

**** Final Results ****
of
Survey for Explosive/Fire Debris Analysts
Technical Working Group on Fire
and Explosives Examinations

Number of Responses: 216

Instructions: The following survey contains questions related to your job responsibilities, education, training, laboratory standards and protocol, and information resources. It should take about 20 minutes to complete. Most items can be answered by both fire debris and explosives analysts, although some items, where indicated, will be applicable to, and should only be answered by, one group. This survey does ask for your name and laboratory. Providing this information is optional and requested only to ensure that in the event a second mailing of the survey is done, those who have already completed the survey will not receive a second copy. All information you provide on your survey will be treated with the utmost confidentiality. Thank you for your participation.

Demographic considerations

Name: _____(optional)

Laboratory: _____(optional)

1. Age: _____

| Age | N | Minimum | Maximum | Mean | Std. Deviation |
|-----|-----|---------|---------|---------|----------------|
| | 201 | 23.00 | 74.00 | 41.9900 | 9.7031 |

2. Sex:

___ Male

___ Female

| Sex of respondent | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------|--------|-----------|---------|---------------|--------------------|
| Valid | Male | 159 | 73.6 | 77.2 | 77.2 |
| | Female | 47 | 21.8 | 22.8 | 100.0 |
| | Total | 206 | 95.4 | 100.0 | |
| Missing | System | 10 | 4.6 | | |
| | Total | 216 | 100.0 | | |

3. State in which your laboratory is located: _____

| State | Frequency | Percent | Valid Percent | Cumulative Percent |
|-----------|-----------|---------|---------------|--------------------|
| Valid | 8 | 3.7 | 3.7 | 3.7 |
| AK | 1 | .5 | .5 | 4.2 |
| AL | 2 | .9 | .9 | 5.1 |
| Australia | 1 | .5 | .5 | 5.6 |
| AZ | 8 | 3.7 | 3.7 | 9.3 |
| CA | 33 | 15.3 | 15.3 | 24.5 |
| CO | 6 | 2.8 | 2.8 | 27.3 |
| DC | 6 | 2.8 | 2.8 | 30.1 |
| FL | 8 | 3.7 | 3.7 | 33.8 |
| GA | 9 | 4.2 | 4.2 | 38.0 |
| HI | 2 | .9 | .9 | 38.9 |
| IA | 1 | .5 | .5 | 39.4 |
| ID | 1 | .5 | .5 | 39.8 |
| IL | 15 | 6.9 | 6.9 | 46.8 |
| IN | 6 | 2.8 | 2.8 | 49.5 |
| KS | 5 | 2.3 | 2.3 | 51.9 |
| KY | 2 | .9 | .9 | 52.8 |
| LA | 3 | 1.4 | 1.4 | 54.2 |
| MA | 1 | .5 | .5 | 54.6 |
| MD | 5 | 2.3 | 2.3 | 56.9 |
| ME | 2 | .9 | .9 | 57.9 |
| MI | 7 | 3.2 | 3.2 | 61.1 |
| ML | 1 | .5 | .5 | 61.6 |
| MN | 2 | .9 | .9 | 62.5 |
| MO | 8 | 3.7 | 3.7 | 66.2 |
| NC | 7 | 3.2 | 3.2 | 69.4 |
| NE | 2 | .9 | .9 | 70.4 |
| NH | 1 | .5 | .5 | 70.8 |
| NJ | 2 | .9 | .9 | 71.8 |
| NV | 1 | .5 | .5 | 72.2 |
| NY | 10 | 4.6 | 4.6 | 76.9 |
| OH | 7 | 3.2 | 3.2 | 80.1 |
| OK | 2 | .9 | .9 | 81.0 |
| OR | 2 | .9 | .9 | 81.9 |
| PA | 2 | .9 | .9 | 82.9 |
| RI | 1 | .5 | .5 | 83.3 |
| SC | 5 | 2.3 | 2.3 | 85.6 |
| SD | 1 | .5 | .5 | 86.1 |
| TN | 4 | 1.9 | 1.9 | 88.0 |

| | | | | |
|-------|-----|-------|-------|-------|
| TX | 8 | 3.7 | 3.7 | 91.7 |
| UD | 1 | .5 | .5 | 92.1 |
| UT | 1 | .5 | .5 | 92.6 |
| VA | 10 | 4.6 | 4.6 | 97.2 |
| WA | 3 | 1.4 | 1.4 | 98.6 |
| WI | 2 | .9 | .9 | 99.5 |
| WV | 1 | .5 | .5 | 100.0 |
| Total | 216 | 100.0 | 100.0 | |

4. Current Position (all that apply)

| | Fire Debris | Explosives Debris |
|-----------------------------|-------------|-------------------|
| Analyst | | |
| Analyst Supervisor | | |
| Laboratory Manager | | |
| Sworn public safety officer | | |
| Civilian | | |
| Other | | |

| Current Position | Frequency (Yes) | Percent (Yes) |
|---|--------------------|------------------|
| Fire Debris Analyst | 154 | 71.3 |
| Fire Debris Analyst Supervisor | 37 | 17.1 |
| Fire Debris Laboratory Manager | 27 | 12.5 |
| Fire Debris Sworn Public Safety Officer | 20 | 9.3 |
| Fire Debris Civilian | 81 | 37.5 |
| Fire Debris Other | 6 | 2.8 |
| Explosives Debris Analyst | 84 | 38.9 |
| Explosives Debris Analyst Supervisor | 18 | 8.3 |
| Explosives Debris Laboratory Manager | 13 | 6.0 |
| Explosives Debris Sworn Public Safety Officer | 9 | 4.2 |
| Explosives Debris Civilian | 50 | 23.1 |
| Explosives Debris Other | 2 | .9 |

5. Laboratory type:

- a. Private
 b. Local
 c. State
 d. Federal

| Laboratory Type | Frequency | Percent | Valid Percent | Cumulative Percent |
|-----------------|-----------|---------|---------------|--------------------|
| Valid private | 22 | 10.2 | 10.3 | 10.3 |
| local | 57 | 26.4 | 26.6 | 36.9 |
| state | 110 | 50.9 | 51.4 | 88.3 |
| federal | 25 | 11.6 | 11.7 | 100.0 |
| Total | 214 | 99.1 | 100.0 | |
| Missing System | 2 | .9 | | |
| Total | 216 | 100.0 | | |

6. Education (indicate level of education most applicable to current position):

High School _____
 2 year degree _____
 4 year degree _____ BA _____ BS _____ Field _____
 Master's degree _____ MA _____ MS _____ Field _____
 Ph.D. _____ Field _____
 Other _____

| Level of Education | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------------|-----------|---------|---------------|--------------------|
| Valid BA | 19 | 8.8 | 8.9 | 8.9 |
| BS | 125 | 57.9 | 58.4 | 67.3 |
| Master's Degree | 2 | .9 | .9 | 68.2 |
| MA | 4 | 1.9 | 1.9 | 70.1 |
| MS | 51 | 23.6 | 23.8 | 93.9 |
| PhD | 12 | 5.6 | 5.6 | 99.5 |
| Other | 1 | .5 | .5 | 100.0 |
| Total | 214 | 99.1 | 100.0 | |
| Missing System | 2 | .9 | | |
| Total | 216 | 100.0 | | |

| Field of Education | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------|-----------|---------|---------------|--------------------|
| Valid | 72 | 33.3 | 33.3 | 33.3 |
| Analytical Chemistry | 4 | 1.9 | 1.9 | 35.2 |
| Bio/Chemistry | 2 | .9 | .9 | 36.1 |
| Biochemistry | 2 | .9 | .9 | 37.0 |
| Biology | 7 | 3.2 | 3.2 | 40.3 |
| Chemistry | 75 | 34.7 | 34.7 | 75.0 |
| Chem & Life Sci | 1 | .5 | .5 | 75.5 |

| | | | | |
|-------------------|-----|-------|-------|-------|
| Chem Micro | 1 | .5 | .5 | 75.9 |
| Chem/Biology | 2 | .9 | .9 | 76.9 |
| Chem/Forensic Sc | 2 | .9 | .9 | 77.8 |
| Chem/Physics | 1 | .5 | .5 | 78.2 |
| Chem/Police Admin | 1 | .5 | .5 | 78.7 |
| Criminal Justice | 4 | 1.9 | 1.9 | 80.6 |
| Criminalistics | 5 | 2.3 | 2.3 | 82.9 |
| Engineering | 1 | .5 | .5 | 83.3 |
| Forensic Chem | 6 | 2.8 | 2.8 | 86.1 |
| Forensic Science | 16 | 7.4 | 7.4 | 93.5 |
| Forensics | 1 | .5 | .5 | 94.0 |
| Medical Technolo | 2 | .9 | .9 | 94.9 |
| Natural Sciences | 1 | .5 | .5 | 95.4 |
| Nuc/Mech Enginee | 1 | .5 | .5 | 95.8 |
| Organic Chem | 3 | 1.4 | 1.4 | 97.2 |
| Pharmacy | 1 | .5 | .5 | 97.7 |
| Physical Chem | 1 | .5 | .5 | 98.1 |
| Physical Science | 1 | .5 | .5 | 98.6 |
| Physics | 1 | .5 | .5 | 99.1 |
| Zoology | 2 | .9 | .9 | 100.0 |
| Total | 216 | 100.0 | 100.0 | |

7. Years of experience in your field

_____ Fire debris

_____ Explosives debris

| Year Experience | N | Minimum | Maximum | Mean | Std. Deviation |
|-------------------|-----|---------|---------|---------|----------------|
| Fire Debris | 186 | 1.00 | 55.00 | 11.9892 | 8.3454 |
| Explosives Debris | 101 | 1.00 | 40.00 | 12.0545 | 8.4024 |

8. What percentage of your workload is devoted to

_____ Fire debris analysis

_____ Explosives debris analysis

| % of Workload | N | Minimum | Maximum | Mean | Std. Deviation |
|----------------------------|-----|---------|---------|---------|----------------|
| Fire Debris Analysis | 183 | 1.00 | 100.00 | 42.1967 | 32.4201 |
| Explosives Debris Analysis | 102 | 1.00 | 100.00 | 20.6078 | 26.7867 |

9. Do you feel a supervisor must have experience in the areas of fire or explosive debris analysis to manage cases in these categories?

_____ yes

_____ no

| Supervisor Experience | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-----------------------|--------|-----------|---------|---------------|--------------------|
| Valid | No | 58 | 26.9 | 27.2 | 27.2 |
| | Yes | 155 | 71.8 | 72.8 | 100.0 |
| | Total | 213 | 98.6 | 100.0 | |
| Missing | System | 3 | 1.4 | | |
| | Total | 216 | 100.0 | | |

10. In your opinion, what are the minimum number of years of experience in explosives or fire debris analysis needed to hold a supervisory position?

_____ a. 0 - 2 years

_____ b. 2 - 5 years

_____ c. 5 - 10 years

_____ d. more than 10 years

| Min. Years to Hold Supervisory Position | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|--------------------|-----------|---------|---------------|--------------------|
| Valid | 0-2 years | 54 | 25.0 | 25.7 | 24.7 |
| | 2-5 years | 99 | 45.8 | 47.1 | 72.9 |
| | 5-10 years | 53 | 24.5 | 25.2 | 98.1 |
| | more than 10 years | 4 | 1.9 | 1.9 | 100.0 |
| | Total | 210 | 97.2 | 100.0 | |
| Missing | System | 6 | 2.8 | | |
| | Total | 216 | 100.0 | | |

11. In your opinion, what is the minimum number of years of work experience needed for a non-explosives or non-fire debris related individual to supervise analysts?

- a. 0 - 2 years
 b. 2 - 5 years
 c. 5 - 10 years
 d. more than 10 years

| Years for non-fd or ed to be supervisor | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|-----------|---------|---------------|--------------------|
| Valid 0-2 years | 21 | 9.7 | 10.4 | 10.4 |
| 2-5 years | 55 | 25.5 | 27.4 | 37.8 |
| 5-10 years | 91 | 42.1 | 45.3 | 83.1 |
| more than 10 years | 34 | 15.7 | 16.9 | 100.0 |
| Total | 201 | 93.1 | 100.0 | |
| Missing System | 15 | 6.9 | | |
| Total | 216 | 100.0 | | |

12. Does your supervisor have experience in explosives or fire debris analysis?

- a. Yes
 b. No

| Your Supervisor's Experience | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------------------|-----------|---------|---------------|--------------------|
| Valid No | 96 | 44.4 | 47.3 | 47.3 |
| Yes | 107 | 49.5 | 52.7 | 100.0 |
| Total | 203 | 94.0 | 100.0 | |
| Missing System | 13 | 6.0 | | |
| Total | 216 | 100.0 | | |

13. Is your laboratory accredited?

- a. No
 b. Yes

If yes, by whom? _____

| Lab Accredited ? | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Valid No | 86 | 39.8 | 40.4 | 40.4 |
| Yes | 127 | 58.8 | 59.6 | 100.0 |
| Total | 213 | 98.6 | 100.0 | |
| Missing System | 3 | 1.4 | | |
| Total | 216 | 100.0 | | |

| Accrediting Body | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------|-----------|---------|---------------|--------------------|
| Valid | 94 | 43.5 | 43.5 | 43.5 |
| ACS | 1 | .5 | .5 | 44.0 |
| AIHA | 1 | .5 | .5 | 44.4 |
| ASCLD | 115 | 53.2 | 53.2 | 97.7 |
| ASCLD, CALEA | 3 | 1.4 | 1.4 | 99.1 |
| ASCLD, NY State | 1 | .5 | .5 | 99.5 |
| ISO 9001 | 1 | .5 | .5 | 100.0 |
| Total | 216 | 100.0 | 100.0 | |

14. If your laboratory is not accredited, is your laboratory currently seeking accreditation?

_____ a. No

_____ b. Yes If yes, by whom? _____

| Seeking Accreditation? | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------------|-----------|---------|---------------|--------------------|
| Valid No | 29 | 13.4 | 32.6 | 32.6 |
| Yes | 60 | 27.8 | 67.4 | 100.0 |
| Total | 89 | 41.2 | 100.0 | |
| Missing System | 127 | 58.8 | | |
| Total | 216 | 100.0 | | |

| Seeking Accreditation from whom ? | Frequency | Percent | Valid Percent | Cumulative Percent |
|-----------------------------------|-----------|---------|---------------|--------------------|
| Valid | 159 | 73.6 | 73.6 | 73.6 |
| ASCLD | 56 | 25.9 | 25.9 | 99.5 |
| ISO | 1 | .5 | .5 | 100.0 |
| Total | 216 | 100.0 | 100.0 | |

15. Do you personally have American Board of Criminalistics (ABC) certification?

_____ a. No

_____ b. Yes If yes, Diplomate _____ or Fellow _____

 If a Fellow, what field _____

| abc certification? | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------------|-----------|---------|---------------|--------------------|
| Valid No | 172 | 79.6 | 80.8 | 80.8 |
| Yes | 41 | 19.0 | 19.2 | 100.0 |
| Total | 213 | 98.6 | 100.0 | |
| Missing System | 3 | 1.4 | | |
| Total | 216 | 100.0 | | |

| Diplomate/Fellow ? | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------------|-----------|---------|---------------|--------------------|
| Valid Diplomat | 25 | 11.6 | 62.5 | 62.5 |
| Fellow | 15 | 6.9 | 37.5 | 100.0 |
| Total | 40 | 18.5 | 100.0 | |
| Missing System | 176 | 81.5 | | |
| Total | 216 | 100.0 | | |

| Field of abc Fellow | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------|-----------|---------|---------------|--------------------|
| Valid | 200 | 92.6 | 92.6 | 92.6 |
| Cont. Substances | 1 | .5 | .5 | 93.1 |
| Drugs | 2 | .9 | .9 | 94.0 |
| FD/Polymers | 1 | .5 | .5 | 94.4 |
| Fire Debris | 11 | 5.1 | 5.1 | 99.5 |
| Fire Debris/Drug | 1 | .5 | .5 | 100.0 |
| Total | 216 | 100.0 | 100.0 | |

16. How much do you believe ABC certification would promote professional development in your laboratory?

1 2 3 4 5 6 7
not at all very much

| Does abc Cert. Promote Development | N | Minimum | Maximum | Mean | Std. Deviation |
|------------------------------------|-------|---------|---------|--------|----------------|
| Valid | N 208 | 1.00 | 7.00 | 3.1875 | 1.8594 |

17. Please list memberships in any professional organizations to which you belong:

1 _____
2 _____
3 _____
4 _____

| Professional Membership 1 | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid | 15 | 6.9 | 6.9 | 6.9 |
| AAFS | 64 | 29.6 | 29.6 | 36.6 |
| ACAC | 1 | .5 | .5 | 37.0 |
| ACS | 28 | 13.0 | 13.0 | 50.0 |
| AFTE | 3 | 1.4 | 1.4 | 51.4 |
| ASCLD | 3 | 1.4 | 1.4 | 52.8 |
| CAC | 17 | 7.9 | 7.9 | 60.6 |
| CAFS | 1 | .5 | .5 | 61.1 |
| CLIC | 1 | .5 | .5 | 61.6 |

| | | | | |
|---------|-----|-------|-------|-------|
| CVFAA | 1 | .5 | .5 | 62.0 |
| IAAI | 13 | 6.0 | 6.0 | 68.1 |
| IABTI | 2 | .9 | .9 | 69.0 |
| ISEE | 1 | .5 | .5 | 69.4 |
| LAFS | 1 | .5 | .5 | 69.9 |
| MAAFS | 2 | .9 | .9 | 70.8 |
| MAFS | 24 | 11.1 | 11.1 | 81.9 |
| MWAFS | 2 | .9 | .9 | 82.9 |
| NAFS | 1 | .5 | .5 | 83.3 |
| NEAFS | 6 | 2.8 | 2.8 | 86.1 |
| NWAFS | 4 | 1.9 | 1.9 | 88.0 |
| NYMS | 1 | .5 | .5 | 88.4 |
| PGI | 1 | .5 | .5 | 88.9 |
| SAFS | 11 | 5.1 | 5.1 | 94.0 |
| SAS | 2 | .9 | .9 | 94.9 |
| SSS | 1 | .5 | .5 | 95.4 |
| SWAFS | 8 | 3.7 | 3.7 | 99.1 |
| TWG-FEX | 1 | .5 | .5 | 99.5 |
| TWFMAT | 1 | .5 | .5 | 100.0 |
| Total | 218 | 100.0 | 100.0 | |

| Professional Membership 2 | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid | 60 | 27.8 | 27.8 | 27.8 |
| AAFS | 17 | 7.9 | 7.9 | 35.6 |
| ACS | 8 | 3.7 | 3.7 | 39.4 |
| ACSR | 1 | .5 | .5 | 39.8 |
| AFTE | 1 | .5 | .5 | 40.3 |
| AIC | 2 | .9 | .9 | 41.2 |
| AIHA | 1 | .5 | .5 | 41.7 |
| Alpha Chi Sigma | 1 | .5 | .5 | 42.1 |
| ACSLD | 5 | 2.3 | 2.3 | 44.4 |
| ASM | 1 | .5 | .5 | 44.9 |
| ASTM | 5 | 2.3 | 2.3 | 47.2 |
| ASTM-E30 | 1 | .5 | .5 | 47.7 |
| CAC | 11 | 5.1 | 5.1 | 52.8 |
| CACLD | 1 | .5 | .5 | 53.2 |
| CADA | 1 | .5 | .5 | 53.7 |
| CALD | 1 | .5 | .5 | 54.2 |
| CAT | 2 | .9 | .9 | 55.1 |
| CFDV | 1 | .5 | .5 | 55.6 |
| Clandestine Lab | 1 | .5 | .5 | 56.0 |
| CLIC | 4 | 1.9 | 1.9 | 57.9 |
| CLICA | 1 | .5 | .5 | 58.3 |
| FSS | 1 | .5 | .5 | 58.8 |
| GA Microscopial | 1 | .5 | .5 | 59.3 |

| | | | | |
|--------------|-----|-------|-------|-------|
| IAAI | 11 | 5.1 | 5.1 | 64.4 |
| IABTI | 4 | 1.9 | 1.9 | 66.2 |
| IAI | 4 | 1.9 | 1.9 | 68.1 |
| IAIAAI | 1 | .5 | .5 | 68.5 |
| IAVTI | 1 | .5 | .5 | 69.0 |
| IDI | 1 | .5 | .5 | 69.4 |
| IL Adv. Com. | 1 | .5 | .5 | 69.9 |
| LIMGS | 1 | .5 | .5 | 70.4 |
| MAAFS | 4 | 1.9 | 1.9 | 72.2 |
| MAFS | 19 | 8.8 | 8.8 | 81.0 |
| MSA | 1 | .5 | .5 | 81.5 |
| MWAFS | 3 | 1.4 | 1.4 | 82.9 |
| NEAFS | 2 | .9 | .9 | 83.8 |
| NJAFS | 1 | .5 | .5 | 84.3 |
| NSC | 1 | .5 | .5 | 84.7 |
| NWAFS | 3 | 1.4 | 1.4 | 86.1 |
| RMDIAI | 1 | .5 | .5 | 86.6 |
| SAFS | 15 | 6.9 | 6.9 | 93.5 |
| SCAAG | 1 | .5 | .5 | 94.0 |
| SCIAI | 1 | .5 | .5 | 94.4 |
| Sigma Xi | 1 | .5 | .5 | 94.9 |
| SWAFS | 7 | 3.2 | 3.2 | 98.1 |
| SWAS | 1 | .5 | .5 | 98.6 |
| TWGMAT | 3 | 1.4 | 1.4 | 100.0 |
| Total | 216 | 100.0 | 100.0 | |

| Professional Membership 3 | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid | 118 | 54.6 | 54.6 | 54.6 |
| AAFS | 3 | 1.4 | 1.4 | 56.0 |
| ABA | 1 | .5 | .5 | 56.5 |
| ABC | 2 | .9 | .9 | 57.4 |
| ACFE | 2 | .9 | .9 | 58.3 |
| ACS | 4 | 1.9 | 1.9 | 60.2 |
| ACSR | 1 | .5 | .5 | 60.6 |
| AFTE | 1 | .5 | .5 | 61.1 |
| AIC | 1 | .5 | .5 | 61.6 |
| AOAC | 1 | .5 | .5 | 62.0 |
| ASCLD | 3 | 1.4 | 1.4 | 63.4 |
| ASTM | 3 | 1.4 | 1.4 | 64.8 |
| ASTM-E30 | 2 | .9 | .9 | 65.7 |
| AWMA | 1 | .5 | .5 | 66.2 |
| CAC | 3 | 1.4 | 1.4 | 67.6 |
| CIFIA | 1 | .5 | .5 | 68.1 |
| CLIC | 8 | 3.7 | 3.7 | 71.8 |

| | | | | |
|------------------|-----|-------|-------|-------|
| FSS | 1 | .5 | .5 | 72.2 |
| IAAA | 1 | .5 | .5 | 72.7 |
| IAAI | 21 | 9.7 | 9.7 | 82.4 |
| IABII | 1 | .5 | .5 | 82.9 |
| IABTI | 1 | .5 | .5 | 83.3 |
| IACAP | 1 | .5 | .5 | 83.8 |
| IACT | 2 | .9 | .9 | 84.7 |
| IAI | 2 | .9 | .9 | 85.6 |
| IFE | 1 | .5 | .5 | 86.1 |
| KS-IAI | 1 | .5 | .5 | 86.6 |
| LAFS | 1 | .5 | .5 | 87.0 |
| MAAFS | 3 | 1.4 | 1.4 | 88.4 |
| MAFS | 1 | .5 | .5 | 88.9 |
| Microscopial Soc | 1 | .5 | .5 | 89.4 |
| MSI | 1 | .5 | .5 | 89.8 |
| MSSC | 1 | .5 | .5 | 90.3 |
| NAFS | 1 | .5 | .5 | 90.7 |
| NFPA | 1 | .5 | .5 | 91.2 |
| NCAAI | 1 | .5 | .5 | 91.7 |
| NEAFS | 2 | .9 | .9 | 92.6 |
| NWAFS | 2 | .9 | .9 | 93.5 |
| NYSFI | 1 | .5 | .5 | 94.0 |
| RMS | 1 | .5 | .5 | 94.4 |
| RSC | 1 | .5 | .5 | 94.9 |
| SAFS | 7 | 3.2 | 3.2 | 98.1 |
| SMSI | 1 | .5 | .5 | 98.6 |
| SWAFS | 2 | .9 | .9 | 99.5 |
| World EOD | 1 | .5 | .5 | 100.0 |
| Total | 216 | 100.0 | 100.0 | |

| Professional Membership 4 | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------|-----------|---------|---------------|--------------------|
| Valid | 160 | 74.1 | 74.1 | 74.1 |
| AAFS | 2 | .9 | .9 | 75.0 |
| ABC | 1 | .5 | .5 | 75.5 |
| ACFE | 1 | .5 | .5 | 75.9 |
| ACS | 1 | .5 | .5 | 76.4 |
| ASCLD | 1 | .5 | .5 | 76.9 |
| ASCP | 2 | .9 | .9 | 77.8 |
| ASTM | 8 | 3.7 | 3.7 | 81.5 |
| ASTM E-30 | 2 | .9 | .9 | 82.4 |
| CLIC | 2 | .9 | .9 | 83.3 |
| CSMS | 1 | .5 | .5 | 83.8 |
| FS | 1 | .5 | .5 | 84.3 |
| FSCPM | 1 | .5 | .5 | 84.7 |
| GFIA | 1 | .5 | .5 | 85.2 |

| | | | | |
|---------|-----|-------|-------|-------|
| IAAI | 6 | 2.8 | 2.8 | 88.0 |
| IABPA | 2 | .9 | .9 | 88.9 |
| IABTI | 3 | 1.4 | 1.4 | 90.3 |
| IACA | 1 | .5 | .5 | 90.7 |
| IAEE | 1 | .5 | .5 | 91.2 |
| IMS | 1 | .5 | .5 | 91.7 |
| MAFS | 3 | 1.4 | 1.4 | 93.1 |
| MTASCP | 1 | .5 | .5 | 93.5 |
| NCIAAI | 1 | .5 | .5 | 94.0 |
| NFPA | 1 | .5 | .5 | 94.4 |
| NSDAI | 1 | .5 | .5 | 94.9 |
| NYSCLAC | 1 | .5 | .5 | 95.4 |
| NYSFS | 1 | .5 | .5 | 95.8 |
| RICA | 1 | .5 | .5 | 96.3 |
| SAFS | 3 | 1.4 | 1.4 | 97.7 |
| SAS | 2 | .9 | .9 | 98.6 |
| SWAFS | 2 | .9 | .9 | 99.5 |
| UFSA | 1 | .5 | .5 | 100.0 |
| Total | 216 | 100.0 | 100.0 | |

Job Description

18. Please indicate which of the following investigative activities you perform as:

| | Fire Debris Analyst | Explosives Analyst | Times per year |
|----------------------------|--|--|-----------------------|
| Crime scene investigation | | | |
| Rendering situations safe | XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX | | |
| Incendiary devices | | | |
| Intact explosives analysis | XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX | | |
| Residue analysis | | | |
| Component evaluation | | | |
| Ignitable residue analysis | | XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX | |
| Crime scene reconstruction | | | |
| Fire modeling | | XXXXXXXXXXXXXXXXXX | |
| Executing search Warrants | | | |
| | | | |

| Which Investigative Activities Do You Perform? | Frequency (Yes) | Percent (Yes) |
|--|-----------------|---------------|
| Fire Debris - Crime Scene Investigation | 46 | 21.3 |
| Fire Debris - Incendiary Devices | 65 | 30.1 |
| Fire Debris - Residue Analysis | 112 | 51.9 |
| Fire Debris - Component Evaluation | 74 | 34.3 |
| Fire Debris - Ignitable Residue Analysis | 159 | 73.6 |
| Fire Debris - Crime Scene Reconstruction | 11 | 5.1 |
| Fire Debris - Fire Modeling | 1 | .5 |
| Fire Debris - Executing Search Warrants | 2 | .9 |
| Explos. Analysis-Crime Scene Investigation | 32 | 14.8 |
| Explos. Analysis-Render Situations Safe | 6 | 2.8 |
| Explos. Analysis-Incendiary Devices | 47 | 21.8 |
| Explos. Analysis-Intact Explosives Analysis | 51 | 23.6 |
| Explos. Analysis-Residue Analysis | 81 | 37.5 |
| Explos. Analysis-Component Evaluation | 56 | 25.9 |
| Explos. Analysis-Crime Scene Reconstruct. | 12 | 5.6 |
| Explos. Analysis-Executing Search Warrants | 11 | 5.1 |

| How Many Times Per Year Do You Perform These Investigative Activities? | N | Min. | Max. | Mean | Std. Deviation |
|--|-----|------|---------|-------|----------------|
| Crime Scene Investigation | 158 | .00 | 20.00 | 1.4 | 3.31 |
| Render Situations Safe | 158 | .00 | 10.00 | < 1 | 8.25 |
| Incendiary Devices | 158 | .00 | 120.00 | 5.0 | 14.08 |
| Intact Explosives Analysis | 158 | .00 | 60.00 | 3.3 | 9.20 |
| Residue Analysis | 159 | .00 | 750.00 | 55.4 | 114.00 |
| Component Evaluation | 156 | .00 | 800.00 | 25.9 | 95.67 |
| Ignitable Residue Analysis | 158 | .00 | 3000.00 | 128.9 | 346.41 |
| Crime Scene Reconstruction | 157 | .00 | 800.00 | 6.0 | 63.87 |
| Fire Modeling | 156 | .00 | 5.00 | < 1 | .40 |
| Executing Search Warrants | 156 | .00 | 10.00 | < 1 | 1.05 |
| Valid N | 149 | | | | |

19. Indicate which of the following laboratory procedures you perform and how many times per year you perform each

| <u>Procedure</u> | <u>Number of times per year</u> |
|--|---------------------------------|
| _____ Intact low explosives | _____ |
| _____ Intact high explosives | _____ |
| _____ Intact improvised explosives | _____ |
| _____ Post-blast low explosives | _____ |
| _____ Post-blast high explosives | _____ |
| _____ Post-blast improvised explosives | _____ |
| _____ Post-blast improvised explosive device components | _____ |
| _____ Ignitable liquid analysis | _____ |
| _____ Ignitable liquid residue (debris) analysis | _____ |
| _____ Intact incendiary device component analysis | _____ |
| _____ Post-ignition incendiary device component analysis | _____ |

| Which Laboratory Procedures Do You Perform? | Frequency (Yes) | Percent (Yes) |
|---|-----------------|---------------|
| Intact Low Explosives | 75 | 34.7 |
| Intact High Explosives | 51 | 23.6 |
| Intact Improvised Explosives | 55 | 25.5 |
| Post-Blast Low Explosives | 86 | 39.8 |
| Post-Blast High Explosives | 46 | 21.3 |
| Post-Blast Improvised Explosives | 70 | 32.4 |
| Post-Blast Improv. Expl. Device Components | 56 | 25.9 |
| Ignitable Liquid Analysis | 170 | 78.7 |
| Ignitable Liquid Residue (Debris) Analysis | 171 | 79.2 |
| Intact Incendiary Device Component Analysis | 68 | 31.5 |
| Post-Ignition Incend. Dev. Component Analy. | 80 | 37.0 |

| How Many Times Per Year Do You Perform These Laboratory Procedures? | N | Min. | Max. | Mean | Std. Deviation |
|---|-----|------|---------|-------|----------------|
| Intact Low Explosives | 189 | .00 | 100.00 | 4.29 | 11.49 |
| Intact High Explosives | 189 | .00 | 60.00 | 1.26 | 5.06 |
| Intact Improvised Explosives | 188 | .00 | 30.00 | 1.71 | 4.61 |
| Post-Blast Low Explosives | 188 | .00 | 100.00 | 4.89 | 12.87 |
| Post-Blast High Explosives | 187 | .00 | 100.00 | 1.46 | 8.67 |
| Post-Blast Improvised Explosives | 187 | .00 | 100.00 | 2.74 | 8.64 |
| Post-Blast Improv. Expl. Device Components | 186 | .00 | 150.00 | 3.55 | 14.55 |
| Ignitable Liquid Analysis | 185 | .00 | 2000.00 | 72.41 | 231.9 |
| Ignitable Liquid Residue (Debris) Analysis | 185 | .00 | 4700.00 | 200.9 | 490.7 |
| Intact Incendiary Device Component Analysis | 184 | .00 | 300.00 | 4.55 | 24.25 |
| Post-Ignition Incend. Dev. Component Analy. | 183 | .00 | 300.00 | 6.51 | 26.55 |
| Valid N | 177 | .00 | | | |

Education and Training

20. Rate how important you believe each of the following courses are as part of the educational background of explosives and fire debris analysts:

| | | | | | | | |
|------------------------------------|----------------------------|---|---|-------------------------------------|----------------------------|---|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| not at all important | | | | | very important | | |
| <u>Explosives Analysts:</u> | | | | <u>Fire Debris Analysts:</u> | | | |
| _____ | General chemistry | | | _____ | General chemistry | | |
| _____ | Organic chemistry | | | _____ | Organic chemistry | | |
| _____ | Advanced organic chemistry | | | _____ | Advanced organic chemistry | | |
| _____ | Analytical chemistry | | | _____ | Analytical chemistry | | |
| _____ | Inorganic chemistry | | | _____ | Inorganic chemistry | | |
| _____ | Physical chemistry | | | _____ | Physical chemistry | | |
| _____ | Introductory physics | | | _____ | Introductory physics | | |
| _____ | Advanced physics | | | _____ | Advanced physics | | |
| _____ | Instrumental analysis | | | _____ | Instrumental analysis | | |
| _____ | Advanced mathematics | | | _____ | Advanced mathematics | | |
| _____ | Other _____ | | | _____ | Other _____ | | |

| Rate Importance of These Courses As Part of Educational Background of Analysts | N | Min. | Max. | Mean | Std. Deviation |
|--|-----|------|------|--------|----------------|
| Explosives Analysts - General Chemistry | 118 | 1.00 | 7.00 | 6.3475 | 1.1276 |
| Explosives Analysts - Organic Chemistry | 116 | 3.00 | 7.00 | 6.1293 | 1.0260 |
| Explosives Analysts - Adv.Organic Chemistry | 116 | 1.00 | 7.00 | 4.3362 | 1.8127 |
| Explosives Analysts - Analytical Chemistry | 115 | 1.00 | 7.00 | 6.0783 | 1.2783 |
| Explosives Analysts - Inorganic Chemistry | 115 | 2.00 | 7.00 | 5.6870 | 1.1948 |
| Explosives Analysts - Physical Chemistry | 116 | 1.00 | 7.00 | 4.0431 | 1.7011 |
| Explosives Analysts - Introductory Physics | 116 | 1.00 | 7.00 | 4.4397 | 1.7108 |
| Explosives Analysts - Advanced Physics | 116 | 1.00 | 7.00 | 3.0948 | 1.7345 |
| Explosives Analysts - Instrumental Analysis | 118 | 4.00 | 7.00 | 6.5169 | .7924 |
| Explosives Analysts - Advanced Mathematics | 116 | 1.00 | 7.00 | 3.1379 | 1.6780 |
| Explosives Analysts - Other | 15 | 4.00 | 7.00 | 6.4000 | .9103 |
| Fire Debris - General Chemistry | 188 | 1.00 | 7.00 | 6.2021 | 1.1616 |
| Fire Debris - Organic Chemistry | 187 | 3.00 | 7.00 | 6.3422 | .9043 |
| Fire Debris - Adv.Organic Chemistry | 184 | 1.00 | 7.00 | 4.6630 | 1.6972 |
| Fire Debris - Analytical Chemistry | 186 | 1.00 | 7.00 | 5.9946 | 1.3656 |
| Fire Debris - Inorganic Chemistry | 184 | 1.00 | 7.00 | 4.5054 | 1.6229 |
| Fire Debris - Physical Chemistry | 186 | 1.00 | 7.00 | 3.9409 | 1.7090 |
| Fire Debris - Introductory Physics | 185 | 1.00 | 7.00 | 4.2973 | 1.7299 |
| Fire Debris - Advanced Physics | 184 | 1.00 | 7.00 | 2.9674 | 1.6023 |
| Fire Debris - Instrumental Analysis | 187 | 1.00 | 7.00 | 6.5722 | .8025 |
| Fire Debris - Advanced Mathematics | 185 | 1.00 | 7.00 | 3.1243 | 1.6187 |
| Fire Debris - Other | 12 | 3.00 | 7.00 | 6.0833 | 1.3790 |
| Valid N | 6 | | | | |

21. In your opinion, what is the minimum on the job training needed for a new explosives or fire debris analyst with no forensic experience (4 year degree, but no practical experience)?

- a. zero to two months
 b. between two and six months
 c. six months to one year
 d. one to two years
 e. greater than two years

| Minimum OTJ Training, no forensic experience | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|--------------------|-----------|---------|---------------|--------------------|
| Valid | 0 to 2 months | 4 | 1.9 | 1.9 | 1.9 |
| | 2 to 6 months | 23 | 10.6 | 10.7 | 12.6 |
| | 6 months to 1 year | 108 | 50.0 | 50.5 | 63.1 |
| | 1 to 2 years | 65 | 30.1 | 30.4 | 93.5 |
| | more than 2 years | 14 | 6.5 | 6.5 | 100.0 |
| | Total | 214 | 99.1 | 100.0 | |
| Missing | System | 2 | .9 | | |
| | Total | 216 | 100.0 | | |

22. In your opinion, what is the minimum on the job training needed for a new explosives or fire debris analyst who has instrumental or other forensic skills?

- a. none
 b. less than one month
 c. between one and six months
 d. six months to one year
 e. one to two years
 f. greater than two years

| Minimum OTJ Training, some forensic experience | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|--------------------|-----------|---------|---------------|--------------------|
| Valid | less than 1 month | 3 | 1.4 | 1.4 | 1.4 |
| | 1 to 6 months | 96 | 44.4 | 44.9 | 46.3 |
| | 6 months to 1 year | 88 | 40.7 | 41.1 | 87.4 |
| | 1 to 2 years | 23 | 10.6 | 10.7 | 98.1 |
| | more than 2 years | 4 | 1.9 | 1.9 | 100.0 |
| | Total | 214 | 99.1 | 100.0 | |
| Missing | System | 2 | .9 | | |
| | Total | 216 | 100.0 | | |

23. Whom do you believe is qualified to do peer review of new fire debris or explosives analysts? (check all that apply)

- a. a senior explosives or fire debris analyst
 b. laboratory supervisor
 c. an analyst with instrumentation/microscopy skills
 d. outside consultant in explosives or fire debris analysis
 e. analyst from another discipline
 f. other _____

| Who is Qualified to do peer review of new analysts? | Frequency (Yes) | Percent (Yes) |
|---|-----------------|---------------|
| Senior Explosive or Fire Debris Analyst | 208 | 96.3 |
| Laboratory Supervisor | 85 | 39.4 |
| Analyst with Instrumentation Skill | 30 | 13.9 |
| Outside Consultant | 85 | 39.4 |
| Analyst from Other Discipline | 3 | 1.4 |
| Other | 13 | 6.0 |

24. How important is training or coursework in the following areas for explosives and fire debris analysts?

- 1 2 3 4 5 6 7
 not at all important very important or
 or not essential absolutely essential

General Training (for both fire debris and explosives analysts)

- Laboratory safety procedures
 Rules of evidence
 Understanding the judicial system
 Legal terminology and definitions
 Courtroom procedures
 General crime scene investigation
 Recognition of physical evidence
 Preservation of physical evidence

| Rate Importance of General Training | N | Min. | Max. | Mean | Std. Deviation |
|-------------------------------------|-----|------|------|--------|----------------|
| Laboratory safety procedures | 213 | 1.00 | 7.00 | 6.3709 | 1.1279 |
| Rules of evidence | 212 | 1.00 | 7.00 | 6.2689 | 1.0746 |
| Understanding the judicial system | 212 | 1.00 | 7.00 | 4.9198 | 1.3378 |
| Legal terminology and definitions | 212 | 1.00 | 7.00 | 4.8349 | 1.3512 |
| Courtroom procedures | 211 | 1.00 | 7.00 | 5.4834 | 1.2774 |
| General crime scene investigation | 213 | 1.00 | 7.00 | 4.9437 | 1.6445 |
| Recognition of physical evidence | 212 | 1.00 | 7.00 | 6.2170 | 1.1964 |
| Preservation of physical evidence | 213 | 1.00 | 7.00 | 6.5587 | .9677 |

1 2 3 4 5 6 7
 not at all important very important or
 or not essential absolutely essential

Fire Debris Analysts Only

- ___ Fire scene investigation
- ___ Analytical examination of fire debris
- ___ Analytical examination of ignitable liquids
- ___ Chemistry used in the petroleum industry
- ___ Fire chemistry
- ___ Fire dynamics

| Rate Importance of Fire Debris Training | N | Min. | Max. | Mean | Std. Deviation |
|---|-----|------|------|--------|----------------|
| Fire scene investigation | 186 | 1.00 | 7.00 | 4.8978 | 1.4352 |
| Analytical examination of fire debris | 185 | 1.00 | 7.00 | 6.7676 | .7186 |
| Analytical examination of ignitable liquids | 185 | 1.00 | 7.00 | 6.8000 | .6659 |
| Chemistry used in the petroleum industry | 185 | 1.00 | 7.00 | 5.6703 | 1.1055 |
| Fire chemistry | 185 | 1.00 | 7.00 | 5.4486 | 1.3141 |
| Fire dynamics | 185 | 1.00 | 7.00 | 5.0919 | 1.4623 |

Explosives Analysts Only

- ___ History of explosives
- ___ Different types of explosives
- ___ Terminology and vocabulary of explosives
- ___ Manufacturing of explosives
- ___ Composition of low explosive materials
- ___ Composition of high explosive materials
- ___ Construction of commercial pyrotechnic devices
- ___ Construction of improvised devices
- ___ Construction of military devices (e.g. simulators, rockets, hand grenades)
- ___ Analytical examination of high and low explosive materials and residue
- ___ Range procedures
- ___ Recognition of improvised device components

| Rate Importance of Explosives Training | N | Min. | Max. | Mean | Std. Deviation |
|---|-----|------|------|--------|----------------|
| History of explosives | 108 | 1.00 | 7.00 | 4.8981 | 1.3180 |
| Different types of explosives | 110 | 1.00 | 7.00 | 6.4909 | .8432 |
| Terminology and vocabulary of explosives | 109 | 1.00 | 7.00 | 6.2661 | .9779 |
| Manufacturing of explosives | 109 | 1.00 | 7.00 | 5.4954 | 1.2066 |
| Composition of low explosive materials | 110 | 1.00 | 7.00 | 6.6364 | .7630 |
| Composition of high explosive materials | 110 | 1.00 | 7.00 | 6.5091 | .9649 |
| Construction of comm. pyrotechnic devices | 109 | 1.00 | 7.00 | 5.8807 | 1.1997 |

26. How interested would you or other experienced analysts be in attending a school in each of the following courses of study?

1 2 3 4 5 6 7
 not at very
 interested interested

- _____ a. Post-blast crime scene
 _____ b. Instrumental analysis of explosives residue
 _____ c. Low explosives analysis
 _____ d. Advanced explosives workshops
 _____ e. Advanced pyrotechnics
 _____ f. Explosives microscopy
 _____ g. Regional workshops on explosives analysis

| Rate Interest in Attending School | N | Min. | Max. | Mean | Std. Deviation |
|---|-----|------|------|--------|----------------|
| Post-blast crime scene | 165 | 1.00 | 7.00 | 5.0848 | 1.9581 |
| Instrumental analysis of explosives residue | 165 | 1.00 | 7.00 | 5.8606 | 1.7104 |
| Low explosives analysis | 164 | 1.00 | 7.00 | 5.6098 | 1.7706 |
| Advanced explosives workshops | 163 | 1.00 | 7.00 | 5.8896 | 1.6481 |
| Advanced pyrotechnics | 164 | 1.00 | 7.00 | 5.5427 | 1.7456 |
| Explosives microscopy | 163 | 1.00 | 7.00 | 5.6994 | 1.7218 |
| Regional workshops on explosives analysis | 164 | 1.00 | 7.00 | 5.8476 | 1.7430 |
| Valid N | 163 | | | | |

27. Rate how interested you would be in taking each of the following types of continuing education courses

1 2 3 4 5 6 7
 not at very
 interested interested

- _____ a. EOD range time (e.g., training with EOD personnel)
 _____ b. Specialized training in electrical circuitry
 _____ c. Informational and educational seminars by commercial explosives manufacturers
 _____ d. Refresher course in analytical methodology
 _____ e. Refresher course in IED recognition updates
 _____ f. Funded training with federal investigative agencies
 _____ g. Federally funded training with National Center for Forensic Science
 _____ h. Course about collection and preservation of crime scene evidence
 _____ i. Course in fire dynamics and behavior
 _____ j. Course in petroleum refining
 _____ k. Course in computer fire modeling
 _____ l. Course in mass spectral interpretation

- _____ m. Course in fire scene search
 _____ n. Course on internet resources for fire debris analysis
 _____ o. Course on internet resources for explosives analysts
 _____ p. Regional training through professional associations

| Rate Interest in Attending CE Courses | N | Min. | Max. | Mean | Std. Deviation |
|---|-----|------|------|--------|----------------|
| EOD range time | 168 | 1.00 | 7.00 | 4.2024 | 2.1683 |
| Specialized training in electrical circuitry | 177 | 1.00 | 7.00 | 4.0113 | 2.1105 |
| Commercial explosives manufacturers | 173 | 1.00 | 7.00 | 4.9133 | 1.8797 |
| Refresher course in analytical methodology | 181 | 1.00 | 7.00 | 4.8729 | 1.7418 |
| Refresher course in IED recognition updates | 165 | 1.00 | 7.00 | 4.6242 | 2.0223 |
| Funded training with federal agencies | 186 | 1.00 | 7.00 | 5.4355 | 1.7915 |
| Training with Natl Ctr for Forensic Science | 186 | 1.00 | 7.00 | 5.6022 | 1.7987 |
| Collect and preserve crime scene evidence | 188 | 1.00 | 7.00 | 4.3883 | 1.8909 |
| Course in fire dynamics and behavior | 185 | 1.00 | 7.00 | 4.7730 | 1.8244 |
| Course in petroleum refining | 185 | 1.00 | 7.00 | 4.7081 | 1.8683 |
| Course in computer fire modeling | 184 | 1.00 | 7.00 | 3.9674 | 1.9074 |
| Course in mass spectral interpretation | 186 | 1.00 | 7.00 | 5.5699 | 1.6791 |
| Course in fire scene search | 186 | 1.00 | 7.00 | 4.4516 | 1.8918 |
| Course on internet resources for FD analysis | 186 | 1.00 | 7.00 | 4.8817 | 1.8707 |
| Course on internet resources for expl. analysts | 170 | 1.00 | 7.00 | 4.6529 | 2.0126 |
| Regional training through prof. associations | 188 | 1.00 | 7.00 | 5.7021 | 1.5842 |
| Valid N | 158 | | | | |

28. **For fire debris analysts only:** How important is theoretical and operational understanding of the following instrumentation for fire debris analysis?

1 2 3 4 5 6 7

not at all important
or not essential

very important or
absolutely essential

- ___ Gas chromatography
 ___ Gas chromatography – mass spectroscopy
 ___ High performance liquid chromatography
 ___ Fourier transform infrared analysis
 ___ Capillary electrophoresis

| Rate Importance of FD Instrumentation | N | Min. | Max. | Mean | Std. Deviation |
|--|-----|------|------|--------|----------------|
| Gas chromatography | 184 | 4.00 | 7.00 | 6.8043 | .4731 |
| Gas chromatography – mass spectroscopy | 184 | 4.00 | 7.00 | 6.6413 | .6542 |
| High performance liquid chromatography | 178 | 1.00 | 7.00 | 3.0843 | 1.6046 |
| Fourier transform infrared analysis | 179 | 1.00 | 7.00 | 4.1285 | 1.6894 |
| Capillary electrophoresis | 177 | 1.00 | 7.00 | 2.8927 | 1.6600 |
| Valid N | 176 | | | | |

29. How many competency samples do you require a fire debris or explosives analyst - trainee to examine prior to handling evidentiary samples under supervision?

- a. 1 to 5
 b. 6 to 10
 c. 11 to 15
 d. 16 to 20
 e. 20 to 30
 f. more than 30

| Number of Competency Samples Required | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------------------|--------------|-----------|---------|---------------|--------------------|
| Valid | 1 to 5 | 38 | 17.6 | 19.9 | 19.9 |
| | 6 to 10 | 41 | 19.0 | 21.5 | 41.4 |
| | 11 to 15 | 19 | 8.8 | 9.9 | 51.3 |
| | 16 to 20 | 15 | 6.9 | 7.9 | 59.2 |
| | 20 to 30 | 20 | 9.3 | 10.5 | 69.6 |
| | more than 30 | 58 | 26.9 | 30.4 | 100.0 |
| | Total | 191 | 88.4 | 100.0 | |
| Missing | System | 25 | 11.6 | | |
| | Total | 216 | 100.0 | | |

30. How important is it that competency testing include each of the following components?

| | | | | | | |
|------------|---|---|---|---|---|-----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| not at all | | | | | | very |
| important | | | | | | important |

- a. Identification of unknown samples
 b. Written examination
 c. Oral examination
 d. Report writing
 e. Moot Court
 f. Supervised casework

| Rate Importance of Competency Testing Components | N | Min. | Max. | Mean | Std. Deviation |
|--|-----|------|------|--------|----------------|
| Identification of unknown samples | 206 | 4.00 | 7.00 | 6.8932 | .4052 |
| Written examination | 205 | 1.00 | 7.00 | 5.4000 | 1.6556 |
| Oral examination | 205 | 1.00 | 7.00 | 5.4634 | 1.7164 |
| Report writing | 204 | 1.00 | 7.00 | 5.9265 | 1.2787 |
| Moot Court | 206 | 1.00 | 7.00 | 5.8883 | 1.4423 |
| Supervised casework | 206 | 1.00 | 7.00 | 6.4806 | .9961 |
| Valid N | 201 | | | | |

31. When does your laboratory require competency tests?

- a. After completion of each topical area
 b. At the end of the entire training
 c. Throughout training and at the end of the entire training
 d. No competency testing

| When is Competency Testing Required? | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------------------------------|-----------|---------|---------------|--------------------|
| After each topical area | 26 | 12.0 | 13.1 | 13.1 |
| At end of entire training | 35 | 16.2 | 17.6 | 30.7 |
| Through training & at end | 126 | 58.3 | 63.3 | 94.0 |
| No competency testing | 12 | 5.6 | 6.0 | 100.0 |
| Total | 199 | 92.1 | 100.0 | |
| Missing System | 17 | 7.9 | | |
| Total | 216 | 100.0 | | |

Analytical Protocols

32. Does your laboratory conduct proficiency testing of each analyst?

- a. Yes
 b. No

| Does Lab Conduct Proficiency Testing? | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------------------------------|-----------|---------|---------------|--------------------|
| Valid No | 7 | 3.2 | 3.3 | 3.3 |
| Yes | 204 | 94.4 | 96.7 | 100.0 |
| Total | 211 | 97.7 | 100.0 | |
| Missing System | 5 | 2.3 | | |
| Total | 216 | 100.0 | | |

33. How often does your laboratory conduct external explosives and fire debris analysis proficiency tests for each analyst?

- a. Never
 b. Every six months
 c. Once a year
 d. Once every two years
 e. Once every 2-5 years

| Frequency of External Proficiency Testing | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|----------------------|-----------|---------|---------------|--------------------|
| Valid | Never | 13 | 6.0 | 6.2 | 6.2 |
| | Every six months | 26 | 12.0 | 12.4 | 18.7 |
| | Once a year | 152 | 70.4 | 72.7 | 91.4 |
| | Once every two years | 12 | 5.6 | 5.7 | 97.1 |
| | Once every 2-5 years | 6 | 2.8 | 2.9 | 100.0 |
| | Total | 209 | 96.8 | 100.0 | |
| Missing | System | 7 | 3.2 | | |
| | Total | 216 | 100.0 | | |

34. How often does your laboratory conduct internal explosives and fire debris analysis proficiency tests for each analyst?

- a. Never
 b. Every six months
 c. Once a year
 d. Once every two years
 e. Once every 2-5 years

| Frequency of Internal Proficiency Testing | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|----------------------|-----------|---------|---------------|--------------------|
| Valid | Never | 104 | 48.1 | 50.2 | 50.2 |
| | Every six months | 17 | 7.9 | 8.2 | 58.5 |
| | Once a year | 70 | 32.4 | 33.8 | 92.3 |
| | Once every two years | 7 | 3.2 | 3.4 | 95.7 |
| | Once every 2-5 years | 9 | 4.2 | 4.3 | 100.0 |
| | Total | 207 | 95.8 | 100.0 | |
| Missing | System | 9 | 4.2 | | |
| | Total | 216 | | | |

Questions 37-44: For Fire Debris Analysts Only. Explosives Analysts now proceed to Question 45.

37. In fire debris analyses, how often do you use each of the following sample preparation techniques?

0 1 2 3 4 5
never use this technique very seldom frequently

- _____ a. Solvent extraction
 _____ b. Passive headspace (Activated charcoal strips)
 _____ c. Dynamic headspace (Activated charcoal tubes)
 _____ d. Steam or vacuum distillation
 _____ e. Simple headspace
 _____ f. Solid phase microextraction

| Frequency of Use in FD Analysis | N | Min. | Max. | Mean | Std. Deviation |
|---------------------------------|-----|------|------|--------|----------------|
| Solvent extraction | 185 | .00 | 5.00 | 2.5189 | 1.4260 |
| Passive headspace | 185 | .00 | 5.00 | 4.2216 | 1.6516 |
| Dynamic headspace | 185 | .00 | 5.00 | 1.7081 | 2.0219 |
| Steam or vacuum distillation | 185 | .00 | 4.00 | .2486 | .5642 |
| Simple headspace | 185 | .00 | 5.00 | 1.8649 | 1.4288 |
| Solid phase microextraction | 185 | .00 | 5.00 | .4973 | 1.0380 |

38. In fire debris analyses, how often do you use the following instrumental analysis techniques?

0 1 2 3 4 5
never use this technique very seldom frequently

- _____ a. GC/FID
 _____ b. GC/MS
 _____ c. FTIR
 _____ d. Other _____

| Frequency of Use in FD Analysis | N | Min. | Max. | Mean | Std. Deviation |
|---------------------------------|-----|------|------|--------|----------------|
| GC/FID | 184 | .00 | 5.00 | 3.0435 | 2.1598 |
| GC/MS | 184 | .00 | 5.00 | 4.0109 | 1.5400 |
| FTIR | 184 | .00 | 4.00 | .8370 | .9324 |
| Other | 184 | .00 | 5.00 | .1793 | .7208 |

39. In fire debris analyses, how often do you use the following methodologies for ignitable liquid identification?

0
never use this

1 2 3 4 5
very seldom frequently

- _____ a. Pattern recognition by FID alone
 _____ b. Pattern recognition by TIC alone
 _____ c. Pattern recognition by mass chromatography (EIC)
 _____ d. Target compound analysis
 _____ e. Individual component identification
 _____ f. Other _____

| Frequency of Use in FD Analysis | N | Min. | Max. | Mean | Std. Deviation |
|--|-----|------|------|--------|----------------|
| Pattern recognition by FID alone | 183 | .00 | 5.00 | 2.8470 | 2.1785 |
| Pattern recognition by TIC alone | 183 | .00 | 5.00 | 1.8907 | 1.8063 |
| Pattern recognition by mass chromatography | 183 | .00 | 5.00 | 3.2350 | 2.0176 |
| Target compound analysis | 183 | .00 | 5.00 | 1.7814 | 1.9376 |
| Individual component identification | 183 | .00 | 5.00 | 2.6011 | 1.6966 |
| Other | 183 | .00 | 5.00 | .2732 | 1.1201 |

40. In fire debris analyses, how often do you use the following QA/QC tests?

0
never use this

1 2 3 4 5
very seldom frequently

- _____ a. ASTM 1387 test mix or similar mixture
 _____ b. Internal Standards (e.g., 3-phenyltoluene)
 _____ c. Solvent Blanks
 _____ d. Apparatus Blanks (e.g., strips, glassware)
 _____ e. Recovery Checks (e.g., simulated case extractions)
 _____ f. Peer Review
 _____ g. Other _____

| Frequency of Use in FD Analysis | N | Min. | Max. | Mean | Std. Deviation |
|--|-----|------|------|--------|----------------|
| ASTM 1387 test mix or similar mixture | 185 | .00 | 5.00 | 3.7351 | 1.8386 |
| Internal Standards (e.g., 3-phenyltoluene) | 185 | .00 | 5.00 | 1.0162 | 1.7769 |
| Solvent Blanks | 185 | .00 | 5.00 | 4.7027 | .9286 |
| Apparatus Blanks | 185 | .00 | 5.00 | 4.0270 | 1.5723 |
| Recovery Checks | 185 | .00 | 5.00 | 1.8486 | 1.8234 |
| Peer Review | 185 | .00 | 5.00 | 4.2378 | 1.5491 |
| Other | 185 | .00 | 5.00 | .3081 | 1.1360 |

41. In fire debris analyses, do you use the ASTM E-30 Committee on Forensic Science Standards (found in ASTM Volume 14.02) and ASTM guides to fire debris analysis?

- _____ a. Yes
 _____ b. No

| Use ASTM E-30 Standards? | | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------------------|--------|-----------|---------|---------------|--------------------|
| Valid | No | 36 | 16.7 | 20.2 | 20.2 |
| | Yes | 142 | 65.7 | 79.8 | 100.0 |
| | Total | 178 | 82.4 | 100.0 | |
| Missing | System | 38 | 17.6 | | |
| | Total | 216 | 100.0 | | |

If you answered yes to question 41 then please answer the following set of questions. If you answered no to item 41, please proceed directly to question 46.

42. How closely do you adhere to the following ASTM standards and guides?

1 2 3 4 5
 not at all explicitly

_____ a. ASTM-E 1387-95 (Standard Test Method for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography)

_____ b. ASTM-E 1618-94 (Standard Test Method for Ignitable Liquid Extracts by Gas Chromatography – Mass Spectrometry)

_____ c. ASTM-E 1385-95 (Standard Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Steam Distillation)

_____ d. ASTM-E 1412-95 (Standard Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Passive Headspace Concentration)

_____ e. ASTM-E 1413-95 (Standard Practice for Separation and Concentration of Liquid Residues from Fire Debris Samples by Dynamic Headspace Concentration)

_____ f. ASTM-E 1388-95 (Standard Practice for Sampling of Vapors from Fire Debris Samples)

_____ g. ASTM-E 1386-95 (Standard Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Solvent Extraction)

_____ h. ASTM-E 1492-92 (Standard Practice for Receiving, Documenting, Storing and Retrieving Evidence in a Forensic Science Laboratory)

_____ i. ASTM-E 1459-92 (Physical Evidence Labeling and Related Documentation)

45. **For explosives Analysts Only:** In explosives analyses, how often do you use each of the following analytical techniques?

| | | | | | | | |
|-------|--------|---|---|---|---|---|------------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| never | rarely | | | | | | very often |

Chemical tests:

- _____ a. Microchemical analysis
 _____ a1. PLM
 _____ a2. Stereomicroscopy
 _____ b. Spot tests
 _____ c. TLC
- _____ d. Ignition Analysis
- _____ e. Field Explosives Screening

Instrumental Analyses:

- _____ a. IR
 _____ b. SEM – EDX
 _____ c. SEM – WDX
 _____ d. ICP
 _____ e. XRF
 _____ f. GC/MS
 _____ g. HPLC
 _____ h. CE
 _____ i. IC
 _____ j. GC/TEA
 _____ k. HPLC/TEA
 _____ l. GC/FID
 _____ m. GC/ECD
 _____ n. IMS
 _____ o. NMR
 _____ p. HPLC/MS
 _____ q. Raman spectrometry
 _____ r. ICP
 _____ s. FTIR
 _____ t. Other _____

| Frequency of Use in Explosives Analysis | N | Min. | Max. | Mean | Std. Deviation |
|---|----|------|------|--------|----------------|
| Microchemical analysis | 86 | .00 | 7.00 | 5.6977 | 2.0980 |
| PLM | 83 | .00 | 7.00 | 4.5060 | 2.5575 |
| Stereomicroscopy | 85 | .00 | 7.00 | 6.1765 | 1.6632 |
| Spot tests | 87 | .00 | 7.00 | 5.8046 | 1.8162 |
| TLC | 84 | .00 | 7.00 | 3.4762 | 2.1979 |
| Ignition Analysis | 88 | .00 | 7.00 | 4.8295 | 2.3303 |
| Field Explosives Screening | 84 | .00 | 7.00 | 1.3571 | 2.0039 |
| IR | 86 | .00 | 7.00 | 3.7674 | 2.9692 |
| SEM – EDX | 89 | .00 | 7.00 | 4.3820 | 2.7819 |
| SEM – WDX | 84 | .00 | 7.00 | .4286 | 1.4585 |
| ICP | 86 | .00 | 7.00 | .4884 | 1.4772 |
| XRF | 88 | .00 | 7.00 | 1.9545 | 2.7203 |
| GC/MS | 88 | .00 | 7.00 | 3.5568 | 2.2837 |
| HPLC | 86 | .00 | 7.00 | 1.3488 | 2.2427 |
| CE | 86 | .00 | 7.00 | .5814 | 1.5975 |
| IC | 87 | .00 | 7.00 | 1.2299 | 2.3263 |
| GC/TEA | 85 | .00 | 7.00 | .6235 | 1.7592 |
| HPLC/TEA | 84 | .00 | 7.00 | .3810 | 1.2792 |
| GC/FID | 87 | .00 | 7.00 | 1.0690 | 1.7036 |
| GC/ECD | 86 | .00 | 5.00 | .3256 | 1.0453 |
| IMS | 84 | .00 | 6.00 | .1905 | .7987 |
| NMR | 84 | .00 | 1.00 | .0357 | .1867 |
| HPLC/MS | 84 | .00 | 7.00 | .4167 | 1.4906 |
| Raman spectrometry | 84 | .00 | 6.00 | .1786 | .8665 |
| ICP | 84 | .00 | 7.00 | .2976 | 1.1593 |
| FTIR | 88 | .00 | 7.00 | 5.1023 | 2.2795 |
| Other | 78 | .00 | 7.00 | .9231 | 2.1367 |
| Valid N | 66 | | | | |

53. **If you answered yes to question 52**, how important is it to you to have a technical working group engage in the following activities?

1 2 3 4 5 6 7
not at all very

- ____ a. Publishing guidelines for explosives and fire debris analysis
 ____ b. Validating guidelines for explosives and fire debris analysis
 ____ c. Establishing national quality control standards
 ____ d. Assisting explosives and fire debris laboratories in gaining ASCLD approval
 ____ e. Maintaining internet library or databases of explosives and fire debris analysis materials
 ____ f. Promoting/offering continuing education courses in explosives and fire debris analysis
 ____ g. Tracking and disseminating results of court cases involving explosives and fire debris analysis
 ____ h. Promoting international participation in an explosives and fire debris analysis technical working group

| Rate Importance of TWG Involvement in | N | Min. | Max. | Mean | Std. Deviation |
|--|-----|------|------|--------|----------------|
| Publishing guidelines for analysis | 157 | 1.00 | 7.00 | 5.5732 | 1.5326 |
| Validating guidelines for analysis | 157 | 1.00 | 7.00 | 5.5796 | 1.5447 |
| National quality control standards | 160 | 1.00 | 7.00 | 5.5400 | 1.6011 |
| Assisting labs in gaining ASCLD approval | 155 | 1.00 | 7.00 | 5.1484 | 1.6895 |
| Maintaining internet library or databases | 159 | 1.00 | 7.00 | 6.1258 | 1.0717 |
| Promoting/offering continuing education | 157 | 1.00 | 7.00 | 6.0955 | 1.2131 |
| Disseminating results of court cases | 158 | 1.00 | 7.00 | 5.0253 | 1.5266 |
| Promoting international participation in TWG | 159 | 1.00 | 7.00 | 5.4214 | 1.3751 |

54. **If you answered yes to question 52**, please rate how useful you would find each of the following methods for disseminating information from TWG organizations.

1 2 3 4 5 6 7
not at all useful very useful

- _____ a. Mailed information
 _____ b. Phone calls
 _____ c. Electronic mail
 _____ d. Internet websites or databases
 _____ e. Trade journals or newspapers
 _____ f. Conference presentations
 _____ g. Special seminars
 _____ h. Association newsletters

| Rate Value of Information Dissemination Methods from TWGs | N | Min. | Max. | Mean | Std. Deviation |
|---|-----|------|------|--------|----------------|
| Mailed information | 156 | 1.00 | 7.00 | 5.8974 | 1.3592 |
| Phone calls | 155 | 1.00 | 7.00 | 3.7161 | 1.8786 |
| Electronic mail | 157 | 1.00 | 7.00 | 5.5924 | 1.6011 |
| Internet websites or databases | 158 | 1.00 | 7.00 | 5.8544 | 1.4402 |
| Trade journals or newspapers | 157 | 1.00 | 7.00 | 5.0191 | 1.6812 |
| Conference presentations | 158 | 1.00 | 7.00 | 5.0316 | 1.5369 |
| Special seminars | 159 | 1.00 | 7.00 | 5.1006 | 1.6038 |
| Association newsletters | 158 | 1.00 | 7.00 | 5.5316 | 1.4484 |
| Valid N | 149 | | | | |

55. Does your laboratory provide explosives and fire debris literature and publications for you to reference?

- _____ a. Yes
 _____ b. No

| Lab Provide Literature? | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------|-----------|---------|---------------|--------------------|
| Valid | No | 37 | 17.1 | 17.8 |
| | Yes | 171 | 79.2 | 82.2 |
| | Total | 208 | 96.3 | 100.0 |
| Missing | System | 8 | 3.7 | |
| | Total | 216 | 100.0 | |

56. Rate each of the following statements as they apply to you or your laboratory using the scale given below:

1 2 3 4 5 6 7
not at all very

_____ a. How sufficient are the explosives and fire debris publications provided by your laboratory?

_____ b. How interested would your laboratory be in receiving a library of ignitable liquid standards on a regular basis?

_____ c. How interested would your laboratory be in receiving a library of pyrolysis standards on a regular basis?

_____ d. How important do you feel it would be to have national standards for report writing?

_____ e. How important would it be to have a specific protocol for wording of both positive and negative samples?

_____ f. How important would it be to have a national database for chromatographic data for ignitable liquids?

_____ g. How important would it be to have a national source for ignitable liquid standards?

_____ h. How interested are you in participating in the fire and explosives technical working group?

| Rate | N | Min. | Max. | Mean | Std. Deviation |
|--|-----|------|------|--------|----------------|
| Sufficiency of Publications | 209 | 1.00 | 7.00 | 4.3349 | 1.5941 |
| Interest in Ignitable Liquids Library | 199 | 1.00 | 7.00 | 6.2211 | 1.3186 |
| Interest in Pyrolysis Library | 202 | 1.00 | 7.00 | 6.1782 | 1.4064 |
| Importance of National Reporting Standards | 211 | 1.00 | 7.00 | 4.1090 | 1.7815 |
| Importance of Protocol for Wording Results | 210 | 1.00 | 7.00 | 4.2524 | 1.8086 |
| Importance of Chrom. Data for Ignitables | 201 | 1.00 | 7.00 | 5.7015 | 1.5364 |
| Importance of Source for Ignitable Standards | 201 | 1.00 | 7.00 | 6.1045 | 1.4121 |
| Interest in Participating in TWGFEX | 210 | 1.00 | 7.00 | 5.3952 | 1.8640 |
| Valid N | 194 | | | | |