

## BEAC CPEA Health and Safety Examination Study Guide

### Introduction and General Structure of the Examination

#### Introduction

This study guide is intended to assist an applicant in preparing for the Board of Environmental, Health & Safety Auditor Certifications (BEAC) Health and Safety Auditor Examination. Successfully passing the BEAC Health & Safety exam is one of several criteria that must be met in order to achieve the designation Certified Professional Environmental Auditor (CPEA) in Health & Safety from BEAC.

The study guide consists of four sections:

- 1. General Structure of the Examination:** Gives an overview of the examination structure, pass/fail criteria, and timing;
- 2. Examination Outline:** Lists the topics and subject areas covered by the examination;
- 3. Sample Questions and Answers:** Provides examples similar to actual questions on the examination. Answers are provided for the example multiple choice questions, but not for the example essay questions;
- 4. Reference List:** Lists books and documents that BEAC believes are generally accepted sources, which may be useful to the examinee and from which some of the questions may have been derived.

Note: The study guide does not address “test-taking” strategies or tactics. If it has been some time since you last sat for an examination, it might be useful to refresh your memory of the basics. (e.g., *Read questions carefully. Don't agonize too long over a troublesome question; skip it and come back later if time permits. Don't make random guesses, etc.*)

#### 1. General Structure of the Examination

The BEAC Health & Safety Auditor Examination consists of three Parts:

- Part I Basic Principles of Auditing (*131 multiple choice questions; answer all*)
- Part II Health and Safety Requirements (*152 multiple choice questions; answer all*)
- Part III Understanding Health and Safety Standards (*4 short answer questions and 4 essay questions; answer all*)

The examination is administered in three segments, with two hours provided to complete each Part of the exam. There is a break between each section of the examination.

The exam grading process is as follows:

- Part I and Part II multiple-choice questions are graded using a template.
- Responses to essay questions are copied and sent out to two members of the Examination Committee who grade independently, using a matrix which assigns points. At the BEAC office, the two scores are averaged together and stand as the score on the essay portion of the exam. (Should the two grades differ by more than 20%, the essay is sent to a third grader, and the two closest scores are used.)
- Scores for all three Parts are averaged together, and **the overall Total Score determines whether or not the applicant has passed or failed** (i.e. not all individual Parts must be passed).
- If the applicant fails the exam but passes any of the individual Parts, they can obtain an exemption from taking those Parts when they re-take the exam.

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### 2. Examination Outline

#### Part I. Basic Principles of Auditing

The questions in this Part are quite generic; they will apply in essentially the same way to environmental compliance or health and safety compliance auditing as they do to management system auditing. The questions will be multiple-choice questions—choose the ONE best answer from 4 choices. Subjects covered in Part I include the following:

##### **Ethics and Standards of Conduct for Auditors**

This category relates to the candidate's understanding, judgment and perception of how an auditor should behave and react to ethical situations that can occur in the audit process. This may include some questions concerning BEAC and The Institute of Internal Auditors (IIA) standards for auditing. Test questions focus on topics such as:

- Conflict of Interest
- Independence of Auditors
- Due Professional Care
- Material Facts and Disclosure
- Auditor Proficiency

##### **Audit Program Design**

This category includes issues related to the design, structure and key planning elements of audit programs. Test questions focus on topics such as:

- Senior Management Commitment
- Scope of Audit Programs
- Audit Tools
- Site Selection/Frequency of Audits
- Quality Assurance Mechanisms
- Auditor Staffing/Training

##### **Audit Activities**

This category relates to activities associated with actually conducting a specific audit. Test questions focus on topics such as:

- Pre-Audit Activities (e.g., gathering background information; contacting the facility, coordinating the audit team)
- On-site Activities (e.g., opening meeting and facility tour; assessing and evaluating compliance programs and procedures; gathering information: interviewing, reviewing documents and records, sampling, conducting inspections; handling sensitive situations; evaluating audit evidence and writing findings; closing meeting)
- Post-audit Activities (e.g., report preparation; legal protection/confidentiality of results; corrective action planning and tracking)

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### 2. Examination Outline

#### Part II. Health and Safety Requirements

There will be 152 multiple choice questions in this Part; they will be generally more complex than those in Part I. Many questions will present a, b, c, d, etc., alternative answers.

Some of the questions in this Part relate to general health and safety concepts. However, many questions will be quite specific and require recognition or recall of the detailed requirements of particular Occupational Health and Safety Administration (OSHA) standards and/or applicable regulatory requirements. The applicant will not have to know “chapter and verse” but will be required to know content. This section relates to the candidate's understanding, judgment and perception of topics such as:

##### **Internal Controls**

This category relates to an auditor's need to understand the procedures that exist at the audited facility to ensure compliance with applicable regulations. Test questions could focus on topics such as:

- Identification of Applicable Compliance Areas
- Responsibility/Accountability for Compliance Task/Functions
- Training/Qualifications of Facility Staff
- Availability of Compliance Procedures
- Self-Assessment Mechanisms for Compliance

##### **Legislative/Regulatory Applicability**

This category relates to an auditor's need to understand what health and safety laws and regulations apply to particular activities or operations at audited facilities. Test questions could focus on topics such as:

- Major Regulatory Focus of General and Construction Standards and Recordkeeping
- Federal OSHA/State Jurisdiction/Enforcement of Laws
- Regulatory Process (interim, draft, final)
- Ability to Determine Applicability of Occupation Safety and Health Laws/Regulations to Typical Worker Activities and Work Place Environments at the Audited Facility
- Relationship of OSHA standards to:
  - American National Standards Institute (ANSI) standards
  - National Electric Code (NEC)
  - National Fire Protection Agency (NFPA)
  - American Society for Testing and Materials (ASTM)
  - American Society of Mechanical Engineers (ASME)

##### **Occupational Safety and Health Impacts of Various Worker Activities, Work Place Environments, and Related Exposure Reducing Practices and Technologies**

This category relates to an auditor's ability to evaluate what occupational safety and health impacts and compliance issues result from typical worker activities and work place environments; and understanding the generic engineering, administrative, and personal protective equipment and technologies to control potential impacts. Test questions could focus on topics such as:

- Typical Health and Safety Exposures Generated by Various Work Place Activities and Environments
- Exposure Thresholds that Trigger Compliance Requirements
- General Concepts of Operation of Engineering, Administrative, and Personal Protective Equipment Practices and Technologies
- Typical Compliance Related Requirements Associated with Engineering, Administrative, and Personal Protective Equipment Practices and Technologies

## 2. Examination Outline

### **Activity/Environment Specific Regulatory Knowledge (29 CFR 1910 and 1926)**

This category relates to an auditor's knowledge of key regulatory requirements that are typically evaluated during an audit. Test questions could focus on topics such as:

#### 1910 - Occupational Safety and Health Standards (General Industry)

- Asbestos
- Blood Borne Pathogens
- Compressed Gas and Compressed Air Equipment
- Confined Space
- Contractor Safety
- Cylinder Storage
- Electrical
- Emergency Response
- Environmental Monitoring
- Fall protection
- Fire Protection
- Flammable Liquid/Gas Storage
- General Environmental Controls
- Hand and Portable Powered Tools and Other Hand-Held Equipment
- Hazard Communication
- Hazardous Materials
- Hazardous Waste Operations and Emergency Response (HAZWOPER)
- Hearing Conservation
- Hoisting and Cranes
- Incident Investigation
- Laboratory Safety
- Lead
- Life Safety
- Lock Out/Tag Out
- Machinery and Machine Guarding
- Materials Handling and Storage
- Medical and First Aid
- Motor Vehicle Safety
- Noise Monitoring
- Occupational Health and Safety Environmental Controls
- Personal Protective Equipment
- Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms
- Pressure Vessels
- Process Safety Management
- Record Keeping
- Respiratory Protection
- Special Industries
- Threshold Limit Values (TLVs)
- Ventilation
- Walking - Working Surfaces
- Welding, Cutting and Brazing

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### 2. Examination Outline

#### 1926 - Safety and Health Regulations For Construction (Construction Standards)

- Blasting and the Use of Explosives
- Concrete and Masonry Construction
- Cranes, Derricks, Hoists, Elevators, and Conveyors
- Demolition
- Electrical
- Excavations
- Fall Protection
- Materials Handling, Storage, Use, and Disposal
- Motor Vehicles, Mechanized Equipment, and Marine Operations
- Occupational Health and Environmental Controls
- Personal Protective and Life Saving Equipment
- Power Transmission and Distribution
- Rollover Protective Structures; Overhead Protection
- Scaffolds
- Signs, Signals, and Barricades
- Stairways and Ladders
- Steel Erection
- Tools-Hand and Power
- Toxic and Hazardous Substances
- Underground Construction, Caissons, Cofferdams and Compressed Air
- Welding and Cutting

It is not expected that examinees will be familiar the specific details of **all** of the standards/codes/regulations or sections thereof listed above. However, it will be virtually impossible to obtain a passing score unless you are *generally* familiar with **most** of the standards referenced above.

### Part III. Understanding Health and Safety Standards

There will be four (4) short answer questions and four (4) essay questions in this Part. You are to answer **all** short answer and essay questions.

The essay questions will test how you would handle situations during a health & safety audit. Your answers should reflect your knowledge, judgment, and overall awareness of auditing principles and practices.

Successful completion of Part III requires that you draw both on your knowledge of auditing principles (which was tested in Part I) and on your familiarity with the requirements of health and safety standards, codes and regulations (which was tested in Part II). However, while Parts I and II focus on specific knowledge of [mostly] factual information, the essay questions in Part III are designed to measure your ability to analyze, think critically, integrate information, and express yourself clearly and logically.

Legibility of your responses is important; the graders must be able to read and understand your response if you are to receive full credit. When answering the essay questions it is extremely important to carefully read and understand the question and equally important to plan and organize the answer to address all recognized portions of the question.

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### 3. Sample Questions and Answers

#### 3a. Sample Questions

##### Part I: Basic Principles of Auditing

1. Which of the following is not a basic element common to most audit program manuals:
  - a. Objectives
  - b. Scope
  - c. Subjects to be audited
  - d. Names of qualified auditors
  
2. The staff assigned to conduct an audit should:
  - a. Be comprised of members with a master's level or equivalent educational background.
  - b. Demonstrate overall aptitude in a multitude of industries.
  - c. Have qualifications commensurate with the scope and complexities of the audit assigned.
  - d. Be comprised only of members with Qualified Environmental Professional (QEP), Certified Industrial Hygienist (CIH) or Certified Safety Professional (CSP) professional certification.
  
3. An auditor finds evidence in the facility files that directly contradicts a statement made by the Environmental, Health and Safety (EHS) coordinator. The EHS coordinator refuses to admit his error and comes to the audit team leader and states that the audit team is free to review files, but no more interviews will be granted to that auditor. The best first course of action for the audit team leader is this situation is:
  - a. Contact the audit program director for assistance in resolving the conflict.
  - b. Work with the EHS coordinator to try to resolve the conflict.
  - c. Replace the auditor.
  - d. End the audit.

##### Part II: Health and Safety Requirements

1. Which of the following is not one of the specific hazardous substances regulated under OSHA 1910 Subpart Z?
  - a. lead
  - b. asbestos
  - c. noise
  - d. acrylonitrile
  
2. The Life Safety Code which governs egress requirements for various facilities is found in which document?
  - a. ANSI Z10-2005
  - b. OSHA 1910.101
  - c. NFPA 101
  - d. NFPA 10

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### 3. Sample Questions and Answers

3. OSHA Record Keeping regulations require that each workplace post the OSHA required injury and illness statistics for the site by:
  - a. Posting the right section of the last page of the OSHA 100 Log (a copy of this section may be used instead of the actual OSHA 100 Log) by February 1<sup>st</sup> of the next year.
  - b. Posting the right section of the OSHA 300 Log (a copy of this section may be used instead of the actual OSHA 300 Log) by February 1<sup>st</sup> of the next year.
  - c. Post the OSHA Form 300A – Summary of Work-Related Injuries and Illnesses by February 1<sup>st</sup> of the following year and leave it up for a period of 30 days.
  - d. Post the OSHA Form 300A – Summary of Work-Related Injuries and Illnesses by February 1<sup>st</sup> of the following year and leave it up until April 30th.

### Part III: Understanding Health and Safety Standards

1. During the audit of a large chemical facility with six independent operating units, you are assigned to review the status of the overall hot work permitting program. Since there are far too many hot work permits and hot work locations to review them individually, describe what sampling methods you would consider in selecting the number and location of hot work permits for detailed documentation review and give the strengths and weaknesses of each option.
2. During the orientation tour of a petroleum refinery, you observe several processes that appear to require process hazard assessments (PHAs) under the OSHA PSM standard (29 CFR 1910.119).
  - a. Describe the steps you would take to determine the status of the facility's process hazard assessment program.
  - b. What documentation would you want to review to determine the status and effectiveness of the refinery's PHA program?
3. As a member of an audit team auditing a large pharmaceutical manufacturing facility, you have been assigned to assess the site's noise monitoring and hearing conservation programs.
  - a. Which program would you start with and why?
  - b. What are some of the key elements of the site's noise monitoring program would you want to look at?
  - c. Which of these elements could impact the site's hearing conservation program and how?

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### 3. Sample Questions and Answers

#### 3b. Answers to Sample Questions

##### Part I: Basic Principles of Auditing

###### Question 1.

- a. Incorrect. Objectives are common elements of audit program manuals.
- b. Incorrect. The scope is commonly included in an audit program manual.
- c. Incorrect. The subjects to be audited are commonly included.
- d. **Correct.** The names of individual qualified auditors are generally not included in the manual. (Criteria for qualifying auditors may be in the manual, however.)

###### Question 2.

- a. Incorrect. Aptitude in a multitude of industries is not a requirement.
- b. Incorrect. An advanced degree is not a requirement for conducting audits.
- c. **Correct.** The necessary qualifications will vary with the scope and complexities of the audit assignment.
- d. Incorrect. These professional certifications are not requirements for staff assigned to conduct an audit.

###### Question 3.

- a. Incorrect. Escalating the conflict to the audit program director should be considered only if facility-level resolution is not achieved.
- b. **Correct.** Resolving both the factual issue(s) and the apparent personality clash at the facility level is the best first step.
- c. Incorrect. The auditor rightly expects to be supported and assisted in resolving the conflict.
- d. Incorrect. Ending an audit would be a very last resort, and not warranted in this case.

##### Part II: Health and Safety Requirements

###### Question 1.

- a. Incorrect: Lead is covered in 1910 Subpart Z at 1910.1025.
- b. Incorrect: Asbestos is covered in 1910 Subpart Z at 1910.1001.
- c. **Correct:** Noise is not a chemical substance and therefore is not covered under Subpart Z – Toxic and Hazardous Substances.
- d. Incorrect: Acrylonitrile is covered in 1910 Subpart Z at 1910.1045.

###### Question 2.

- a. Incorrect: ANSI Z10-2005 is the standard for Occupational Health and Safety Management Systems.
- b. Incorrect: OSHA 1910.101 concerns Compressed Gases (General Requirements).
- c. **Correct:** The National Fire Protection Association (NFPA) Code 101 is the Life Safety Code.
- d. Incorrect: NFPA 10 is the Portable Fire Extinguisher Code.

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### 3. Sample Questions and Answers

Question 3.

- a. Incorrect: The OSHA 100 Log has not been in use since January 1, 2002 when the new OSHA 300 Log was initiated.
- b. Incorrect: The OSHA 300 log is not used for this purpose in the manner the old OSHA 100 Log was.
- c. Incorrect: While the form to be posted is correct, the duration of posting is incorrect.
- d. **Correct:** The OSHA 300A Summary form is to be posted by February 1<sup>st</sup> of the following year and remain up until at least April 30<sup>th</sup>.

### Part III: Applying Health and Safety Knowledge

No answers are provided for the sample essay questions.

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### 4. References\*

This reference list is provided as suggestions only. BEAC does not endorse or require that you purchase any particular reference.

- 29 CFR Parts 1902 through 1910 and Part 1926 - OSHA
- Code of Ethics – BEAC website ([www.beac.org/ethics.html](http://www.beac.org/ethics.html))
- Competency Framework for Environmental Health and Safety Auditors – BEAC website ([www.beac.org/guidance-gb.html](http://www.beac.org/guidance-gb.html))
- Standards for the Professional Practice of Environmental, Health and Safety Auditing - BEAC website ([www.beac.org/guidance-ga.html](http://www.beac.org/guidance-ga.html))
- The Professional Practices Framework – Institute of Internal Auditors ([www.theiia.org/guidance/standards-and-practices](http://www.theiia.org/guidance/standards-and-practices))
- Codes of Conduct - *The Auditing Roundtable* ([www.auditing-roundtable.org/fw/main/Code\\_of\\_Ethics-57.html](http://www.auditing-roundtable.org/fw/main/Code_of_Ethics-57.html))
- Environmental, Health and Safety Auditors Handbook - *J. Ladd Greeno, et al*
- Environmental Health and Safety Audits, 8th Edition - *Lawrence B. Cahill, CPEA*
- Fundamentals of Industrial Hygiene - *Barbara A. Plog, Jill Niland, and Patricia J. Quinlan*
- Fundamentals of Occupational Safety and Health - *J. P. Kohn, M. A. Friend, and C. A. Winterberger*
- Industrial Safety and Health Management - *C. Ray Asfahl*
- OSHA: Employee Workplace Rights - *U.S. Department of Labor*
- OSHA's Voluntary Compliance Outreach Program - *Federal OSHA*
- Recognition of Health Hazards in Industry: A Review of Materials Processes - *William A Burgess*
- Sawyers Internal Auditing - *L. B. Sawyer*
- Threshold Limit Values for Chemical Substances and Physical Agents: Biological Exposure Indices - *American Conference of Governmental Industrial Hygiene*