US Army Public Health Command (USAPHC)

Ambient Air Monitoring Stations

Information Guide

Deployment Environmental Surveillance Program (DESP)

Air Quality Surveillance Program (AQSP)

Air Monitoring Stations

The Mobile Ambient Air Monitoring Station (MAAMS) is a self-contained, environmentally controlled shelter housing a suite of instruments which continuously monitor ambient air for specific U.S. Environmental Protection Agency (USEPA) criteria pollutants. These monitoring stations are mobile in the sense that they can deployed to a wide range of areas, but are designed to collect long term data at a fixed position once they are sited. Although the monitoring efforts generally target criteria pollutants, non-criteria gases can be included if acceptable technology exists. Special siting requirements such as access to electricity, internet, and a secure location, should be considered when deploying these stations.

Station description:

- 16’ x 8’ x 8’ trailer*
- Climate Controlled
- Approximately 6,000 lbs with equipment
- Requires 240 VAC power supply
- Universal Power Supply (UPS) and battery back-up system
- Requires internet feed to view data real-time
- Standard 19” monitoring equipment racks

Gases Monitored:

- Ammonia, NH_3
- Carbon Monoxide, CO
- Methane, CH_4
- Nitrogen Oxides, NO_x
- Ozone, O_3
- Particulate Matter < 10 µm, PM_{10}
- Sulfur Dioxide, SO_2

Meteorological Parameters Monitored:

- Barometric Pressure
- Precipitation
- Relative Humidity
- Temperature
- Wind Speed/Direction

* Depending on the location, moving the monitoring station may require access to equipment to lift and transport the station to the monitoring site.

Mobile Environmental Surveillance Monitoring Station (MESMS)

This monitoring vehicle is designed to be driven to monitoring locations within safe sites. The vehicle is highly mobile and is designed to collect short-term or temporary data in areas where elevated gas concentrations are one time events or intermittent. Although the monitoring efforts generally target criteria pollutants, non-criteria gases can be included if acceptable technology exists. Special siting requirements such as access to electricity, internet, and a secure location, should be considered when deploying these stations.

Description:

- 28.4’ x 8.5’ x 12.8’ vehicle
- Mobile/4 Wheel Drive
- Climate Controlled
- Approximately 33,000 lbs with equipment installed
- Can be operated from 240 VAC power source or on board generator
- Universal Power Supply (UPS) and battery back-up system conditions power and offers limited power during power outage
- Can transmit real-time data via satellite or ethernet connection
- Standard 19” internal racks hold most monitoring equipment

Gases Monitored:

- Ammonia, NH_3
- Carbon Monoxide, CO
- Methane, CH_4
- Nitrogen Oxides, NO_x
- Ozone, O_3
- Particulate Matter < 10 µm, PM_{10}
- Sulfur Dioxide, SO_2

Meteorological Parameters Monitored:

- Barometric Pressure
- Precipitation
- Relative Humidity
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- Wind Speed/Direction

Before Requesting a Monitoring Station

Is there a specific concern about emissions or air quality in the area? Generally, the stations are equipped to monitor select criteria pollutants mostly associated with urban areas where major contributors such as industry, energy production, and vehicle emissions are more prevalent. Nevertheless, monitoring other aerosols can be considered if acceptable technology exists. For example, we currently monitor ammonia (NH_3) and hydrogen sulfide (H_2S) in areas where those gases are of concern.

Siting requirements. There are guidelines when placing monitoring stations near obstructions such as trees or buildings which can affect aerosol concentrations and wind patterns. Stations should be located in open, secure areas. For continuous monitoring, stations require electricity and, ideally, an internet connection for viewing real-time data. The monitoring stations are designed as a fixed monitoring point and are not suited for identifying spatial variations in aerosol concentrations.

Personnel. Monitoring stations equipped with a full suite of equipment could require up to 1000 man hours per year to fully operate (equipment operation and maintenance, performance checks, building operation and maintenance, data management, etc.). Stations can be operated by military personnel or contractors, and will require initial training with periodic refreshers or updates.

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