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

1. If answering as an individual, how many years of experience in law enforcement do you have? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ years
2. 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)***
3. Which law enforcement identifier best describes you or your current organization? \***Required\***

Federal Law enforcement

State Law enforcement

Tribal Law Enforcement

County Law enforcement

Municipal

Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

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

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

1. 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*. \_\_\_\_\_\_\_\_\_\_\_\_*

1. 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: \_\_\_\_\_\_\_\_\_\_\_

1. 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: \_\_\_\_\_\_\_\_\_\_\_

1. 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: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. 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): \_\_\_

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 \_\_\_\_\_\_\_\_\_\_\_

1. 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

1. 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**) \_\_\_\_\_\_\_\_\_\_\_
2. 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**) \_\_\_\_\_\_
3. 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: \_\_\_\_\_\_\_\_

1. 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

1. 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: \_\_\_\_\_\_\_\_\_\_\_\_

1. 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].