



California Water Environment Association
Technical Certification Program

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Frank Cornejo

COLLECTION SYSTEM MAINTENANCE

Cert #: 05012403

Grade: 4

Expires: 01/31/2014 Contact Hours Due: 01/31/2015



Signature of Certificate Holder

CALIFORNIA WATER ENVIRONMENT ASSOCIATION

Certification of Competence

THIS IS TO CERTIFY THAT

Alejandro Chavez

HAVING SUBMITTED ACCEPTABLE EVIDENCE OF QUALIFICATIONS
BY EDUCATION, TRAINING AND EXPERIENCE IS HEREBY
GRANTED THIS CERTIFICATION OF COMPETENCY IN

Collection System Maintenance
Grade 2

Expires: 12/31/2014

Christoph Dobson

Christoph Dobson, President
California Water Environment Association

Certificate Number 1308210726

Soma Bhadra

Soma Bhadra, Chair
Technical Certification Program



California Water Environment Association Collection System Maintenance and Environmental Compliance Inspector Certification Requirements

Grade I – Collection System Maintenance Certification

Essential Duties for Grade I

1. Participates in inspecting, cleaning, maintain, 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 cleanup 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

Knowledge of:

1. Operations, services, and activities of a wastewater collection system operations and maintenance program
2. Methods and techniques of recording instrument readings and related measuring devices
3. Methods and techniques of traffic control
4. Operation and proper application of collection system maintenance equipment and tools
5. Occupational hazards and standard safety practices
6. Applicable codes, regulations, policies, and procedures
7. Underground Service Alert (USA) markings

Skill to:

8. Establish and maintain cooperative relationships with those contacted in the course of work
9. Communicate accurately, clearly, and concisely: in writing, orally, and electronically, in the English language
10. Read and interpret essential technical information including maps and drawings
11. Perform basic mathematical calculations

Ability to:

12. Perform operation, maintenance, and repair of the wastewater collection system
13. Operate a variety of specialized equipment including vehicles and collection system maintenance devices, hand and power tools, air compressors and jackhammers
14. Perform basic facilities and grounds maintenance
15. Understand and follow oral and written instructions
16. Learn more difficult collection systems construction, maintenance, and repair techniques
17. Properly lift and carry heavy loads in a variety of difficult conditions
18. Obtain appropriate licenses and certifications
19. Work in hazardous, difficult, and disagreeable conditions

Grade II – Collection System Maintenance Certification***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

Knowledge of:

1. Knowledge, skill and ability identified on here for Grade I Certification.
2. Operations, services and activities of a wastewater collection system operations and maintenance program
3. Methods and techniques of wastewater collection system inspection, maintenance and repair
4. Operation and characteristics of collection system maintenance equipment and tools including heavy equipment, CCTV inspection, and monitoring devices
5. Methods and techniques, tools and materials used in the maintenance and repair of wastewater collection systems and lift stations
6. Safe working practices pertinent to wastewater collection system maintenance, repair, and construction

7. Occupational hazards and standard safety practices
8. Applicable codes, regulations, policies, and procedures

Skill to:

9. Establish and maintain effective relationships with those contacted in the course of work
10. Communicate accurately, clearly, and concisely: in writing, orally, and electronically, in the English language
11. Perform simple algebra and geometrical calculations

Ability to:

12. Perform maintenance and repair of the wastewater collection system
13. Operate a variety of collection system maintenance construction equipment such as air compressors, compactors, vibrators, jackhammers, tampers, cutters and CCTV inspection and monitoring devices
14. Work independently in the absence of direct supervision
15. Understand and follow oral and written instructions
16. Learn new and advanced collection systems construction, maintenance, and repair techniques
17. Effectively assess and interpret situations and conditions and apply independent judgment
18. Operate a variety of heavy construction equipment, such as backhoes, loaders, dozers, and dump trucks

Grade III – Collection System Maintenance Certification

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 nonroutine 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
11. Participates in fact-gathering to respond to liability claims
12. Participates in investigations into potential wrongdoing or policy violations
13. Attends and participates in professional group meetings; stays abreast of new trends and innovations in the field of wastewater collection system operation and maintenance

Knowledge of:

1. Knowledge, skill and ability identified here for Grades I and II Certification
2. Operations, services, and activities of a wastewater collection system operations and maintenance program
3. Principles of leadership, supervision, and training
4. Methods and techniques of wastewater collection system inspection, predictive/preventive maintenance and repair
5. Operation and characteristics of collection system maintenance equipment and tools.
6. Methods and techniques, tools and materials used in the maintenance and repair of wastewater collection systems
7. Procedures, methods, tools, and equipment used in the operation of motors, pumps, controls, and instrumentation
8. Safe working practices applicable to wastewater collection system maintenance, repair and construction
9. Pipeline and manhole design and construction
10. Occupational hazards and safety practices including the management of exceptional circumstances
11. Office equipment including computers and supporting word processing, spreadsheets, and databases
12. Applicable codes, regulations, policies and procedures

Skill to:

13. Establish and maintain cooperative working relationships with those contacted in the course of work
14. Communicate accurately, clearly, and concisely: in writing, orally, and electronically, in the English language
15. Perform advanced algebra, geometry, statistical analysis

Ability to:

16. Lead and train maintenance and repair staff. Includes scheduling and assigning personnel and the use of materials and equipment to assure desired quality and quantity of work
17. Work cooperatively with co-workers; identify and minimize conflict
18. Compute time requirements, labor, materials, and equipment needed for various jobs
19. Plan, organize, and schedule training
20. Inspect and diagnose operating problems on pumps, electrical motors, and automatic control systems
21. Supervise and direct the most difficult collection system maintenance and repair tasks
22. Work independently under general supervision
23. Competently inspect the work of contractors and staff
24. Operate a variety of collection system maintenance equipment and tools
25. Understand, follow and provide oral and written instructions
26. Effectively assess and interpret situations and conditions and apply independent judgment

***Grade IV – Collection System Maintenance Certification
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
9. Coordinates wastewater collection system activities with other divisions, outside agencies and organizations. Negotiates and resolves sensitive and controversial issues
10. Provides responsible and complex technical support to upper management and prepares and presents staff reports, including organizational studies
11. Originates and administers the work of contractors/ consultants/engineers for a variety of construction or maintenance projects
12. 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
13. Responsible for the development and administration of assigned employees in wastewater collection system inspection, repair methods, techniques and equipment
14. 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
15. Initiates, develops and administers programs, policies, and procedures to ensure the safe and efficient operation of the wastewater collection system
16. 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
17. Responds to difficult and sensitive public inquiries in a courteous manner and develops formal reports and responses to the media
18. Reviews and responds to liability claims
19. Investigates potential wrongdoing or policy violations

Knowledge of:

1. Knowledge, skill and ability identified here for Grades I, II, and III Certification
2. Operational characteristics, services and activities of a wastewater collection system maintenance program
3. Operation and characteristics of collection systems maintenance equipment and tools

4. Methods and techniques, tools and materials used in the maintenance and repair of wastewater collection systems
5. Wastewater collection system inspection methods and techniques
6. Principles and practices of program development and administration
7. Principles and practices of budget preparation and administration.
8. Principles of leadership, supervision, training and performance evaluation
9. Principles of labor relations administration
10. Recent developments, current literature and sources of information related to wastewater collection
11. Office equipment including computers and supporting word processing, spreadsheets, databases and specialized computer software programs
12. Occupational hazards and general safety practices
13. Applicable codes, regulations, policies, and procedures

Skill to:

14. Establish and maintain cooperative relationships with those contacted in the course of work
15. Communicate accurately, clearly, and concisely: in writing, orally, and electronically, in the English language
16. Perform budget development, expenditure forecasting, statistical evaluation, and cost analysis

Ability to:

17. Manage, direct and coordinate the work of staff
18. Select, supervise, train, and evaluate staff
19. Oversee and direct the operations, services and activities of a wastewater collection system
20. Manage and administer inspection services on wastewater collection system projects
21. Read and interpret blueprints, construction drawings and specifications
22. Develop and administer goals, objectives and procedures
23. Interpret, explain, and enforce division policies and procedures
24. Develop and implement safety training programs
25. Prepare and administer program budget
26. Prepare clear and concise administrative and financial reports
27. Research, analyze, and evaluate new methods and techniques
28. Interpret and apply appropriate codes, regulations, policies, and procedures
29. Understand, follow and provide oral and written instructions
30. Effectively assess and interpret situations and conditions and apply independent judgment

Grade II – Environmental Compliance Inspector Certification

Essential Duties for Grade II

1. Inspecting a variety of pretreatment systems, facilities, and processes of industrial, commercial, residential, and institutional establishments for compliance with federal, state, and local regulations and permit conditions related to pretreatment of industrial wastewater, storm runoff, and pollution prevention requirements
2. Reviewing and evaluating all but the most complex permit applications, self-monitoring reports, facility modifications, and pretreatment systems; issues permits following established practices, policies, procedures, internal guidelines, and models; performs

calculations related to industrial discharge permitting, including calculation of production-based and alternative limits

3. Initiating appropriate enforcement action after identifying noncompliance with local, state or federal requirements; preparing and issuing written notices of requirement and violations of regulations; researching compliance history of facilities; participating in enforcement hearings; and monitoring follow-up action
4. Reviewing compliance monitoring reports, such as toxic organic management plans, spill prevention control and countermeasures, pollution prevention plans, baseline monitoring reports, 90-day reports, periodic reports of continued compliance, and self-monitoring reports and sample results for compliance with federal, state, and local requirements
5. Determining sampling locations and methods; collecting representative samples of water and wastewater from industrial, commercial, residential, institutional sources, and storm sewers; using appropriate containers and preservation methods; performing field or laboratory tests on samples collected; observing and recording field conditions, meter readings, field test results, and other data relevant to sampling conditions and completing documentation
6. Investigating and tracing sources of illegal or nuisance waste discharges; responding to call-outs; providing technical assistance and guidance; and observing, monitoring, and evaluating conditions and initiating appropriate responses
7. Preparing manual and computerized written, oral, tabular and graphic reports and summarizing requirements and regulations
8. Explaining environmental compliance regulations, requirements, and policies to business owners and operators, other government agencies and the general public
9. Planning and participating in pollution prevention, including commercial business regulation, development of best management practices and public outreach
10. Analyzing dischargers' activities and preparing data for sewer service charges and capacity fees; researching tenant occupancy uses, sewer service charge bills and classification; estimating landscape allowances and discharge volumes; determining and verifying wastewater strength classifications; verifying sewer service and/or capacity charges and information; reviewing and analyzing information for sewer service refunds, making recommendations and providing the supervisor and/or manager with documentation; and responding to inquiries concerning sewer service charges and capacity fees
11. Responding to and initiating contact with system users; providing detailed information on a variety of topics in a clear, succinct manner using the appropriate approach and response for the situation; sharing technical and/or specialized information with appropriate staff, industrial users, and other public agencies; and providing feedback, observations, and analysis to appropriate staff
12. Researching and keeping current on pertinent information and development in environmental compliance functional areas; analyzing and implementing state, federal or local requirements as necessary to maintain approved pretreatment, pollution prevention, and storm water runoff programs
13. Recognizing and correcting unsafe conditions. Understanding safety regulations; implementing and recommending proper safety protocols

Knowledge of:

1. Categorical standards
2. EPA pretreatment regulations and standards (40 CFR part 403)

3. Water quality regulations for storm water (40 CFR part 122)
4. Common monitoring technology including common sampling, and flow-measuring methods, equipment, apparatus and their uses
5. Principles and methods of wastewater collection, treatment and disposal
6. Safety methods, procedures, practices, and precautions related to conducting inspections, traffic control, and using appropriate personal protective equipment
7. Complex principles of chemistry with special emphasis on wastewater chemistry and chemistry encountered in industrial processes
8. Arithmetic including fractions, decimals, proportions, percentages, and logarithmic notation
9. Basic mechanical, hydraulic and environmental engineering principles and concepts
10. Pollution prevention principles and activities
11. Industrial processes
12. Industrial pretreatment technologies
13. Industrial activities that could impact storm water runoff
14. Collection of samples that could be used as evidence in legal proceedings
15. Preservation procedures for routine and non-routine samples

Skill to:

16. Prepare clear, concise, and accurate reports, memorandums and correspondence
17. Interact cooperatively and effectively with the public, industrial users, other agencies and staff personnel in conducting environmental compliance inspections
18. Communicate the objectives of a program to representatives of commercial, residential and industrial users, in the English language

Ability to:

19. Read, interpret, apply and explain complex procedures, rules, regulations, and law relating to water and wastewater
20. Interpret physical, chemical, microbiological and bacteriological tests on water and wastewater
21. Read and understand technical information relating to wastewater generation and disposal, including engineering drawings and schematics
22. Plan, organize and manage environmental compliance projects

Grade IV – Environmental Compliance Inspector Certification

Essential Duties for Grade IV

1. Establishing organizational controls to measure performance against approved objectives and ensuring proper implementation of divisional goals and objectives
2. Planning, organizing, directing, and reviewing the work of environmental compliance inspectors, technical, and office support staff, providing technical services to users with non-domestic waste and groundwater discharges; reviewing and approving waste discharge plans; meeting with users to ensure compliance with waste discharge ordinances and state and federal requirements; performing special studies and preparing reports on industrial waste and other discharges and managing enforcement actions
3. Recommending methods to control all wastewater entering the collection system
4. Administering the division's safety program; performing field inspections for safety conformance and directing investigations of injuries

5. Monitoring economic, environmental, political, social, and business developments which have a bearing on programs and services
6. Interpreting management policies for staff and ensuring compliance with management and administrative policies and procedures
7. Planning, developing, and participating in a variety of ongoing training programs related to the work
8. Managing the overall implementation of new programs that are required by regulations to protect or improve water quality by controlling sources of water and waste
9. Directing the activities of division supervisors
10. Coordinating activities with other divisions, other agencies, and with outside organizations
11. Directing and participating in the selection, training, review, and evaluation of division staff; encouraging professional growth; and investigating employee relations problems and implementing or recommending corrective actions
12. Representing the agency in meetings with governmental and regulatory agencies, technical committees, private firms, professional and community groups, and the public; conferring with staff regarding division activities; providing information and technical advice to staff, local cities, other utilities, regulatory agencies, planning agencies and consultants
13. Directing record keeping activities and preparation of variety of periodic and special reports; presenting data and other information related to the work of the division
14. Developing and administering the annual budget and monitoring monthly expenditures
15. Reviewing the work of consultants and administering various professional contracts
16. Monitoring developments in the field of environmental compliance and recommending and initiating improved work methods and procedures

Knowledge of:

1. Industrial processes as they affect the operation of a water pollution control plant, wastewater collection system, or storm collection system, and its effects on the receiving waters
2. Safety rules, codes, principles and practices related to inspection, such as traffic control, chemical handling, confined space entry, and other physical hazards
3. Techniques of field inspection and laboratory work related to wastewater discharge from various sources
4. Applicable federal, state, and local laws and regulations
5. Budgeting principles
6. Management principles
7. Methods of supervision
8. The function of related agencies

Skill to:

9. Prepare clear, concise, and complete reports and correspondence
10. Make effective oral reports and presentations
11. Deal effectively with employee relations
12. Deal effectively with budget administrative matters