Bath Township Fire Department			Standard Operating Guideline	
Section Equipment	**Referral No.** E-12	**Subject:** Four-Gas Analyzer Operation	**Date Issued** 11/02	**Date Revised** 3/08

Purpose:

- To provide guidelines for use of the Gas Analyzer

Scope:

- This standard operating guideline shall apply to all personnel.

Responsibilities:

- Officer
  - All officers will ensure that any personnel operating the gas analyzer are properly trained and operate in a safe manner.
- Personnel
  - All personnel have the responsibility of wearing proper safety equipment and operating the gas analyzer in a safe manner.

General:

- The Multi Gas Detector is a commercially produced device used to detect the presence of specific gases in the atmosphere.
- The four-gas analyzer senses the following gasses:
  - Oxygen (O2)
  - Carbon Monoxide (CO)
  - Lower Explosive Limit (LEL)
  - Hydrogen Sulfide (H2S)
- Operations included would be: Confined space, fire salvage and overhaul, reported gas odors or leaks, haz-mat leaks, or any other situation where the atmosphere content is unknown.
- Carbon monoxide (CO) is a colorless, odorless and tasteless gas
- CO is a byproduct of combustion and portable heaters, hot water heaters, and furnaces are common sources
- CO can produce symptoms of headache, dizziness, weakness, confusion, nausea, fatigue and unconsciousness

Personnel Considerations:

- Personnel should consider any unknown gas or fluid to contain toxic or flammable vapors until such material is deemed safe through positive identification.
- After a structure fire has been extinguished and overhaul procedures are in progress the atmosphere should be monitored for toxic gases anytime the work is being performed without SCBA.
- Do not give an "ALL CLEAR" to discontinue use of SCBA or any other protective gear until it has been determined that all levels of toxic and explosive gases are at safe levels.

Operational Considerations:

- TWA – Time Weighted Average recorded over of 1 hour to 40 hours time period
  - Center for Disease Control values as follows;
    - Carbon Monoxide (CO) = 35 ppm
    - Hydrogen Sulfide (H2S) = 10 ppm
- STEL – Short Term Exposure Limit recorded over a 15 minute period
  - Center for Disease Control values as follows;
    - Carbon Monoxide (CO) = 200 ppm
    - Hydrogen Sulfide (H2S) = 15 ppm
- Low Alarm Values will alert user by (audible, light, and vibration)
  - Carbon Monoxide (CO) = 35 ppm
  - Hydrogen Sulfide (H2S) = 10 ppm
  - Oxygen (O2) = 19.5%
- High Alarm Values will alert user by (audible, light, and vibration)
  - Carbon Monoxide (CO) = 70 ppm
  - Hydrogen Sulfide (H2S) = 20 ppm
  - Oxygen (O2) = 23.5%
- While operating in an environment that is outside of our Safe working levels All personnel will be required to wear the appropriate PPE and ensure that civilians are being evacuated from the "HOT" zone.
- Any level of LEL (Lower Explosive Limit) will be identified as a potientially dangerous level and all precautions will be taken to ensure life safety to responders and civilians are being considered and local gas company will be notified by dispatch.
- **Please refer to S.O.G. O-08 CARBON MONOXIDE INCIDENTS for further information.**