

Model Hazardous Materials Emergency Response Procedures

Florida State Working Group HazMat Operations

Rev. March 22, 2019.

Field Analysis of Unidentified Potentially Hazardous Materials

Procedure: Field Analysis of Unidentified Potentially Hazardous Materials

Purpose:

A systematic process must be used for material analysis during incidents involving unidentified and potentially hazardous materials. The purpose of this policy is to establish the procedures that shall be used for the general analysis of identified materials regardless of the source or threat.

This policy does not address the specific procedures to be used for a particular analysis method. Individual operational manuals or guidelines shall address those procedures.

Applicability:

It is the responsibility of the Hazardous Materials Branch Officer or Incident Commander when applicable to ensure that this policy is fully implemented at emergencies involving potentially hazardous materials that must be identified. It is the responsibility of all hazardous materials operations level personnel to be able to carry out the procedures outlined in this policy. Some advanced procedures may require hazardous materials technicians (e.g., IR Spectrometry, MS/GC)

Minimum Analysis Procedures:

At a minimum, all unidentified potentially hazardous materials shall be assessed for the following characteristics and all hazardous materials operations level personnel shall be capable of performing these procedures.

- **Radioactivity:** With radiation survey meter, determine if the material presents ionizing radiation greater than identified background levels.
- **Corrosives:** At the same time, assess the material for corrosive vapors by using a pH strip moistened with distilled water. Then touch any the product with the pH paper to determine if the material has corrosive characteristics.
- **Oxygen Concentration and Flammability:** If the material is a gas, liquid or potentially sublimating solid, then oxygen concentration should be checked in low-lying or enclosed areas and the ability to detect combustible/flammable vapors should be assessed.
- **PID/FID:** If the material is a gas, liquid or potentially sublimating solid then a total vapor analysis shall be performed using Photo-ionization Detector (PID) or combination Photo-ionization Detector/ Flame Ionization Detector (PID/FID). This will aid in identifying organic or inorganic nature of the material as well as provide quantitative analysis of concentration once the true identity of the materials is determined.

The decision flow chart found within this Standard Operating Procedure can be used as a standardized guide to the analysis process. The flow chart, combined with visible on-scene observations and other incident factors, shall be used as a guide in determining the necessary level of analysis beyond those minimum procedures identified above.

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Field Analysis of Unidentified Potentially Hazardous Materials- continued:

Additional Analysis Procedures:

Depending upon potential risks or need to determine the material's actual identity, Selection of additional field analysis measures may include, but is not limited to, the following:

For vapors, gases and high vapor pressure liquids:

- Gas Infrared Spectrometry (e.g. Thermo Miran-Sapphire®, GasID).
- Colorimetric detector tubes using qualitative analysis procedures (e.g. Drager).
- Chemical warfare agent or pepper spray detection (e.g. APD2000, HazMat CAD, and Griffin).
- Consider obtaining 10mL liquid sample or 20-liter gas sample in a clean, un-used container for lab or support zone analysis.

For solids and low vapor pressure liquids:

- Chemical warfare agent detector paper (e.g. M8 or M9 paper).
- Chemical warfare agent wet chemistry detection kit (e.g. M256A1 Kit).
- Consider field biological agent immunoassay for substances with significant creditability or risk.
- Solid or liquid Infrared Spectrometry (e.g. HazMat Elite, Gemini). Wet chemistry qualitative analysis (e.g. Haz-Cat Kits).
- Consider obtaining 10mL liquid or solid sample in a clean, unused sample container for lab or support zone analysis.

Documentation of Analysis

The attached "Detection and Analysis Worksheet" may be used to develop and document the air monitoring strategy. In addition, the "Findings" section of the form may be adapted and utilized to document field screen activities. If this form is used during an incident, it shall become a part of the permanent and final incident report.

At a minimum, all analysis procedures used, and results shall be documented in the "Hazard/Risk Assessment" narrative of the hazardous materials incident report.

If the analysis is conducted in conjunction with a law enforcement investigation (e.g. suspicious powder incident or other criminal investigation) then all appropriate chain of custody, sample submission forms and sample container labels will be completed as per appropriate SOP or Directives. If available, they may also be included in any incident reporting.

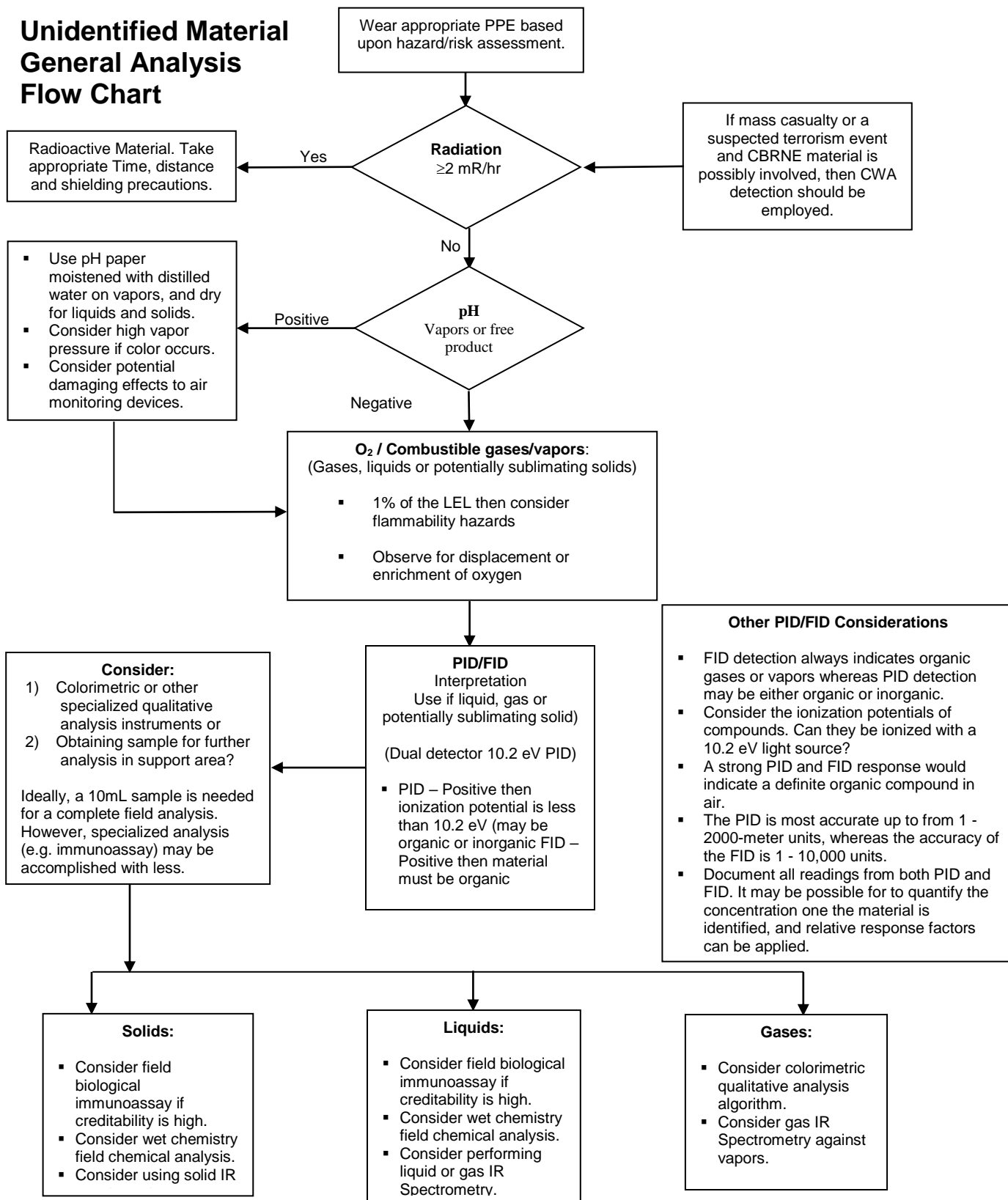
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**Unidentified Material
General Analysis
Flow Chart**



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Detection and Analysis Worksheet

INCIDENT # _____ DATE: ____/____/____ TIME: _____

ANTICIPATED HAZARDS

Flammability Oxygen Deficient Oxygen Enriched
Corrosive Radiation Toxic

INSTRUMENT	FREQUENCY	ACTION LEVEL	ACTION	REL. RESP	ACCESSORIES
Radioactivity					
Corrosivity					
Oxygen Concentration					
Flammability					
Other					
Other					
Other					
Other					

FINDINGS

TIME	LOCATION/METHOD	REMARKS	FINDINGS