5. Calculate velocity			
6. Calculate elevation			
7. Complete SSO-related calculations			
How would you rank Domain 6 based on what you selected for each Sub-Domain?			

You may want to focus your studying in the areas where you selected "Limited Experience" or "Never Do This". See Collection System Maintenance Candidate Handbook.

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Collection System Maintenance Grade 4

In the rows below, select "Do It All The Time", "Limited Experience" or "Never Do This" based on your current knowledge and experience. Based on your responses, you can assess your overall preparedness for each Domain.

	Do It All The Time	Limited Experience	Never Do This
Domain 1 - Systems Operations, Inspections, and Maintenance			
Sub-Domain 1.1 - Preventive / routine maintenance, cleaning, and repair of sewer system			
1. Plan, direct, coordinate, prioritize, and review the work plan for the collection system			
2. Coordinate and schedule routine maintenance and daily cleaning of the collection system			
3. Knowledge of practices and procedures related to the installation and repair of sewer mains, laterals, clean-outs, and manholes, including trenching and shoring practices			
4. Identify service areas and locations of sewer facilities and equipment			
5. Recognize the principles of Sewer System Hydraulic Modeling			
6. Analyze complex collection system maintenance problems, evaluate alternatives, and recommend the most effective course of action			
Sub-Domain 1.2 - Inspections and CCTV			
1. Oversee and enforce standards and specifications of the construction of sewer lines			
2. Oversee detailed inspection of the collection system using video equipment and other tools and techniques			
3. Ensure maintenance of logs and records of inspections conducted			
4. Develop pipe replacement and capital improvement projects (CIP) using CCTV			
Sub-Domain 1.3 - Equipment			
1. Understand and skillfully use tools, materials, and equipment used in maintaining collection systems			
2. Advanced knowledge of how to diagnose, disassemble, and repair collection system equipment			
3. Develop, implement, oversee, approve, and make recommendations for collection system equipment selection and maintenance program			
4. Research and recommend purchase of equipment, parts, suppliers, and costs			
Sub-Domain 1.4 - Sanitary Sewer Overflows (SSOs) and emergency response.			
1. Oversee the process of containment and clean-up of spills emanating from the collection system			
2. Certify all CIWQS reports			

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3. Complete and update CIWQS system survey			
4. Develop, evaluate, maintain, and update as required the Sanitary Sewer Overflow Emergency Response Plan (SSO ERP)			
How would you rank Domain 1 based on what you selected for each Sub-Domain?			
Domain 2 – Administration of Collection Systems			
Sub-Domain 2.1 – Budgeting.			
1. Oversee, develop, and administer the collection system annual budget			
2. Monitor and approve expenditures and implement adjustments			
3. Prepare and approve purchase requisitions of needed materials and supplies			
4. Write specifications and bidding solicitations for the purchase of equipment			
5. Track and forecast resources needed for staffing, equipment, materials, and supplies			
6. Develop scopes of work to request quotes and proposals for CIP and piping projects			
Sub-Domain 2.2 – Management and planning			
1. Evaluate job sites and determine personnel, equipment, and material needs			
2. Coordinate with Plant Operators for major repairs, equipment installation, special maintenance activities, and any anticipated flow changes or conditions			
3. Knowledge of development review process and plan checking process			
4. Originate and administer the work of contractors, consultants, and engineers for a variety of collection system construction and/or maintenance projects			
5. Direct and participate in the development and implementation of goals, objectives, policies, and procedures			
6. Oversee the use of GIS mapping systems in collection system maintenance and operations			
7. Manage Computerized Maintenance Management System (CMMS) and its use in scheduling, preventative maintenance, repair activities, and purchasing			
8. Prepare concise records, reports, and other written materials			
9. Review and respond to liability claims and participate in the investigation of violations of employer policies or agency ordinances			
10. Provide responsible and complex technical support to upper management and prepare/present staff reports including organizational studies			
Sub-Domain 2.3 – Supervision and training			
1. Assign, evaluate, and supervise the work of collection system maintenance workers			
2. Ensure completion of assigned duties for appropriate quality and timeliness			
3. Knowledge of principles and practices of effective leadership and employee supervision, including training and performance evaluation			

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4. Develop and implement standard operating procedures (SOPs) and work standards			
5. Motivate staff and work with employees to achieve performance goals and objectives			
6. Implement disciplinary procedures and conduct general labor relations activities			
7. Develop and maintain the training plan for all collection system staff			
8. Participate in the hiring process			
Sub-Domain 2.4 - Public relations and customer service			
1. Respond to and resolve difficult and sensitive public inquiries and complaints in a professional and courteous manner			
2. Develop formal responses to the media			
3. Assist in public relations programs			
4. Direct and support supervisors and staff to ensure high performance in a customer service oriented work environment			
5. Negotiate and resolve collection system operational issues that involve other utilities, agencies, private organizations, bargaining units, government entities, and the general public to address complex or non-routine issues			
How would you rank Domain 2 based on what you selected for each Sub-Domain?			
Domain 3 - Safety and Regulations			
Sub-Domain 3.1 - Safety			
1. Develop, review, and ensure compliance with all applicable safety procedures (IIPP, confined space, traffic control, bloodborne pathogens)			
2. Document and report all accidents, violations, or infractions to required entity			
3. Develop and administer safety training programs and policies for collection system staff			
4. Develop and direct the execution of complex or non-routine traffic safety plans under the California Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)			
5. Develop, review, and approve safety tailgate meetings			
Sub-Domain 3.2 - Regulations			
1. Interpret relevant local, state, and federal laws, regulations, and guidelines associated with the ownership and maintenance of public sewer systems			
2. Oversee development, maintenance, and implementation of Sewer System Management Plan (SSMP) requirements			
3. Knowledge and implementation of Statewide General Waste Discharge Requirements (WDR) and the Monitoring and Reporting Plan			
How would you rank Domain 3 based on what you selected for each Sub-Domain?			

Gap Analysis Tool

You may want to focus your studying in the areas where you selected "Limited Experience" or "Never Do This". See Collection System Maintenance Candidate Handbook.