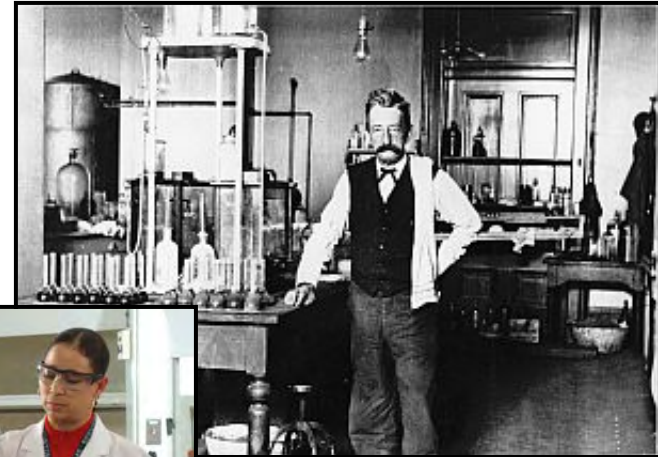


U.S. Customs and Border Protection

Laboratories and Scientific Services (LSS)

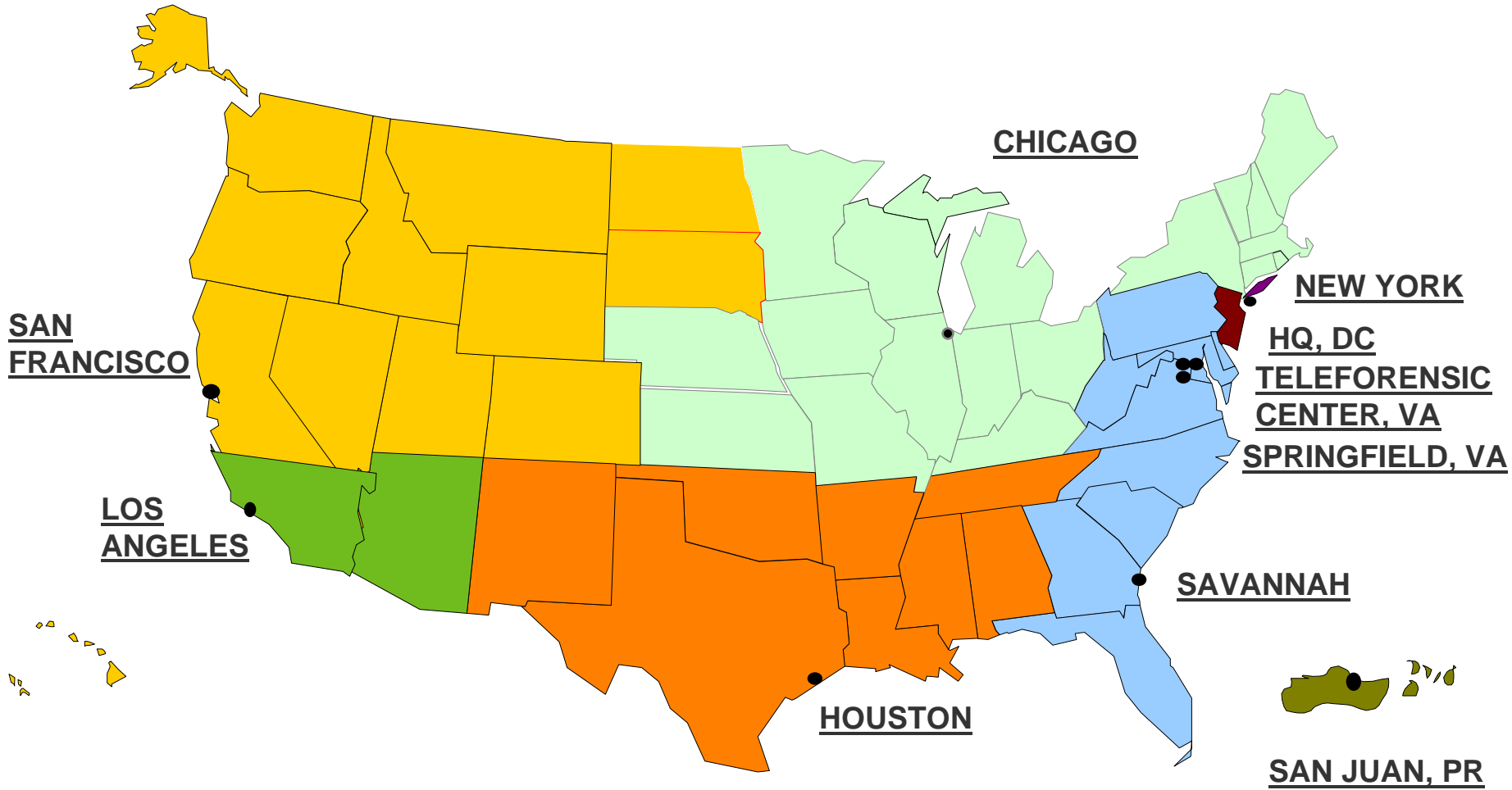
Laboratories and Scientific Services is the scientific arm of CBP; providing analytical testing and technical support in the areas of Trade Enforcement, Forensics, Intelligence, and WMD. LSS delivers effective analytical reports for trade compliance and law enforcement missions. All CBP laboratories are ISO/IEC 17025 accredited.



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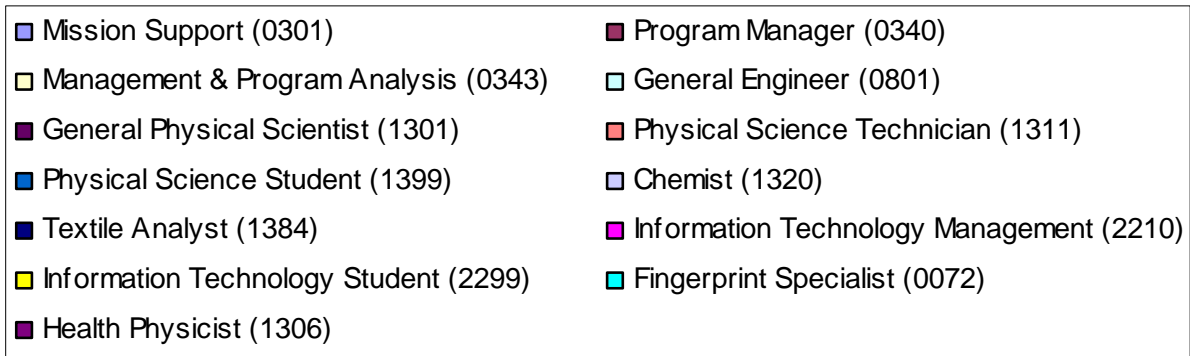
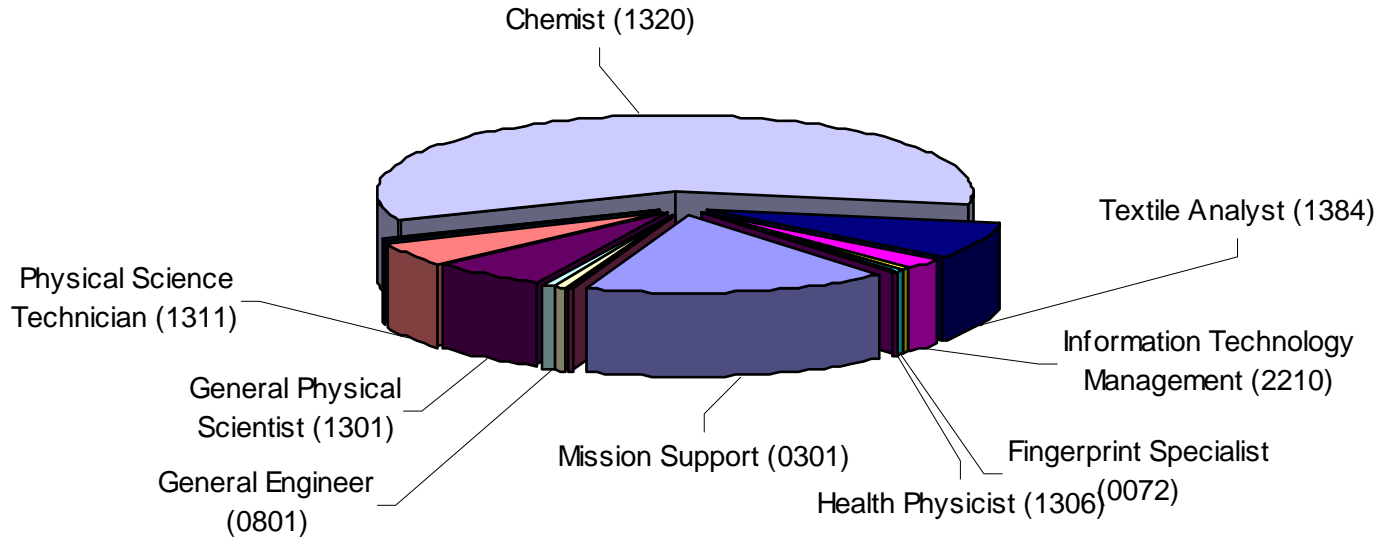


LSS Locations



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LSS – Staffing



LSS Areas of Operation – Forensics

LSS analyses evidence for law enforcement purposes and presents findings as an expert witness in courtroom proceedings.

Digital Forensics – Conduct analyses on computers, cell phones, and GPS devices

- Digital media are tools that facilitate acts of crime.
- Applying digital forensics allows a specialist to investigate the presence of legal evidence on the media of interest.
- In Customs, examinations can unveil illegal activity involving narcotics, weapons or alien trafficking, terrorism, child pornography, financial fraud, trade, etc.



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LSS Areas of Operation – Forensics

Cell Phone Forensics – Scientific examination, analysis, and/or the evaluation of electronic information (digital evidence) from a mobile phone (e.g. smartphone, PDA, Blackberry) and its accessories (e.g. SIM card, memory card)

Data that may be recovered from a cell phone:

- Address Book
- Recent calls
 - Incoming
 - Outgoing
 - Missed
- Voice memo's
- Music/Movies/Games
- Voice Mail (iPhone & Instinct)
- Text messages (SMS)
 - Inbound
 - Outbound
- Calendar/Alarm
- Memo/notepad
- GPS Information
- Deleted Data



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LSS Areas of Operation – Forensics

GPS Forensics – Scientific examination, analysis, and/or the evaluation of electronic information (digital evidence) from a GPS.

Data that may be recovered from a GPS:

Traditional Devices

- Historical Position Data
“Bread Crumbs”
- Waypoints
(Stored Locations -
Home, Office, etc...
- Routes (Dates & Times)
- Recent Addresses
- Deleted Data

Hybrid Devices

- Call Logs (Missed, Dialed,
Received)
- Paired Device History
- Incoming/Out Going Text
Messages



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LSS Areas of Operation – Forensics

Computer Forensics – Scientific examination, analysis, and/or the evaluation of electronic information (digital evidence) recovered from computer hard drives, media cards, USB drives, DVDs/CDs, etc.

Data that may be recovered:

- Email
 - Outlook (PST, OST), Outlook Express (DBX), Mozilla (including Netscape and Thunderbird), AOL PFC, generic mailbox (mbox, Berkeley, BSD, Unix), Eudora, PocoMail, Barca, Opera, Forte Agent, The Bat!, Pegasus, PMMail, FoxMail
- Internet History
- Documents
 - Word, Excel, PowerPoint, Access, Publisher, InfoPath, Adobe, HTML, XML, Lotus, WordPerfect, RTF, Notepad, WordPad
- Images
 - Bitmap, GIF, JPEG, PNG, TIF, TIFF
- Internet Chat Files
 - Netscape, Yahoo, MSN, AOL
- Archives
 - Winzip, GZip, RAR
- Multimedia
 - MPEG 2.0, MP3, MPEG4, AVI, Flash



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LSS Areas of Operation – Forensics

Audio Forensics

- Data Format
 - Tapes
 - Micro-cassettes
 - Compact discs
- Process
 - Filter out background noise
 - Amplify audio
 - Filter out static
 - Translate
 - Transcribe



Video Forensics

- Data Format
 - Tapes – all formats
 - Digital Video Disc
 - Compact Discs
 - Hard Drives
- Process
 - Pixel enhancement
 - Contrast and Color Enhancement
 - Mensuration and Analysis
 - Film Development
 - Masking - Blurring a portion of a video



LSS Areas of Operation – Forensics

Latent Prints

- Conduct examinations on physical evidence – results have included cold hits providing unknown suspects
- Compare ten print cards for BP prosecution cases



DNA - Facilitate examinations for:

- Evidence from vehicular rollovers, drug smuggling, human trafficking
- Familial association for Visa fraud investigations (18 USC 1001)



Crime Scene Processing

- Tunnel discoveries – process scene for latent prints and collection of evidence; compare latents with known suspects or submit to IAFIS/USVISIT for possible suspect ids



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LSS Areas of Operation – Trade Enforcement

LSS analyses import goods for compliance with CBP and other U.S. Government laws and regulations

Specific areas of focus:

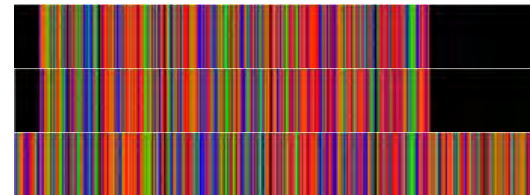
- Classification
- Anti-dumping
- Country of Origin
- Transshipment
- Admissibility
 - Import Safety (CPSC, FDA)
- Intellectual Property Rights
- FTZ



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LSS Areas of Operation – Trade Enforcement

- Inorganic Chemicals
 - Steel, Stones, Glass, Ceramics, Ores
- Organic Chemicals
 - Drugs & Forensics, Pharmaceuticals, Sugars, Food Products
- Textiles
 - Fibers, Fabric, Apparel & Footwear, Wood, Leather
- Intellectual Property Rights
 - Computer Hardware & Software/Code, Patent and Trademark Infringements
- Special Products
 - Non-Human DNA Bar Coding



Pangasius bocourti (basa fish) vs. *P. hypophthalmus* (Iridescent shark) vs. *Ictalurus punctatus* (channel catfish)



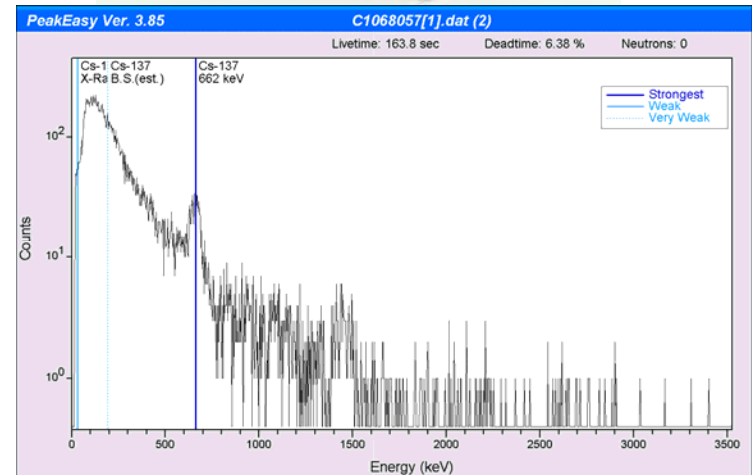
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LSS Areas of Operation – WMD & Anti-Terrorism 24/7 Reachback

LSS Teleforensic Center – serves DHS as a 24/7 scientific & technical resource for CBRNE events or questions.

Specializes in radiological/nuclear reachback for radioactive materials detected at the ports of entry by CBP's Rad/Nuc detection architecture.

- Radiation Portal Monitors (RPMs)
- Radioactive Isotope Identifiers (RIIDs)
- Personal Radiation Detectors (PRDs)



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LSS Areas of Operation – Applied Technologies

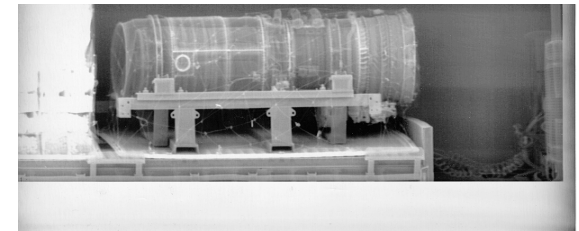
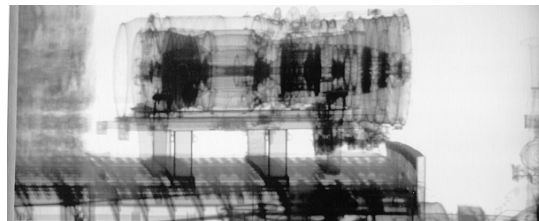
Technology Commissioning – LSS Interdiction Technology Branch provides detailed analysis of Non-Intrusive Inspection (NII) system performance for acceptance prior to full operation

NII systems allow a team of officers to perform inspections quickly and safely, and relegate more costly and time-consuming manual inspections to conveyances where the imaging system has revealed an anomaly.

System Types:

- **Low Energy**
 - Gamma-Ray (Cs-137) & X-Ray
- **Medium Energy**
 - Gamma-Ray (Co-60) & X-Ray (linear accelerator)
- **High Energy**
 - X-Ray (linear & Betatron accelerator)

Provides transmitted and reflective images



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