

**DIVISION OF OCCUPATIONAL SAFETY AND HEALTH  
POLICY AND PROCEDURES MANUAL**

**CERTIFICATION OF GAS  
TESTERS FOR  
UNDERGROUND MINES  
AND TUNNELS**

P&P C-44C

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**AUTHORITY:** The authority to require that any person who functions as a Gas Tester in an underground mine or tunnel pass an examination and be certified by the Division of Occupational Safety and Health is found in California Labor Code §7998 and §7999, and in Title 8, California Code of Regulations §§7104(c) and 8424(a).

**POLICY:** It is the policy of the Division of Occupational Safety and Health to examine and certify Gas Testers by the Mining and Tunneling Unit to promote the safe operation of underground mines and tunnels and to ensure that Gas Testers possess adequate knowledge and competence in underground gas testing.

**NOTE:** See C-44B for procedures pertaining to the certification of Safety Representatives for Underground Mines and Tunnels.

**PROCEDURES:**

**CONDITIONS FOR WHICH CERTIFICATION IS REQUIRED:**

Certification is required for all:

1. Underground mine and tunnel operations classified as "gassy," "extra hazardous" or "potentially gassy;"
2. Underground mine and tunnel operations whenever diesel equipment or explosives are used; and
3. Underground mine and tunnel operations whenever hazardous gas is likely to be encountered.

**CERTIFICATION EXAMINATION ELIGIBILITY CRITERIA:**

An applicant for the Gas Tester's examination must meet all the following eligibility criteria:

1. Possess a minimum of one year of experience in underground mine or tunnel work related to the type of gas testing certification the applicant seeks, or at least one year of experience in underground mine or tunnel work with at least four hours training on gas testing instruments and eight hours of training on toxic and combustible gases, sponsored by the Division, or deemed acceptable to the Division;
2. Be able to issue understandable orders, and maintain adequate written records;
3. Possess adequate knowledge of basic formulas, methods, equipment, instruments, engineering controls, work practices, and protective equipment and devices to safely perform gas testing under hazardous conditions;
4. Possess adequate knowledge of relevant statutory codes, standards and regulations pertaining to underground mines and tunnels; and
5. Understand gas testing and ventilation measuring instrument operation, calibration, and maintenance, and instrument limitations; understand how to troubleshoot instrument problems; and understand how to correctly interpret instrument readings.

#### APPLICATION FOR GAS TESTER'S CERTIFICATION EXAMINATION:

1. Each applicant for the Gas Tester's Certification Examination shall complete and submit a Gas Tester Application Form prior to scheduling an examination (see attachment A). Examinations may be scheduled prior to submission of a completed application at the discretion of the Senior Safety Engineer Mining and Tunneling (SSEMT).
2. Each applicant's eligibility shall be verified by any SSEMT according to the criteria listed in the Certification Examination Eligibility Criteria.
3. When it is determined by the SSEMT that an applicant is not qualified to take the Gas Tester's Certification Examination because of an inability to meet one or more eligibility criteria, the SSEMT shall notify the applicant of this determination by letter within 14 days of the decision and shall request that the applicant contact the SSEMT. A notation shall be made on the application of the SSEMT's decision and the date the letter was sent to the disqualified applicant.
4. When contacted by the disqualified applicant, the SSEMT shall discuss the failed eligibility criteria and suggest ways the applicant can meet the eligibility criteria. A note will be made on the application of this discussion, and a copy of the letter sent to the disqualified applicant

shall also be attached and forwarded to the Principal Safety Engineer Mining and Tunneling (Principal Engineer).

NOTE: Training in gas testing is available from the Mining and Tunneling Unit on an as-needed basis in accordance with Labor Code §6350 and §6352.

5. A determination shall be made of the applicant's qualifications for Gas Tester's Certification Examination in the following specialty areas:
  - a. Underground Mining and Tunneling;
  - b. Underground Mining;
  - c. Tunneling;
  - d. Pipejacking and Boring; and
  - e. Limited.
6. Applicants can be advised at the time they submit an application that, based on their training and/or experience, a determination may be made by the SSEMT that a "Limited Gas Tester Certification" shall be issued. The limited designation shall be noted on the application and the Certification. Limited Certifications include the following:
  - a. Excluding gassy/extra hazardous classified operations;
  - b. Excluding diesel operations;
  - c. Excluding blasting operations;
  - d. Limited to oxygen deficiency in mines;
  - e. Limited to nongassy/potentially gassy operations; and/or
  - f. Limited to tunnel maintenance operations.
7. Each applicant shall pay a \$15.00 examination fee in the form of a check or a money order made out to the State of California. Attach the examination fee to the application.
  - a. No fee shall be required for applicants applying for Gas Tester's Certification Examination from the following exempt agencies:
    1. Governmental entities, e.g., Federal, State, County, City or District.
    2. Public utilities subject to the jurisdiction of the Public Utilities Commission (PUC).

#### CERTIFICATION EXAMINATION:

1. General
  - a. To obtain a Gas Tester's Certificate, the applicant shall pass a certification examination developed and administered by the Mining and Tunneling Unit and composed of three components: written, oral and practicum. The examination shall include

questions related to the type of underground mine and/or tunnel work for which the Certification is requested.

NOTE: More than one version of the written certification examination will be developed and rotated from examinee to examinee. All Mining and Tunneling Unit personnel are responsible for ensuring the physical security of copies of the Gas Tester's Certification Examination.

- b. The examination shall be administered by a SSEMT, or by an Associate Safety Engineer in the Mining and Tunneling Unit who has been expressly designated by the Principal Engineer to administer the examination.

NOTE: No examiner shall administer the certification examination in a manner contrary to P&P A-3, pertaining to activities incompatible with State service.

- c. The examination shall only be given at a Mining and Tunneling Unit Office. In order to give the examination at another location, approval shall be obtained, through the Principal Engineer, from the Deputy Chief for Field Operations.
  - d. Prior to the examination, arrangements shall be made with the applicant to bring the gas testing instrument(s) they are currently using to the examination, including any instrument operations, maintenance, and service manuals, and any written programs, such as air testing procedures, calibration logs, and gas testing or ventilation report log forms.
  - e. Each applicant's identity shall be determined by the examiner by means of a photographic I.D., such as a valid Driver's License, prior to beginning the examination.
2. Written Examination Component

When administering the written examination, the examiner shall:

- a. Ensure that the written examination component is administered in a quiet and secure area to ensure that the integrity of the examination process is not compromised.
- b. Assemble the appropriate sections of the written examination component and instruct the applicant to write his or her name on the first page of each examination section.

- c. Give appropriate instructions to the applicant for completing the examination and instruct the applicant that calculators, reference books, or other instructional aids are not allowed in the examination area.
- d. Allow the applicant enough time to complete the examination, but in no case, more than three hours.
- e. Correct the examination by use of an examination key developed for the administered examination.
- f. Indicate on the front page of the examination the percentage (from 0 to 100%) of the questions successfully answered by the applicant. An overall score of at least 70% is required to pass the written component of the examination. If a score of at least 70% is not achieved, the applicant has failed the examination. Applicants who fail the written component of the examination shall not be allowed to take the oral and practicum components of the certification examination.

NOTE: See CERTIFICATION ISSUANCE AND DOCUMENTATION for further guidance on applicants who fail the written component.

### 3. Oral Examination Component

Applicants who achieved at least an overall score of 70% on the written examination are permitted to take the oral examination.

The examiner shall upon successful completion of the written examination:

- a. Discuss with applicant the questions which the applicant answered incorrectly. Listen carefully to the applicant's rationale for answering the question as the applicant did, and pursue other relative lines of questioning to determine the applicant's understanding of the equipment, techniques, purpose and procedures, and how their explanation relates to testing underground environments for hazardous and explosive gases.
- b. Discuss with the applicant the questions which the applicant answered correctly to determine the scope of the applicant's knowledge. Pursue and discuss other relative lines of questioning relative to each examination question.
- c. Continue the oral examination by asking questions which are relevant based on a review of the instrument(s) and written

- materials brought to the examination site by the applicant. Use oral examination guidelines developed for this purpose. Ask the applicant to respond to hypothetical situations or simulated instrument readings based on the subject areas appropriate for the industry and scope of the Gas Tester's Certificate being sought.
- d. Determine a "Pass" or "Fail" grade for the oral examination and thoroughly document the reasoning for the grade.

NOTE: See CERTIFICATION ISSUANCE AND DOCUMENTATION for further guidance on applicants who fail the oral component.

#### 4. Practicum Examination Component

In order to pass the practicum examination component of the Gas Tester's Certification Examination, the applicant is required to satisfactorily:

- a. Provide the examiner general information, precautions for the type of gas testing instrument(s) brought to the practicum examination, and relevant details about the particular unit;
- b. Activate the instrument and provide ambient calibration. Calibration adjustments should be altered by the examiner and correctly reset by the applicant;
- c. Calibrate the instrument using a gas of a known concentration (fraction) in accordance with the manufacturer's recommendations, perform a change in the alarm settings, conduct a span calibration, explain the alarm settings, i.e., high and low level alarms and battery failure, perform the removal and replacement of sensors, batteries, and other wear components.

Failure of the applicant to satisfactorily perform any of the aforementioned elements of the practicum component shall constitute failure by the applicant of the certification examination irrespective of the applicant's score on the written and oral components.

NOTE: See CERTIFICATE ISSUANCE AND DOCUMENTATION for further guidance on applicants who fail the practicum component.

CERTIFICATE ISSUANCE AND DOCUMENTATION:

## 1. For Applicants Who Pass the Certification Examination

The examiner shall:

- a. Complete the Gas Tester's Evaluation Sheet, including the examiner's name and date. (See Attachment B)
  - b. Indicate the "Type of Certificate" on the application based on the written and oral examination results.
  - c. Give the Applicant the original (white) receipt copy of the examination fee received. Fill out the Applicant's name as it will appear on the Certification, determine the correct mailing address, and list the appropriate wording for the Gas Tester's Certification. Indicate that the receipt will act as their Temporary Certification, and the permanent Certification should be received in approximately 30 days, pending review of the examination results by the Principal Engineer.
  - d. Where an employer or other person issues a check or money order to pay for the examination fee of more than one applicant, each applicant shall receive an individual receipt to act as a "Temporary Certificate."
  - e. Forward the following documents to the Principal Engineer through the SSEMT:
    1. All parts of the examination including those portions failed.
    2. Fee paid and the yellow and blue copies of the receipt.
    3. Application, Evaluation Sheet, surrendered license, and any additional documentation or information.
  - f. Each Gas Tester's Certification issued by the Division of Occupational Safety and Health shall be valid for a period of five years. After five years, the Gas Tester Certification Holder must reapply for Certification and pass both the written and oral components of the Certification Examination.
- ## 2. For Applicants Who Fail the Certification Examination

If an applicant fails the Certification Examination, the examiner shall indicate his or her name, address, and "Gas Tester's Examination -- Failed" on the receipt. Explain to the applicant that the applicant must wait a minimum of three months before they can retake the Certification Examination. If the applicant retakes the Certification Examination within six months from the date of the failed examination, the examination fee will be waived.

## 3. Renewal and Upgrading Certification

Application and examination for a renewal or upgraded Certification shall be administered in the same manner as the original Certification.

**OFFICE PROCEDURES:**

The office procedures in P&P C-44, under "Clerical Procedures for Issuance of Blaster's License," shall be followed.

**Attachments:**

A -- [Cal/OSHA 44C-1 - Gas Tester Application Form](#)

B -- [Cal/OSHA 44C-2 - Evaluation Form \(Gas Tester\)](#)