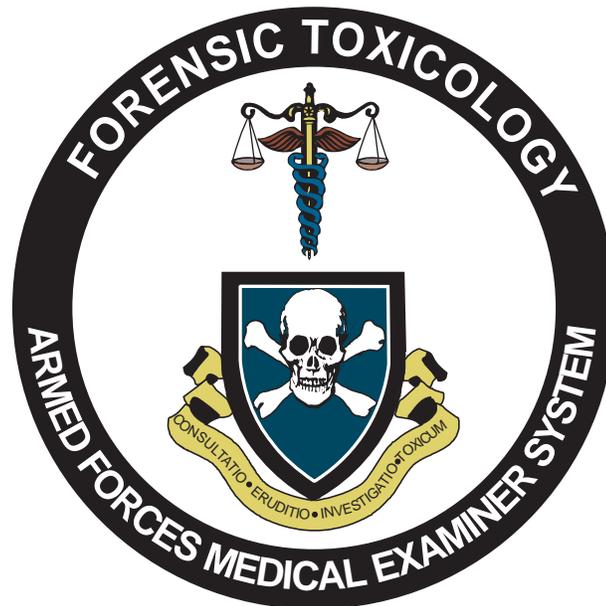


DIVISION OF FORENSIC TOXICOLOGY

**ARMED FORCES MEDICAL
EXAMINER SYSTEM**

ARMED FORCES INSTITUTE OF PATHOLOGY



GUIDELINES FOR THE COLLECTION AND SHIPMENT OF SPECIMENS FOR TOXICOLOGICAL ANALYSIS

January 2008

(website address updated November 2009)

Commercial: (301) 319-0100, DSN: 285-0100

Fax: (301) 319-0628 or DSN 285-0628

e-mail: FORTOX@AFIP.OSD.MIL

<http://www.afip.org/consultation/AFMES/operations/fortox.html>

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I. MISSION

The Division of Forensic Toxicology (DFT), Armed Forces Medical Examiner System (AFMES), Armed Forces Institute of Pathology (AFIP), located at the AFIP Annex, Rockville, MD, remains the DoD's centralized laboratory which performs routine toxicological examinations on Class A, B, and C military aircraft, ground, and ship (sea) mishaps in which *no* fatalities occur (hereinafter referred to as incidents); AFMES cases to include all military aircraft, ground, and ship (sea) accidents involving fatalities; selected military autopsies; biological specimens from AFOSI, CID, and NCIS criminal investigations; blood for legal alcohol and drug tests in DUI and DWI medicolegal determinations; blood and urine in fitness-for-duty inquiries; and, selected forensic cases of national interest.

II. NON-FATALITY CASES (Aircraft, Ground, & Ship Incidents):

A. COLLECTION:**

To ensure integrity of sample collection, direct observation and documentation of the sample collection (i.e. name of observer, date/time of collection) should be maintained by the submitting command.

*The following minimum specimen requirements should be collected and submitted (**revised December 2004):*

BLOOD: Two NaF (gray top) tubes: 7 mL each
One EDTA (purple top) tube: 7 mL each
URINE: 50 mL - 70 mL (no preservative)

***DO NOT use SST / CORVAC/ Tiger Top tubes** for blood collection. The serum-separating gel has been shown to absorb certain classes of drugs. Hand-mix the blood tubes after collection and forward all specimens to our laboratory after properly labeling each tube or container with the name and SSAN of the individual. You are not required to retain any samples at your facility unless your protocol requires it. Send all urine collected; do not delay the entire shipment if the urine container(s) and/ or blood tube(s) are less than the optimal amounts.

B. PACKAGING & SHIPMENT:

Each specimen should be individually wrapped in an absorbent packing material and then placed in a heat-sealed or zip-lock plastic bag; blood and urine should be packaged separately. Next, place all specimens and paperwork (paperwork should also be sealed in a separate plastic bag) from a single individual in another heat sealed or zip-lock plastic bag; do not package different types of specimens together nor package more than one set of patient specimens in each bag. The blood and/or urine should be packed, **unfrozen**, in a shipping container of sturdy cardboard, plastic or metal construction, sealed, and then sent by the fastest means possible to the AFIP, such as FedEx®, U.S. Express/Priority Mail, or U.S. Second-Day Mail. Assign a monetary value of \$100.00 or less for all diagnostic samples. **DO NOT** send package(s) by Registered, Certified, Air Freight, or "Return Receipt Requested" as this will cause significant delays in the delivery of the specimens. Each individual's set of specimens submitted **must** have an accompanying AFIP Form 1323 (see *Attachment 1*) and any other documentation pertinent to the case (paperwork should be sealed in a separate plastic bag). Note that failure to submit a properly completed AFIP Form 1323 will delay processing, may result in an incomplete analysis of the submitted specimens or return of specimens to the contributor, and may cause test results to be forwarded to the wrong address. In addition to the patient information, please include a point of contact name, contact phone number, email address and correct mailing address for the return of the final report and any pertinent incident/accident details.

III. FATALITY CASES (Aircraft, Ground, Ship, & Routine Autopsies):

A. COLLECTION:

In order for the Division to furnish accurate and meaningful toxicological analyses, it is strongly recommended that the following fluid and tissue samples be submitted for testing:

Blood:	All available up to 100 mL (indicate source)
Urine:	100 mL (no preservative)
Bile:	All available
Vitreous:	All available
Liver:	100 grams
Brain:	100 - 200 grams
Kidney:	50 grams
Lung:	50 grams
Gastric:	50 grams

- 1) For patients who survive and later expire during a hospital stay, it can be extremely beneficial if the contributor can furnish any antemortem samples (often stored in a clinical laboratory's refrigerator) along with the postmortem samples. Clearly label the source of all samples (e.g., heart blood or peripheral blood) and clearly differentiate antemortem from postmortem specimens. In addition, list the date and time when the specimens were collected.
- 2) Prompt collection of specimens is essential so they may be protected from contamination and degradation. The remains should be refrigerated as soon as possible. ***NO ONE***, under any circumstances, should attempt collection of blood, urine, or bile by needle puncture if an autopsy is to be performed. Such attempts may result in unsuitable toxicology specimens and cause contamination of crucial evidence such as body wounds, markings, and other prominent features.
- 3) Excellent specimens can easily be obtained at autopsy. The pathologist should select the toxicology samples during examination of the remains and have his or her assistant(s) prepare containers or tubes beforehand. For accidents involving fragmentation of two or more bodies, the flight surgeon and/or pathologist must ensure that the fragments are properly identified before being submitted as specific individuals. If this cannot be guaranteed, specimens must be labeled as commingled remains.
- 4) If no fluids or organs can be recovered, 100 grams of muscle (psoas, perispinal, or deep thigh preferred), and/or fat and red bone marrow can be submitted. In severe crush injuries, the gallbladder will often remain intact, permitting bile collection. Remember that even in the most severely burned or fragmented cases, valuable information can often be obtained from only a few grams of dried blood or tissue (esp. spleen). If in doubt, submit as much tissue as is practical; ***do not submit formalin-fixed tissue for toxicological analysis***. All specimens must be labeled with the sample type, decedent's name, autopsy number and complete SSAN. A properly completed AFIP Form 1323 (see *Attachment I*) ***must*** be submitted with each fatality or AFMES case. In addition to the patient information, please include any pertinent incident/accident details, a point of contact name, contact phone number, email address and correct mailing address for the return of the final report.

B. PACKAGING & PRESERVATION:

Each specimen must be individually packaged and (preferably) heat sealed in a sturdy polyethylene bag (see *Table 1* for NSN supplies). **Glass containers and cellophane-laminated plastic bags must not be used** for frozen specimens, as they will become brittle, crack, and break when frozen on dry ice.

Fluids should be placed in tightly closed, screw-cap, polyethylene containers and must be labeled with the contents, decedent's name, autopsy number and SSAN. Indelible felt tipped pens are very useful for this purpose. Care must be taken to avoid contamination of the specimens with solvents that may be found in some inks, formalin-fixed tissue, alcohol, disinfectants, or deodorants. Make sure each tissue is individually packaged, since drug distribution studies of different organs often provide critical information concerning drug use and potential toxicity. Chemical fixatives, such as formalin, embalming fluids, etc., cause interference with toxicological analyses; **do not submit formalin-fixed tissue for toxicological analysis.**

FREEZING with dry ice is the method of choice for preserving tissue. Note that ***glass tubes will often shatter upon thawing when frozen on dry ice*** and paper and tape labels will not stick under the same conditions; it is imperative that each specimen and its accompanying paperwork are all *individually* packaged to prevent contamination upon thawing.

C. SHIPMENT:

All specimen containers should be wrapped with sufficient absorbent material to contain any leakage and then placed in another polyethylene plastic bag and again heat sealed. The AFIP Form 1323 and any other pertinent paperwork should be placed in a separate, sealed plastic bag and placed inside the box (along with the samples) and not included with other shipping documents that may be affixed to the outside of the mailing box. A third, large polyethylene bag should be used to keep all specimens and forms from one individual together.

The frozen tissue(s) and body fluid(s) must then be packed in an insulated shipping container large enough to hold the specimens plus a quantity of dry ice approximately **3 times** the weight of the specimens. When using dry ice, do not use containers in which CO₂ gas is not permitted to escape; gas pressure within a sealed container presents a hazard and could cause the container to burst! **Dry ice must not be placed in a thermos bottle.** Do not use glass containers for packaging or allow fluid containers to come in direct contact with the dry ice, as they will crack. If it is absolutely necessary to use glass tubes, place tissue containers closest to the dry ice and isolate glass tubes (if used) by encasing them in a separate plastic container *away* from the dry ice.

The shipment **MUST** be sent via an express mail service. Although Saturday and Sunday delivery is acceptable, it is preferred that packages *arrive* Monday through Friday. This is the only rapid means available to ensure that frozen specimens arrive at the AFIP as quickly as is necessary to prevent decomposition. Assign a monetary value of \$100.00 or less for all diagnostic samples.

*******DO NOT MAIL ANY PARCELS TO OUR ROCKVILLE, MD ADDRESS*******

A courier service has been implemented to transport your packages from the AFIP main building (Washington, DC) to our ANNEX located in Rockville, MD.

We cannot overemphasize the need to pack the specimens with the utmost of care in sturdy containers that are properly labeled and with the correct paperwork. Doing so will protect the integrity of the samples and safeguard all individuals who deliver, open, and process your mail.

IV. INVESTIGATIVE CASES

A. DEFINITION:

The following types of cases may be submitted to the Division for toxicological analysis; they will be classified as “investigative”:

- 1) *criminal investigations* (AFOSI, CID, & NCIS agencies)
- 2) *legal BAT's* (BAC's) from DUI/ DWI incidents
- 3) *fitness-for-duty testing*

Analyses routinely performed for these cases include: *volatiles* (ethanol, methanol, etc.) and *drugs of abuse* (complete drug screen available upon request; if known, drug in question should be disclosed). **WE DO NOT TEST FOR THE PRESENCE OF STEROIDS.** Please call us beforehand should questions arise.

B. COLLECTION:

To ensure integrity of sample collection, direct observation and documentation of the sample collection (i.e. name of observer, date/time of collection) should be maintained by the submitting command.

The following minimum specimen requirements should be collected and submitted:

- BLOOD: 14 mL - 21 mL (NaF; [gray top] tubes)
- URINE: 50 mL - 70 mL (no preservative)

After collection, hand-mix the blood tubes and label all specimens with the name and SSAN of the individual.

C. PACKAGING & SHIPMENT:

Each specimen should be individually wrapped in an absorbent packing material and then placed in a heat sealed or zip-lock plastic bag; blood and urine should be packaged separately. Next, place all specimens and paperwork (paperwork should also be sealed in a separate plastic bag) from a single individual in another heat sealed or zip-lock plastic bag; do not package different types of specimens together nor package more than one set of patient specimens in each bag. The blood and/or urine should be packed, **unfrozen**, in a shipping container of sturdy cardboard, plastic or metal construction, sealed, and then sent by the fastest means possible to the AFIP, such as FedEx®, U.S. Priority Mail, or U.S. Second-Day Mail. Assign a monetary value of \$100.00 or less for all diagnostic samples. **DO NOT** send package(s) by Registered, Certified, Air Freight, or "Return Receipt Requested" as this will cause significant delays in the delivery of the specimens. Each individual's set of specimens submitted **must** have an accompanying AFIP Form 1323 (see *Attachment 1*) and any other documentation pertinent to the case (paperwork should be sealed in a plastic bag). Note that failure to submit a properly completed AFIP Form 1323 will delay processing, may result in an incomplete analysis of the submitted specimens or return of specimens to the contributor, and may cause test results to be forwarded to the wrong address. In addition to the patient information, please include a point of contact name, contact phone number, email address and correct mailing address for the return of the final report and any pertinent incident/accident details.

V. MAILING ADDRESS:

*Please use the following address for all submissions. **YOU MUST LABEL** the outside of the package with (2) phrases: “Clinical/ Diagnostic Specimens Enclosed” and “Shipment complies with U.S. domestic and IATA international packaging regulations.” It is also important that the word “Biohazard” **DOES NOT** appear anywhere on the outside wrapping of the package. Refer to the Domestic Mail Manual Sections CO23.8.4 through CO23.8.10 for complete instructions.*

Armed Forces Institute of Pathology
Attn: Division of Forensic Toxicology
Building 54
6825 16th Street, NW
Washington, DC 20306-6000

VI. COMMUNICATION:

Division of Forensic Toxicology (AFIP-Annex, Rockville, MD) Voice and VoiceMail:

Forensic Toxicology (Comm & DSN).....(301) 319-0100 or 285-0100 (DSN)

AFIP Main Building (Washington, DC) Voice:

AFIP Information (24 hrs.).....(202) 782-2100 or 662-2100 (DSN)

AFIP Case Search (Center for Adv Path).....(800) 774-8427

AFIP Receiving & Accessions (RRR).....(202) 782-1630 or 662-1630 (DSN)

Facsimile (FAX):

Forensic Toxicology.....(301) 319-0628 or 285-0628 (DSN)

E-Mail: FORTOX@AFIP.OSD.MIL

World Wide Web (WWW) address to view and print electronic version of this SOP or obtain fillable Adobe Acrobat version of AFIP FORM 1323:

<http://www.afip.org/consultation/AFMES/operations/fortox.html>

(website address updated November 2009)

VII. PAPERWORK:

A single-sided AFIP Form 1323, rev. FEB 99, AFIP/ Division of Forensic Toxicology - Toxicological Request Form has been developed to replace the outdated version created in 1960. Significant improvements including larger demographic boxes, clearer subject areas, and an updated chain-of-custody section. The form is also downloadable from the Web in both printable and fillable formats. *Submitting triple copies of the AFIP Form 1323 is no longer required*; complete and submit one form for each person (see *Attachment 2 sample*), including any other applicable forms relative to the case. The paperwork should be placed and sealed in a separate polyethylene bag. All available information [a brief history of the events surrounding the incident, crash, death, etc.; pertinent drug history; scene description; condition of the body(ies) when recovered; and/ or autopsy report] should also be submitted with the specimens. These historical data and array of applicable facts can assist the toxicologist in selecting special procedures to supplement routine analysis. Paperwork should be carefully printed or typed. **Again, we cannot overemphasize the importance of establishing chain-of-custody documentation with a properly completed AFIP Form 1323 form.** Correctly completed paperwork must be submitted with each case or significant delays will occur. **Properly completed paperwork is required.** This includes point of contact name, contact phone number, signature of the requestor, email address and correct mailing address for the return of the final report and any pertinent incident/accident details.

VIII. HELPFUL HINTS/ ADDITIONAL INFORMATION:

1. **Do not mix submissions** for other departments (e.g., slides, x-rays, tissue blocks, fixed tissue, etc.) with toxicology specimens. These samples should be forwarded (with appropriate paperwork) to the respective department or to the AFIP's Receiving and Accessions Branch (under separate cover) at:
Armed Forces Institute of Pathology
Attn: Receiving & Accessions/ RRR
Bldg. 54, Room G071
6825 16th Street, NW
Washington DC 20306-6000
2. When packaging shipments **do not seal tubes or containers** with wax, parafilm or masking/scotch-tape. **Routine UA sample cups (with yellow or blue lids) generally leak during shipment and are not recommended;** rather, use a urine container that is sturdy (one that has a metal or hard-plastic screw-top lid) such as NSN Stock # 6640-00-165-5778. Evidence tape is not required, but is acceptable. Absorbent Pouches, such as NSN 6530-01-304-9754, will contain most spills and meet US and international mail requirements.
3. The POC (Point-of-Contact) for the submitted case should include their printed name, telephone number, FAX number, and an e-mail address to facilitate communication concerning "problem" cases in the appropriate box on the AFIP Form 1323.
4. **It is not necessary** to provide advanced telephonic notice or an email message that specimens are being shipped to us for toxicological analysis.
5. Lastly, **please** call for information or clarification concerning collection and shipment policies if you are unsure of what to do. It is better to temporarily delay shipment of specimens than to send specimens improperly collected, labeled, packaged, and shipped or to submit cases without the correct paperwork.

REFERENCES:

TM 8-300, NAVMED P-5065 & AFM 160-19

Mail Regulations: AR 40-57 (OAFME); IATA, Section 3.6.7 and Packing Instruction 650;
Domestic Mail Manual, Section CO23.8.4 through CO23.8.10

Table 1: *Bag, Polyethylene, Flat, Heat-Seal Closure (for Shipping):*

8105-00-680-0503	4" x 6"
8105-00-702-7177	5" x 12"
8105-00-702-7178	18" x 48"
8105-00-299-8532	20" x 40"
8105-00-200-0195	24" x 24"

AFIP/ DIVISION OF FORENSIC TOXICOLOGY - TOXICOLOGICAL REQUEST FORM

TO: ARMED FORCES INSTITUTE OF PATHOLOGY ATTN: DIVISION OF FORENSIC TOXICOLOGY BUILDING 54 6825 16TH STREET, N.W. WASHINGTON, DC 20306-6000	<u>FORWARD FINAL REPORT TO:</u> <i>(Please use complete mailing address)</i> Email Address:
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NAME OF PATIENT <i>(Last, First, MI)</i>	SOCIAL SECURITY #	AGE	SEX	RACE

DATE OF INCIDENT/ ACCIDENT	TIME AND DATE OF DEATH	AUTOPSY #

MEDICATION HISTORY <i>(Prescribed or administered, in patient's possession, containers found near body, etc.)</i>

SPECIMEN/ AMOUNT	SPECIMEN/ AMOUNT	SPECIMEN/ AMOUNT
1.	5.	9.
2.	6.	10.
3.	7.	11.
4.	8.	12.

INCIDENT/ ACCIDENT DETAILS <i>(Include pertinent information regarding crash site, autopsy or investigation; (e.g., What happened?)</i>

PRINTED NAME OF REQUESTER/ TITLE	SIGNATURE	DATE	TELEPHONE #:
			COMM: DSN: FAX:

CHAIN OF CUSTODY (CC)
Each individual charged with custody of specimens must complete information below (continue CC on reverse as required).

RELEASED BY	RECEIVED BY	DATE & TIME	PURPOSE OF TRANSFER
SIGNATURE	SIGNATURE		
PRINTED NAME	PRINTED NAME		
SIGNATURE	SIGNATURE		
PRINTED NAME	PRINTED NAME		
SIGNATURE	SIGNATURE		
PRINTED NAME	PRINTED NAME		
SIGNATURE	SIGNATURE		
PRINTED NAME	PRINTED NAME		
SIGNATURE	SIGNATURE		
PRINTED NAME	PRINTED NAME		

AFIP/ DIVISION OF FORENSIC TOXICOLOGY - TOXICOLOGICAL REQUEST FORM

TO: ARMED FORCES INSTITUTE OF PATHOLOGY ATTN: DIVISION OF FORENSIC TOXICOLOGY BUILDING 54 6825 16TH STREET, N.W. WASHINGTON, DC 20306-6000	FORWARD FINAL REPORT TO: Your Unit Name Your Unit Address City, State APO or Zipcode Email: Email address of Requester
--	---

NAME OF PATIENT (Last, First, MI)	SOCIAL SECURITY #	AGE	SEX	RACE
Smith, John F.	987-65-4321	29	M	CAU

DATE OF INCIDENT/ ACCIDENT	TIME AND DATE OF DEATH	AUTOPSY #
14 MAR 98	14 MAR 98 @ 1820 HRS	A98-12

MEDICATION HISTORY (*Prescribed or administered, in patient's possession, containers found near body, etc.*)
 Found empty bottle of Xanax on person; Search of residence revealed a host of prescription medications including Prozac and miscellaneous anti-depressants; Victim was a recovering alcoholic and had a previous OCM conviction for cocaine and THC.

SPECIMEN/ AMOUNT	SPECIMEN/ AMOUNT	SPECIMEN/ AMOUNT
1. BLOOD/ 100mL	5. KIDNEY/ 50 grams	9.
2. URINE/ 100 mL	6. GASTRIC CONTENTS/ 50 mL	10.
3. VITREOUS FLUID/ 5 mL	7.	11.
4. LIVER/ 100 grams	8.	12.

INCIDENT/ ACCIDENT DETAILS (*Include pertinent information regarding crash site, autopsy or investigation; (e.g., What happened?)*)
 FOLLOWING A MARITAL DISPUTE, A1C SMITH WAS FOUND SLUMPED IN HIS CAR THAT HAD BEEN APPARENTLY RUNNING WITH AN EXHAUST HOSE CONNECTED TO HIS WINDOW. POLICE DISCOVERED DRUG PARAPHERNALIA AND ALCOHOL IN THE TRUNK. A NOTE WAS ATTACHED TO THE REAR-VIEW MIRROR THAT CONTAINED INSTRUCTIONS FOR HIS PROPERTY AND INSURANCE. CAUSE OF DEATH APPEARS TO BE SUICIDE. PLEASE PERFORM A FULL TOXICOLOGY ANALYSIS TO RULE OUT A TOXIC OVERDOSE OF PRESCRIPTION MEDICATION AND/OR ALCOHOL INGESTION.

PRINTED NAME OF REQUESTER/ TITLE	SIGNATURE	DATE	TELEPHONE #
JIM C. BEHLER, MAJ, USAF, MC CHIEF, ANATOMICAL PATHOLOGY	Jim C. Behler	15 MAR 98	COMM: (800) 765-4321 DS: 897-4321 FAX: (809) 765-1234 Email: sample@sample.mil

CHAIN OF CUSTODY (CC)
Each individual charged with custody of specimens must complete information below (continue CC on reverse as required).

RELEASED BY	RECEIVED BY	DATE & TIME	PURPOSE OF TRANSFER
SIGNATURE: Jim C. Behler PRINTED NAME: JIM C. BEHLER	SIGNATURE: GREG ADAMS PRINTED NAME: GREG ADAMS	15 MAR 98 / 0800	TRANSFER TO LAB FOR SHIPPING
SIGNATURE: GREG ADAMS PRINTED NAME: GREG ADAMS	SIGNATURE: Bruce Brown PRINTED NAME: BRUCE BROWN	15 MAR 98 / 0930	PREPARE FOR SHIPPING
SIGNATURE: Bruce Brown PRINTED NAME: BRUCE BROWN	SIGNATURE: Todd Hartmann PRINTED NAME: TODD HARTMANN	15 MAR 98 / 1015	MAIL SAMPLES TO AFIP/ TOXICOLOGY
SIGNATURE: Todd Hartmann PRINTED NAME: TODD HARTMANN	SIGNATURE: RELEASED TO PRINTED NAME: FEDERAL EXPRESS	15 MAR 98 / 1200	AIR BILL # 6612-0002-99
SIGNATURE: _____ PRINTED NAME: _____	SIGNATURE: _____ PRINTED NAME: _____		