National Forensic Science Technology Center

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The 8th Harsh-Environment Mass Spectrometry Workshop

Traditional Tools in Non-Traditional Environments: Forensic Science in the Field

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National Forensic Science Technology Center
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Goals for the Presentation

- Discuss NFSTC
- Discuss the GAP in field provided analytical information
- Describe the current platform and equipment used for deployable forensic analysis
- Outline the training used for trace chemistry analysis
- Discuss the FIDO program for Law Enforcement

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Mission-driven

VISION:

- The forensic science community and its users to have complete confidence in the quality of the science provided to the justice community as it strives to ensure the public safety.

MISSION:

- We are dedicated to supporting the justice community in ensuring the public safety by assisting the forensic sciences in the achievement of the highest level of quality services.

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Uniquely Qualified Team

Kevin Lothridge
Chief Executive Officer

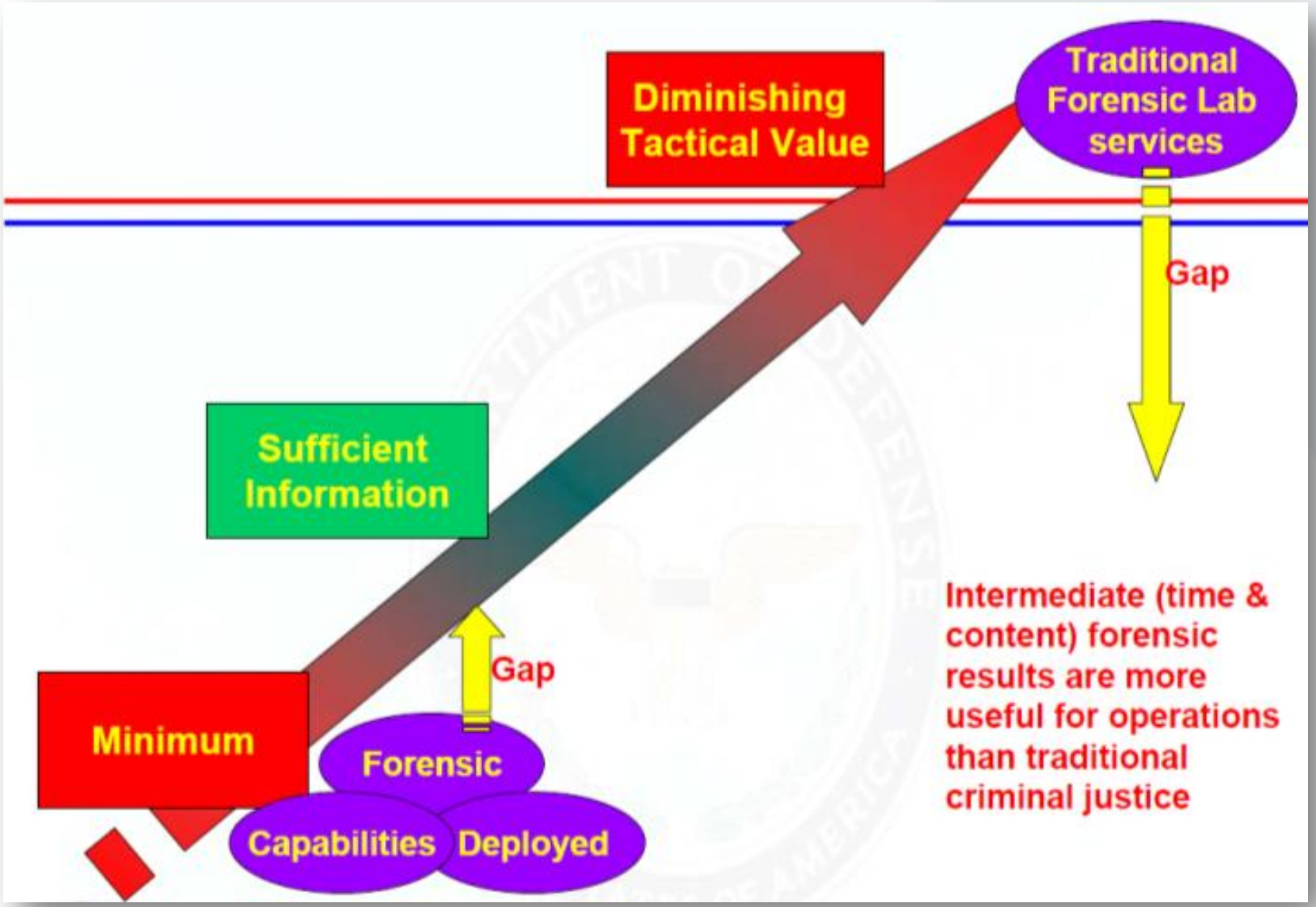
David Epstein
Chief Operating Officer

Dave Sylvester
Chief Projects Officer

- 60 full time staff and more than 180 contractors throughout the country

- 125+ years of forensic testing experience and laboratory management experience

Forensic Services Gap



Expandable, Customizable

Multiple Discipline Options

Reachback Capabilities

Technology Support: Mobile Forensic Laboratories

- Intelligence gathering
- Case backlog
- Emergency Support
- Temporary Facilities

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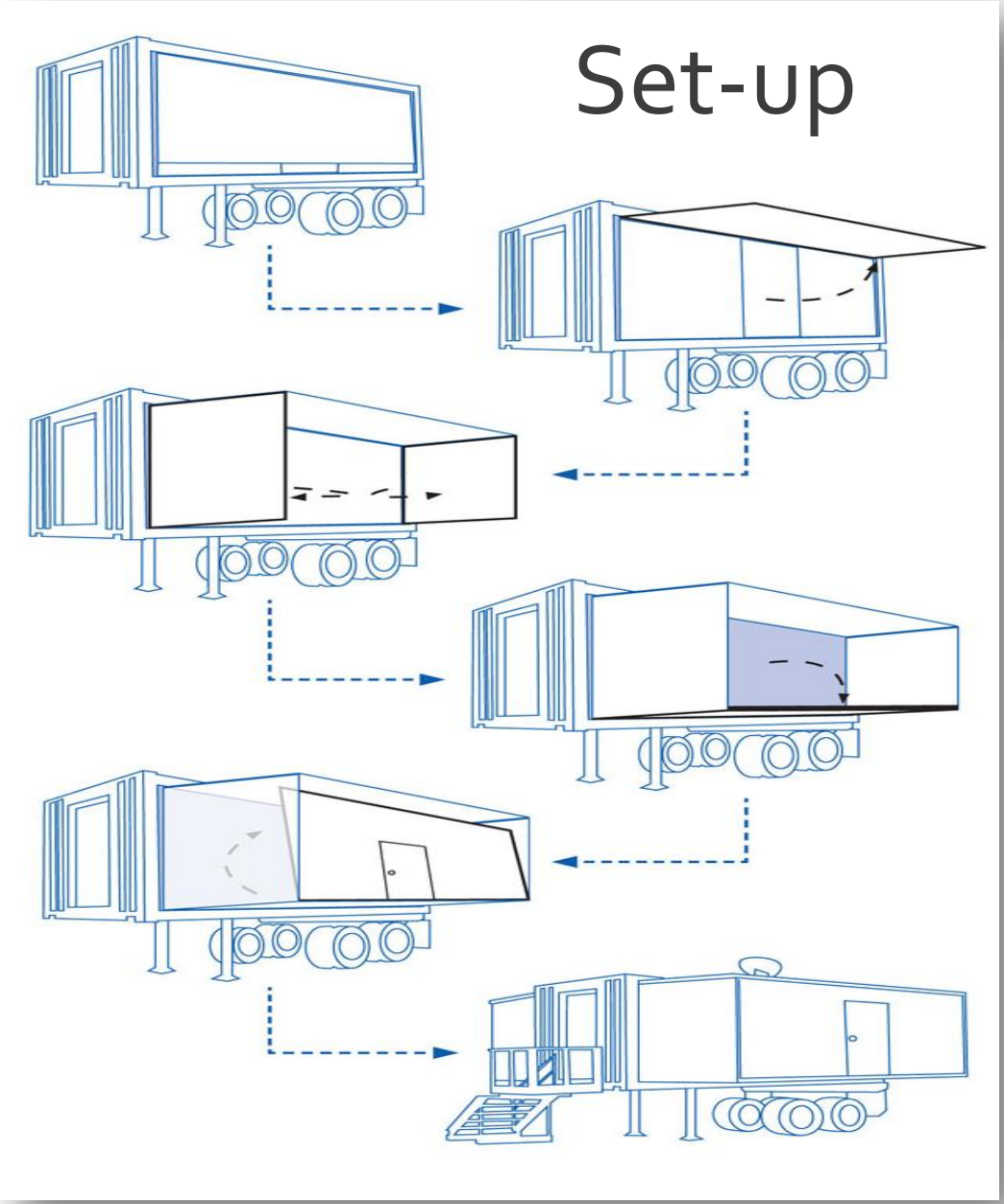

Image Source: NIJ Journal 264, Nov 2009;
From Battlefield to Homefront: Mobile Laboratories Are Changing the Way We Respond to Crisis.

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Trace Chemistry Equipment

- Ahura First Defender

- Sabre 4000

- HazMat ID Kit

- Griffin 450 Mass Spectrometer

Program of Instruction

- ***GC/MS: Theory***
  - Overview - Instrument purpose and functionality
  - Basic Theory
  - Strengths and limitations
- **GC/MS: Physical Introduction**
  - Gas Generator
  - Griffin 450
  - Autosampler
  - Injection Port
  - Column
  - Detector
- **Level One (Decision Tree) Software Introduction**
  - Autotune (QA/QC)
  - Running a blank (QA/QC)
  - Running a sample
  - Checking for maintenance due
  - **Extractions/Dilutions – Sample Preparation for Confirmatory GC-MS testing on the Griffin 450**
- **General Laboratory and Equipment Safety for Extraction**
  - PPE
  - Engineering controls
  - Waste disposal

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Program of Instruction

- ***GC/MS – Day Two: Team Assembly of Griffin 450 + H_2 Generator***
- ***Practical Exercise One: Assembly, Start-up and Troubleshooting***
  - *Injector maintenance*
  - *H_2 generator set up and safety precautions*
  - *Leak detection*
  - *Powering up troubleshooting*
  - *Autotune Troubleshooting*
  - *Autotune*
- ***GC/MS Routine and Non-routine Maintenance***
  - *Injector maintenance*
  - *Autosampler alignment*
  - *Hydrogen generator maintenance*
  - *Filament assembly*
  - *Guard column replacement*
  - *Column replacement*

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Training for Expeditionary Equipment

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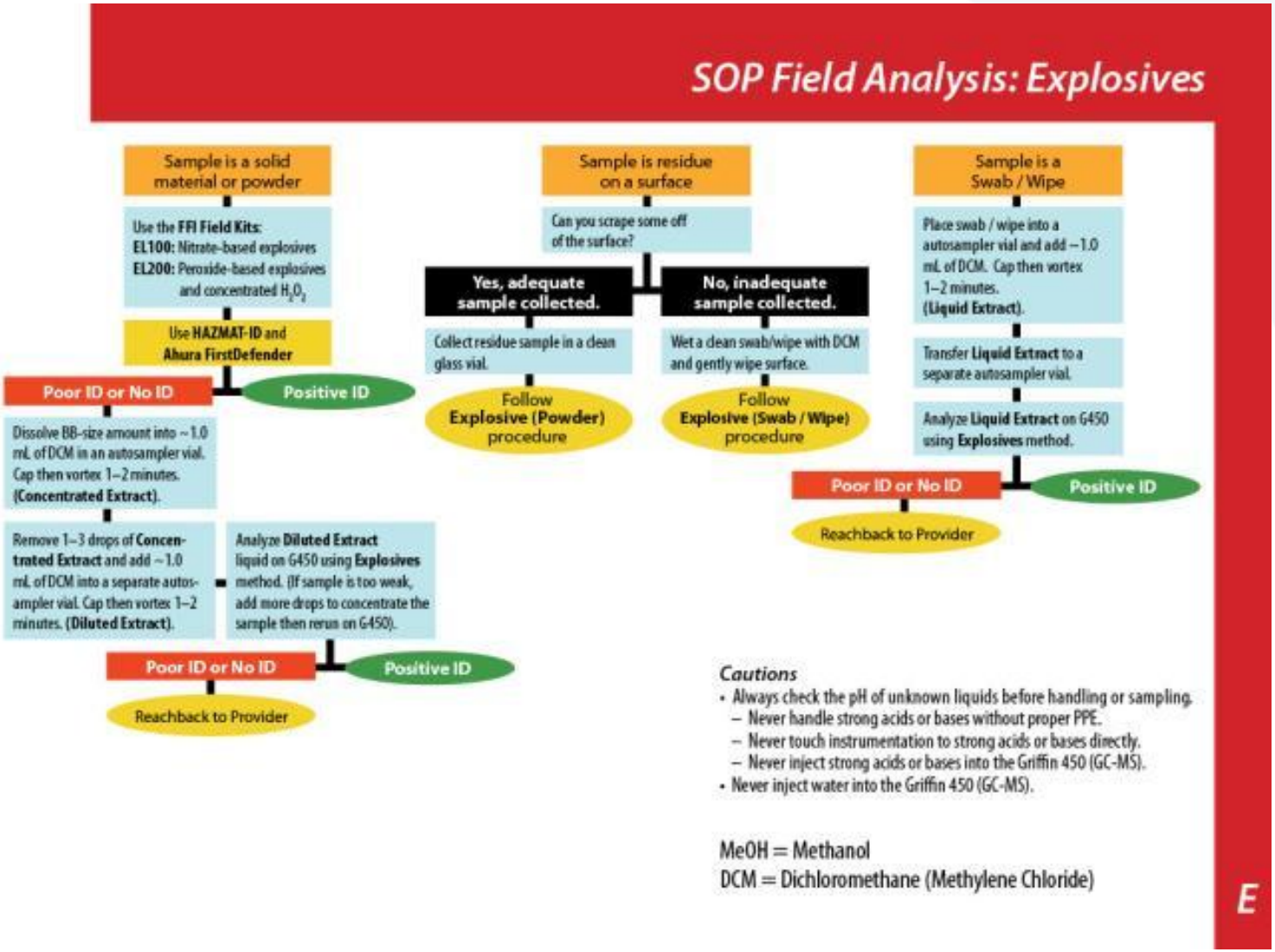
Expeditionary Job Aids



Field Investigation Drug Officer (FIDO)

- Streamlining Straightforward Drug Possession
- Comprehensive Training
- Flexibility
- Immediate Investigative Information
- Standards
- Online at www.nfstc.org

Q&A

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