

Soil, Sediment, Bedrock and Sludge

Open Burn/Open Detonation

Introduction:

Detonatable explosives and munitions are destroyed by means of detonation, which is normally initiated by the detonation of an energetic charge.

Description:

Open burn and open detonation operations are performed to destroy excess or obsolete munitions and energetic materials. Energetics or munitions are destroyed by self-sustained combustion, which is ignited by a flame, or excessive heat. A supplementary fuel may be used to instigate and maintain the combustion of materials.

Historically, the process has taken place on the surface of the land or in pits. In recent times, burn trays and blast boxes are used to endeavour to control and contain the destruction and resulting contaminants/emissions. Such operations can destroy numerous types of explosives, pyrotechnics, and propellants. Detonation areas should be capable of withstanding accidental detonation of any or all energetics being destroyed. Open burn and open detonation can be set off by electric, burning, or energetic charge ignition systems. However, electric procedures are preferred as they offer better control over the timing of the initiation. In an electric system, electric current heats a bridge wire, which ignites a primary explosive or pyrotechnic, which then ignites or detonates the material to be burned or detonated.

Applicability:

These technologies can eliminate excess, obsolete, or unserviceable munitions as well as material contaminated with energetics.

Limitations:

- Minimum distance requirements for safety purposes mean substantial space is required for open processes.
- OB/OD operations emissions are difficult to sufficiently capture for treatment and may not be permitted in areas with emissions limitations, although subsurface processes minimise emission release.
- Emissions requirements for the geographic area of operation are needed.

Cost:

Not currently known.