

Gas Leak Grades



Equipment	<ul style="list-style-type: none"> ■ Heath Detecto-Pak III or IV (For the purpose of using the gas concentration charge on Page 2, Heath Detecto-Pak IV can be considered the same as Heath DetectoPak III) ■ Century OVA – 88.
References	<ul style="list-style-type: none"> ■ UO Standard S4110 ■ Leak Survey Training Manual
Precautions	<ul style="list-style-type: none"> ■ Code of Safe Practices – Section #1300

Grade 1 Leak

A leak that represents an existing or probable hazard to persons or property, requiring immediate repair or continuous action until conditions are no longer hazardous.

Criteria

- Any reading of 80% LEL (4.0% gas in air, 40,000 ppm) or greater on subsurface gas facilities where the gas would likely migrate to within 5 feet of the outside wall of a building. This would include leaks where no condition(s) exist, between the leak location and within 5 feet of the outside wall of the building, that would allow the leak to naturally vent.
- Any gas reading of 40% LEL (2% gas in air, 20,000 PPM) or greater in a tunnel. (See definition of tunnel on the other side of this page.)
- Any gas reading on subsurface gas facilities in, at, or under a building, tunnel, curb or meter box, including but not limited to:
 - At the building wall in a paved wall to wall area.
 - within 5 feet of the building wall in a non-paved area.
- Escaping gas that has ignited.
- Gas which can be **seen, heard, or felt** on both above grade and subsurface gas facilities where the presence of gas endangers the general public or property.
- A gas leak which falls outside of the above criteria in the judgment of either:
 - The leak surveyor and/or a leak survey supervisor, or
 - The leak repair employee and/or a leak repair supervisor.

Public Safety Steps To Consider

- Notify supervisor and request a repair crew.
- Standby to ensure and maintain public safety.
- Remove sources of ignition, if applicable.
- Contact 911 if fire is present with the gas leak.
- Evacuate if appropriate.
- Stop flow of traffic if appropriate.
- Coordinate with on-scene emergency personnel (e.g., police, fire and/or public service personnel).
- Stay on standby until relieved by repair crew and/or released by the supervisor.

Priority Grade 2 (Grade 2+) Leak

Any leak that falls below the Grade 1 leak criteria and above the Grade 2 leak criteria: A leak that is not hazardous to person or property, but requires a priority, scheduled repair based on a probable future hazard or requirements to meet the construction schedule of others, e.g., otherwise Grade 2 leaks within the scope of paving projects. This leak is to be repaired within 90 calendar days.

Criteria

- Any reading of 80% LEL (4% gas in air, 40,000 ppm) that is not blowing in a wall to wall paved area.

Grade 2 Leak

A leak that is not hazardous to life or property, at the time of detection but requires scheduled repair based on probable future hazard. This leak is to be repaired within 18 months.

Criteria

- Any reading of 80% LEL (4% gas in air, 40,000 PPM) or greater in a Class 3 or 4 location that is in a well ventilated area, such as a pipeline right-of-way, station yard, or a non-wall-to-wall paved area, which does not otherwise qualify as a Grade 1 or 2+ leak.
- Any gas reading less than 40% LEL (2% gas in air, 20,000 PPM) in a tunnel.
- Any reading of 40% LEL (2% gas in air, 20,000 PPM) or greater in a wall-to-wall paved area which does not otherwise qualify as a Grade 1 or 2+ Leak.
- Any reading between 40% LEL (2% gas in air, 20,000 PPM) and 80% LEL (4% gas in air, 40,000 PPM) in a substructure where gas would likely migrate creating a probable future hazard, or in a confined space
- A gas leak which falls outside of the above criterion and is a Grade 2+ leak in the judgment of:
 - The leak surveyor and/or a leak survey supervisor, or
 - The leak repair employee and/or leak repair supervisor.

Grade 3 Leak

All other leaks which are non-hazardous and can reasonably be expected to remain non-hazardous. This leak is to be checked no later than the next scheduled survey.

Criteria

- Any reading of less than 80% LEL (4% gas in air, 40,000 PPM) in a Class 3 or 4 location that is in a well ventilated area, such as a pipeline right-of-way, station yard, or a non-wall-to-wall paved area, which does not otherwise qualify as Grade 1, priority 2, or 2 leak.
- Any reading of less than 40% LEL (2% gas in air, 20,000 PPM) in a wall-to-wall paved area which does not otherwise qualify as a Grade 1, priority 2, or 2 leak.
- All other leaks which are non-hazardous and can reasonably be expected to remain nonhazardous, and were not previously downgraded to a Grade 3.
- A leak is only allowed to be downgraded to a Grade 3 once. If it is subsequently upgraded, to a 2, 2+ or 1, it cannot be downgraded again.

- Any reading of 40% LEL (2% gas in air, 20,000 PPM) to 80% LEL (4% gas in air, 40,000 ppm) in a substructure with a source of ignition present.
- Any previous Grade 1 leak, based on leak readings and location, where the immediate hazard has been eliminated through any crew action (for example, ventilating the leak) other than a leak repair, but requires priority repair.
- Any Grade 2 leak that requires priority, scheduled repair, based on a probable future hazard or requirements to meet the construction schedule of others, e.g., otherwise Grade 2 leaks within the scope of construction projects
- A gas leak which falls outside of the above criterion and is a Grade 2+ leak in the judgment of:
 - The leak surveyor and/or a leak survey supervisor, or
 - The leak repair employee and/or leak repair supervisor

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Gas Leak Definitions



Pacific Gas and Electric Company

Subsurface: All PG&E gas distribution facilities, except meter sets.

Tunnel: A subsurface passageway in which a person could enter and gas could accumulate. For purposes of this standard, "tunnel" also includes large sewers, storm drains, pipelines, conduits, etc.

Code of Federal Regulations (CFR) Part 192.5 (b)

A **Class 3 location** is: (i) Any class location unit that has 46 or more buildings intended for human occupancy; or (ii) An area where the pipeline lies within 100 yards of either a building or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period. (The days and weeks need not be consecutive.)

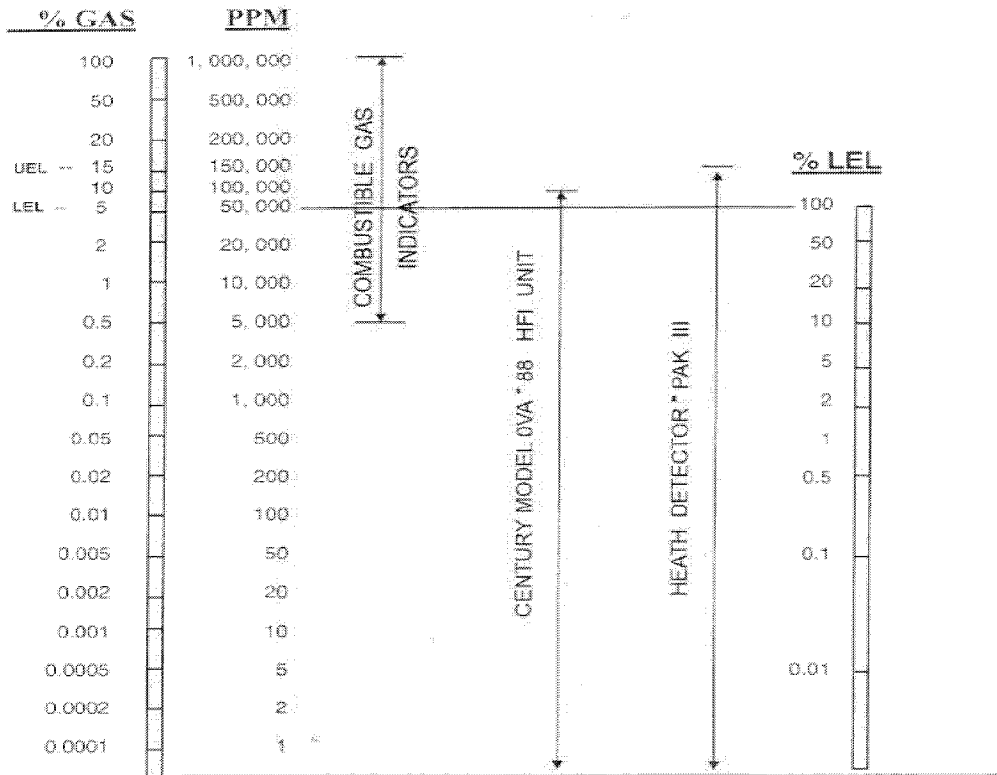
A **Class 4 location** is any class location unit where buildings with four or more stories above ground are prevalent.

Conversion Chart - % Gas - PPM - % LEL.

Ranges of Gas Leak Detectors

Introduction

The following table can be used to convert from one unit of measure from the others, and also to determine which detectors are capable of measuring a particular mixture.



Note: The upper ranges on the Century and Heath HFIs, indicate when the devices will "flame out" and not provide a numeric value. A "flame out" occurs when the capability of the instruments to measure gas concentration has been exceeded.

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