

## Metal Detector Use in Crime Scene Investigations

The goal of this questionnaire is to gather information on the applications metal detectors for law enforcement investigations at known or suspected crime scene(s). This questionnaire will ask about: your use of metal detectors, the concealed targets of interest, and the composition of material concealing suspected targets. **Exclude your experience using walk-through metal detectors and metal detector searches for unexploded ordinance (UXO) while answering these questions.**

Providing your identity, organizational affiliation, and contact information are **optional**. The results of this questionnaire may be used to understand the application of metal detectors at crime scenes. If results from this questionnaire are published in scientific and/or law enforcement publications, identities, organization(s), and contact information will be **anonymized**. **The survey should take about 10-15 min to complete.**

### **Consent**

If you consent to completing this survey, then you agree to allow the FBI Laboratory to collect and use your responses within this questionnaire. **\*Required\***

I consent & continue

May we contact you if we have follow-up questions about this questionnaire? **(Optional)**

Yes                       No

(If yes)

Name: \_\_\_\_\_

Preferred title: \_\_\_\_\_

Organization/Company/Affiliation: \_\_\_\_\_

Phone number: \_\_\_\_\_

Email address: \_\_\_\_\_

Do you wish to receive a notification of the results of this questionnaire after publication? If so, check this box and provide the information above.

### **General Background Information**

1) Are you answering as an individual or for an organization as a whole? **\*Required\***

Individual

Organization

2) If answering as an individual, how many years of experience in law enforcement do you have?  
\_\_\_\_\_ years

3) What is the name of your law enforcement organization? Note: This question is to account for multiple participants from the same law enforcement organization. **(Optional)**

4) Which law enforcement identifier best describes you or your current organization? **\*Required\***

Federal Law enforcement

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- State Law enforcement
- Tribal Law Enforcement
- County Law enforcement
- Municipal
- Other: \_\_\_\_\_

### Questions for Metal Detector use in crime scene investigation

5) Which metal detector manufacturer(s) did you or your organization deploy? Select all that apply.

- Garret  JW Fisher  Minelab  Fisher  Nokta  Unknown  Other: \_\_\_\_\_

6) What models of metal detecting equipment have you or your organization used? For example, Garrett **CSI 250** or Minelab **Equinox 800**. If model name is unknown, leave blank. \_\_\_\_\_

7) In the **past 10 years**, estimate how many times have you or your organization deployed a metal detector for crime scene investigations?

Search for a suspected target: \_\_\_\_\_

Confirm that a target is absent/undetectable: \_\_\_\_\_

8) In the **past year (12 months)**, estimate how many times have you or your organization used a metal detector for crime scene investigations?

Search for a suspected target: \_\_\_\_\_

Confirm that a target is absent/undetectable: \_\_\_\_\_

9) Select all the suspected targets which you were attempting to detect with a metal detector. If other, specify below.

- Firearms (including associated parts)
- Cartridge casings
- Bullets
- Weapons, excluding firearms (axe, hammer, knife, shovel)
- Metallic barrels
- Vehicle and/or associated parts
- Jewelry (rings, watches, etc.)
- If other, specify: \_\_\_\_\_

10) Among all the metal detecting surveys, approximately what percent of surveys were conducted in the following environments? If not applicable, leave blank. If other, list in box below:

Asphalt: \_\_\_\_\_

Concrete: \_\_\_\_\_

Brick: \_\_\_\_\_

Drywall: \_\_\_\_\_

Sand/Beach Sand: \_\_\_\_\_

Topsoil (above 6 inches): \_\_\_\_\_

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Soil below 6 inches: \_\_\_\_\_  
Rocks (pebbles, cobbles, boulders): \_\_\_\_\_  
Volcanic rocks/sediment: \_\_\_\_\_  
Tall/short grass: \_\_\_\_\_  
Short vegetation (shrubs, bush, etc.): \_\_\_\_\_  
Tree debris (wood, sticks, leaf litter, roots): \_\_\_\_\_  
Fresh water: \_\_\_\_\_  
Salt water: \_\_\_\_\_  
Ice and/or snow: \_\_\_\_\_  
Other: \_\_\_\_\_ times detecting through \_\_\_\_\_

11) For the metal detecting surveys conducted, how effective were metal detectors at detecting the following targets? Select all that apply.

- Firearms (including associated parts)**  Very effective  Mostly effective  Somewhat effective  Ineffective
- Cartridge casing(s)**  Very effective  Mostly effective  Somewhat effective  Ineffective
- Bullets**  Very effective  Mostly effective  Somewhat effective  Ineffective
- Weapons, excluding firearms (axe, hammer, knife, shovel)**  Very effective  Mostly effective  Somewhat effective  Ineffective
- Metallic barrel(s)**  Very effective  Mostly effective  Somewhat effective  Ineffective
- Vehicle and/or associated parts**  Very effective  Mostly effective  Somewhat effective  Ineffective
- Jewelry (rings, watches, etc.)**  Very effective  Mostly effective  Somewhat effective  Very ineffective
- Other:** \_\_\_\_\_  Very effective  Mostly effective  Somewhat effective  Ineffective

12) Provide details on the locations and/or environment where metal detectors were **effective** in detecting suspected targets? (ex. a buried gun in a **sandy beach**) \_\_\_\_\_

13) Provide details on the locations and/or environment where metal detectors were **not effective** in detecting suspected targets? (ex. bullet in a **pit filled with scrap metal**) \_\_\_\_\_

14) For those metal detecting surveys conducted, what were the presumed reasons a metal detector was unable to detect suspected targets? Select that apply.

- Target was not present
- Surface interference (response too "noisy" due to scattering metallics, metallic fence nearby, trash, etc.)
- Subsurface (buried) interference (surrounding soil/material too "noisy", buried trash, metallic pipes, etc.)
- Target too small to detect
- Target too deep to detect
- Equipment failure
- Incorrect metal detector setting for environment -sensitivity set too High
- Incorrect metal detector setting for environment -sensitivity set too Low
- Other: \_\_\_\_\_

## Metal Detector Use in Crime Scene Investigations

15) What is the maximum depth at which you or your organization have detected the following targets with a metal detector? And what materials were concealing the targets (ex. soil, concrete, sand, grass, fresh/saltwater)? Answer only for those targets excavated after detection. Include the appropriate units for depths. Leave blank if not applicable.

**Firearms (including associated parts):**

Concealment materials \_\_\_\_\_

Max depth: \_\_\_\_\_  centimeters  inches  feet

**Cartridge casing(s):**

Concealment materials \_\_\_\_\_

Max depth: \_\_\_\_\_  centimeters  inches  feet

**Bullets:**

Concealment materials \_\_\_\_\_

Max depth: \_\_\_\_\_  centimeters  inches  feet

**Weapons, excluding firearms (axe, hammer, knife, shovel):**

Concealment materials \_\_\_\_\_

Max depth: \_\_\_\_\_  centimeters  inches  feet

**Metallic barrel(s):**

Concealment material \_\_\_\_\_

Max depth: \_\_\_\_\_  centimeters  inches  feet

**Vehicle and/or associated parts:**

Concealment material \_\_\_\_\_

Max depth: \_\_\_\_\_  centimeters  inches  feet

**Jewelry (rings, watches, etc.):**

Concealment material \_\_\_\_\_

Max depth: \_\_\_\_\_  centimeters  inches  feet

16) Have you or your organization applied advanced detection methods for a criminal investigation?

Check all that apply. Skip question if not applicable.

- Electromagnetic (EM) Induction - Conductivity meter (e.g., EM38 or EM31)
- Ground Penetrating Radar (e.g., 250 MHz or 1000 MHz GPR)
- Magnetometer (e.g., Fluxgate magnetic gradiometer)
- Electrical Resistivity (e.g., Resistivity Meter)
- Other: \_\_\_\_\_

17) If you have any other additional comments on your experience with metal detectors in crime scene investigations, please describe in the box below: (optional)

If you have any questions regarding the questionnaire, please contact [geophysics@fbi.gov].