

Exam Blueprint

Environmental Compliance Inspector Certification

Exam Blueprint & Suggested References

**ECI
Grade 3**

v 02.28.19



Exam Blueprint & Suggested References

Effective February 2019

CWEA’s Technical Certification Program Environmental Compliance Inspector Grade 3 exam is based on an exam blueprint that outlines the exam content and is periodically reviewed by CWEA Subject Matter Experts. This exam blueprint is based on a job task analysis that includes research of the essential duties of an Environmental Compliance Inspector at a representative cross-section of systems and facilities in California. The Environmental Compliance Inspector Grade 3 exam was last reviewed by Subject Matter Experts in 2016.

The exam content outline that follows presents content covered on the Environmental Compliance Inspector Grade 3 exam and shows the amount of the exam devoted to each Knowledge, Skills and Abilities (KSA) area in the column labeled “% on exam.” Following the outline, you’ll find a list of suggested references and a link to a free self-evaluation you can take to help you identify your strengths and areas to work on as a candidate. You will also find an Equivalent & Formula Sheet which will be available on screen during the exam.

Please be sure to review CWEA's Technical Certification Program Candidate Handbook, which contains CWEA's certification procedures and policies. Applicants and certification holders are responsible for understanding all certification policies. The TCP Candidate Handbook can be downloaded for free in our [Online Store](#).

KSA	Exam Content Outline	% on exam
301	<p>Assist with the review and evaluation of highly complex permit applications, discharge reports, facility modifications and pretreatment systems.</p> <ul style="list-style-type: none"> ● Understand heavy metal removal processes. ● Understand timelines involved with meeting schedules as outlined in Categorical Pretreatment Standards. ● Understand Significant Industrial Users required reports and prohibited materials identified per 40 CFR 403. 	4%
302	<p>Issue permits following established practices, policies, procedures, internal guidelines and models. Establish models and procedures when appropriate.</p>	3%



KSA	Exam Content Outline	% on exam
	<ul style="list-style-type: none"> ● Ability to identify exemptions and procedures available per 40 CFR 403. ● Understand fundamental elements and requirements a control mechanism must contain. ● Identify Significant Non-Compliance, and the appropriate level of enforcement that should be taken. 	
303	<p>Assess the possible effects of a proposed discharge on the treatment plant and collection system, and initiate appropriate follow-up activities.</p> <ul style="list-style-type: none"> ● Understand the removal of metal hydroxides from wastestreams. ● Calculate the materials needed to neutralize acids. 	3%
304	<p>Inspect a variety of pretreatment systems, facilities and processes of industrial, commercial, residential, and institutional establishments for compliance with federal, state, and local regulations related to pretreatment, pollution prevention and stormwater. Report findings to the appropriate authority.</p> <ul style="list-style-type: none"> ● Understand the purpose for metals removal and different heavy metal treatments in wastestreams. ● Recall the various types of cyanide removal from wastewater and commonly used sludge dewatering and disposal methods. ● Familiarity with Storm Water Pollution Prevention Plans. ● Calculate flow rate when using a rinse tank and determine solubility. 	7%
305	<p>Verify user classification, research compliance history of facility, and collect data used to evaluate compliance with applicable standards and to establish sewer service charges.</p> <ul style="list-style-type: none"> ● Calculate loading of materials in user discharges. ● Understand terms and definitions relating to organic analysis, and new sources as described by the Clean Water Act. ● Recognize noncompliance in Significant Industrial Users. 	4%
306	<p>Assist with the development of appropriate inspection procedures, and sampling locations and methodology, for a broad variety of industrial users.</p> <ul style="list-style-type: none"> ● Understand National Pretreatment Standards. 	3%



KSA	Exam Content Outline	% on exam
	<ul style="list-style-type: none"> Recognize correct safety procedures, and employees tasked with enforcing a safe workplace. Familiarity with Significant Industrial User inspections and proper sampling procedures. 	
307	Organize, plan, supervise, and review the activities, work and performance of supervised employees; use software programs to track and report performance. <ul style="list-style-type: none"> Understand how to delegate and evaluate an employee’s work performance. 	3%
308	Assist management with employee development and training programs and division performance standards. <ul style="list-style-type: none"> Ability to manage and create pertinent training opportunities for an employee’s development as it relates to work performance. 	3%
309	Provide initial employee counseling and refer employee relations matters to the appropriate authority. <ul style="list-style-type: none"> Understand the effective skills a supervisor should utilize while handling employee issues. 	2%
310	Provide instruction and training to staff in the techniques of sampling and inspection, the application of laws, codes, ordinances and procedures governing implementation and enforcement of pretreatment regulations and other activities <ul style="list-style-type: none"> Understand the purpose for an industrial wastewater discharge permit. Identify the pertinent elements of a pretreatment program’s Enforcement Response Plan. Ability to develop an employee’s skills and job performance. 	3%
311	Collaborate with POTW and collection systems personnel to resolve issues related to industrial discharge, sanitary sewer overflows (SSOs) and Waste Discharge Requirements (WDRs). <ul style="list-style-type: none"> Ability to identify and how to properly respond to a Sanitary Sewer Overflow. Identify specific components of the California Integrated Water Quality System Project database. 	4%
312	Provide internal and inter-agency coordination based on information from the field, and analyze and make recommendations on additional actions; share technical and/or specialized information with staff.	3%



KSA	Exam Content Outline	% on exam
	<ul style="list-style-type: none"> ● Ability to identify Certified Unified Program Agencies violations. ● Ability to execute a purposeful meeting with other employees. 	
313	<p>Supervise both scheduled and immediate investigations to trace sources of illegal waste discharges entering the collection system and enforcement activities related to illicit stormwater discharges.</p> <ul style="list-style-type: none"> ● Understand the protocol that must be followed when inspecting and investigating an illicit discharge for various commercial businesses. 	3%
314	<p>Respond to and coordinate call-outs; initiate and develop appropriate responses and enforcement activities.</p> <ul style="list-style-type: none"> ● Understand protocol when responding to an unknown material in the sanitary sewer and how to activate emergency response personal. 	2%
315	<p>Represent the program and/or agency in meetings of regional task forces, committees, work groups, outside agencies and the public.</p> <ul style="list-style-type: none"> ● Effective practices of public speaking. ● Knowledge of how a POTW operates. 	2%
316	<p>Assist in the administration of a division's safety program; perform job hazard assessments and develop appropriate standard operating procedures (SOPs); perform field inspections for compliance with SOPs.</p> <ul style="list-style-type: none"> ● Understand combustible liquids and operating meters in order to measure explosivity. ● Understand how work-related accidents and fatalities can occur in confined spaces. 	3%
317	<p>Explain wastewater discharge permit conditions, and other environmental compliance regulations, requirements, and policies to industrial users, the general public and government agencies.</p> <ul style="list-style-type: none"> ● Determine non-compliance with Technical Review Criteria. ● Understand how a POTW pretreatment program can comply with the public participation requirements per 40 CFR 403. ● Understand removal credit conditions a POTW must meet. 	5%



KSA	Exam Content Outline	% on exam
318	<p>Initiate and respond to oral and written communications to and from system users; provide detailed information on a variety of complex topics in a clear, concise manner using the appropriate approach and response for the situation.</p> <ul style="list-style-type: none"> • Understand the details need to create reports and the keys to giving an oral presentation. • Ability to effectively communicate with management. 	3%
319	<p>Work with industries to identify and resolve discharge problems or serious violations of applicable permits, ordinances, and regulations.</p> <ul style="list-style-type: none"> • Describe the oxidation process of cyanide and the bypass requirements for an Industrial User. • Understand General Pretreatment Regulations per 40 CFR 403. 	5%
320	<p>Initiate appropriate enforcements after identifying noncompliance with federal, state, and local requirements; prepare and issue written notices of requirements and violations of agency regulations; facilitate and participate in enforcement hearings and monitor follow-up action.</p> <ul style="list-style-type: none"> • Calculate toxic substance concentrations in illegal loads. • Understand 40 CFR 403 penalty fees. • Identify the key components of an effective Enforcement Response Plan. 	3%
321	<p>Keep current on pertinent information and developments in environmental compliance.</p> <ul style="list-style-type: none"> • Understand the development of regulatory issues. 	2%
322	<p>Work with the manager to ensure approved pretreatment, pollution prevention and stormwater programs are consistent with current federal, state and local requirements, and to adapt to potential changes.</p> <ul style="list-style-type: none"> • Understand responsibilities of the Control Authority, location of federal regulations, and levels of control with indirect dischargers. 	3%
323	<p>Design, implement, and document SOPs that ensure sample collection with uncontaminated equipment, correct sampling methods and correct preservation/holding methods.</p> <ul style="list-style-type: none"> • Calculate flow and time composite sample volumes. 	4%



KSA	Exam Content Outline	% on exam
	<ul style="list-style-type: none"> Describe proper preservation methods and containers according to 40 CFR 136. 	
324	<p>Evaluate complex compliance monitoring reports, such as toxic organic management plans (TOMPs), stormwater pollution prevention plans (SWPPPs), spill prevention control and countermeasure plans, slug discharge control plans, baseline and self monitoring reports, 90-day reports, periodic reports of continued compliance, and monitoring reports for compliance with federal, state, and local requirements.</p> <ul style="list-style-type: none"> Familiarity with required reports categorical users must submit. Calculate flow when given specific parameters. Understand the required plans, reports, and TTO and TOMP reporting exemptions an Industrial User must submit. 	5%
325	<p>Supervise sampling and inspection of commercial and industrial facilities to determine processes and activities generating wastewater/stormwater.</p> <ul style="list-style-type: none"> Understand the characteristics of a Parshall Flume and Weir. 	3%
326	<p>Evaluate data used in determining compliance with applicable standards and in establishing sewer service charges and capacity fees. Perform calculations required to complete the annual sewer-service charge, revenue, and compliance programs.</p> <ul style="list-style-type: none"> Understand how to calculate surcharge fees and standard deviation using data points. 	3%
327	<p>Supervise recordkeeping activities and participate in the preparation of a variety of periodic and special reports, including monthly operation reports.</p> <ul style="list-style-type: none"> Familiarity with an Annual POTW Pretreatment report. Understand NPDES reporting and submission requirements. 	3%
328	<p>Advise management of significant data or information related to the work of the division.</p> <ul style="list-style-type: none"> Understand the essentials of a safety program. 	2%
329	<p>Perform calculations related to industrial discharge permitting, including calculation of production-based and alternative discharge limits, capacity fees and assessment of stormwater fees.</p> <ul style="list-style-type: none"> Calculate local limits, maximum flow rates, and waste concentration. 	5%



KSA	Exam Content Outline	% on exam
	<ul style="list-style-type: none">• Understand alternative limits of Combined Wastestream Formula.	
330	Assist in development of program budgets and fiscal reports. <ul style="list-style-type: none">• Understand the essentials in developing and managing a budget.	2%



Suggested References

CWEA’s exam is based on a job task analysis that includes research of the essential duties of an Environmental Compliance Inspector at a representative cross-section of systems and facilities in California. CWEA’s exams do **not** correspond directly to any specific textbook, educational course, or program; instead, the exams are based on an analysis of the duties commonly performed in actual practice. In developing the exam, CWEA subject matter experts used their years of experience in the field along with the key textbooks and reference materials listed below. Candidates should understand that the references listed do not necessarily cover all exam content. Candidates who meet the minimum qualifications for this exam may find these suggested references useful when preparing for this exam; however, these suggested references are not required reading and should not be interpreted as constituting the sole source of all exam questions.

This list does **not** include all the available textbooks and materials for studying for this exam. Candidates are strongly encouraged to seek additional material, training, and experience, especially in content areas for which the candidate is not adequately prepared. Candidates are encouraged to prepare for CWEA certification exams using as many different study materials as possible plus education events and on-the-job training. Candidates are encouraged to develop their own personal study plan based on individual needs and knowledge. Taking our free self-evaluation can help identify strengths and areas to work on; the link to that self-evaluation tool follows at the end of this document.

KSA	Suggested References <i>This list is not intended to be an endorsement of any of the publications listed.</i>
301	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 9 (9.3-9.4) • 40 CFR 403 • Treatment of Metal Wastestreams: A Field Study Training Program, 4th Edition, 2013. Lesson 2, Lesson 3
302	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 2 (2.2), Chapter 3 (3.3-3.5)
303	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Appendix II- Pretreatment Arithmetic • Treatment of Metal Wastestreams: A Field Study Training Program, 4th Edition, 2013. Lesson 2



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304	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 9 (9.3-9.4), Appendix II- Pretreatment Arithmetic • Treatment of Metal Wastestreams: A Field Study Training Program, 4th Edition, 2013. Lesson 2, Lesson 3 • EPA National Pollutant Discharge Elimination System (NPDES) website – Developing a Stormwater Pollution Prevention Plan
305	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 3 (3.0-3.5), Appendix II- Pretreatment Arithmetic
306	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 1, Chapter 2, Chapter 3 • Industrial Users Inspection and Sampling Manual for POTWs, January 2017, U.S. Environmental Protection Agency
307	<ul style="list-style-type: none"> • Utility Management: A Field Study Training Program, 2nd Edition, 2004. Lesson 1 • Manage For Success: Effective Utility Leadership Practices, 1st Edition, 2005. Chapter 1, Chapter 2, Chapter 14
308	<ul style="list-style-type: none"> • Utility Management: A Field Study Training Program, 2nd Edition, 2004. Lesson 1 • Manage For Success: Effective Utility Leadership Practices, 1st Edition, 2005. Chapter 1, Chapter 5
309	<ul style="list-style-type: none"> • Manage For Success: Effective Utility Leadership Practices, 1st Edition, 2005. Chapter 1, Chapter 3
310	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 2 (2.0-2.5) • State Water Resources Control Board Order No. 2006-0003-DWQ
311	<ul style="list-style-type: none"> • Manage For Success: Effective Utility Leadership Practices, 1st Edition, 2005. Chapter 4, Chapter 7 • State Water Resources Control Board website - CA SSO WDR
312	<ul style="list-style-type: none"> • Enrollee’s Guide to the SSO Database: Sanitary Sewer Overflow Reduction Program, August 2013, State Water Resources Control Board • Violation Classification: Guidance For Unified Program Agencies, June 2006, Certified Unified Program Agencies



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313	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 2 (Appendix A), Chapter 6, Chapter 10
314	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 11
315	<ul style="list-style-type: none"> • Utility Management: A Field Study Training Program, 2nd Edition, 2004. Lesson 2 • Manage For Success: Effective Utility Leadership Practices, 1st Edition, 2005. Chapter 8
316	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 5
317	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 4 • 40 CFR 403 • 40 CFR 122
318	<ul style="list-style-type: none"> • Utility Management: A Field Study Training Program, 2nd Edition, 2004. Lesson 2 • Manage For Success: Effective Utility Leadership Practices, 1st Edition, 2005. Chapter 1, Chapter 2
319	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 4, Appendix II- Pretreatment Arithmetic • 40 CFR 403
320	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 3, Appendix II- Pretreatment Arithmetic • 40 CFR 403
321	<ul style="list-style-type: none"> • 40 CFR 403 • Manage For Success: Effective Utility Leadership Practices, 1st Edition, 2005. Chapter 8
322	<ul style="list-style-type: none"> • Introduction to the National Pretreatment Program, June 2011, U.S. Environmental Protection Agency • 40 CFR 403
323	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Appendix II- Pretreatment Arithmetic



KSA	Suggested References <i>This list is not intended to be an endorsement of any of the publications listed.</i>
	<ul style="list-style-type: none"> • Treatment of Metal Wastestreams: A Field Study Training Program, 4th Edition, 2013. Lesson 1 • Introduction to the National Pretreatment Program, June 2011, U.S. Environmental Protection Agency • Industrial Users Inspection and Sampling Manual for POTWs, January 2017, U.S. Environmental Protection Agency
324	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Appendix II- Pretreatment Arithmetic • 40 CFR 403
325	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 3 (3.1-3.3), Chapter 7
326	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 3, Appendix II- Pretreatment Arithmetic
327	<ul style="list-style-type: none"> • Manage For Success: Effective Utility Leadership Practices, 1st Edition, 2005. Chapter 2 • 40 CFR 403 • Pretreatment Compliance Inspection and Audit Manual for Approval Authorities, July 1986, U.S. Environmental Protection Agency
328	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Appendix II- Pretreatment Arithmetic • Manage For Success: Effective Utility Leadership Practices, 1st Edition, 2005. Chapter 5, Chapter 12
329	<ul style="list-style-type: none"> • Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010. Chapter 2, Appendix II- Pretreatment Arithmetic • 40 CFR 403 • Treatment of Metal Wastestreams: A Field Study Training Program, 4th Edition, 2013. Lesson 2, Arithmetic Problems
330	<ul style="list-style-type: none"> • Manage For Success: Effective Utility Leadership Practices, 1st Edition, 2005. Chapter 9 • Utility Management: A Field Study Training Program, 2nd Edition, 2004. Lesson 2



Publications in the Suggested Reference list:

- 40 CFR 403
- 40 CFR 122
- [State Water Resources Control Board Order No. 2006-0003-DWQ](#)
- [Treatment of Metal Wastestreams: A Field Study Training Program, 4th Edition, 2013](#)
- [EPA National Pollutant Discharge Elimination System \(NPDES\) website – Developing a Stormwater Pollution Prevention Plan](#)
- [Utility Management: A Field Study Training Program, 2nd Edition, 2004](#)
- [Manage For Success: Effective Utility Leadership Practices, 1st Edition, 2005](#)
- [State Water Resources Control Board website - CA SSO WDR](#)
- [Enrollee’s Guide to the SSO Database: Sanitary Sewer Overflow Reduction Program, August 2013, State Water Resources Control Board](#)
- [Violation Classification: Guidance For Unified Program Agencies, June 2006, Unified Program Administration and Advisory Group](#)
- [Pretreatment Compliance Inspection and Audit Manual for Approval Authorities, July 1986, U.S. Environmental Protection Agency](#)
- [Introduction to the National Pretreatment Program, June 2011, U.S. Environmental Protection Agency](#)
- [Industrial Users Inspection and Sampling Manual for POTWs, January 2017, U.S. Environmental Protection Agency](#)
- [Pretreatment Facility Inspection: A Field Study Training Program, 3rd Edition, 3rd Printing 2010](#)

Gauge your readiness with this self-evaluation Gap Analysis Tool

Help identify the knowledge, skills, and abilities you are confident in and those you might need to spend more time on by using this self-evaluation tool.

<https://www.cwea.org/tcp/pdf/ECI1-4%20KSA%20Gap%20Tool.pdf>

Equivalents & Formula Sheet

Familiarity with the following formula sheet is important. There is no need to memorize it, as it can be accessed on screen during the exam.